DIVIDEND POLICY, AGENCY COSTS, LIQUIDITY AND VALUE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY IN BUSINESS ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES, UNIVERSITY OF NAIROBI

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DECLARATION

I declare that the work contained in this research thesis is my original work and has not been presented in part or in entirety to any other academic institution for award of a degree.

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DEDICATION

This work is dedicated to my loving family who stood with me throughout my academic journey and most so to my late Mum Jacinta Akinyi Ogwang' and late Uncle Tom Ocholla Ogwang' for cultivating the seed of academic excellence in me.

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LIST OF ABBREVIATIONS

AC	Agency Cost
AMEX	American Express Company
ANOVA	Analysis of Variance
BSE	Bucharest Stock Exchange
CMA	Capital Markets Authority
DP	Dividend Policy
DPR	Dividend Payout Ratio
DPS	Dividend Per Share
DY	Dividend Yield
EPS	Earnings Per Share
FCF	Free Cash Flow
GLS	General Least Squares
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
IR	Interim Dividend Ratio
KSE	Karachi Stock Exchange
MM	Miller and Modigliani
NPV	Net Present Value
NSE	Nairobi Securities Exchange
NYSE	New York Stock Exchange
OCF	Operating Cash Flow
OLS	Ordinary Least Square
PAT	Profit After Tax
REIT	Real Estate Investment Trust
ROA	Return on Asset
UK	United Kingdom
USA	United States of America
VIF	Variance Inflation Factor

ABSTRACT

Firm value is an indispensable focus for every establishment since it depicts stockholders' fortunes. Dividend policy is thought to be a key predictor of stockholders' wealth. Payout-policy nonetheless, still remains a contested topic. The general objective of this study was to investigate the relationships among dividend policy, agency costs, liquidity and value of firms listed at the Nairobi Securities Exchange (NSE). The specific objectives were to; examine the effect of pay-out policy on corporate worth, evaluate the intervening effect of agency costs on the relationship between payout-policy and firm worth, determine the moderation effect of liquidity on the link between payout-policy and entity worth and determine the joint effect of dividend policy, agency costs and liquidity on company worth. Literature review brought out various knowledge gaps which included; varying results on the effect of pay-out policy on firm value, contextual differences, fewer studies conducted on the joint effect of payout-policy, agency costs and liquidity on corporate value, limited studies testing the mediating and moderating effect of agency costs and liquidity respectively in the link between payout-policy and corporate worth and varying measurements of the constructs. In order to address the aforementioned gaps, four hypothetical statements were drawn up and a positivistic philosophical approach adopted. A descriptive research design using panel data was espoused. Balanced secondary data for 52 firms was obtained from the NSE. The dataset was run through descriptive statistics analysis, diagnostic and specification tests, correlation analysis and finally to inferential statistics analysis. The four hypotheses were tested using the general least squares (GLS) fixed-effect model. Baron and Kenny (1986) model was used to test for mediation and moderation effects of agency costs and liquidity respectively. The study reported that payout-policy predicts corporate value. The connection between pay-out policy and corporate worth is mediated by agency costs. Liquidity was also shown to moderate the interrelationship between pay-out policy and corporate worth. Payout-policy, agency costs and liquidity jointly explained 85% variations in corporate worth. This study recommends that insiders should craft pay-out policies that grow fortunes by taking quantum and frequency of pay-outs into account. Agency costs and liquidity should further be considered in explaining the connection between pay-out policy and wealth. This study specifically validates agency theory by reporting that dividend pay-out implies that the stocks are valuable and also cuts liquidity that can be overinvested. Consequently, payment curtails agency costs and grows wealth. This study also provides invaluable knowledge to NSE and Capital Markets Authority (CMA) specifically on investor training initiatives and policy formulation. Agency costs and liquidity are proven to be alternative criterion for assessing entities to be put under liquidation which is key information for CMA. The limitations of this study included; the study relied on regression modelling that omitted non-financial factors, the study was restricted to the NSE, making generalization of the finding problematic and difficulty in incorporating mode of dividend pay-out since majority of entities made cash pay-outs at the NSE.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Firm value is a critical concept since it represents stockholders' wealth. Financial theorem states that the sole objective of an entity is to grow wealth for stockholders (Jensen, 2001; Baker & Weigand, 2015). Firm value can be represented by Tobin's Q, expressed as the summation of market capitalization and debt over total assets (Fajaria & Isnalita, 2018). Dividend pay-out policy plays a critical role in maximizing wealth for stockholders. Information asymmetry between investors and insiders causes determination of the true intrinsic value of stocks to be problematic, consequently elevating agency costs. Dividends communicate good and permanent profitability, thus, enabling value determination and reduction of agency costs. Liquidity is desirable since it enables cheap financing of viable undertakings. However, agency problems may cause insiders to invest the excess finances sub-optimally. Therefore, pay-outs curtail agency costs and cuts down liquidity making corporate worth to grow (Ahmad, Alrjoub, & Alrabba, 2018).

Researchers however, are still reporting conflicting results on the effect of pay-out policy on corporate value and a consensus on this debate is yet to be established. Following Miller and Modigliani (1961), some scholars hold the opinion that payout-policy is inconsequential while on the contrary, information asymmetry and agency problems suppositions have led to conclusions that payout-policy is relevant. Driver, Grosman and Scaramozzino (2020) suggested that dividend is a tool employed to keep insiders disciplined in order to avoid overinvestment and will be paid at the expense of good investment opportunities. Insiders are under constant pressure from investors to pay dividends and perhaps, this explains payout-outs even when firms perform poorly. The current study therefore, set forth to scrutinize the relationship

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between pay-out policy and corporate worth. Firm value was modeled to be the dependent variable while the predictor variable was pay-out policy.

This study further included agency costs and liquidity as the intervening and moderating variables respectively, in the link between pay-out policy and corporate worth. Agency costs precipitate from information asymmetry caused by imperfect contracting between stockholders and management. Information asymmetry causes an arbitrary valuation of securities, thus, resulting into undervaluation of the firm (Anazonwu, Egbunike & Echokoba, 2018). Dividend provides a logical and credible basis for security valuation since its declaration or increment implies that the firm is valuable (Baker, Dewasiri, Weerakoon & Koralalage, 2020). Thus, payout-policy mitigates agency costs and affects securities' prices positively. Driver et al. (2020) argued that insiders increase dividends to fulfil investors desire to curtail overinvestment irrespective of the investment opportunities available. They suggested that payouts could be purely geared towards making insiders more honest and objective and its effect on stockholders' wealth is unknown.

High liquidity affects corporate value negatively (Baker, Dewasiri, Koralalage & Azeez, 2019). The excess cash flow is overinvested by insiders contrary to stockholders objectives. Dividends cut the excess liquidity and therefore, to finance profitable projects, debt is raised. Lenders will continuously evaluate and monitor insiders' actions making them more objective (Alli, Khan & Ramirez, 1993). Leverage also raises chances of bankruptcy which directly affects insiders. Insiders will accordingly, strive to work more efficiently and align with the objectives of the stockholders, consequently, maximizing share prices (Michaely, Rossi & Weber, 2017). However, as suggested by scholars such as Driver et al. (2020), low liquidity

through higher payouts is imposed by investors to avoid overinvestment by management. This could explains the tendency to pay dividends during bad years even when there are good investment opportunities. In any case, liquidity is required to fund rewarding projects in order to grow firm fortunes. Thus, distribution of the retained earnings is puzzling.

Agency theory by Jensen and Meckling (1976) which was the anchor theory of this study presents that agency costs stem from imperfect contracting between stockholders and entity managers. Information asymmetry renders finding the true intrinsic value of securities problematic. Dividend implies that the firm is profitable and will continue to do well, hence agency theory explains how dividend grows wealth and further how agency costs intervene the link between payout policy and corporate worth. Agency theory also brings forth the moderation effect of entity liquidity in the connection between pay-out policy and wealth by arguing that dividends wipe out excess liquidity and subsequently, create lenders who will objectively monitor insiders' behaviour. The foregoing notwithstanding, investors can also demand dividends to instill discipline and control insider behaviour and not to grow corporate value, which contravenes agency theory and discredits payout argument.

Signaling theory by Lintner (1956) also states that a payout will convey information about the past performance and future profit levels. Information conveyed by dividend impacts stock prices accordingly (Davis, Piger & Sedor, 2012). Bird in hand theory by Lintner (1962) asserts that an investor is not a risk lover. They would rather collect their returns today than wait for capital appreciation. The uncertainty attached to future capital appreciation enlarges the discounting rate while income today is

discounted at a lesser rate. Both signaling and bird in hand theories advocate for high and consistent payouts and as such, explain the relationship between payout policy and entity value. Signaling theory however, is affected by market imperfections and insider dishonesty raising questions around the relevance of dividends. Furthermore, payout policy as argued by proponents of bird in hand theory is also controversial since in most tax jurisdictions, the taxation on dividends is greater than capital growth, thus, contravening the investor rationality proposition where more income is preferred.

Free cash flow (FCF) hypothesis by Easterbrook (1984) further presents that insiders use the FCF to pay themselves perquisites and invest in non-rewarding undertakings. Accordingly, liquidity moderates the relationship between payout policy and corporate value. Dividends sweep FCF and thereafter, introduce debtors who monitor insider behaviour (Baker et al., 2019). It is however, not clear whether keeping minimum cash flow and introducing debtors is more rewarding than re-investing the returns. Dividend irrelevance theory by Miller and Modigliani (1961, hereafter MM, 1961) found dividend to be inconsequential and in fact, could even be value destroying. They stated that the worth of an entity is a function of assets and the streams of returns earned from those assets and not how profits are distributed. Nevertheless, when the axioms of ideal world, investor rationality and perfect certainty are relaxed, some scholars have reported findings that contradict dividend irrelevance theory which further renders payout policy controversial.

Globally, numerous authors have undertaken studies on the relationships among pay-out policy, agency costs, liquidity and firm worth. However, most researches were undertaken in industrialized countries with developed economies, highly organized

structures and technologically advanced infrastructures. Even in the said developed nations, the link between dividend and corporate worth remains debatable. Ahmad et al. (2018) contended that pay-out policy improves securities' prices implying that dividends significantly explain firm value. Baker (2009) however, observed that dividends cannot be used to infer the true intrinsic value of a security. Scholars such as Juhandi, Fahlevi, Abdi and Naviantoro (2019) and Husain and Sunardi (2020) reported that pay-out policy is not a predictor of entity value. Baker and Weigand (2015) noticed that as much as dividends enhance securities' value, payment of cash dividends in USA has declined over time and most corporates use share repurchase to reward investors.

The Nairobi Securities Exchange (NSE) plays a key role in development of the Kenyan economy and has recorded a significant growth from 2011 due to many restructuring activities and introduction of various corporate governance guidelines. However, the persistent sharp fluctuations in the NSE market capitalization and a pattern where some firms steadily grow in value while others drop to a point of liquidation is intriguing. The perennial cash payment of dividends at the NSE is also open to questions. At the NSE, various studies like Aduda and Kimathi (2011) and Kimunduu (2018) have examined the payout controversy but conceptualization and indicators of the constructs varied immensely. Scholars majorly evaluated the relationship between two variables or determinants of payout-policy and not how dividends affects stockholders wealth. Omission of the mediating and moderating variables is also notable. The above mentioned gaps warranted the current study. This study thus, experimented the interrelationships among dividend policy, agency costs, liquidity and value of institutions at the NSE from 2011-2020.

1.1.1 Dividend Policy

Dividend is the quantum of an entity's earnings which is paid to stockholders in the proportion of their shareholding (Rustagi, 2001; Husain et al., 2020). Payout policy is the scheme adopted by insiders in distributing dividends to stockholders (Lease, Kose, Kalay & Loewenstein, 2000). Nissim and Ziv (2001) posited that payout policy is the rule adopted by insiders to reward shareholders for investing in a company. Payout policy is therefore, the financial strategy formulated by insiders to be followed in rewarding stockholders for their financial investment in a firm.

Payout policy is critical to an enterprise since it involves the trade-off between reinvesting the earnings and dividend payouts with an aim of enhancement of entity worth. While bird in hand theory, agency theory, information content of dividend hypothesis promote payment of dividend to grow stock prices, MM (1961) is inclined towards reinvestment of the profits to improve the value of an entity. MM (1961) opined that reinvesting the profits in rewarding projects will cause growth in wealth.

Frankfurter and Wood (1997) noticed that it is impossible to mathematically model dividend policy uniformly, all the time, across all corporates due to various challenges like firm specific factors and variability in characteristics. The payout-policies can be categorized into the following forms; frequency of payout, mode of payout and quantum or amount of payout. The frequency of dividends as discussed by Ferris, Noronha and Unlu (2010) can either be interim dividend where payout is quarterly or biannually or proposed dividend which is payable year-end. Mode of payout can be cash, bonus share, stock splits, property dividend, script dividend and share repurchase (Stephens & Weisbach, 1998).

Quantum of payout includes; residual payout-policy, stable or predictable policy, constant pay-out policy, and low regular dividend plus extra distribution (Aduda & Kimathi, 2011). Residual payout-policy is a scheme where distribution is made out of the surplus profits after all the rewarding undertakings have been financed. It is based on an argument that only investment activities will make the firm more valuable. Myers and Majluf (1984), demonstrated that payouts should only be made from the remaining free cash flow after all viable ventures are funded.

Companies that adopt residual payout-policy have some partiality for internally generated funds for financing their investments. The investor's propensity for capital gains will prompt them to re-invest the finances rather than earn dividends, provided that the re-investment rate surpasses the required rate of return. Companies that adopt residual dividend policy will as a result have their dividends fluctuate every year causing uncertainty and increase in cost of capital. Baker and Smith (2006) suggested that it is ideal to make payouts after all viable projects have been undertaken in order to address imperfect contracting. However, they noticed that operating residual payout-policy is a challenging task and even firms that adopt it, tend to fall back to past payout patterns. Baker and Weigand (2015) realized that firms in the USA followed managed dividend policies and not a residual payment policy, thus, challenging suitability of residual dividend strategy. In a managed payout-policy, all positive NPV projects are financed then, payouts are made from the residuary earnings while the entity maintains its targeted capital mix.

Michaely and Allen (2002) observed that corporations gradually increase their payout and cutting of dividends is not a common practice since investors do not like dividend reductions. Constant pay-out policy is where a uniform proportion of PAT in each

period is paid out as dividends. Mathur (1979) noted that constant pay-out policy is popular among groups like widows, retirees and institutional shareholders who require higher returns today to meet their daily needs. Dividend per share will vary from period to period if the earnings are unsteady. The policy suggests that in the periods when the earnings are low, dividends will be low and where a company records losses, there will be no dividends.

According to Lintner (1956) and Skinner and Soltes (2008), investors are majorly concerned with stable payouts. Stable or predictable policy, entails setting of a constant rate at which dividend is paid per share annually or periodically as set out by the firm. The specific amount projected becomes predictable to the investor. With this strategy, firms tend to smoothen dividends (Michaely & Allen, 2002; Lintner, 1956). With a predictable policy, uncertainty is reduced since it guarantees an investor a certain level of earning per period, making this strategy more popular. When the management is certain that there will be permanent increased earnings, they accordingly, increase the quantum of dividends.

Low regular plus extra policy entails setting and paying of a minimal level of dividends and additional dividends during good performances. When earnings improve in a given year, a low regular dividend is paid and a supplementary amount of dividend is also paid. The guaranteed low regular dividend payable each period gives the investor the stable income thus, acting as a surety while they also get a share of an extra incentive in good periods. An investor is therefore, certain of receiving a small proportion of the annual earnings and the risk-free return makes the securities more valuable and sought after. Additionally, and in line with Arnott and Asness (2003) such dividends will contain information that will make the firm more valuable.

