

Determinants of Dividend Payout Policies of Dar es Salaam Stock Exchange-listed Manufacturing Companies in Tanzania

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Abstract

This study examined the determinants of dividend payout policies of manufacturing companies listed in Tanzania. The study used a quantitative research approach, specifically the generalised method of moments estimator to estimate the determinants of dividend payout policies of manufacturing companies listed on the Tanzania bourse using data extracted from the annual reports of five manufacturing companies listed from 2007 to 2021. The dividend policy is proxied by dividends per share. The results reveal that listing age and earnings per share (EPS) have a significant positive relationship with dividend payout policies of manufacturing companies listed on the Dar es Salaam stock exchange in Tanzania. On the other hand, the study found that the operating cash flow, size of firm, liquidity, leverage profitability and share price did not affect dividend policy of listed manufacturing companies. As such, corporate managers of manufacturing listed companies can use listing age and EPS to determine the dividend pay-out policy.

Keywords: *Dividend payout policy, Earnings per share, and Listing Age*

1.0 Introduction

For more than 40 years, scholars have been attempting to determine the factors that influence dividend distribution policies, since they are one of the most hotly contested subjects in contemporary finance (Ahmed & Javid, 2009; Bar-Yosef & Venezia, 1991; DeAngelo & DeAngelo, 1990; Pathak & Gupta, 2022; Razak et al., 2022; Setiawan & Vivien, 2021). Earlier works (Bar-Yosef & Kolodny, 1976; Blume, 1980; Osaze, 1985) have highlighted the relevance of dividend payout policies in influencing share valuation, investment and financing decisions.

As a developing nation, the Tanzania manufacturing sector needs more manufacturing companies to be listed on the Dar es Salaam Stock Exchange (DSE) to access more capital. The manufacturing sector creates the trade potential of a country, thus enhancing the economic development of the country. Regardless of its relevance, the Tanzania manufacturing sector contributed about 9.2% to the country's GDP in the second quarter of 2023 but still operates at a the industry lowly grow rate 6.1 in 2023 relative to the growth rate of 15.2% of financial sector (Into et al., 2024; NBS, 2023). Thus far the manufacturing companies listed at the DSE have experienced steady growth and have been paying dividends to the stakeholders (TCC, 2023; TBL, 2022). Tanzania's manufacturing businesses follow the same dividend distribution policies as their global counterparts, stating that a portion of revenues that are accessible to shareholders may be distributed as dividends. Dividends are paid out between 30% and 50% of the earnings that are accessible to shareholders (TCC, 2023; TBL, 2022).

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Consequently, the DSE's dividend distribution rules for manufacturing businesses vary since each company sets its own dividend policy, including the amount and timing of payments to shareholders.

Even though many studies have studied the determinants of dividends of manufacturing companies in Asia and Europe, only a few have been conducted in Sub-Saharan Africa (Bustani et al., 2021; Kilincarslan & Demiralay, 2020; RóJ, 2019). Specifically, these studies focused on firm-specific and macroeconomic determinants of dividend payout policies (Al Salamat et al., 2021; Baker et al., 2019; Kassie, 2021; Singla & Samanta, 2019). Above all, most of the studies have documented the significant influence of firm-specific factors over macroeconomic factors in determining dividend payout policies (Baker et al., 2019; Dewasiri & Azeez, 2019; Razak et al., 2022). In fact, prior findings have signified the relevance of firm specific factors in determining the dividend payout policies of companies. The firm-specific variables that affect manufacturing companies' dividend distribution practices worldwide are not universally agreed upon. Distinct governance frameworks, managerial styles, and societal beliefs might be the cause of the difference. Numerous studies have discovered that the following factors affect manufacturing companies' dividend payout policies: size, profitability, growth potential, listing age, operating cashflows, share price, tangibility, leverage, liquidity, EPS, and risk (Al-Najjar & Kilincarslan, 2019; Narindro & Basri, 2019; Rajput & Jhunjunwala, 2019; Sharma & Bakshi, 2019). Investigating this area of research, therefore, would thus yield fresh perspectives on the factors that certain manufacturing organisations consider when determining their dividend payment protocols.

The bulk of research conducted in Tanzania on the factors influencing dividend distribution policy has been on listed businesses and banks (Evelyne, 2016; Lyimo et al., 2021). Moreover, Additionally, not much research has examined Tanzania's manufacturing enterprises' determinants as Epaphra and Nyantori (2018). Furthermore, the study on this path must be done since it, initially, offered similar results on the factors influencing Tanzania's manufacturing businesses' dividend policies, as there is disagreement over the factors that are unique to each firm. Emphasising on firm-specific elements that have not been explored in the Tanzanian setting also broadened the body of literature. The paper has five sections. Section two reviews both theoretical and empirical literature; section three presents the research methodology; section four presents and discusses the test and regression results before making conclusive inferences.