Thanatawee (2011) investigated how elevated free cash flow (FCF) affects payout-policy. In the study, dividend yield (DY) expressed as dividends over equity market value and dividend payout ratio (DPR) derived as dividends to net income were the indicators for payout policy. Kimunduu (2018) measured payout using a composite score of interim dividend ratio (IR) expressed as interim dividend over total dividend and DPR derived by total dividends to total earnings. The study opted to exclude DY since management prefers using internally generated finances to fund positive NPV projects and thereafter, distribute dividends from the residuary finances.

Ouma and Murekefu (2012) measured pay-out policy using actual cash dividends distributed while Anton (2016) used DPR computed by cash dividend per share to EPS. Both Nwamaka and Ezeabasili (2017) and Jakata and Nyamugure (2014) used EPS and DPS to measure payout-policy. This study used a composite of DPR (quantum) and IR (frequency) in line with Kimunduu (2018) to measure dividend policy. Mode of dividend payment was excluded from the model since the most commonly used mode of dividend at the NSE is cash (Ouma & Murekefu, 2012).

1.1.2 Agency Cost

Agency relationship is an agreement where the principal contractually entrusts an agent to authoritatively and independently make choices and decisions on their behalf (Jensen & Meckling, 1976). Agency costs are related to imperfect contracting since agents (managers) tend to pursue projects that benefit their personal interests (Al-Malkawi, Rafferty & Pillai, 2010). Anazonwu et al. (2018) defined agency costs as the consequential costs when the agent's interests are dissimilar to those of the stakeholders. So, agency costs are the resultant costs incurred when agents

(management) choose to pursue interests that are not consistent with those of the principal (investor).

Management of information asymmetry is key to an entity in order to curtail agency problems. Minimal agency costs improve firm worth (Jensen & Meckling, 1976). McKnight and Weir (2009) stated that since managers are running funds that are not theirs, there is a likelihood that insiders will pay themselves perquisites and invest sub-optimally. If the contracting between the parties is perfect, then the agent will pursue investors' interest. The reverse is true if both parties are utility maximizers and are seeking divergent objectives. Managers will engage in what is referred to as overinvestment. In order to mitigate such kind of interest divergence, the principal incurs monitoring costs to correct managers' actions. The principal will also pay for the costs of bonding firm managers to ensure that they don't pursue non-rewarding goals and in the event that they do, the shareholders are adequately compensated.

Jensen and Meckling (1976) presented that agency costs cannot be zero whatsoever. That is, if the agent is to make optimal decisions, stockholders and managers must incur some monitoring and bonding costs. Even when optimal decisions are made, there would still be a variance between the principal's projections and the actual performance by the agent which is also referred to as the residual loss. So, agency costs are the totals of monitoring and bonding costs plus the residuary loss, (Jensen & Meckling 1976). Easterbrook (1984) and Jensen (1986) recommend dividends as a way of mitigating agency costs. Information asymmetry inhibits correct valuation of securities. Dividend is the alternate basis for valuation since it signals that there were earnings in the current year and future profits are also guaranteed. This implies that the entity is valuable, consequently, providing a near accurate valuation of the entity.

Agency costs are measurable by various methods including asset utilization ratio (AUR) and Rozeff (1982) cost minimization model. AUR is deduced from total annual sales to total assets. It is a ratio that gauges how firm managers efficiently utilize firm assets to generate sales. The ratio is inversely associated with agency costs, hence, high when the assets are utilized efficiently to generate greater sales and lower when assets are utilized sub-optimally (Ang, Cole & Lin, 2000). Rozeff (1982) cost minimization model computes agency cost using insider ownership and ownership dispersion. Insider ownership is the percentage of the company's stocks acquired by management. The larger the fraction held, the lesser the agency costs since the incentive to overinvest is reduced. Ownership dispersion is derived as the natural logarithm of outside ownership. The larger the outside ownership the higher the agency costs since it's more difficult to reach a consensus due to the wider dispersion of stockholders.

Anazonwu et al. (2018) measured agency costs using AUR, financial leverage and free cash flow (FCF). A levered firm is likely to incur lower agency costs since firm managers are monitored by capital providers (Easterbrook, 1984). Al-Malkawi (2007) noted an inverse link between payout and debt while Rehman and Takumi (2012) discovered that debt and dividends are positively related. FCF was computed by deducting working capital from net income changes in fixed assets. Mahdzan, Zainudin and Shahri (2016) measured agency costs by cash flow held by individual institutions. Ang et al. (2000) employed expense ratio and AUR as the indicators for agency costs.

Expense ratio is expressed as operating expenses to total sales turnover per year. It assesses managers' efficiency in management of operating costs (perquisites included). To measure agency costs, McKnight and Weir (2009) used AUR, FCF and growth prospects and acquisitions conducted by a firm, while Rozeff (1982) used the cost minimization model. This study followed AUR adopted by Singh and Davidson (2003) arrived at as the total annual sales over total assets. AUR specifically tested how insiders deploy firm assets to generate revenue, a test that demonstrates managers' efficiency and congruency of their objectives with those of investors. When assets are deployed efficiently and the sales turnover grows, it means that the excess liquidity was not used to satisfy personal interests but were invested well and the entity was profitable.

1.1.3 Firm Liquidity

Corporate liquidity is the capacity of an entity to fulfil its current liabilities when the obligations mature (Lamberg & Valming, 2009). Chen and Mahanjan (2010) defined firm liquidity as the ratio that expresses cash over net assets. Cash is the summation of cash and its equivalents added to marketable securities while net assets is arrived at by deducting cash plus marketable securities from total assets. Opler, Pinkowitz, Stulz and Williamson (1999) defined liquidity to be the summation of cash plus marketable securities to net assets. Firm liquidity is, therefore, the ease with which a corporation can satisfy its financial obligation on maturity with its liquid assets that include cash plus cash equivalents added to marketable securities. While pecking order theory by Donaldson (1961) states that internally generated finances should be re-invested in positive NPV projects, elevated liquidity poses a risk to stock prices when these finances are overinvested by insiders.

Badu (2013) observed that when liquidity is elevated, stockholders demand distribution of larger dividends in order to get rid of the FCF and address overinvestment. The findings by Badu (2013) were further supported by Sukmawardini and Ardiansari, 2018 and Juhandi et al. (2019) who established that high liquidity diminishes corporate value since management are likely to use the excess cash flow to reward themselves and pursue objectives that are dissimilar to those of the stockholders. Buigut and Soi (2020) also analyzed the connection between liquidity and dividend payout at the NSE and reached a conclusion that high FCF led to dividend payment. Free cash flow hypothesis asserts that the excess FCF should be paid out as dividends. Generally, firms require the cheap internally generated funds for reinvestment yet various authors report that these finances are predisposed to overinvestment and should be paid out to investors.

Payouts improve entity worth by aligning principal/agent objectives since the liquidity are wiped out and debt is subsequently created. Bankers and analysts assigned by debtholders will scrutinize the performance of managers before advancing the funds. They will further conduct periodic evaluation and monitoring of insiders' actions. Insiders will consequently, align with the objectives of the stockholders and bondholders. Excess borrowing also elevates the chances of bankruptcy proceedings which insiders dislike for fear of losing their jobs. While FCF theorem and various other scholars argue that retained profits should be paid out in order to curtail overinvestment, other scholars align to MM (1961) irrelevance proposition which doesn't establish any value in payout strategy. The debate is therefore, on the weather liquidity does moderate the connection between pay-out policy and stockholders wealth or not.

Liquidity can be determined by; current ratio (CR), operating cash flow (OCF) and quick ratio. Anton (2016) computed CR by dividing current assets with corporate's short-term financial obligations. Current assets consist of; receivables account, inventory, marketable securities plus cash. Current ratio expresses the potential of an institution to fulfil its immediate obligations (accounts payable and debt), a ratio that exceeds one is acceptable. Kirkham (2012) presented that current ratio is similar to quick ratio, only that in its computation, inventory is excluded from current assets since its harder to liquidate stocks compared to other assets. Kirkham (2012) stated that operating cash flow ratio gauges the extent to which OCF covers current liabilities. It is computed by OCF over current liabilities. The greater it is, the better since it means that the company's current liabilities are sufficiently covered by the operating cash flows.

Afza and Mirza (2010) noticed that OCF is the most ideal for payment of dividends thus, the best proxy for liquidity. Gill, Biger and Tibrewala (2010) deduced liquidity by working the logs of funds from operations while Sukmawardini and Ardiansari (2018) measured liquidity using current ratio. Rehman and Takumi (2012) however, argued that current ratio and OCF are the most suitable proxies for liquidity. Opler et al. (1999) computed liquidity ratio by dividing cash in addition to marketable securities by total assets less cash added to marketable securities. They assumed that a corporation's capability to generate future earnings is related to the assets it holds. This study computed liquidity using OCF derived as PAT plus non-cash outflow items over total assets minus cash and cash equivalents (Millet-Reyes & Zhao 2010). This approach is preferred since it only considers cash flow from operations unlike current ratio that contains items such as debtors which require time to convert into cash.

1.1.4 Firm Value

Corporate value can be construed to be the economic indicator that measures market value of the firm's stocks (Kurshev & Strebulaev 2005). Rizqia Aisjah and Sumiati (2013) documented that firm worth is the potential of an entity to create profits in the foreseeable future. This capability is consequently depicted in the market value of the entity. Fajaria and Isnallita (2018) stated that firm value is the representation of stockholders' value as depicted by the corporation's stock prices. The value can also be derived by the market ratio expressed as market price over book value. Corporate value therefore, is the summation of all the claims owed to secured and unsecured creditors, preferred and common stockholders.

Azhagaiah and Priya (2008) contended that firm value represents stockholders wealth and the value is depicted by the market prices of stocks. Thus, firm worth can be explained by dividend policy, financing and investment strategies adopted by an institution. These three aspects make dividend distribution a fundamental decision. Reaching an optimal dividend policy is critical since this is the dividend blueprint that maximizes wealth. Various studies have established that payout-policy impacts securities positively by indicating that the entity is profitable and will record greater performances in the future (Baskin & Miranti, 1997). Leverage created after the retained earnings are paid out also creates a monitoring tool that aligns managers' behaviour to the set objectives.

Payout-policy will also improve corporate value by rewarding investors with current income as opposed to future capital growth that is inherent with risk (Fisher, 1961). Entity value will further be improved when the payout-policy suits the needs of certain clienteles (Allen, Bernardo & Welch, 2000). For instance, young investors do

not need the income today while retired ones will have a bias for dividend-paying stocks. Conversely, there are studies like Jakata and Nyamugure (2014) who relied on MM (1961) perspective that dividend policy is inconsequential and does not interact with firm value.

Value of an entity is determinable either through market value or book value where market value is the most preferred. The most popular approach is market capitalization. Firm value can alternatively be computed by summation of market capitalization and debt less cash and cash equivalents. It can also be established by discounting all the future operating free cash flows and thereafter comparing those results with firms of similar characteristics like size, industry and age. Firm value indicators can either be accounting based where ROA is mostly used or market based where Tobin's Q is employed (Baysinger & Butler, 1985). Tobin's Q is a market-based indicator which evaluates the market value of the existing stocks to the cost of replacing the corporate's assets, thus, replacement cost of equity capital (Short & Keasey 1999).

Anton (2016) experimented the link between dividend and corporate value. Tobin's Q (firm value) was derived as the proportion of market value to cost of replacing firm assets. Variables that influence firm worth such as debt, corporate size, profitability and FCF were controlled in the regression model. A similar study was conducted by Nwamaka and Ezeabasili (2017) where the indicator for firm value was taken to be market price per share. Jakata and Nyamugure (2014) adopted stock prices as the proxy for entity value. McKnight and Weir (2009) used Tobin's Q to measure firm growth which was expressed as market capitalization added to debt over total assets. Fajaria and Isnalita (2018) tested whether payout-policy is a predictor of corporate

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worth. They applied Tobin's Q (company value) which was taken to be the summation of values of stock market and debt market divided by total assets. To establish firm value, this study employed Tobin's Q where, the Q was computed by adding market capitalization to (total assets minus equity) over total assets.

1.1.5 The Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) is a Nairobi based bourse founded in 1954. It had quoted sixty-two firms as at 31st December 2020 (Appendix 1). It is run by a board of 11-member directors under the jurisdiction of CMA of Kenya. The NSE carries out a Self-Regulatory organization through an independent department called Regulatory Affairs Department that compliments the CMA. The NSE introduced several restructuring initiatives from 2014 like launching Real Estates Investments Trust (REITs), becoming a full member of World Federation of Exchanges and migrating to a new trading system operated by Millennium Technologies of the London Stock Exchange Group (Nairobi Securities Exchange [NSE], 2018). A firm listing at the NSE must document its pay-out policy (Kenya Gazette Legal Notice No. 60, 2002).

The NSE accelerates Kenyan economic development by converting idle funds and savings into productivity by effectively and efficiently converging capital providers and borrowers at a low cost. The patterns of market capitalization at the NSE however, has attracted many questions. Market capitalization tremendously increased from under Kshs 10 billion in 2011 to Kshs 26 billion in 2020. There were however, fluctuations in value from Kshs 24 billion in 2015 to Kshs 17.5 billion in 2017 to Kshs28 billion in 2018 and finally to Kshs 26 billion in 2020 (Nairobi Securities Exchange [NSE], 2020). Individual firms have recorded varying results where some

record constant growth while others report dropping or fluctuating market capitalization.

Majority of the institutions at the NSE distribute cash dividends and tend follow a stable and predictable payout policy. Some institutions at the NSE keep dividends at the same level and only adjust the quantum after determining that the growth in earnings is permanent and sustainable as also documented by Aduda and Kimathi (2011). It is notable that financial institutions uniformly maintained a stable payout policy and were keen to pay dividends in each period with permanent increases. While some firms increased dividends as profits increased, some decreased dividends as earnings grew. Some even paid dividends during losses. Entities that faced financial distress like Kenya Airways employed zero policy. As noticed by Ouma and Murekefu (2012) majority of the companies at the NSE pay final dividend and mostly in cash.

Manduku, Mulwa, Omolo and Lari (2020) noticed that agency costs is a worrisome problem for institutions at the NSE. A push for regular cash distribution is an indicator that investors attempt to recoup their funds quickly and address agency problems. The growing debt levels is linked to investment opportunities but could also be a consequence of regulation of liquidity to address agency problems. Conflict of interest and information asymmetry has led to several failures in the bourse. For instance, Kenya airways reported profits for 13 consecutive years up to the year 2013 and thereafter ran into losses for all the subsequent years. In 2018, Deacons East Africa and Athi River Mining Company were suspended from trading due to problems stemming from agency problems (Nairobi Securities Exchange [NSE], 2018). Agency costs and liquidity remain critical problems regardless of the many

corporate governance guidelines and investor training programs instituted by the NSE, CMA and KASIB.

1.2 Research Problem

Firm value is a core focus since it is a representation of the fortunes created by stockholders (Kurshev & Strebulaev 2005). It is can be measured using Tobin's Q deduced from the summation of market capitalization and debt to total assets. Payout policy curtails agency costs and wipes out excess liquidity hence, is considered a key influencer of wealth. However, finality of on payout controversy is yet to be reached (Baker et al., 2020). The connection between payout policy and corporate worth is believed to be intervened and moderated by agency costs and liquidity respectively. Dividends communicates that the firm is valuable and also cuts FCF, consequently, introducing debtholders who monitor insiders' actions causing wealth to appreciate (Michaely et al., 2017). Dividend irrelevance supporters like Donaldson (1961) and Jakata and Nyamugure (2014) challenge the aforesaid premise by claiming that re-investment creates wealth and beneficial opportunities should be exploited. Furthermore, payouts could be a consequence of compulsion by investors to recoup their investment and keep insiders honest and as such, the coercion is not intended to grow fortunes. Proponents of dividends further, state that the assumptions under MM (1961) are not tenable and when relaxed, payout policy becomes relevant, thus, further complicating the debate.

The Nairobi Securities Exchange is an emerging market in a third world country (Kenya). It facilitates an effective and efficient platform for mobilizing funds and significantly contributes to economic growth of Kenya. The NSE has implemented corporate governance policies touching on, code of corporate governance principles,

board charter, diversity and remuneration, code of ethics and conduct, whistleblowing, insider dealing and conflict of interest. The NSE, CMA and KASIB additionally conduct stockholders education initiatives. The aforesaid endevours notwithstanding, the fluctuations in market capitalization at the NSE has remained perturbing. For instance from Kshs 24 billion in 2015 to Kshs 17.5 billion in 2017 to Kshs28 billion in 2018 and finally to Kshs 26 billion in 2020. There are mixed strategies for payout policy that do not seem to align with entity value. Some institutions attempted to smoothen payouts while others pay arbitrarily, inconsistent with earnings including payout during losses. Thus, the question that lingers is whether payout is linked to wealth creation or it is purely skewed towards curtailing agency costs. Moreover, payouts were made strictly in cash which points towards use of dividends to address liquidity and agency problems. The foregoing culminated into financial distress causing companies to be placed under statutory management, receivership or liquidation.

Anton (2016), Nwamaka and Ezeabasili (2017) and Alenazi and Barbour (2019) tested the link between payout and corporate worth. They concluded that dividends grow fortunes. Jakata and Nyamugure (2014), conversely, did not establish a link between pay-outs and entity value in Zimbabwe. These conflicting results could be caused by contextual differences. Jakata and Nyamugure (2014) conducted their study when Zimbabwe was facing hyperinflation. Firms hold earnings during inflation since borrowing is expensive. Ouma and Murekefu (2012) used cash pay-outs as a measure of pay-out policy while Luvembe, Njagiru and Mungami (2014) used DPR which only focus on quantum dispensed. The bulk of the past studies examined determinants of pay-out policy. This study evaluates the direct link between dividends and

corporate worth in Kenya using a more robust composite index of IR and DPR as the indicator for pay-out policy.

Mahdzan et al. (2016) noticed a link between dividends, agency costs and firm value while Al-Malkawi (2007) did not find this link. Research on the moderation effect of agency costs in the link between pay-out policy and corporate value is meagre. Past studies employed diverse indicators for agency costs. Anazonwu et al. (2018) used asset AUR, financial leverage and cash flow. The study variables were conceptualized as dependent variables and did not test for the mediation effect of agency costs in the connection between payout policy and entity worth. Rozeff (1982) used the cost minimization model where the assumption of difficulty in making decision due to a wider dispersion of investors is a limiting measure of agency costs. This study examined whether the connection between pay-out policy and institutional worth is intervened by agency costs (AUR) in Kenya.

Badu (2013) established relationships among dividends, liquidity and corporate worth yet Gill et al. (2010) failed to establish this association. Studies integrating FCF as a moderator in the link between pay-out policy and corporate worth are also inadequate. Authors like Kirkham (2012) made use of current ratio as the proxy for FCF. Current ratio contains elements of inventory and debtors which take time to convert into cash. The study also omitted testing of the mediation effect of FCF in the link between pay-out policy and corporate worth. This study assessed the moderation effect of liquidity in the connection between pay-out policy and corporate worth at the NSE using OCF as the proxy for FCF.

Very few studies have researched the joint effect of payout-policy, agency costs and liquidity on corporate value especially in Kenya. Anazonwu et al. (2018) established a

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joint effect of payout-policy, agency costs and liquidity on firm value while Al-Kuwari (2009) found no relationship. The variations could have been caused by contextual differences, time frames and the population samples. This study examined the interrelationships among pay-out policy, agency costs, liquidity and firm worth for entities listed in Kenya between 2011 and 2020.

In summary, there are still conflicting findings on the connection between payout-policy and corporate worth. The economies where the researches were conducted created contextual differences that yielded varying findings. There was less focus on the mediation and moderation effect of agency costs and liquidity respectively in the association between pay-out policy and institutional value. Additionally, there were very few studies that tested the joint effect of pay-out policy, agency costs and liquidity on corporate worth. Measurements of the constructs were also found to be narrow and limiting and sampling and study timeframes also caused variations. This study accordingly, set out to answer the research question; what are the interrelationships among dividend policy, agency costs and liquidity on the value of corporates at Nairobi Securities Exchange?

1.3 Research Objectives

The general objective of this study was to determine the relationship among dividend policy, agency costs, liquidity and value of firms listed at the Nairobi Securities Exchange. The specific objectives were to;

i. Examine the effect of dividend policy on the value of companies listed at the Nairobi Securities Exchange.

ii. Evaluate the effect of agency costs in the relationship between dividend policy and value of listed companies at the Nairobi Securities Exchange.

iii. Determine the effect of liquidity on the relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.

iv. Establish the joint effect of dividend policy, agency cost and liquidity on the value of firms listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The findings of this study enrich knowledge, theory and managerial policy and practice by providing quantifiable information on the interrelationships among dividend policy, agency costs, liquidity and value of firms trading on the NSE.

The research establishes that pay-out policy grows wealth for entities at the NSE using both IR & DPR as the proxy for pay-out policy contrary to most studies that only focused on pay-out quantum. It further brings to light that the interrelationship between pay-out and corporate worth is mediated and moderated by agency costs and liquidity respectively. Thus, agency costs and liquidity are critical variables to consider when assessing the association between pay-out policy and fortunes. The study also reports that pay-out policy, agency costs and liquidity jointly affect wealth at the NSE.

This study has validated agency theory (Jensen & Meckling, 1976) since it confirms that when entities at the NSE make pay-out, investor is able to overcome information asymmetry and deduce that the entity is valuable. Pay-outs also cut the excess FCF that can be overinvested and creates debt, making the investor more objective. Signaling theory by Lintner (1956) is also validated by this study since pay-outs enhance corporate worth by communicating that the firm did well and the performance will not reverse. The discoveries are also consistent with free cash flow

theorem by Easterbrook (1984) since pay-outs were found to curtail the discretional funds that can be overinvested. Additionally, Bird in hand theory by Lintner (1962) is further upheld by the findings of this study. Investors require returns today which is discounted at a lower rate making dividend paying stocks more valuable. This study however, falsified MM (1961) theorem which advocates for re-investment of earnings since dividend is found to be consequential.

This study shows that attention must be paid to consistent pay-out policies that enlarge fortunes. Pay-out policy should be looked at broadly in terms of amount and frequency. Pay-outs and incorporation of debt should be a key consideration since it reduces agency costs and enhances insider supervision. It also provides Kenya Revenue Authority with a basis for reviewing dividend taxation downwards to grow stocks and enhance economic performance. These findings are also invaluable to NSE, CMA and KASIB specifically on investor training initiatives and policy formulation.

This work contributes immensely to entities at the NSE since it cultivates the culture of growing fortunes through pay-outs. More specifically, this study presents that investor can rely on the agency theory to determine portfolio selection. The perception that dividend-paying stocks record lesser agency costs and low liquidity with enhanced fortunes is confirmed by this research. As a consequence, market capitalization at the NSE can be stabilized through a payout-policy that keeps agency costs and liquidity minimal. Additionally, the knowledge discovered about the interrelationships among the four variables will empower stockholder to make well-informed judgements when selecting their portfolios.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter is organized in the following sequence; theoretical foundation, empirical literature review, summary of knowledge gaps, conceptual framework and finally, the hypothetical statements.

2.2 Theoretical Foundation

Theories explaining the interrelationships among payout-policy, agency costs, liquidity and corporate worth are detailed in this section. They include; agency cost theory which examines the influence of imperfect contracting and information asymmetry on corporate value, signaling theory which seeks to establish how information content of dividend influences entity value, bird in hand theory which promotes payouts to trim uncertainty inherent with capital growth, FCF theory which assesses the influence of excessive liquidity on corporate worth and dividend irrelevance theory which opposes payouts since its inconsequential.

2.2.1 Agency Theory

Agency theory explored by Jensen and Meckling (1976) explains that stockholder/principal delegates to the agent/management, in good faith, the responsibility to run the affairs of the entity. Imperfect contracting and information asymmetry give rise to agency costs proliferation. Insiders have private and superior information creating a window for overinvestment and sub-optimal allocation of resources. Agency costs are incurred when the interests of managers and stockholders do not align (Jensen, 1986). The genesis of the conflicts include; shirking by management, managers allocating themselves company resources for personal use, varying execution latitudes and timelines and diverse risk appetite between insiders

and investor (Lambert, 2001). Stockholders suffer agency costs to harmonize the aforesaid divergence of objectives.

As stated by Jensen and Meckling (1976), agency costs cannot be zero whatsoever, even if the agent makes optimal decisions, there would still be a residual costs associated with the gap between the projected and the actual accomplishments by managers, referred to as the residual loss. So, agency costs consists of monitoring and bonding costs added to residual costs. Information asymmetry causes undervaluation of securities due to inability to establish the intrinsic value of securities. To address information asymmetry problem, stockholders incur audit fees and executive remuneration. Bonding costs which include costs such as additional disclosures to stockholders are also incurred.

Since agency costs devalue the company, dividend is the most appropriate means of mitigating these costs by cutting the discretional funds in insiders' hands. It additionally signifies profits in the past and good prospects in the future. With low FCF, insiders will not assign perquisites to themselves. To finance current profitable ventures, debt is created. Debtholders monitor insiders' behaviour, inspiring objectivity and value creation. As Driver et al. (2020) observed, there is a growing pattern of coercion by investors to recover their investments, depriving the entity of the requisite funds to finance rewarding ventures. Moreover, Lie (2000) insisted that dividend payouts cannot control overinvestment, thus, payout policy is irrelevant. MM (1961) opined that pay-out plan has no consequences and could even be value destroying. The fortunes gained through dividends is lost to new equity holders and as such, an entity is a function of assets and the streams of returns obtained from those assets and not how profits are distributed. Donaldson (1961) also developed pecking

order theory which backs financing of profitable undertakings from internally generated finances first, then, debt capital and finally floatation of stocks (Baker et al., 2019). The retained funds should therefore, be re-invested in viable projects in order to grow firm worth.

The current study is primarily anchored on agency cost theory which contributes to all its objectives. In objective one, agency theory submits that dividends grow fortunes. In objective two, agency theory explains that agency costs intervene the link between dividends and corporate worth by addressing imperfect contracting and information asymmetry issues. However, due to market imperfections and dishonesty, insiders have incentives to pursue personal gains and stockholders' short-termism contrary to firm objectives therefore, making payout more controversial. Agency theory further presents that FCF moderates the interrelationship between pay-out policy and corporate worth by mopping out excess liquidity. Several authors have established that entity value only magnifies through execution of profitable projects. Speedy payback of investment to investors deprives the institution of the opportunity to invest the cheaper funds. Finally in objective four, agency theory suggests that dividend policy, agency costs and liquidity, jointly grow stockholders wealth. The counter-narrative that investors aspire to recoup their investment quickly through dividends raises eyebrows. The proponents of the said narrative claim that, dividends are paid to keep liquidity low, circumvent insider dishonesty and not necessarily to build empire.

2.2.2 Signaling Theory

Signaling theory by Lintner (1956) reviews the behaviour of two persons who do not have the same and instantaneous access to some information. The sender decides on when and the manner of relaying the information while the recipient chooses how to

decipher the information relayed (Connelly, Certo, Ireland & Ruetzel, 2011). This scenario creates information asymmetry problem (Spence, 2002). According to Lintner (1956), information asymmetry makes it problematic to estimate the true intrinsic value of securities. Dividends confirm that the entity made profits since it cannot be paid from capital. It also confirms that the firm is foreseeing profitable periods ahead. Dividends therefore, communicate a growth in earnings that is permanent and a reduction will indicate bad years ahead. Accordingly, an alteration of payout-policy will cause a corresponding change in stock prices.

This theorem was tested and ratified by Baskin and Miranti (1997) who argued that investors tend to use a stream of returns from a security to determine the current and future prospects of an entity. They contended that DPR becomes the ideal predictor of securities' performance. Furthermore, the irreversible costs involved in dividend payouts such as transactional costs, the forgone cost of optimal capital mix and taxation on dividends, makes payout a very costly and credible source of information (Bhattacharya, 1979). Al-Malkawi et al. (2010) disqualified signaling theory on the basis that it lacks definiteness and not suitable for relaying the past or future prospects of a company. Dividend may be declared to fulfil certain objectives such as insiders trying to conceal their inefficiencies or to satisfy investors' desires which do not conform to entity objectives. MM (1961) also dismissed the signaling theory under certain assumptions such as, no information asymmetry and that information is costless. In real life, information asymmetry occurs and there are costs attached to information. Relaxing the suppositions under MM (1961) causes more ambiguity on payout policy.

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Signaling theory presents that there is a connection between pay-out policy and stockholders' wealth and therefore, directs objective one. Dividend signals that past performance was good and the future is promising. Dividend is an expensive affair and as such, gives credence to payout-policy. It is even more baffling why institutions opt for cash dividends and not share repurchase. Signaling theory is challenged by many scholars. The assumption that both parties (stockholder and insider) have access to same and instantaneous information may not hold, insiders have superior and exclusive information that they use to manipulate firm affairs. They also have personal interests to pursue through dividends which are value eroding. Additionally, Investors have personal interests such as their investments being unsafe with insiders and should be paid back expeditiously. In consideration of the above, payout controversy remains puzzling and calls for further probe.

2.2.3 Bird in Hand Theory

Bird in hand hypothesis (BIHH) discussed by Lintner, (1962) and reviewed by Gordon (1963), originates from the English saying of "a bird in hand is worth two in the bush" implying that what is received today (pay-out), is more valuable than future earnings (retained earning appreciation). BIHH was fashionable among stockholders in the earlier years of corporate finance since current income eliminated uncertainty attached to future capital growth. Institutions paying dividends were more sought after and therefore, their market capitalization would be greater. Early proponents of dividends like Graham, Dodd and Cottle (1934) emerged. They were convinced that a dollar of dividend income affects market prices four times as compared to capital appreciation. Capital growth is prone to risk unlike current dividend.

Capital appreciation is discounted at a higher rate which is adjusted to risk. Discounting current income at a lower COC magnifies securities' value. Dividend paying stocks are in this light, more valuable (Al-Malkawi, 2007). An investor looking to purchase stocks views the investment under three lenses; Firstly, to gain both dividend returns and earnings, secondly, for dividend returns and thirdly to obtain earnings (Gordon, 1959). When Gordon (1959) hypothesized these objectives and tested them, he noticed that dividends influenced security prices more than retained incomes. Fisher (1961) also noted that dividend announcements have a greater influence on the securities compared to re-investment of earnings.

MM (1961) is one of the scholars who censured BIHH. They stated that the riskiness (risk profile) of an entity is pegged on the stream of operational cash flows. Dividend payout is not connected to firm value and therefore, BIHH is a fallacy. Another scholar who found BIHH to be fallacious is Bhattacharya (1979) who opined that uncertainty about returns will affect dividends and not the other way round. The same argument was supported by Rozeff (1982) who observed that the risk profile of an entity is inversely linked to its dividend policy. Firms that face escalated risk in the future tend to retain more earnings. The proposition further defeats the argument of investor rationality where more income is preferred to less earnings. Bird in hand theory is also not plausible in instances where investors have formed clienteles. For instance, young investors who do not need the income today would prefer capital growth.