2.0 Literature review

2.1 Theoretical review

A number of theories influence the decision to pay dividends (Baker et al., 2019; Bustani et al., 2021; Louziri, 2022; Yusof & Ismail, 2016). The bird in hand theory, according to Baker et al. (2019), aims to explain why investors choose dividends over capital gains, citing intrinsic uncertainty that affects future capital gains as the reason. Additionally, the previous research by Spencer (1973) signalling theory, which has been used in several studies carried out by Yasar et al. (2020), explains why companies provide dividends. In particular, the signalling hypothesis states that companies distribute dividends to stakeholders to convey the firm's prospects. Furthermore, Jensen's (1986) free cash flow theory—which contends that surplus cash flow left over after funding successful initiatives should be distributed as dividends—supports companies' decision to pay dividends. Similarly, the life cycle dividend theory states that idle capital should be distributed to shareholders in the form of dividends since, as a company matures, it typically generates more cash flow than is needed to finance new investments (El-Ansary & Gomaa, 2012).

Johansson and Hallberg (2021), for example, claim that there is a positive correlation between business liquidity and dividend payments. They contend that companies are better able to pay dividends when they are liquid. Moreover, the life-cycle theory of dividends' proponents contend that established companies are better positioned to pay dividends than startups. Deangelo and Deangelo (2006) and Yousef et al. (2021) contend that immature enterprises are unable to pay dividends due to their capital demands, whereas mature firms are able to raise capital with ease. Given that most of Tanzania's manufacturing companies are established without necessarily expanding, we anticipate that they would rather pay dividends rather than hold onto their profits to fund future ventures. Consequently, it is suggested that manufacturing companies should be expected to pay dividends if they are profitable, liquid, mature, and have free cash flows.

2.2 Empirical review

Numerous empirical studies have provided detailed documentation of the factors that influence employers' payment practices that differ between jurisdictions. This evaluation considers internationally (out of Africa), Africa, and Tanzania. Worldwide, a great deal of research has been done to identify the variables that affect dividend distribution policies. Kilincarslan and Demiralay (2020) examined the variables affecting dividend payout policies for UK businesses and discovered that the main firm-specific variables affecting dividend policies are profitability, company size, and debt levels. The stability and factors influencing dividend distribution policy for Indian listed businesses were also examined by Pathak and Gupta, (2022) studied the stability and determinants of dividend payout policies for Indian listed companies. They uncovered that liquidity and size trigger mostly dividend payout policies of companies. Also, they found that legal practice, economic cycles, and investor protection drive dividend payout policies.

Likewise, Ahmed and Javid (2009), who investigated the determinants of dividend payout policies in Pakistan for non-financial companies, found that profitability, ownership and liquidity influence significantly positively the dividend payout policies. Dewasiri and Azeez's (2019) study in an emerging and developing market (Colombia) established the determinants of dividend policy. Using data from 191 companies excluding banks, they found that profitability, firm size, earnings, free cash flows and past dividend decisions determine the dividend payout for companies listed in the Colombo stock exchange. Likewise, Baker et al. (2019), who investigated the key determinants of dividend payout for Sri Lankan companies, found that past dividends, free cash flows, EPS, and industry size determine the dividend payout policy for listed companies.

Venkataraman and Venkatesan (2018), who had assessed the key determinants of dividend payout for companies listed on the Indian stock exchange, established that return on asset, size and debt to equity ratio influence positively dividend payment. Yet, Renneboog and Trojanowski's (2007) study on the determinants of payout policies in the UK found a strong ownership structure that determines the amount to be paid as dividends. Likewise, Rój (2019), who studied the determinants of dividend policy for firms listed in Poland from 2008 to 2016, uncovered that profitability, leverage, size and liquidity influenced significantly positively dividend policy of firms listed in Poland. Likewise, Singla and Samanta (2019), who examined the drivers of dividend payment policies for construction firms in Indian stock markets, found that profitability, size and age of the company are key drivers for dividend payment in India. However, they found that operating cash flows were negatively related to dividend policy.