Bird in hand theory firms up the proposition by signaling theory that payout enhances fortunes in objective one from the angle of riskiness of future incomes. Stockholder wants returns today and not capital growth. There is a very thin line however, between

investor pressure and short-termism and the risk averseness supposition. The debate therefore, is whether they form these clienteles because they require the cash flow to cater for needs today and also avoid the riskiness of future returns or it is purely to ensure that the insider is honest. It is assumed that the investor is rational and will prefer to see capital appreciate than earn a lesser income today. Besides, investors who form tax clienteles will seek capital growth so that they do not lose a lot through taxation. It is therefore perplexing why firms pay dividends, a gap that is not fully explained by bird in hand theory and hence, induces further research.

2.2.4 Free Cash Flow Theory

This theory which was first argued by Easterbrook (1984) states that free cash-flow are the extra funds beyond the cash needed to finance all viable investments (all positive NPV projects). When an entity is holding a substantial amounts of FCF, it will experience escalated cases of shirking and overinvestments. Managers will allocate the excess cash on perquisites and non-rewarding undertakings (Jensen & Meckling, 1976). Ideally, retained income should be invested in profitable ventures in order to improve stock prices and thereafter, dividends dispensed out of the residuary earnings. In the opinion of Jensen (1986), when a firm holds excess FCF, managers get the freedom to choose where to invest the excess funds. In most cases, firm value will erode because of imperfect contracting and asymmetrical information. Managers are mostly remunerated in line with firm size and therefore, they will attempt to enlarge the firm beyond suitable optimal size in order to get more compensation.

As stated by Easterbrook (1984), payout will cut back excess liquidity and consequently, mitigating overinvestment. Once dividend payouts are made, management will enter capital markets to raise debt capital. Leverage will improve

the monitoring aspect of the enterprise hence, problems arising from imperfect contracting will be lessened. Managers will be compelled to operate in a manner that fulfills the debt covenants, thereby improving efficiency, aligning their objectives with shareholders' and making the firm more valuable. Leverage also bonds managers to periodic repayment of debt and interest, so, they are unlikely to engage in ventures that are non-profitable. Failure to fulfill debt obligations will automatically trigger debt providers to initiate bankruptcy proceedings which will risk manager's employment. Huge leverage may also occasion losses in a financial year, making dividend payout untenable, thereby making stockholders more aggressive.

Opponents of free cash flow include Lie (2000) who investigated this hypothesis and found no connection between dividends and agency problems. No amount of dividends was found to curtail the agency costs by reducing FCF even after examining various levels and forms of dividends. Howe, He and Kao (1992) also challenged the FCF theorem by demonstrating that securities did not react to dividend declarations. This is the same belief held by MM (1961) that dividends do not affect security prices. They testify that when dividends are paid, stockholders lose the same value through introduction of new owners. Moreover, investors can sell some shares to earn cash flow, thus, dividend paying securities should not sell at a premium. Fortunes are only enhanced through investment in profitable ventures and not through payout plan.

The FCF theory declares that liquidity moderates the relationship between payout-policy and wealth. Deprivation of excess liquidity makes insiders more objective. Introduction of debt immensely improve accountability and alignment to overall firm objectives. On the reverse side, liquidity is required to finance viable projects.

Retained funds are cheaper and more ideal for investment. The pecking order theory states the order for raising funds is retained funds first, then debt and finally equity. In the foregoing, dividend is only payable once all profitable ventures are undertaken and, in most cases, anyway, the retained funds are never sufficient to undertake all rewarding ventures. Supposing dividends are paid and debt raised, investors lose some control to new owners, an occurrence that they dread. Over and above the aforesaid, the narrative that investors do not trust insiders and are out to recover their funds swiftly could explain their obsession with high and regular cash payouts even during losses.

2.2.5 Dividend Irrelevance Theory

This theorem is the original work of Miller and Modigliani (1961). It was earlier postulated that corporates with higher and consistent pay-outs ceteris paribus, were more valuable because future uncertainty was eliminated. This notion endured through time until MM (1961) concluded their investigations and presented a cogent proposition on dividends under the following assumptions; ideal world, investor is rational and perfect certainty. An ideal world implied the following; absence of taxes or similar tax treatment for dividend income and capital appreciation, zero transactional or floatation costs for trading stocks, information is symmetrical and costless, and no market player is big enough to influence the stock prices with their transactions. The rational behaviour of a stockholder states that the investor will develop preference for higher returns over lower returns irrespective of whether the earning is cash or capital appreciation. Perfect certainty means that financial instrument is assumed to occur singly, that is, stocks. This is because each investor is certain about their future returns irrespective of the financial instrument held, be it stocks or bonds. A single discount rate is applicable on all securities over time.

MM (1961) insisted that if dividends are paid, equity will be floated to fund current projects. The equivalent worth of dividends gained by the existing stockholders is lost in the form of value transferred to the onboarding investors. If an entity pays out, the investor will utilize the excess dividends to acquire more stocks in the firm. With low dividends, the investor will sell some stocks to get the required cash flow. In this fashion, investors are capable of improvising homemade dividends that are perfect substitutes for company dividends. As such, stockholders will not purchase stocks for a premium in anticipation for future dividends unless the firm does some value creation that the stockholders are unable to do for themselves. In MM's view, entity worth is computed by capitalizing all the expected future returns, a procedure which is not influenced by dividend patterns. Black and Scholes (1974) and subsequently, Bernstein (1996) tested this hypothesis and came up with results that augmented it. Black (1976) even suggested that payout is value destroying from the taxation perspective.

According DeAngelo, DeAngelo and Stulz (2006), the assumptions under MM (1961) hypothesis about existence a real world and frictionless capital markets are questionable making MMs results debatable. DeAngelo and DeAngelo (2007) also stated that in the eyes of the stockholder, payout policies are dissimilar rendering the assumption impracticable. Ball, Brown, Finn and Officer (1979) also failed to find evidence that supports the MM (1961) theorem. In reality, taxes do exist and capital growth and dividends are taxed differently, the latter being taxed highly. Information is nonsymmetrical causing agency costs to balloon. There are also transactional costs and hence, raising equity is not costless. Relaxing these assumptions renders dividend an instrument than can signal current and future success and also curtail agency costs.

This theory is related to objective one and it claims that payout-policy does not affect wealth in any way. So, earnings should be deployed to profitable undertakings. This theory was constructed under assumptions such as symmetrical information status and costless information. In real life, information is costly and agency problem is a predicament for many institutions. The private information possessed by insiders can be manipulated to favour them. As a consequence, dividend should be paid to signal good performance and minimize cash flow susceptible to overinvestment. Clienteles like retirees require high and periodic income. Institutional investors have huge tax shields and therefore don't mind paying higher taxes on dividends. Furthermore, these institutions are usually under the obligation to only buy dividend paying securities. This theory further appears doubtful going by the observations where investors expeditiously attempt to recover their investment in cash even during losses.

2.3 Empirical Literature Review

This part analyzes empirical literature on the interrelationships among dividend policy, agency costs, liquidity and firm value. Knowledge gaps are identified and discussed within the section.

2.3.1 Dividend Policy and Firm Value

Anton (2016) researched how dividends affected stock values and established that a payout enhances fortunes. The research focused on sixty-three entities (non-financial) at the Bucharest Stock Exchange (BSE), Romania from 2001-2011. Secondary data was drawn from financial statements. OLS regression model was applied. Tobin's Q (corporate value) was calculated for the dependent variable as the proportion of market worth to replacement costs of the corporate's assets. The predictor variable was measured by DPR. This research used only DPR as a proxy for payout-policy

which is a narrow indicator unlike the current study that used a composite of DPR and IR. It also focused only on non-financial institutions at the BSE which is not a representation of all sectors. It further excludes the context of a developing nation. This study examined all entities listed in Kenya.

Nwamaka and Ezeabasili (2017) established a correlation (r) between payout-policy and entity value to be 0.99, almost 1.0 which is a perfect correlation. A sample of 10 quoted corporations in Nigeria was used. Data was collected between 1995 and 2015. The data was analyzed as follows; OLS was utilized for the panel data regression analysis. The indicator for corporate value was market price per share (criterion variable) while EPS and DPS were taken to be the explanatory variables. EPS and DPS are narrow attributes for payout-policy. The composite score of DPR and IR used in the current research captures quantum and frequency of dividends. GLS fixed-effect model used in this study makes more assumptions thereby, yielding better results. The population of 52 firms used in this study is more suitable for generalization compared to 10 corporations used by Nwamaka and Ezeabasili (2017).

Jakata and Nyamugure (2014) provided support for MM (1961) irrelevance hypothesis. They reviewed 10 entities listed in the Zimbabwe Stock Exchange (ZSE), from 2003-2011. Stock prices were taken to be the criterion variable while the predictor variables were EPS and DPS. The use of securities' prices as proxy for firm value and EPS and DPS for payout-policy was limiting. EPS and DPS do not capture the frequency of dividend payments. The current study used Tobin's Q for corporate worth and a composite of DPR and IR for dividend. The sample of 10 firms selected from each sector is also not appropriate for generalization compared to this study that reviewed 52 listed entities in Kenya. Zimbabwe was facing hyperinflation during the

period when this study was conducted. Corporations opt to use their internally generated finances to fund their projects and abstain from paying dividends. Therefore, a study in Kenya with lower inflation rates would yield different results.

Alenazi and Barbour (2019) surveyed five banks in Qatar Stock Exchange between 2013 and 2017 to scrutinize the interrelation between pay-out policy and company worth. Entity worth was the dependent variable, the indicator was the net balance of the corporate as at year end. The explanatory variable was payout-policy measured by total annual pay-out. A positive correlation between pay-out policy and investors' wealth was noticed. The small population of five banks limits generalization. Furthermore, some of the banks considered were Islamic banks that adopt policies that are not applied by other financial institutions. Total annual dividend paid to investors constitutes only the quantum of dividends which is not a comprehensive indicator for dividend policy. Tobin's Q used in the current undertaking is a more comprehensive measure for corporate worth. Moreover, Qatar is a developed nation as opposed to Kenya where the current study took place.

Velnampy, Nimalthasan and Kalaiarasi, (2014) supported the irrelevancy theory with their work which tested the link between pay-out policy and securities' performance. Twenty-five manufacturing entities at the CSE were reviewed from 2008-2012. Payout-policy (predictor variable) was measured by EPS and DPS to EPS. The criterion variables were ROE and ROA. It was discovered that payout-policy is not linked to entity worth. They established that with the increase of payout, the ROA and ROE did not increase. Their study was conducted at the CSE where maturation of capital markets is higher than Kenya. Tobin's Q is a more comprehensive indicator

for firm value compared to ROA and ROE. The sample of 25 manufacturing firms used is also not suitable for generalization of the findings.

Ahmad et al. (2018) established that both DY and DPR have an inverse link with market capitalization at the Amman Stock Exchange (ASE). This implies that dividend minimizes uncertainty among investors thereby lowering the discounting rate. So, as managers increase the DPR and DY, the volatility of stock prices is minimized. These findings were consistent with signaling proposition, since increased DY and DPR signals that the institution is valuable. They analyzed 228 institutions between 2010 and 2016 yielding 1596 observations. The response variable was stock price volatility computed from annual share prices over average prices in the financial year raised to second power, an approach that replicated Baskin (1988). The predictor variables included; DY, DPR, earnings volatility, entity size, debt and growth. The study regressed DY and DPR as proxies for payout-policy against stock price volatility. DY and DPR are not comprehensive enough to measure payout-policy compared to a composite of IR and DPR. The NSE offers a different context from ASE.

Rehman (2016) experimented the reaction between dividend policy and wealth of 496 non-financial institutions at the KSE between 2006 and 2013. Entity worth (Tobin's Q) was the response variable. OLS regression, fixed-effect model was espoused to conduct data analysis. The predictor variable was dividend policy with proxies of EPS and DPR. The study reported that EPS is linked to Tobin's Q. Correlation between Tobin's Q and DPR was absent. DPR of an entity only represents quantum of dividend. The current study adopts a composite that represents quantum and frequency of dividends. Exclusion of financial firms makes generalization of the

results problematical. This research scrutinized on 52 entities listed in Kenya. Furthermore, this study used panel GLS, fixed-effect model for regression analysis.

Ouma and Murekefu (2012) examined how pay-out policy and PAT of companies at the NSE related for the duration between 2002 and 2010. The criterion variable (firm performance) was measured using PAT whereas, the proxy for payout-policy was the actual amount of cash payout. The research discovered a strong positive association between dividend announcements and returns. They asserted that DPR is a key predictor of PAT with an adj.R^2 of 80.7%. PAT is an accounting based indicator, adjusted to non-cash items like depreciation thereby making it a bias indicator for measuring performance. The current study used Tobin's Q, a market based approach that will adequately explain the response variable. The study duration between 2002 and 2010 is also different form the period considered in this study of 2011 to 2020. The NSE has since been significantly reorganized from 2014 improving its governance and regulatory framework. The reorganization has also advanced its technological capabilities thereby, improving trading. Measurement of dividend as actual cash dividends is a bias way of looking at payout-policy since it narrows dividend policy to quantum only.

Luvembe et al. (2014) probed the interaction between dividends and corporate worth for 10 publicly traded banks in Kenya between 2006 and 2010. The response variable was market value measured by stock prices. The explanatory variable, payout-policy was measured by DPR, corporate earnings and capital markets investments. They discovered that a higher DPR significantly influenced firm's future performance, a finding that validates information content of dividends. The study evaluated ten banks trading on the NSE. Focusing only on a single industry like banking which is heavily

regulated makes generalization of the findings problematic. This study evaluated 52 institutions at the NSE from 2011-2020 which is a bigger population and cuts across various industries. DPR only measures the quantum of dividends. The current study enhances the indicator by adding payout frequency.

2.3.2 Dividend Policy, Agency Cost and Firm Value

In Malaysia Mahdzan et al. (2016) examined how agency costs reacts with payout-policy for 640 firms running from year 2005 to 2009. The study excluded data from utility firms because they have fully established payout-policy which are closely monitored by regulators. Financial institutions were also excluded because they are governed by certain rules which are dissimilar to other industries. Payout-policy was the dependent variable, its proxy being DPR. Independent variable was agency costs, measured by FCF. The study discovered that agency costs generally did not affect payout policy for most firms in Malaysia except for basic material industry. As such, agency costs do not intervene the link between payout policy and corporate worth. Agency costs were measured using firm's FCF which is not a comprehensive indicator for agency costs. A study using AUR or expense ratio would provide a more comprehensive indicator. DPR is also a narrow measure of payout-policy. The intervening effect of agency costs in the link between payout-policy and entity worth was also not evaluated. The effect is worth examining.

Ghosh and Sirmans (2003) focused on listed REITs in the USA from 1999 to 2009. The attribute for corporate worth was Tobin's Q (response variable) while payout-policy and agency costs were the explanatory variables. It was discovered that payout-policy is linked to growth of REITs. A rule is placed on the REITs to pay a compulsory high dividends. The study also reveals that external funding is linked to

dividends, confirming agency hypothesis. The study confirms that leverage minimizes information asymmetry, controls agency problems thus, cuts agency costs and the cost of capital. The results imply that agency costs intervene the connection between payout policy and entity worth. The compulsory dividends makes payout automatic. This study was confined to REITs listed in USA. Generalization of these findings would be problematic. The intervening effect of agency costs in the link between payout-policy and entity worth was not directly examined as was undertaken in this study.

Al-Malkawi (2007) applied Tobit model to experiment the relationship among dividends, agency costs and entity worth for 160 entities at the ASE, Jordan over 11 years starting from 1989. The criterion variable was payout-policy, measured by DY. The explanatory variables were; agency costs measured by Rozeff (1982), ownership structure, investment opportunities, signaling effect. The proxies for agency costs assumed the natural logarithm of stockholders and the fraction of stocks held by management. The study reported that dispersion of ownership is not linked to payout-policy while ownership by management has a negative relationship with dividends. No connection was reported between agency costs and pay-out policy suggesting that agency costs is not an intervener in link between payout policy and corporate worth. Al-Malkawi (2007) used unbalanced panel data, random effects model and OLS fixed-effects model for regression analysis. This research used balanced panel dataset, panel GLS fixed-effects regression model and a composite of DPR and IR.

Marfo-Yiadom and Agyei (2011) examined the payout policy, agency costs theory and value of sixteen banks listed in Ghana between 1993 and 2003. The criterion variable was payout-policy (DPR). The predictor variables included profitability,

collateral, leverage and firm ownership. The findings upheld agency theory where agency costs can be mitigated by dividend payout. Payment of dividend reduces discretional funds and introduces debt providers who evaluate and monitor managers' actions. The results specify that agency costs mediate the link between pay-out policy and corporate worth. This study was based on only sixteen banks listed in Ghana between 1993 and 2003. DPR only represents quantum of payout. The study used collateral, leverage and ownership structure to measure agency costs. Current study used AUR and tested whether agency costs significantly mediated the interrelationship between pay-out policy and value of institutions listed in Kenya between 2011 and 2020.

2.3.3 Dividend Policy, Liquidity and Firm Value

The interrelationship between payout policy and liquidity was reviewed by Gill et al. (2010) for 266 institutions listed in the USA in 2007. DPR was the response variable computed as net earnings over PAT. The predictor variables included; FCF and profitability. FCF was found to be key in payout strategy since firms with poor liquidity will not be able to pay dividends. This study finds no link between dividends, liquidity and corporate worth contravening the FCF hypothesis. So the relationship between payout-policy is not significantly mediated by liquidity. Data obtained by Gill et al. (2010) was cross-sectional for a single year, 2007, which is a short period that can be defective due to certain factors such as political events. FCF was the explanatory variable. This work examined the moderation effect of FCF in the connection between pay-out policy and corporate worth for institutions at the NSE between 2011 and 2020.

Sukmawardini and Ardiansari (2018) studied the interrelationships among payout policy, liquidity and entity value. Fourteen institutions were selected at the ISE from 2012-2016. Corporate worth (criterion variable) was measured by securities prices to book values of stocks. Dividend policy was evaluated by DPR and liquidity was indicated by current ratio. It was reported that elevated liquidity erodes wealth since the FCF is overinvested. The study did not established a link between dividend and corporate worth and hence, liquidity does not moderate the link between payout and wealth. This creates a gap since scholars argue that if excess liquidity erodes wealth, dividends should be paid to cut the funds. Since dividend is inconsequential, then perhaps the liquidity should be expeditiously re-invested. Borrowing was found not to affect entity worth so, the earned incomes should be used to finance projects. Stock prices to book values of stocks used by Sukmawardini and Ardiansari (2018) is not robust enough. For instance, technological institutions with paltry tangible assets will generate a misleading price to book value index. The current undertaking used Tobin's Q to arrive at stockholders wealth. Computing liquidity using current ratio is inadequate since it's inclusive of elements like inventories and debtors which take time to convert to FCF. OCF ratio espoused in the current research which is more comprehensive.

Juhandi et al. (2019) studied the link among entity liquidity, pay-outs and institutional value. Thirty-one manufacturing institutions were selected from 2010 to 2014 at the ISE. The criterion variable (corporate worth) was determined by price to book value. Corporate worth was regressed against explanatory variables, liquidity and pay-out policy. The research reported that liquidity is connected to firm worth. Thus, elevated liquidity grows entity worthiness since stockholders will have a bias for institutions that have high levels of liquidity and internal controls. Pay-out policy and corporate

worth were reported to be unrelated suggesting that liquidity is not a moderator in the link between payout policy and corporate worth. The work regressed dividend and liquidity as explanatory variables creating room for testing the moderation effect of liquidity in link between pay-out policy and company worth. The research was done in a more developed nation and only focused on thirty-one manufacturing institutions. In the foregoing, it is problematic to generalization the results.

Badu (2013) researched the link between payout policy and liquidity for establishments listed in Ghana. Panel data was collected for the period between 2005 and 2009. Payout-policy was the criterion variable measured by DPR. Cash in addition to its equivalents over total net assets was the indicator for liquidity. Liquidity was discovered to have a statistically significant link to DPR implying that when liquidity is elevated, firms tend to distribute dividend in order to address overinvestment. Thus, liquidity significantly moderate the link between payout and wealth. The study regressed payout against liquidity but did not specifically test for moderation in the link between pay-out and fortunes. The current research tested the moderation effect of FCF in the connection between pay-out policy and corporate worth from 2011 to 2020. It further espouses OCF.

2.3.4 Dividend Policy, Agency Cost, Liquidity and Firm Value

Afzal and Mirza (2010) investigated the interrelationships among payout-policy, agency costs, liquidity and entity worth for 100 institutions at the KSE between 2005 and 2007. DPR was the attribute for payout policy (response variable). The explanatory variables included; ownership structure and FCF. They discovered that companies with more insider holding make minimal payouts. Perhaps because management becomes more responsible and invest efficiently when they have some

holdings in an entity. They also noticed that high liquidity caused higher DPR since the excess funds have to be dispensed with to avoid overinvestment. Therefore, the joint effect of payout policy, agency costs and liquidity on wealth is positive. This study covered 2005-2007. There was no examination of the mediation and moderation effect of agency costs and liquidity respectively. A study conducted in the period between 2011 and 2020 evaluating the relationships among payout-policy, agency costs, liquidity and firm worth is justified. AUR is also a better indicator for agency costs compared to ownership dispersion since ownership dispersion does not evaluate how efficiently the resources were deployed.

A study by Anazonwu et al. (2018) assessed the interrelationships among payout-policy, agency costs and liquidity of quoted manufacturing entities trading on Nigerian Stock Exchange as at 1st January 2017. The criterion variable (dividend policy) was measured using DPS over EPS. The predictor variable was agency costs measured by AUR, leverage and FCF. They contended that both agency costs and liquidity react with payout-policy positively suggesting that they jointly grow fortunes. The study regressed dividend policy against FCF, leverage and AUR without testing for mediating and moderating effect of AUR and FCF respectively and also testing for their joint effect on corporate worth. This study assessed the relationships among payout-policy, agency costs, liquidity and market value of entities quoted on the NSE. The response variable was corporate worth measured by Tobin's Q and OCF was the proxy for liquidity. DPS and EPS only focus on quantum of dividends.

Al-Kuwari (2009) experimented the relationships among payout-policy, agency costs, liquidity and wealth using firms quoted on Gulf Co-operation Council (GCC) from

1999-2003. The study focused on non-financial institutions. The response variable was payout-policy computed by cash payouts over net profits multiplied by 100. The explanatory variables were; governmental holding, liquidity, size, entity growth rate, opportunities for growth, riskiness of the business, and profits. The study found a strong link between payout-policy and agency costs but failed to establish a link between liquidity and payout-policy, implying that payout policy, agency costs and liquidity do not jointly affect wealth. The research sampled non-financial firms ignoring other sectors. The study also isolated dividend policy as the criterion variable. The current work experimented corporate worth as the criterion variable and payout-policy as the predictor variable. The intervening effect of agency costs and moderating impact of liquidity was also be tested. The study examined 52 institutions listed in Kenya.

2.4 Summary of Empirical Literature and Research Gaps

Appraisal of the theories reveal that there is no single way of justifying payout policy and the payout-out controversy remains unresolved. Agency theory and signaling theory anchor their arguments for payout on imperfect contracting and information asymmetry. The theories argue that dividend signal good performance and also cut FCF that can be overinvested. On the contrary, market imperfections and insider dishonesty including serving investor short-term interests cast doubt on payout. Payout under agency and FCF theories envisages cutting of FCF, introduction of debtholders to make insiders objective. The opposing view is that cheap internally generated finances should be channeled to profitable undertakings to grow fortunes. Besides, the pecking order theory insists that internally generated resources are utilized first ahead of debt and equity. Bird in hand theory views income today as value adding but it is discredited by clienteles who do not require income today and

the class that wish to avoid higher taxes. Furthermore, earnings should fund projects first. MM (1961) suggested that dividend is not related to entity worth and the earnings should be re-invested. The assumptions under MM (1961) do not hold in real life. Clienteles like aged investors require regular returns while institutional investors require returns because of the huge tax shields. It is also supported by empirical evidence that dividends mitigate agency costs.

Empirical literature review brought out glaring gaps that further complicate payout controversy. Some authors reported that dividends grow stockholders' wealth through signaling and agency theories while some basing their findings on MM (1961) opposed dividends and recommended re-investment of the earnings. More focus has been given to determinants of payout-policy while some experimented the effect of payout on entity returns. Limited studies experimented the direct link between payout-policy and corporate worth using Tobin's Q. Majority of the authors experimented the interrelationships among pay-out policy, agency costs and entity value by either regressing corporate value against agency costs and payout policy or payout policy against agency costs and very few tested the mediating effect in the link between payout-policy and corporate worth. Similarly, very few studies experimented if liquidity significantly moderated the connection between pay-out policy and corporate worth. This research experiments the interrelationships among payout-policy, agency costs, liquidity and corporate worth. Agency costs and liquidity are intervening and moderating variables respectively.

Most studies were undertaken in developed nations where the regulatory framework is advanced and the markets are more organized with advanced technologies. Studies on the interrelationships among dividend payout-policy, agency costs, liquidity and value

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of institutions listed in Kenya are limited. Furthermore, the studies at the NSE focused on specific sectors such as financial institutions and manufacturing, thereby, making generalization problematic. This study targeted all sectors at the NSE. The samples and the timeframes for the studies also varied. This study brought forth the current state of the study variables and targeted all firms with complete records at the NSE.

Measurements of the constructs also varied greatly. The measurements could therefore not be construed to measure the same constructs. For instance, to measure dividend policy, most studies focused on quantum of dividends such as DPR, DY, EPS or DPS. This study will use a composite of DPR and IR which incorporates frequency and quantum of dividends. Liquidity was mostly assessed by the current ratio. Current ratio contains non-cash items like inventories and debtors which are not part of FCF. OCF is used in the current research as the proxy for liquidity since it is more suitable for making investments. Price to book value was used to evaluate entity worth as an alternative to Tobin's Q. Price to book value could be misleading especially if the entity does not hold a lot of tangible assets.

Table 2.1 contains selected empirical studies presentation as follows; study focus, results of the study, research gaps and redress of the gaps by the current research.

Table 2.1: A Summary of Previous Studies on the Research Variables

Researcher(s)	Study Title	Study Findings	Research Gaps	Addressing the gaps in the current study
Juhandi, et al. (2019)	Relationship among FCF, dividends and institutional value.	Liquidity interacts with corporate value positively while payout-policy is inconsequential.	Moderation effect of liquidity in the link between pay-out policy and entity worth was not tested. Thirty-one manufacturing entities at the ISE were considered, making generalization of the findings problematic.	The study experimented the moderation effect of liquidity in the link between pay-out policy and institutional worth and it targeted all institutions with complete records at the NSE between 2011 and 2020.
Sukmawardini and Ardiansari (2018)	The interrelationships among payout-policy, liquidity and corporate value.	Payout-policy measured by DPR was found to be irrelevant while liquidity was measured by current ratio and turned out to be positively linked with corporate worth.	The study used price to book value to measure entity value which is problematic if some firms hold very little assets. Current ratio also contains inventories and debtors which cannot be taken to be part of FCF.	This research applied Tobin's Q as the indicator for corporate value. OCF was used to measure liquidity. It excludes items like inventories and adds back non-cash expenses such as depreciation.
Anazonwu et al. (2018)	Relationship among payout-policy, agency costs and liquidity.	Dividend policy measured by DPS over EPS was found to affect agency costs. High liquidity also attracted dividend payout.	Mediation and moderation effect of agency costs and liquidity respectively in the link between payout-policy and entity value were not tested. DPS and EPS only focus on dividend quantum. The mode and frequency of dividends were excluded.	Current study tested the interrelationships among payout-policy, agency costs, liquidity and corporate worth, clearly experimenting the mediating effect of agency costs. A composite for DPR (quantum) and IR (frequency) was employed.
Ahmad et al. (2018)	Link between payout-policy and entity worth.	Payout grows firm fortunes by lowering discounting rate. Payout reduces future uncertainty.	DY and DPR were the attributes of payout-policy which is a narrow measure. Stock prices volatility was used as the proxy for corporate value. There was also contextual difference between ASE and NSE.	This study used IR and DPR composite for payout- policy and Tobin's Q for firm worth. The current study was carried out at the NSE.
Anton (2016)	To interrogate how dividends reacts with firm fortunes.	Using fixed effect model the study established that payout-policy influences corporate value positively.	Dividend policy was measured using a single proxy; DPR, which does not adequately explain payout-policy. Only non-financial institutions were considered. The work was undertaken at the BSE in Romania.	This study utilized a composite of both payment frequency and dividend amount. The research examined all entities listed in Kenya with complete records.
Luvembe et al. (2014)	Interaction between payout-policy and corporate worth.	Payout-policy positively impacted stock prices since dividend signals positive returns.	The research examined on only 10 banks (financial institutions) at the NSE which is a very small population and hence, limits generalization of the findings. The research period was from 2006 to 2010. The study also used only dividend quantum to measure	This study examined 52 entities listed at the NSE from 2011 to 2020. The period is critical since it is the phase when the NSE implemented some notable restructuring and technological advancements which enhanced trading on the bourse. This study

			payout- policy.	used both quantum and frequency of dividend.
Ouma and Murekefu (2012)	The link between payout-policy and PAT of companies.	Dividend policy is a key predictor of entity performance with an adj.R^2 of 80.7% and as such, payout-policy was found to be relevant.	PAT was used as the proxy for entity performance. PAT is a bias indicator of company worth since it is adjusted to non-cash items like depreciation. The study was conducted between 2002 and 2010 when the NSE was not as advanced as now. Actual cash paid was used as an indicator for payout-policy which limits the indicator to quantum.	This study analyzed the direct association between pay-out policy and corporate worth at the NSE from 2011-2020. Current study analyzed both frequency and amount of payment as policies for dividend.
Afza and Mirza (2010)	The interrelationships among payout-policy, agency costs, liquidity and entity worth.	The joint effect of payout-policy, agency costs and liquidity on corporate value was found to be positive.	OCF, the proxy for liquidity was computed by cash holdings to total assets which omits items like non-cash outflows. There was no evaluation of intervening and moderating properties of agency costs and FCF respectively in the link between payout and entity worth.	This study derived OCF as PAT plus non-cash outflow items over total assets less cash plus cash equivalents which is more comprehensive. Current study evaluates interrelations among payout-policy, agency costs, liquidity and entity worth.
Al-Malkawi (2007)	The relationship among dividends, agency costs and firm worth.	No link established between dispersion of stockholders and payout-policy. Management ownership is negatively related to payout-policy.	Unbalanced panel data was analyzed using random effect model. Payout measured by DY was the criterion variable and was regressed against various variables. Intervening effect of agency costs in the link between payout-policy and corporate worth was not experimented.	Panel data (balanced) was used. GLS fixed effect model was also employed. Mediation effect of agency costs in the association between payout and entity worth was examined.

2.5 The Conceptual Framework

This study focused on the interrelationships among payout-policy, agency costs, liquidity and corporate worth as diagrammatically depicted in the conceptual framework presented in figure 2.1. The framework contains independent, intervening, moderating and dependent variables.

Firm worth is the dependent variable measured by Tobin's Q. The Q was computed by adding market capitalization to (total assets minus equity) over total assets. Tobin's Q, a market-based indicator, evaluates the market value of existing stocks to cost of replacing corporate's assets thus, replacement cost of equity capital (Short & Keasey 1999).