Likewise, Ranajee et al. (2018), who evaluated what determines dividend payout for companies listed in the Indian capital market, found that profitability, leverage and past dividend payout history

determine what to be paid as dividends. Moreover, Kumar and Waheed's (2014) study found that earnings and liquidity are positively linked with dividend policies. In addition, Rajput and Jhunjhunwala's (2019) study on the determinants of dividend policies for companies listed in Indian stock markets, found that board independence, corporate governance, and family ownership influence dividend payment policies. Furthermore, Augusto and Forti's (2015) study on the key factors influencing the dividend payout of public companies in Brazil found that liquidity, size of the company; share price and profitability have a significant positive influence on dividend payout. Likewise, Narindro and Basri, (2019) found that the key determinants were profitability and financial leverage of the dividend policies of state-owned companies in Indonesia.

Moreover, Labhane and Mahakud (2016) examined the dividend policies of companies listed in India and found that financial leverage, profitability, size and liquidity are positively linked with the dividend policies. Likewise, Yusof and Ismail (2016) studied the determinants of dividends for Malaysian listed companies and uncovered that earnings, firm size, and investments are positively linked with the dividend policies of firms. Again, Dewasiri et al. (2019) examined the determinants of firms listed on the Colombo Stock Exchange and revealed that earnings. Furthermore, Issa (2015) investigated the determinants of dividend policies of Malaysian listed firms and revealed that EPS, size, free cash flows and return on the asset are positively associated with dividend policies. Moreover, Razak et al. (2022) examined the determinants of manufacturing companies listed in Indonesia and found a significant positive link between dividend policy and profitability of manufacturing companies. The results imply that profitable manufacturing maintains its dividend payout.

There is a dearth of research on the factors influencing dividend distribution policy in Africa. In sub-Saharan Africa, for instance, Olarewaju (2018) investigated the factors influencing dividend policy. The study discovered a strong positive correlation between bank performance and dividend policy. This suggests that in sub-Saharan nations, bank performance is significantly influenced by their dividend policies. In addition, Arko et al. (2014) found that investment opportunities, risk, profit margin, leverage, and risk are all positively correlated with dividend payment policy in Sub-Saharan Africa. Furthermore, Kassie (2021) investigated the factors influencing Ethiopian banks' dividend distribution practices and discovered that these factors include yield from the previous year, the banks' size, liquidity, and profitability. Furthermore, Evelyne (2016) discovered that capital, liquidity, and profitability are the primary predictors of dividend policy using a sample of just four industrial and financial data sets from Tanzania from 2005 to 2012. Similarly, using a sample of 54 firm years of observation, Epaphra and Nyantori (2018) investigated the factors influencing dividend distribution for a manufacturing company in Tanzania between 2008 and 2016. The study found that retained profits and the returns on assets both had a beneficial impact on dividend payments. The research demonstrates that different nations and industries cannot agree on the precise factors that determine dividend distribution. Therefore, further research is necessary to find new factors and confirm those that already exist.

3.0 Methodology

3.1 Hypothesis development

Profitability and Dividend Payout Ratio

The earlier work of Lintner (1956) on the distribution of corporate income signifies the relevance of income (profit) in deciding the amount of dividend for payment and formulate the dividend relevance theory. Therefore, ceteris paribus, a rise in profitability denotes a rise in manufacturing businesses' capacity to provide dividends to their shareholders. Moreover, the dividend relevance theory relates

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ability to paying dividend and the profit of a company. Apart from the work of Lintner (1956), subsequent studies have revealed the significant role of profit in determining dividends for shareholders (Baker et al., 2019; Kilincarslan & Demiralay, 2020). Moreover, Ranajee et al. (2018) and Bossman et al.,(2022) found significant positive link between profitability and the dividend payment ratio. Dewasiri et al. (2019) confirmed a significant positive link between the dividend payout policies and profitability of Latin America listed firms. In light of these arguments, a positive association is predicted between profitability and dividend payout ratio. These arguments inform the following hypothesis:

H1: *Profitability has a positive effect on the dividend payout ratio.*

3.1.1 Operating Cash Flow and Dividend Payout Ratio

Companies strives to increase or maintain stable operating cashflows. Increased operating cash flows signal a company's operational efficiency and a measure of its capacity to pay dividends and other long- and short-term maturing commitments. Baker et al. (2019) confirm the relevance of stable cash flows in determining dividend payout for companies. Moreover, prior studies have revealed the role of operating cash flow in influencing significant positive dividend payout of firms (Baker et al., 2019; Dewasiri & Azeez, 2019). Thus, it is predicted that operating cash flow and dividend payout ratio have a positive relationship. Based on these arguments, we hypothesise:

H2: *Operating cash flows are positively related to dividend payout ratios.*

3.1.2 Tangibility and Dividend Payout Ratio

Tangibility represents the ratio of non-current assets to the total assets of the company. A company with a higher level of non-current assets relative to total assets can have more growth opportunities at its disposal, thus creating more income that enables a company to pay out dividends to shareholders. Deangelo and Deangelo's (2006) study reported a significant positive link between tangibility and dividend payout. Likewise, Claudia et al. (2021) documented a significant positive link between dividend payout ratio and tangibility for Indonesia listed companies. These arguments project a positive association between tangibility and dividend payout ratio, hence the following hypothesis:

H3: *Tangibility is positively related to the dividend payout ratio.*

3.1.3 Liquidity and Dividend Payout Ratio

Usually, the liquidity position of a company is a paramount factor that affects the ability of a company to pay dividends. Compared to corporations that are less liquid, those that are highly liquid have a greater possibility of paying dividends. Ahmed and Javid (2009) have documented the relevance of liquidity in determining the dividend payout of a company, as it gives an edge to a company to pay out dividends. Subsequent studies have affirmed the positive significant association between liquidity and dividend payout ratio (Augusto & Forti, 2015; Kassie, 2021; Lyimo et al., 2021). As such, there is a positive association between liquidity and dividend payout ratio, hence the following hypothesis:

H4: *Liquidity is positively related to the dividend payout ratio.*

3.1.4 Leverage and Dividend Payout Ratio

As the ability of a company to borrow depends on the company performance, well-performing firms have higher capacity to borrow relative to their lower performing counterparts. Moreover, companies

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with higher leverage have more cash flows, thus they have a higher ability to pay dividends than otherwise. Miller and Modigliani (1961) assert that the dividend relevance theory indicate that capital structure, which is a mix of debt and equity, determines dividend payment. Also,, the work of Munawar (2020) affirms that companies with greater potential for growth require more finances that can meet internal funding, which makes borrowing imperative for them; additionally, more leveraged companies have the upper-hand in paying out dividends. Likewise, RóJ (2019) found that leverage account for a significant positive link between the dividend payout ratio and leverage for Poland listed companies. In other words, a positive association is predicted between leverage and the dividend payout ratio. As such, we hypothesise:

H5: *Leverage is positively related to the dividend payout ratio.*

3.1.5 Size of the Firm and Dividend Payout Ratio

Company size is an internal strength of a firm that confers its economies of scale and, therefore, enhances its performance. Large companies tend to have good performance than smaller firms due to competitive advantages in terms of assets and market share. Thus, large sized companies are associated with payment of dividends (Kassie, 2021; Lyimo et al., 2021). Moreover, Pathak and Gupta (2022) affirm that firm size influences dividend payouts. Impliedly, large firms prefer the payment of dividends whereas small ones do not. Likewise, Dewasiri and Azeez (2019) confirmed the link between size and dividend payout ratio to have a positive effect in an emerging market. The implied positive association between the dividend payout ratio and size support the following hypothesis:

H6: *Firm size is positively related to the dividend payout ratio.*

3.1.6 Share price and Dividend Payout Ratio

The influence of dividend payout on share price is well-documented in finance studies largely because most shareholders prefer dividends to capital gains as their returns (Al- Hasan, 2013). As a result, dividend paying companies are more valuable relative to non-dividend companies. In this regard, DeAngelo and DeAngelo (2006) and Bustani et al. (2021) have affirmed the relevance of dividend payout in influencing positively the share price. Moreover, Hauser and Thornton (2017) documented significant positive link between dividend payout ratio and share price valuation for US listed companies. As a positive relationship is projected between share price and dividend payout ratio, we hypothesise:

H7: *Share price is positively related to the dividend payout ratio.*

3.1.7 Earnings per Share and Dividend Payout Ratio

The return that shareholders receive on each share is represented by earnings per share, or EPS. In comparison to firms with lower EPS, those with greater EPS often have larger earnings and, therefore, can afford to pay out dividends (Bar-Yosef & Venezia, 1991). The relationship between EPS and dividend payout is mixed; however, many studies support a positive link between EPS and dividend payout ratio, including Baker et al. (2019), who uncovered that EPS influences positively and significantly the dividend payout ratio for firms listed in Sri Lanka. Moreover, Issa (2015) found a positive and significant link between EPS and the dividend payout ratio in Malaysia. Because of a projected positive association between EPS and dividend payout ratio, we hypothesise:

H8: *Earnings per share is positively related to the dividend payout ratio.*

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3.1.8 Firm Listing Age and Dividend Payout Ratio

Listing of company enables the company to tap affordable capital from the public, thus enhancing its growth and profile. In fact, listed companies strive to maintain consistent performance and prefer to pay out dividends relative to unlisted entities (Chay et al., 2015). However, the relationship between the age of a firm and the dividend payout of companies presents mixed results; nevertheless, many studies (for example, Al-Sabah, 2015; Bossman et al., 2022) have affirmed positive link between listing age and dividend payment. Kuzucu (2015), for example, found a positive association between the age of a firm and dividend payouts in the Turkish stock market. Likewise, Chay et al. (2015) documented significant positive link between listing age and dividend payment ratio for Korean listed companies. Such empirical evidence signals a positive relationship between listing age and dividend payout ratio, which invites the following hypothesis:

H9: Firm listing age is positively related to the dividend payout ratio.

3.2 Variable measurements

Table 1 presents a summary of the dependent variable and explanatory variables, their proxies and hypothesised relationship with the dependent variable:

Table 1: Variables Measurement

| S/N | Explanatory Variable | Measurement | Source | Hypothesised Relationship |
|------------------------------|--------------------------|---|--|---------------------------|
| Dependent Variable | | | | |
| 1 | Dividend per share | The ratio of total dividend scaled to total ordinary shares | (Al- Hasan, 2013; Pathak & Gupta, 2022) | |
| Explanatory Variables | | | | |
| 2 | Profitability | The ratio of profit after tax to total assets | Ranajee et al.(2018); Bossman et al.(2022) | + |
| 3 | Operating Cash Flow | The ratio of operating cash flows to total assets | Dewasiri andAzeez(2019) | + |
| 4 | Tangibility | The ratio of non-current assets relative to total assets | Deangelo and Deangelo, (2006) | + |
| 5 | Liquidity | The ratio of current assets to current liabilities | Augusto and Forti(2015) | + |
| 6 | Leverage | The ratio of total debt to total assets | Munawar(2020) | + |
| 7 | Size of the Firm | Natural log of total assets | Dewasiri & Azeez, (2019) | + |
| 8 | Share price | Share price at year-end | DeAngelo and DeAngelo, (2006) | + |
| 9 | Earnings per Share (EPS) | The ratio of Earnings available to shareholders to the number of shares | (Hasan et al., 2015) | + |
| 10 | Firm Listing Age | Years since listed | Kuzucu(2015) | + |

3.3 Data and sample

This study used secondary data extracted from annual reports of DSE-listed manufacturing companies. These seven DSE-listed manufacturing companies are Tatepa (TTP), Tanzania Breweries PLC, Tanzania Portland Cement Company Ltd (TPCC), Tanzania Cigarette Company (TCC), East African

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Breweries Limited (EABL), Tanga Cement PLC, and TOL Gases Limited. However, in the subsequent analysis we excluded the EABL and TTP because the former is cross-listed in both the DSE Tanzania and Nairobi Securities Exchange (NSE) Kenya when the focus was on manufacturing companies listed in Tanzania whereas the latter was excluded because its non-dividend-paying status. Due to data availability and 70 company years of observation, the study examined the factors influencing manufacturing businesses' dividend distribution policies using unbalanced panel data from five companies.

3.4 Model specification

The choice of appropriate regression techniques is vital in estimating the determinants of dividend payout policies of manufacturing companies. In fact, the nature of the dividend payout ratio depends on a number of factors and the unbalanced nature of the data requires the use of static and dynamic panel data regression (Castañeda Rodríguez, 2018). However, the results of the tests employed uncovered a problem of heteroscedasticity that makes pooled OLS an inefficient estimator. To overcome heteroskedasticity problem the study used dynamic panel regression that provides better estimation under heteroskedasticity. Specifically, the study employed the Arellano and Bover's (1995) Generalised Method of Moments (GMM) estimator to examine the determinants of dividend payout policies of the DSE-listed manufacturing firms in Tanzania.

The study applied the GMM estimator due to the dynamic nature of the research data attributable to the practice of most companies' reluctant cut dividends. Thus, there exist relationship between current dividend paid and previously paid. Impliedly, the existence of lagged dependent regressor leads to the choice of the GMM estimator. Moreover, the GMM is a robust non-linear estimator based on the assumption that disturbances in the model are uncorrelated with instrumental variables. Like in other prior studies done by Jaara et al. (2018), Kaźmierska-Jóźwiak (2015), and Louziri (2022) that had applied the GMM estimator because of the dynamic natures of the data, the current study employed Equation 1 for estimating the determinants:

$$Y_{i,t} = \alpha_0 + \phi Y_{i,t-1} + \alpha X_{i,t} + \varepsilon_{i,t} \quad (1)$$

$Y_{i,t}$ stands for the dependent variable, α_0 donates constant, ϕ is the coefficient of the lagged dependent variable, $X_{i,t}$ represents independent variables α coefficient of independent variables, $\varepsilon_{i,t}$ is the error term.

Equation 1 is decomposed into Equation 2 in line with prior studies by Setiawan and Vivien (2021), Sharma and Bakshi (2019), and Dewasiri and Azeez (2019) to examine the determinants of dividend payout policies of listed manufacturing companies:

$$DPS_{i,t} = \phi + \alpha_0 DPS_{i,t-1} + \alpha_1 OCF_{i,t} + \alpha_2 LI_{i,t} + \alpha_3 PRF_{i,t} + \alpha_4 TAN_{i,t} + \alpha_5 SIZ_{i,t} + \alpha_6 LAGE_{i,t} + \alpha_7 LEV_{i,t} + \alpha_8 PO_{i,t} + \alpha_9 EPS_{i,t} + \sigma_{i,t} \quad (2)$$

Where: DPS stands for dividend paid per share; OCF donates operating cash flow; LI stands for liquidity; PRF stands for profitability; TAN stands for tangibility; SIZ stands for firm size; LAGE stands for listing age; LEV stands for leverage; PO stands for share price; EPS stands for earning per share price.

4.0 Results and discussion

This section presents the results of the tests employed when examining the determinants of dividend payout policies of manufacturing companies listed in Tanzania. Specifically, the study employed four tests: descriptive statistics, pairwise correlation, multicollinearity test, and heteroskedasticity test. The subsequent subsections discuss the results of these tests.

4.1 Descriptive statistics

The result from the descriptive statistics test employed is as depicted in Table 2. The average value of the dividends manufacturing companies had paid was 245.387, with a maximum value of 800 and a minimum value of zero, signalling that some manufacturing firms did not pay out dividends. The average value of operating cash flows scaled by total assets was 0.235, with maximum and minimum values of 0.5 and 0.01, respectively. The mean value of the liquidity is proxied by the current ratio of 1.945, with the maximum value pegged at 5.86 and the minimum value at 0.6. Moreover, the average value of profitability, which is calibrated as the ratio of profit to total assets is 0.175, with a maximum value of 0.39 and minimum of zero. The mean value of tangibility is 0.599, with a reported maximum value of 0.85 and minimum of 0.32. Likewise, the mean value of size as proxied by the natural log of the total asset was 6.335, with a maximum value of 8.67 and minimum of 4.84. The mean value of listing years is 14.2 with a maximum of 24 years of listing and minimum of a year. Furthermore, the average value of leverage was 0.147 with a maximum value of 0.49 and minimum of 0.03. Implicitly, manufacturing companies do not exceed borrowing as guided by the rule of the thumb. The average share price was Tshs. 3,782.771 with a maximum value of Tshs. 16,800 whereas the minimum value was Tshs. 310. Finally, the average value of EPS is Tshs. 322.462, with a maximum value of Tshs. 859 and a minimum value of -418.3. Table 2 presents the results:

Table 2: Descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|-----|----------|-----------|---------|--------|
| DPS | 70 | 245.387 | 220.497 | 0 | 800 |
| OCF | 70 | 0.235 | 0.116 | 0.01 | 0.5 |
| LI | 70 | 1.945 | 1.079 | 0.6 | 5.86 |
| PRF | 70 | 0.175 | 0.126 | 0 | 0.39 |
| TAN | 70 | 0.599 | 0.147 | 0.32 | 0.85 |
| SIZ | 70 | 6.335 | 1.266 | 4.84 | 8.67 |
| LAGE | 70 | 14.2 | 5.609 | 1 | 24 |
| LEV | 70 | 0.147 | 0.124 | 0.03 | 0.49 |
| Po | 70 | 3,782.77 | 4,588.30 | 310 | 16,800 |
| EPS | 70 | 322.462 | 257.517 | -418.31 | 859 |

4.2 Pairwise correlation matrix

Table 3 depicts the pair-wise correlation matrix among the study variables. The highest pair-wise correlation between profitability and size is 0.838. Also, the pair-wise correlation between EPS and dividend per share and between tangibility and leverage is 0.759 and 0.683, respectively. However, the pair-wise correlation between profitability and size exceeded the ceiling of 0.8 as postulated by Field (2005), thus signalling a multicollinearity problem. Nevertheless, the study employed an additional

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superior test (variance inflation factor) to check whether the problem really exists. The results of the variance inflation factor are discussed in the subsequent segment.