Payout-policy is the independent variable. There are three forms of payout-policy; frequency, mode and quantum of payouts. Ferris et al. (2010) stated that frequency of payout can either be interim or proposed dividend which is payable year-end. Mode of payout can be cash, bonus share, stock splits, property dividend, script dividend and share repurchase (Stephens & Weisbach, 1998). Amount of payment includes; residual payout-policy, stable or predictable payout-policy, constant pay-out policy, and low regular dividend plus extra pay-out (Aduda & Kimathi, 2011). In the current study, payout-policy was computed as the composite of DPR (quantum) and IR (frequency). Mode of payout was excluded since most companies at the NSE paid dividends in cash. Dividend is expected to signal that the entity is valuable. Since dividend is current income, it also reduces cost of capital and grows entity worth.

Agency costs is the intervening variable, measured by AUR (total annual sales over total assets) as employed by Singh and Davidson (2003). AUR is an indicator of how

efficiently the management deployed resources to generate sales turnover. Dividend is expected to resolve information asymmetry, reduce agency costs and grow firm worth.

The moderating variable is liquidity. The proxy for liquidity was OCF computed as PAT plus non-cash outflow items over total assets minus cash and cash equivalents (Millet-Reyes & Zhao, 2010). Dividend mops the FCF that can be overinvested by managers. Managers thereafter seek debt where lenders monitor insider behaviour, making them more objective and hence, improving Tobin's Q.

As depicted in figure 2.1, H_1 illustrates the link between payout-policy and entity value. H_2 indicates the mediation effect of agency costs in the association between payout-policy and corporate value. H_3 portrays the moderation effect of liquidity in the interrelationship between payout-policy and corporate worth. Finally, H_4, outlines the interrelationships among dividend policy, agency costs, liquidity and firm worth.
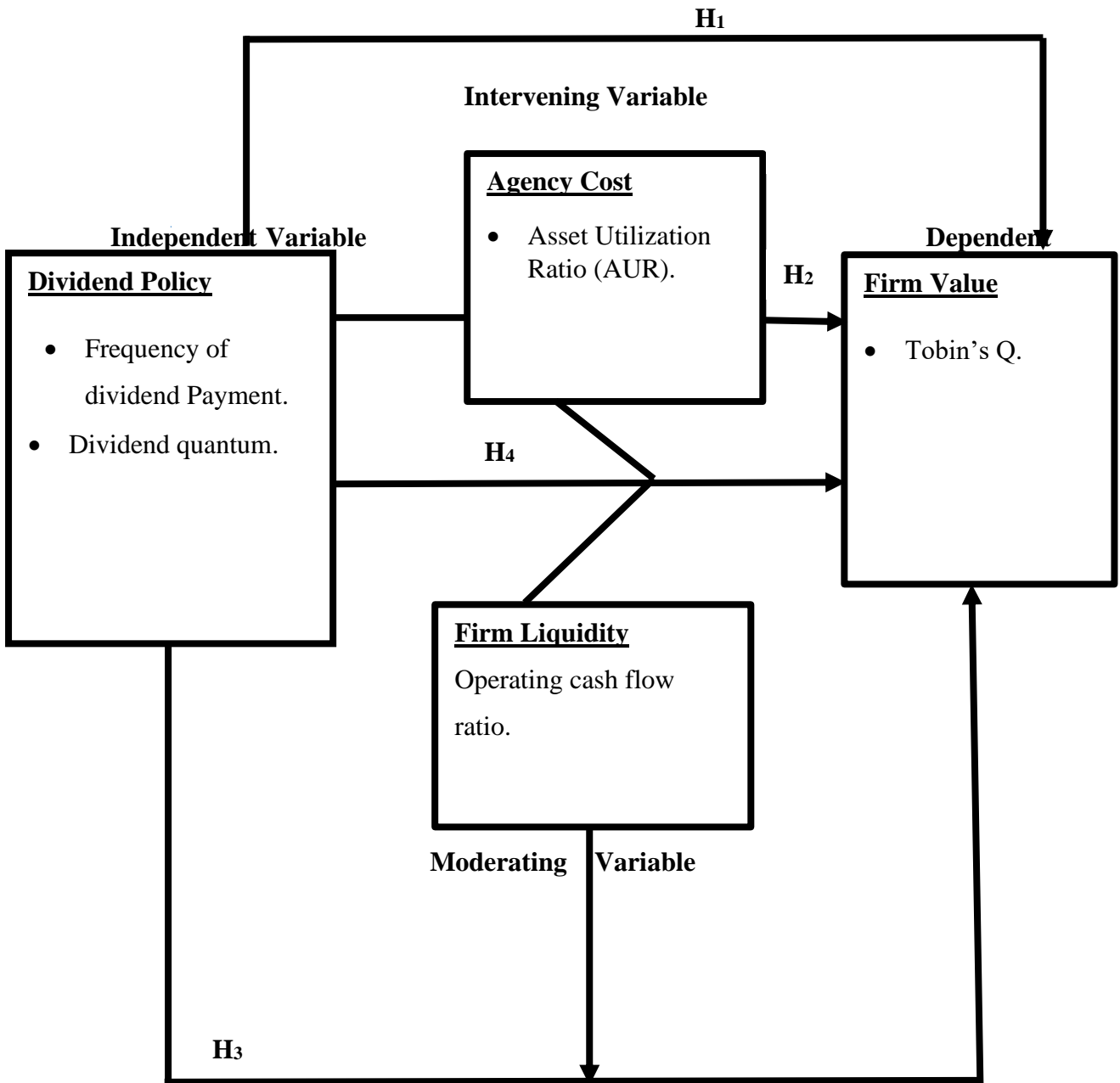
Figure 2.1: Conceptual Model   **Source: (Author, 2023)**

2.6 Research Hypothesis

The research generated the below stated hypotheses from the research objectives;

H_{01}: There is no significant relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.

H_{02}: There is no significant intervening effect of agency costs in the relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.

H_{03}: There is no significant moderating effect of liquidity in the relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.

H_{04}: The joint effect of dividend policy, agency costs and liquidity on the value of firms listed at the Nairobi Securities Exchange is not significant.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses philosophical approach, research design, population, data collection, diagnostic and specification tests, operationalization and measurement of the study variables, data analysis and empirical models.

3.2 Research Philosophy

According to Saunders, Lewis and Thornhill (2016), a research philosophy is a system of beliefs and presuppositions of how truth is developed. The essence of a research is the transformation of belief into truths, that is, doxa to episteme. The two central research philosophies in social sciences are objective (positivism) and subjective (phenomenologism/ interpretive). These philosophical approaches are defined by assumptions such as; realities encountered during studies (ontological), human knowledge (epistemological) and the extent by which personal values affect the research process (axiological). Crotty (1998) stated that these assumptions influence the understanding of research questions, research methods and interpretation of results.

Positivists believe that the social realities that we experiment are external to us and others, as such, they adopt the assumptions of natural sciences. They liken social realities to physical substances of the natural world since they occur independently and free of how we view them, label them or even our awareness about them (Saunders et al., 2016). As a consequence, social and physical phenomena universally occur independently and characteristically are stable in nature hence, can be studied objectively. They posit that it should be possible to identify a phenomena and observations be replicated. This entails experimenting variations in the criterion

variable explained by the predictor variable with an aim of developing knowledge. Explained truths and interrelationships can be used to predict future occurrences. Phenomenologists, on the contrary, take the view of arts and humanities. They assume that social reality is constructed by perceptions and the resultant actions by the social actors. They argue that the phenomena we study are created by the researcher by use of conceptualization, language, perceptions and the consequential actions. There is no presumed social world other than the one attributed by social actors. Therefore, realities vary according to experiences and perceptions. For this reason, multiple realities occur (Burell & Morgan, 1997).

A research can either be deductive, inductive or abductive depending on the knowledge available about the theory being studied. In a deductive approach, theory is first established from the existing body of empirical reports and a research strategy is subsequently structured to examine the theory. With inductive, data is collected to test a phenomenon in order to build a theory. Lastly, in an abductive approach, data is analysed for purposes of testing a phenomenon, explaining patterns and creating themes, to modify the current or build new theory which is subsequently explored through additional collection of data. In other words, deductive approach starts from theory moving towards data, induction starts from data towards theory while abduction combines both, thus moving back and forth (Suddaby, 2006).

This study adopted the positivists' thinking and a deductive approach. The researcher remained impartial and detached his personal influence and feelings from the procedures. The hypothetical statements were conceived based on the gaps discerned from the existing theories and empirical literature. Factual and large secondary dataset (520 data points) for the concepts of pay-out policy, agency costs, liquidity and

corporate value were isolated. Finally, statistical data analysis techniques were conducted in line with the hypothetical statements to facilitate derivation of truth or falsification of the hypotheses.

3.3 Research Design

Research design is the layout that a study follows in order to address the research questions. Kothari (2004) opined that a good research design must minimize bias and achieve maximum reliability of a dataset. Saunders et al. (2016) stated that research design is the general structure that guides the fulfilment of the question(s) the study seeks to answer. A research design must spell out clear objectives that are connected to the research question(s), state the data sources, enumerate the expected constraints and explore ethical issues. Categorization of research designs can be into three broad types; descriptive studies, exploratory studies and causal studies.

This research embraced descriptive and utilized panel or longitudinal data. Saunders et al. (2016), posited that descriptive design describes phenomena in accordance with their association to the subject population. It attempts to gain accurate profile of events, social actors or situations. They are likely to begin with or include 'who', 'what', 'where', 'when' or 'how'. Descriptive design enables the researcher to distinguish the study concepts according to their attributes, consequently, profiling them for examination. Longitudinal approach allows collection of panel data about the study variables. Data collection occurs at a particular time for several units (cross-sectional) and the procedure repeated over time (time series). In this study 52 institutions (cross-sectional observations) were reviewed annually over 10 years (periods). Panel data enhances properties of model parameters since it allows higher degrees of freedom and data variability. It also facilitates simple computations and

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inferencing (Hsiao, 1995). Hsiao and Hsiao (2006) also reported that panel data has the capability of testing the complex behavioural hypotheses.

3.4 Population

This study targeted all companies at the Nairobi Securities Exchange between 2011 and 2020. There were sixty-two (62) corporates at the NSE as at 31st December 2020. The details are captured under appendix I, which was adopted from the NSE and CMA websites. The study however, narrowed down only on firms with full records between 2011 and 2020. Firms listed after 2011 and firms put under statutory management, receivership or liquidation were omitted. Kenya Gazette Legal Notice No. 60 (2002), requires every entity at the NSE to document their pay-out policy. All institutions listed at the NSE therefore give attention to payout-policy which is the focus of this study.

Availability and ease of access to panel data for all the study variables also made NSE quoted entities suitable for this study. For instance, it was easier to compute Tobin's Q since market capitalization for institutions trading on the NSE was readily available. Financial statements for companies trading on the NSE were also easily available unlike private entities who prefer to keep their affairs private. The study period is significant since it's the duration when the NSE implemented major structural reorganizations and implemented significant corporate governance policies. This period was also of interest owing to the sharp fluctuations in the NSE market capitalization and large number of entities put under statutory management, receivership and liquidation.

3.5 Data Collection

The panel data required for this research was provided by the Nairobi Securities Exchange Limited. Panel data was obtained for 52 institutions trading on the NSE, who had full records for the period between 2011 and 2020. The 52 observations over ten years yielded 520 data points which was deemed sufficient for this study. The indicator for institutional value (response variable) was Tobin's Q. The attribute for payout-policy (predictor variable) was a composite index of IR and DPR.

Agency costs (intervening variable) was measured by asset utilization ratio (AUR). The attribute for liquidity (moderating variable) was operating cash flow ratio (OCF). Data collection sheet (Appendix II) was organized and utilized as follows; section A, captured market capitalization, total assets and shareholder equity that enabled computations of Tobin's Q. Section B recorded interim dividends, total dividends and total earnings which was related to computation of payout-policy. Section C recorded annual sales turnover and total assets for computation of agency costs and finally, section D captured operating cash flow, current liabilities, depreciation, average total assets, average cash (in hand and bank), and average cash equivalents for derivation of firm liquidity.

3.6 Diagnostic and Specification Tests

The assumptions of panel data regression modeling should be achieved in data analysis as a way of confirming the reliability and validity of the coefficients and diagnostic statistics. Diagnostic and specification tests carried out in this section include; normality, linearity, multicollinearity, heteroscedasticity, autocorrelation, panel unit root and Hausman fixed and random effects tests.

3.6.1 Normality Test

Regression, correlations and experimental design are the most common statistical analysis methods. They all assume that the observations conform to a normal or Gaussian distribution. It is assumed that samples originate from a population that obeys normality rule, thus normality assumptions has to be tested (Das & Imon, 2016). In regression analysis as stated by Huber (1973), in a situation of non-normality, finding sufficient and necessary conditions is a problem such that all parameter estimates turn out asymptotically normal. In Hypothesis testing, Chi-square, t-test, Z-test and F-statistics assume normality. In a case of non-normality Chi-square tests become incorrect generating invalid values of t and F-statistics. Despite the invalidity of the results, they possess an asymptotic explanation (Judge, Griffith, Hill, Lutkepohl & Lee, 1985).

The tests for normality include; Jarque-Bera, histogram plots, Shapiro-Wilk, Anderson-Darling, Kolmogorov-Smirnov, Skewness, Kurtosis and Pearson Chi-square. The treatment for normality are square roots and logs in cases where the data contains numbers greater than zero. This study adopted the Kolmogorov-Smirnov, Shapiro-Wilk and histogram plots to analyze normality. Histograms display observations against their respective frequencies to enable a visual judgement whether the bell shaped distribution was achieved or not. Outliers and gaps are also brought out in the histogram plots. The null hypothesis stated that the disturbances follow normal distribution. The alternate hypothesis states that the disturbances are non-normally distributed. If the probability score is exceeding 0.05 ($p > 0.05$), then fail to reject the null hypothesis meaning that normality is attained. Otherwise, reject the null hypothesis and hold that normality failed.

3.6.2 Linearity Test

According to Panagiotidis (2002), linearity assumption has continuously been challenged but the opposition has continued to fail especially with time-series in macroeconomics. The theoretical grounding of linearity assumption is thinly supported but non-linearity theory is equally not adequately supported. In panel least square regression, linearity assumption is one of the key considerations where the interaction between response and predictor variables is presumed to be linear. Supposing the assumption is not obeyed, the model will attempt to fit a straight line to data that does not occur in a straight line.

Linearity assumption can be assessed by; Ramsey's reset test, graphical and analysis of variance (ANOVA). This research will make use of ANOVA with Eta-Squared ($\eta2$) to test linearity. ANOVA is a statistical method used to examine if the population means have statistical differences. Eta-squared depicts the ratio of total variance in a criterion variable that is related to membership of different groups defined by predictor variable. The treatment for linearity is use of reciprocal method.

3.6.3 Multicollinearity Test

This is a statistical phenomenon where the predictor variables in a regression model are correlated. There is a supposition under the classical linear regression model (CLRM) that collinearity does not exist among the predictor variables and that an orthogonal state is obtained (Ali, Khan, Butt & Suhail, 2021). They argued that multicollinearity does not violate the regression assumptions. The estimation occurs and the standard errors shall be correctly approximated. The only problem will be to get the estimates of the coefficient with standard errors that are small. He noted that firstly, when near multicollinearity occurs, the unbiasedness of the OLS estimators

prevails. Secondly, collinearity does not damage the minimum variance properties. Thirdly, multicollinearity is a phenomenon such that even if the correlation does not exist in the population, it may exist in a certain sample.