Table 3: Pair-wise correlation matrix

| | DPS | OCF | LI | PRF | TAN | SIZ | LAGE | LEV | Po | EPS |
|------|---------|---------|--------|--------|--------|---------|--------|--------|--------|-----|
| DPS | 1 | | | | | | | | | |
| OCF | 0.479* | 1 | | | | | | | | |
| LI | 0.344* | 0.112 | 1 | | | | | | | |
| PRF | 0.531* | 0.627* | 0.276* | 1 | | | | | | |
| TAN | -0.672* | -0.389* | -0.49* | -0.49* | 1 | | | | | |
| SIZ | -0.539* | -0.578* | -0.33* | -0.84* | 0.659* | 1 | | | | |
| LAGE | 0.193 | -0.317* | -0.24* | -0.23 | -0.048 | 0.293* | 1 | | | |
| LEV | -0.579* | -0.675* | -0.36* | -0.52* | 0.683* | 0.661* | 0.148 | 1 | | |
| Po | 0.609* | 0.287* | 0.241* | 0.297* | -0.30* | -0.256* | 0.315* | -0.39* | 1 | |
| EPS | 0.759* | 0.594* | 0.413* | 0.569* | -0.61* | -0.463* | -0.048 | -0.68* | 0.532* | 1 |

Notes: Table 3 depicts the pair-wise correlation of variables of the study and *indicates a significant coefficient at 5%.

4.3 Multi-collinearity test

Table 4 presents the result of multicollinearity using the variance inflation factor. The result indicates that the highest VIF of 9.31 for size and the lowest VIF of 1.87 for liquidity, with mean value of VIF of 4.57. In other words, the result reveals that the independent variables are free from the problem of multicollinearity as the values for VIF for the independent variables are far from the cut-off of 10 propounded by (Wooldridge, 2015). The result suggests that the independent variables are free from the multicollinearity problem.

Table 4 Multi-collinearity results

| Variable | VIF | 1/VIF |
|----------|------|----------|
| SIZ | 9.31 | 0.107458 |
| PRF | 6.65 | 0.150322 |
| TAN | 4.63 | 0.216006 |
| EPS | 4.6 | 0.217343 |
| LEV | 4.43 | 0.225705 |
| OCF | 3.25 | 0.307836 |
| Po | 3.19 | 0.313402 |
| LAGE | 2.33 | 0.429269 |
| LI | 1.87 | 0.53438 |
| Mean VIF | 4.57 | |

4.4 Heteroskedasticity test

Table 5 presents results from the heteroskedasticity test of the independent variables. The result of the Breusch-Pagan and Cook-Weisberg test reports a p-value of 0.0055, which is less than the significance level of 0.05. This outcome supports the rejection of the null hypothesis of constant variance. This result hints at a serious problem of heteroskedasticity that leads to inefficient estimation using pooled OLS.

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To mitigate the problem of heteroskedasticity, this study used a GMM system that minimises the heteroskedasticity problem (Wooldridge, 2015).

Table 5: Heteroskedasticity results

| |
|------------------------------------|
| Breusch-Pagan / Cook-Weisberg test |
| Ho: Constant variance |
| Variables: fitted values of DPS |
| chi2(2) = 7.7 |
| Prob> chi2 = 0.0055 |

4.5 Regression result and discussion

The study applied Arellano and Bond’s (2020) GMM estimator to estimate the determinants of the dividend payout policies of manufacturing companies listed on the Dar es Salaam Stock Exchange (DSE) in Tanzania because of the dynamic nature of the data. The GMM estimator furnishes robust results when the regressor has a lagged relationship. The results are as depicted in Table 6:

Table 6: Regression result determinants of dividend payout policy using GMM system

| Variable | Coefficient | Std. Err. | z | P>z |
|------------|-------------|-----------|---------|---------|
| Lagged DPS | Dropped | Dropped | Dropped | Dropped |
| OCF | 53.75 | 189.106 | 0.28 | 0.776 |
| LI | 18.604 | 14.644 | 1.27 | 0.204 |
| PRF | 127.227 | 243.145 | 0.52 | 0.601 |
| TAN | 247.945 | 190.138 | 1.3 | 0.192 |
| SIZ | -50.636 | 40.776 | -1.24 | 0.214 |
| LAGE | 12.899 | 3.815 | 3.38 | 0.001 |
| LEV | -84.103 | 208.486 | -0.4 | 0.687 |
| Po | -0.007 | 0.004 | -1.6 | 0.109 |
| EPS | 0.246 | 0.099 | 2.48 | 0.013 |
| Constant | -1.75 | 284.728 | -0.01 | 0.995 |