When near or high multicollinearity occur, the consequences are likely to be as follows; difficulties in making precise estimations due to huge variances and covariance, inflated confidence levels that will cause acceptance of the null hypothesis, t value tends to be insignificant, even though the t score may be insignificant, the R-square turns out to be inflated and small alterations of data causes disproportionate response in the estimators and standard errors. There are numerous ways of testing for multicollinearity including; variance inflator factor (VIF), tolerance (TOL), condition index and Eigenvalues. This research used the variance inflator factor and tolerance to assess for multicollinearity. Multicollinearity exists where the VIF>10 and tolerance more than 1. The treatment for multicollinearity is standardization of the variables.

3.6.4 Heteroscedasticity Test

Heteroscedasticity is a phenomenon in which the statistical assumption of homoscedasticity is violated. The assumption of homoscedasticity requires that for the regression model to hold, the standard errors should be accurate and estimated parameter should yield asymptotic covariance. Heterogeneity of variance causes inappropriate standard errors thereby increasing chances of type I error or diminishes the statistical power (Rosopa, Schaffer & Schroeder, 2013). Detection and management of heteroscedasticity is critical. However, heteroscedasticity is a common occurrence in social sciences (Cai & Hayes, 2008; Antonakis & Dietz, 2011). Even if heteroscedasticity exists, the unbiasedness of the estimated parameter

and consistency holds but the estimated covariance matrix will be incorrect (Rencher & Schaalje, 2000).

The tests for heteroscedasticity include; white test, Breusch-Pagan, Levene's, Goldfeld-Quandt, Park and Brown-Forsythe tests. If heteroscedasticity exists, the panel data should be standardized and a weighted least square model used which include; general moment methods (GMM) and general least square (GLS). This study used Breusch-Pagan test to assess heteroscedasticity. The null hypothesis stated that homoscedasticity is obtained. If $p>0.05$, fail to reject the null hypothesis since there is no heteroscedasticity in the model. If $p<0.05$, reject the null hypothesis and report that there is heteroscedasticity.

3.6.5 Autocorrelation Test

The adequacy of the regression model in OLS has to be checked for serial correlation. This is done by testing if there is autocorrelation in the regression residuals. Serial correlation results into inefficient coefficient estimators and inaccurate standard errors rendering the traditional test statistics invalid (Mizon, 1993). Biasedness and inconsistency of the OLS estimators necessitates the application of residuals to assess correlation. When autocorrelation occurs, the OLS assumption that the error terms are not correlated is violated hence, Gauss Markov theorem does not hold.

Some of the tests for autocorrelation include; Durbin-Watson (1950), Durbin (1970), Correlogram-Q-Statistics and Breusch-Godfrey (1978). This research used Breusch-Godfrey Lagrange Multiplier (LM) to assess correlation. The null hypothesis is stated as there is no autocorrelation. If $p>0.05$, fail to reject the null hypothesis. Otherwise, reject the null hypothesis. If autocorrelation exists, the panel data should be

standardized and a weighted least square model used which include; general moment methods (GMM) and general least square (GLS).

3.6.6 Panel Unit Root Test

If a shift in time does not alter the distribution shape, then stationarity is obtained. One of the causes of non-stationarity is unit root. According to Perron and Phillips (1987), unit root assessment is a key consideration when testing for non-stationarity which is a common occurrence in macroeconomic data. More specifically they help in determining whether there is a stochastic trend through unit root presence or deterministic through occurrence of polynomial time trend. Panel unit root test determines whether some concepts in the model are not stationary since time series suffer stationarity hiccups. Stationarity occurs when the mean and variance are constant and auto covariance doesn't depend on time. Non-stationary data cause problematic spurious regressions from mean and variance that are not constant. Presence of unit root implies that data is unstable and unpredictable which can cause poor prediction or invalid forecasting.

Choi (2001) noted that Dickey-Fuller tests and the averages likelihood ratio are constructed on more generic assumptions and are therefore more beneficial than the Levin, Lin and Chu (1992) especially in finite samples. This study used PP-Fischer Chi-square and Levin, Lin, Chu (2002). Levin et al. (2002) presumes a common unit root process for each individual variable. Existence of a unit root means that there is non-stationarity in the data. When the unit root is present, additional tests for the integration order must be performed to gauge the degree of integration needed for stationarity to be obtained. The null hypothesis states that there is existence of a unit root. In the alternative hypothetical statement, unit root is absent. If $p<0.05$, it means

that there is no presence of unit root while when p>0.05, it indicates the presence of a unit root.

3.6.7 Test for Fixed or Random Effects

Another fundamental consideration when conducting statistical hypothetical testing is the accuracy of the test. Size and power are the two properties that explain accuracy. Size focuses on the probability of rejecting H_{01} when it is correct. When a test is run at 5% significance level, it is accurate to assume that if the null hypothesis is accurate and a number of tests run on varying samples drawn from the same population, 95% of the cases will fail to be rejected (Sheytanova, 2015). Power is the ability to reject the null hypothesis correctly. Cohen (1998) stated that power that scores 80% and beyond is good at a corresponding size of 5%. However, fixing the level of significance at a given value will create the likelihood of type I error. Hausman test is therefore, suitable for selecting the ideal model to be applied in panel data analysis. Hausman assesses the existence of endogeneity occurring in the panel regression model.

Panel data has benefits over both time-series and cross-sectional data but poses challenges of model specification that will yield consistent results (Sheytanova, 2015). That being the case, analysis of panel data requires that a test be conducted to gauge whether to apply fixed or random effect models. Hausman specification test (Hausman, 1978) establishes whether the study should use random or fixed effects estimation. Fixed-effects model deals with the unobserved heterogeneity, it contains no constant term and the component of individual-specific controls the intercept for each individual. Under random-effects estimations, the component of individual specific is not a parameter being estimated but instead, treated as a random that has

mean and variance (Sheytanova, 2015). The null hypothesis is stated as random-effects model is preferred over fixed-effects model. The alternative hypothesis states that fixed-effects model is preferable. The decision criterion is to reject the null hypothesis if $p<0.05$, otherwise, fail to reject the null hypothesis.

3.7 Operationalization and Measurement of Variables

This research focuses on four study variables; dividend policy, agency cost, liquidity and corporate value which were operationalized on the premise of previous studies. The criterion variable is entity value while the predictor variable is pay-out policy. The intervening variable is agency costs and moderating variable is liquidity. Tobin's Q (corporation value) was applied by Hardin and Hill (2008), Anton (2016) and McKnight and Weir (2009). Tobin's Q is a market based approach. To measure dividend policy a composite of dividend policy was computed by adding IR to DPR and dividing the sum by 2.

Pay-out ratio was calculated in accordance with Anton (2016) while interim dividend ratio was adopted from IASB (2008). Saisana and Tarantola (2002) noted that composite indicators enhance decision making and summarizing multi-dimensional concepts. They are simple to interpret instead of attempting to construct trends for multiple indicators. They can also facilitate inclusion of more information. Agency costs was measured by asset utilization ratio in line with Sing and Davidson (2003) and Ang et al. (2000) where it was derived by total annual revenue to total assets. Higher ratio implies that assets were efficiently utilized to generate revenue, thus, agency costs were minimal. Computation of firm liquidity followed Millet-Reyes and Zhao (2010) who used OCF to determine firm liquidity. Table 3.3 contains measurements of the study variables.

Table 3.1: Study Variables, Measurements and Comparison with Previous Studies

Variable	Indicator	Operational Definition	Scale	Source
Firm Value (FV)	Tobin's Q; ratio of market value to book value of assets	Book values of total assets and total equity; Q= {Market capitalization + (Total assets-equity)}/Total Assets	Ratio	Hardin & Hill (2008)
Dividend Policy =∑(IR+DPR)/2	Frequency of Dividend payment; Interim Dividend Ratio (IR)	Total actual cash dividend paid as interim expressed in terms of total dividend IR= Interim div/total div Where; Interim dividend is cash dividend paid before financial year end Total dividend is the annual dividend	Ratio	IASB (1998)
	Dividend Per Earning Ratio; Dividend Payout Ratio (DPR)	Total dividends divided by total earnings attributable to shareholders DPR= Total Dividends/Total Earnings * 100 Where; Total dividend represents the annual dividend Total earnings is the annual earnings	Ratio	Anton (2016)
Agency Costs	Asset Utilization Ratio	Annual Sales/Total Assets	Ratio	Singh & Davidson (2003)
Firm Liquidity	Operating Cash flow Ratio	PAT plus non-cash outflow items over total assets minus cash and cash equivalents OCF= PAT+ Depre/ {TA- (Cash+ Cash Equivalents)} Where; OCF=Operating Cash Flows PAT= Annual Profit After Tax Depre=Annual Depreciation (Non-cash outflow items) TA= Average Total Assets (Opening TA+ Closing TA)/2 Average cash in hand plus cash at bank balances (opening + closing value)/2 Cash equivalents= The average value of short-term high liquidity investments securities (opening + closing values)/2	Ratio	Millet-Reyes & Zhao (2010)

Source: Authors

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3.8 Data Analysis

Quantitative data that has not been subjected to analytical procedures contains almost meaningless information. Data has to be analyzed to create meaning and enhance knowledge (Saunders et al., 2016). Descriptive and inferential statistics were generated as stipulated by positivists. Balanced panel data was acquired for 52 entities at the NSE from 2011-2020. The data points generated were 520. The panel data was cleaned up for analysis which involved testing for accuracy, consistency and completeness. It was then run for descriptive statistics to enable visualization and better understanding. Means, minimum and maximum scores, standard deviations, skewness and kurtosis were generated. These descriptive statistics were useful in identification of any anomalies that required cure before subjecting the data to hypothesis testing. Trend analysis was also handy in representing visual patterns of the concepts. Kosslyn and Kosslyn (2006) opined that the most preferable diagram for displaying trend is line graph.

Diagnostic and specification tests were performed to assess if the assumptions were satisfied. Fixed-effects model was confirmed to be appropriate. Heteroscedasticity and serial correlation occurred so, general least squares method (GLS) was espoused. GLS model adopts stronger assumptions than OLS. Correlations were also tested for selection of suitable regression model. Hypothesis testing was lastly conducted. The output of the GLS fixed-effects model included; coefficients, standard error, t-statistics, and probability scores. R squared, adjusted R-squared, and F-statistics were also generated.

3.8.1 Dividend Policy and Firm Value

The models stated in this section represent the interrelationships portrayed in figure 2.1. Regression models were used to examine data in this research. Firm worth (Tobin's Q) was the criterion variable. The predictor variable was payout-policy where the indicator was a composite of interim dividend ratio and DPR. The first objective was to appraise the link between pay-out policy and value of institutions at the NSE. The regression model is;

Firm Value = f (DP)

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(i)}$$

Where; FV_{it} is firm worth of entity j in time t, DP_{it} is dividend policy of firm j in time t, β_0 is the regression constant or the y intercept, β_1 is the regression coefficient, ε_{it} = random error term, t=2011 to 2020 and i=1 to 52

3.8.2 Dividend Policy, Agency Costs and Firm Value

Objective two focused on the intervening effect of agency costs in the link between payout-policy and firm worth. The study followed Baron and Kenny (1986) model in four steps;

In step one, the predictor variable must directly affect the criterion variable when the mediating variable is excluded. It is permissible to progress to the second stage only if the condition in the first stage is fulfilled. In step two, the influence of the explanatory variable on the mediating variable must be statistically significant when the response variable is excluded from the model. In step three, a positive link between the response variable and the intervening variable while controlling the explanatory should exists. In step four, the correlation between the criterion variable and the predictor variable is experimented. At the fourth stage, the rule is that a direct link

between the criterion and explanatory variables should not exist for full mediation to occur. In other words, the p-value must be insignificant ($p>0.05$). When the effect of the predictor variable reduces significantly with the exclusion of the mediator variable in the model, then partial mediation is said to have occurred.

The assessment was done as depicted in the following equations;

Step one: Intermediation between payout-policy and entity value.

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(ii)}$$

Step two: Intermediation between payout-policy and agency costs

$$AC_{it=} \beta_0 + \beta_1 DP_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(iii)}$$

Step three: Intermediation among payout-policy, agency costs and firm value

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 AC_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(iv)}$$

Where; $FV_{it,} DP_{it}, \beta_0, \beta_1, \beta_2$ and ε_{it} are defined in equation (i) and AC_{it} is agency cost of firm j in time t.

3.8.3 Dividend Policy, Liquidity and Firm Value

Objective three examined the moderation effect of liquidity on the link between pay-out policy and corporate worth. Baron and Kenny (1986) was utilized to determine the moderation effect of liquidity in the link between payout-policy and value of corporates at the NSE. This procedure entails the assessment of the interaction between the explanatory and moderation variables and subsequently, establishing an interaction term from the product of moderator and predictor variables. To lessen the possibilities of multicollinearity, the dataset was transformed into standardized z scores. The transformed scores were then multiplied to work out the interaction term. Panel GLS fixed-effect method was then utilized to evaluate the moderation effect of

interaction term in the interrelation between the predictor variable and the response variable. The outcome is contained in table 5.3.

The regression model is as depicted below;

Firm Value = f (DP, Firm Liquidity)

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 LQ_{it} + \beta_3 (LQ_{it} * DP_{it}) + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(v)}$$

Where; FV_{it}, DP_{it}, β_0, β_1, β_2, β_3 and ε_{it} are defined in equation (i) and LQ_{it} is liquidity of firm j in time t.

3.8.4 Dividend Policy, Agency Costs, Liquidity and Firm Value

Determination of the relationship among dividend policy, agency costs, liquidity and value of institutions at the NSE formed the fourth objective of this study. The equation was stated as follows;

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 AC_{it} + \beta_3 LQ_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(vi)}$$

Where; FV_{it}, DP_{it}, AC_{it}, LQ_{it}, β_0, β_1, β_2, β_3 and ε_{it} are defined in equations (i) to (v).

A summary of objectives, hypotheses, analytical models and interpretation of results is contained in table 3.2;

Table 3.2: Objectives, Hypothesis, Analytical Model and Interpretation of Results

Objectives	Hypotheses	Analytical Method	Interpretation
i) To establish the relationship between payout-policy and value of entities listed at the Nairobi Securities Exchange.	H_{01}: There is no significant relationship between payout-policy and value of institutions listed at the Nairobi Securities Exchange.	-Panel General Least Squares (GLS) Fixed-Effect Method Firm Value = f (DP) $FV_{it} = \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$.................. (i) Where; FV_{it} = Firm Value of firm j in time t, DP=Dividend Policy composite of firm j in time t, β_0= intercept, β_1=coefficient, ε_{it} =Error term, t=2011 to 2020, i=1 to 52	Significant β_1, Significant F-statistics and Adjusted R-squared. $\beta_{1\neq}0$, $p< 0.05$), Reject H_{01} $\beta_{1\neq}0$, $p>0.05$), fail to reject H_{01}
ii) To determine the effect of agency cost in the relationship between payout-policy and value of institutions listed at the Nairobi Securities Exchange	H_{02}: Agency cost does not significantly intervene in the association between payout-policy and value of corporates listed at the Nairobi Securities Exchange	-Panel General Least Squares (GLS) Fixed-Effect Method -Baron & Kenny (1986) $FV_{it=} \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$.................. (ii) $AC_{it=} \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$ ....(iii) $FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 AC_{it} + \varepsilon_{it}$ .... (v) Where; FV_{it}, DP_{it}, β_0, β_1, t, i and ε_{it} are defined in equation (i). AC= Agency Cost	Significant β_{1s}, in step 1-3 Significant F-statistics Insignificant β_1 in step 4 $(\beta_{4\neq}0$, $p>0.05)$, Reject H_{02} $(\beta_4 \neq 0$, $p< 0.05)$, fail to reject H_{02}
iii) To establish the moderating effect of liquidity on the relationship between payout policy and value of institutions listed at the Nairobi Securities Exchange.	H_{03}: There is no significant moderating effect of liquidity in the relationship between payout-policy and value of entities listed at the Nairobi Securities Exchange.	-Panel General Least Squares (GLS) Fixed-Effect Method -Baron & Kenny (1986) Firm Value = f (DP, Firm Liquidity) $FV_{it=} \beta_0 + \beta_1 DP_{it} + \beta_2 LQ_{it} + \beta_3 (LQ_{it} * DP_{it}) + \varepsilon_{it}$...........(v) Where; FV_{it}, DP_{it}, β_0, β_1, t, i and ε_{it} are defined in equation (i). LQ= Liquidity,	Significant β_3, Significant F-statistics and Adjusted R-squared. $(\beta_1 \neq 0$, $p< 0.05)$, Reject H_{03} $(\beta_1 \neq 0$, $p>0.05)$, fail to reject H_{03}
iv) To establish the joint effect of agency cost and liquidity on the relationship between payout-policy and value of entities listed at the Nairobi Securities Exchange	H_{04}: There is no significant joint effect of agency cost and liquidity on the relationship between payout-policy and value of corporates listed at the Nairobi Securities Exchange.	Panel General Least Squares (GLS) Fixed-Effect Method Firm Value = f (DP, AC, Liquidity) $FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 AC_{it} + \beta_3 LQ_{it} + \varepsilon_{it}$……………(vi) Where; FV_{it}, DP_{it}, β_0, β_1, t, i and ε_{it} are defined in equation (i) to (v).	Significant of all β_s, Significant F-statistics and Adjusted R-squared. $(\beta_1 \neq 0$, $p< 0.05)$, Reject H_{04} $(\beta_1 \neq 0$, $p> 0.05)$, fail to reject H_{04}

Source: Researcher, 2023

CHAPTER FOUR: DESCRIPTIVE DATA ANALYSIS AND PRESENTATION

4.1 Introduction

This segment contains; data collected, trend analysis, and descriptive statistics. It further covers diagnostic and specification tests which include; normality, linearity, multicollinearity, heteroscedasticity, autocorrelation, panel unit root and Hausman fixed and random effects tests. Correlation analysis was additionally conducted in this section and the chapter closes with a summary.