The listing age of manufacturing firms positively and significantly affects the dividend policy ($\alpha_6 = 12.899$, p-value = 0.001). Impliedly, an increase in listing age by one percent can lead to the increase of 1,289.9 percent in dividend per share. In other words, an increase in listing age enhance the dividend policy. In other words, as listing age increases dividend payout increases. The result supports the hypothesis that listing age is positively linked to the dividend payout ratio. The results are consistent with those of Kuzucu (2015) in Turkey and Louziri (2022) in Morocco. Additionally, the findings are congruent with the lifecycle theory that asserts that matured firms are better placed in disbursing dividend payments relative to newly-established ones.

The results also show that the dividend policy of listed manufacturing companies is influenced by the EPS ($\alpha_9 = 0.246$, p-value = 0.013). Implicitly, an increase of EPS by one percent is associated with a hike in dividend per share of 24.6 percent. Thus, an increase in EPS means that companies will have more earnings for paying out dividends. The results support the hypothesis that EPS is positively

and significantly linked to the dividend payout ratio. A number of studies supports these results. For example, Dewasiri and Azeez (2019) found that EPS influence positively the dividend payout policy for listed Sri Lankan companies as did Dewasiri et al. (2019) for Colombo Stock Exchange listed firms. In similar vein, Yusof and Ismail (2016), and Labhane and Mahakud (2016) documented a significant positive association between earnings and dividend policies for Malaysian and Indian listed companies. Furthermore, Issa (2015) and Baker et al. (2019) affirmed that EPS affects the dividend policy of listed Sri Lankan and Malaysian listed firms, respectively.

Additionally, the results show that operating cash flow, size, leverage, share price, liquidity, profitability, and tangibility to have no significant effect on the dividend policy. In other words, operating cash flows, liquidity, profitability and tangibility do not substantively contribute to the dividend policy of the listed manufacturing companies in Tanzania under review. The results contradict with hypotheses of operating cashflow, size, leverage, share price, liquidity, profitability and tangibility are positively associated with dividend payout ratio. However, the results are similar to those of Setiawan and Vivien (2021), who had found an insignificant association between both liquidity and tangibility and dividend policies of manufacturing companies. Razak et al. (2022) found that liquidity does not necessarily influence the dividend policy of Indonesian manufacturing companies. Finally, El-Halaby, (2018) also found an insignificant positive association between profitability and the respective dividend policies of Saudi Arabia listed companies. On the other hand, the findings differ from that of Evelyne F. (2016) Lyimo et al. (2021), and Epaphra and Nyantori (2018) that found profitability, liquidity, and leverage to influence dividend policy. Generally, the findings indicate that listing age and EPS are determinants of dividend payout policies of listed manufacturing firms in Tanzania. As such, corporate managers may consider listing age and EPS when determining the dividend policy of listed manufacturing entities. Finally, further research is necessary to validate prior findings on the determinants of dividend policies in Tanzania.

5.0 Conclusion

The study examined the determinants of dividend payout policies of DSE-listed manufacturing companies in Tanzania. The study used dividend per share as a proxy and nine independent variables: profitability, operating cash flows, tangibility, liquidity, EPS, share price, listing age, size and leverage. Arellano and Bover's (1995) GMM estimator calibrated the determinants of dividend payout policies of the manufacturing companies under review. The results show that listing age and EPS positively and significantly influence dividend policy of the listed manufacturing listed firms. Implicitly, these companies can enhance dividend policy by improving EPS and bolstering their listing at the DSE. On the other hand, the study found operating cash flows, liquidity, profitability to have an insignificant positive bearing on dividend policies. Also, leverage, share price, size and dividend per share had an insignificant negative effect on the dividend policy. As such, the management of listed manufacturing companies in Tanzania companies can consider two paramount factors—EPS and listing at DSE—in determining dividend policy since these two variables do influence the dividend policy. Similar to previous research, this study also has some limitations that open door for further inquiry. As the study did not focus on external variables that might influence dividend policy, future research may consider including these external variables in their investigation.

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