4.2 Response Rate

This research targeted a population of 62 firms at the NSE from 2011-2020. These institutions are enlisted in appendix I. Out of the 62 targeted companies, complete dataset was collected from 52 entities which is a representation of 84% response rate and 520 data points. The 10 institutions omitted did not have full (balanced data) records over the research period. There were cases of listing after 2011, statutory management, receivership or liquidation of these entities.

The response rate was deemed adequate for purposes of drawing conclusions. For instance, Nyamute (2016) worked with a response rate of 90.4%. Iraya (2014) voiced that a response rate of 60.5% was acceptable for evaluation and deducing knowledge, thus, the response rate attained in this study was deemed sufficient. Table 4.1 is a representation of the feedback.

Table 4.1: Response Rate Distribution

Response Rate	Frequency	Percentage
Collected	52	84%
Excluded	10	16%
Total	**62**	**100%**

Source: Researcher, 2023

4.3 Trend Analysis

Trend analysis was conducted for entity value, payout-policy, agency costs and liquidity to establish the behavior of each individual variable over the 10 year study period. Presentation of the trends was done using graphical models. The trend analysis for firm value is portrayed in figure 4.1.
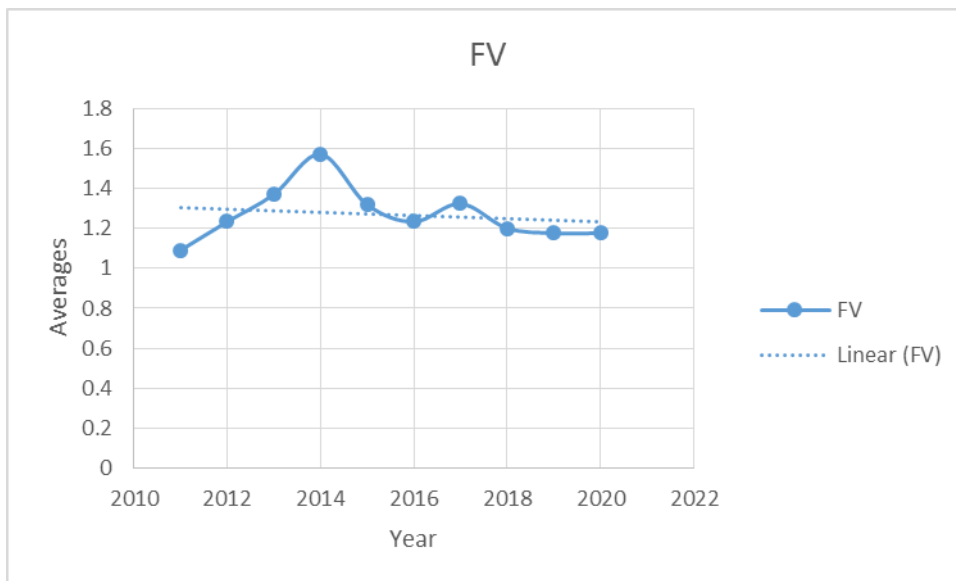
Figure 4.1: Trend for firm value for the period 2011-2020

Figure 4.1 displays a gradually dropping trend line for corporate value. Firm worth is expected to be influenced by payout policy. According to signaling hypothesis, a decline in payout could cause company value to drop.

The trend line for dividend policy illustrated in figure 4.2 shows a declining quantum of dividend which could provide an explanation to the declining trend in fortunes. Various other factors such as inflation rates and business environment could influence firm worth but evidently, there is a trend pointing towards a link between payout and stockholders' wealth.
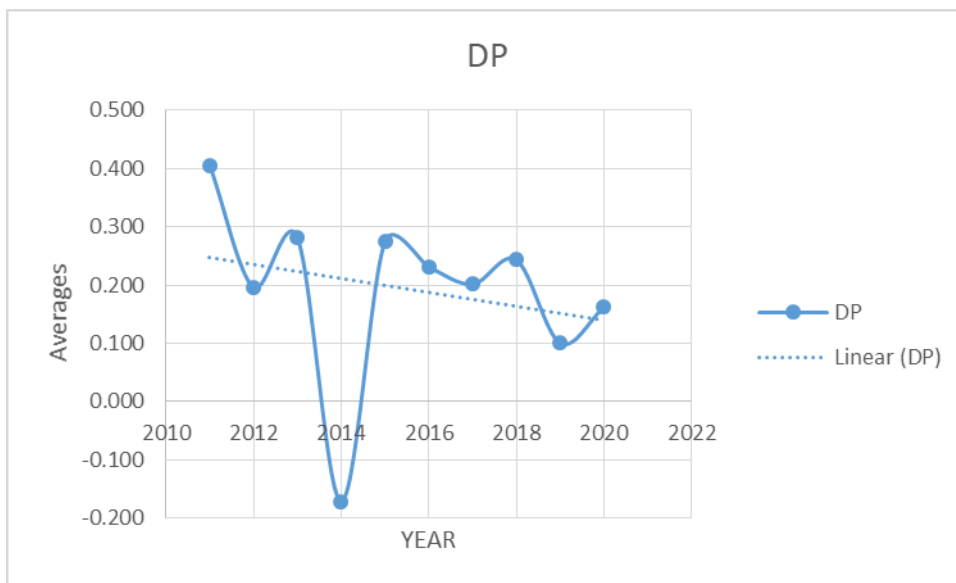
Figure 4.2: Trend for Dividend Policy for the period 2011-2020

The trend line for agency costs in figure 4.3 also shows a drop in the agency costs values. Agency costs was the mediator between payout-policy and firm fortunes. A higher ratio of sales to total assets means the assets are utilized well to generate sales. The declining ratio for AUR shown in figure 4.3 could be the reason behind the declining value of the institutions at the NSE indicating that agency costs is a mediator between payout-policy and corporate worth.
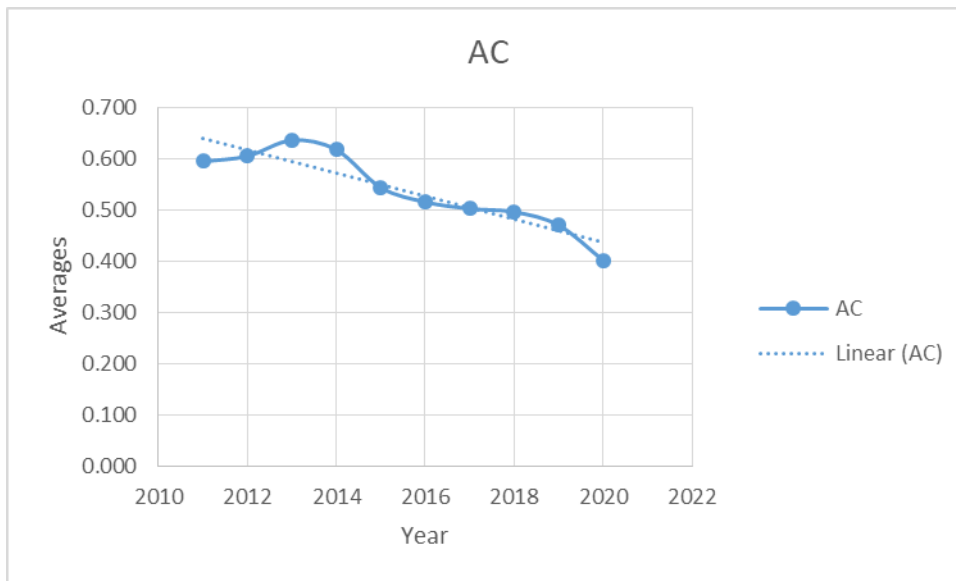
Figure 4.3: Trend for Agency Costs for the period 2011-2020
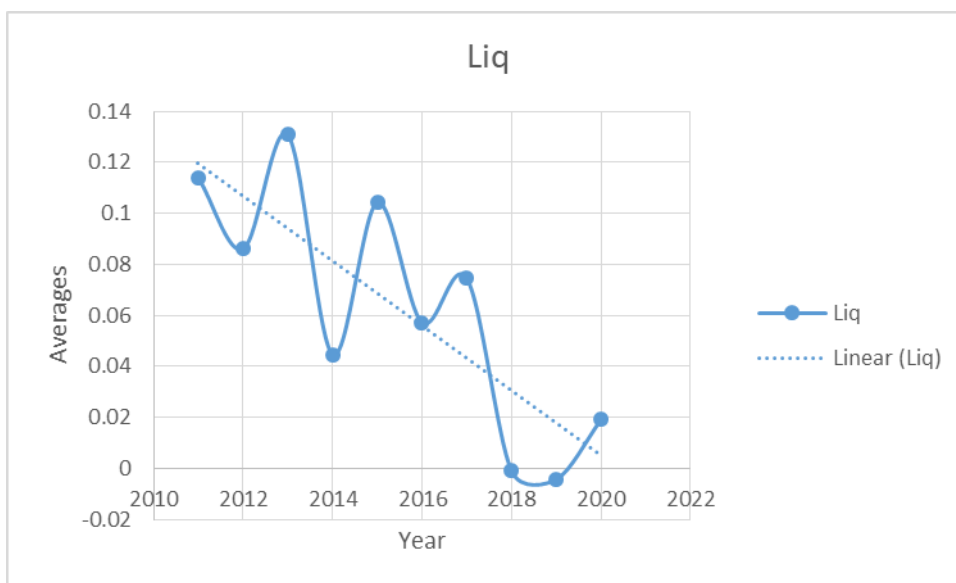
Figure 4.4: Trend for liquidity for the period 2011-2020

Figure 4.4 displays the trend line for liquidity moving in the same direction as firm value meaning that low liquidity impacts firm value negatively. Liquidity seems to be a moderator in the link between payout-policy and investors' wealth. High liquidity is required to finance profitable projects.

4.4 Descriptive Statistics

The descriptive statistics generated included; means, minimums, maximums, standard deviation, skewness, standard error of estimate and kurtosis. Descriptive statistics enable visualization of the data, more so, large scale data. They enable the researcher to describe, present or summarize data numerically in a meaningful way. Descriptive statistics however, do not facilitate deduction of truth and only facilitate data description and simplification of interpretation. Mean assesses central tendency depicting the value each item in the distribution would assume if all values were equally shared out amongst all items. Standard deviation examines deviation from the central tendency. Standard error of estimate is an estimate of a parameter that measures the dispersion of sample means located around the population mean.

Skewness is a test of asymmetry or lack of asymmetry. If the bunching of the graph is to the left, it is said to be positively skewed while the converse means the data is negatively skewed. When the data is distributed equally, meaning that it looks same to the right and left of the central point, then it is asymmetrical distribution. Another indicator is Kurtosis which depicts the pointedness or flatness of the dispersion in comparison with normally distributed series (Saunders et al., 2016). Kurtosis in other words, assesses whether tails of a certain distribution has extreme values. The study variables in this research were; dividend policy, agency costs, liquidity and entity value. The output for the 520 data points is as captured in table 4.2.

Table 4.2: Descriptive Statistics Output

	FV	DP	AC	LIQ
N	520	520	520	520
Mean	1.26956	0.20237	0.58208	0.06251
Median	0.99870	0.11030	0.39030	0.05170
Maximum	6.96370	12.50000	4.98830	2.28680
Minimum	0.00000	-24.28780	0.00000	-2.45810
Std. Dev.	1.03928	1.28728	0.66188	0.30207
Skewness	2.86380	-11.32626	2.66693	-2.64988
Kurtosis	11.91965	269.90620	13.49595	31.84604

Source: Researcher Findings, 2023

From table 4.2, corporate value (Tobin's Q) had a mean score of 1.26956 for institutions listed at the NSE between 2011 and 2020. The standard deviation for firm value was 1.03928 indicating high variability of data from the mean score. The minimum and maximum aggregate values for entity were 0.0000 and 6.9637 respectively. The observations were normally distributed at 95% confidence interval as shown by the z values of skewness (2.86380) and kurtosis (11.91965).

The mean statistic for pay-out policy for corporates at the NSE between 2011 and 2020 was 0.20237 with a highly variable standard deviation of 1.28728. Minimum and maximum scores for payout-policy were -24.2878 and 12.5 respectively. The skewness value was negative 11.32626. The kurtosis was found to be a positive of 269.90620. Agency costs for institutions at the NSE between 2011 and 2020 yielded a mean value of 0.58208 and a standard deviation of 0.66188. The values occurred between a minimum value of 0.0000 and a maximum of 4.9883. Both skewness and kurtosis were positive with values of 2.66693 and 13.49595 respectively. A mean score of 0.06251 was registered for liquidity of entities listed at the NSE between 2011 and 2020. The standard deviation was established to be 0.30207 while the data occurred within the range of a minimum of -2.45810 and 2.28680. A negative

skewness (-2.64988) was recorded. Kurtosis turned out to be a positive value of 31.84604.

4.5 Diagnostic and Specification Tests

The tests included; normality, linearity, multicollinearity, heteroscedasticity, autocorrelation, panel unit root test and Hausman fixed and random tests.

4.5.1 Normality Test

Kolmogorov-Smirnov, Shapiro-Wilk and graphical methods were used to evaluate normality. Results are as shown in table 4.3 while the graphical representations for corporate value, payout-policy, agency costs and liquidity are as shown in figure 4.5;

Table 4.3: Test of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
REG_RES	.003	519	.200[*]	1.000	519	1.000

Source: Research Findings, 2023

The null hypothesis stated that the residuals obey normality. The alternative hypothesis stated that the residuals do not obey normality. If $p<0.05$, reject the null hypothesis while if $p>0.05$, fail to reject the null hypothesis. Table 4.3 shows p=.20 (p>0.05) under Kolmogorov-Smirnov and p=1.00(p>.05) under Shapiro-Wilk. The study failed to reject the null hypothesis and ruled that the dataset is normally distributed. Histogram in figure 4.5 also visually depicts normality of the dataset.
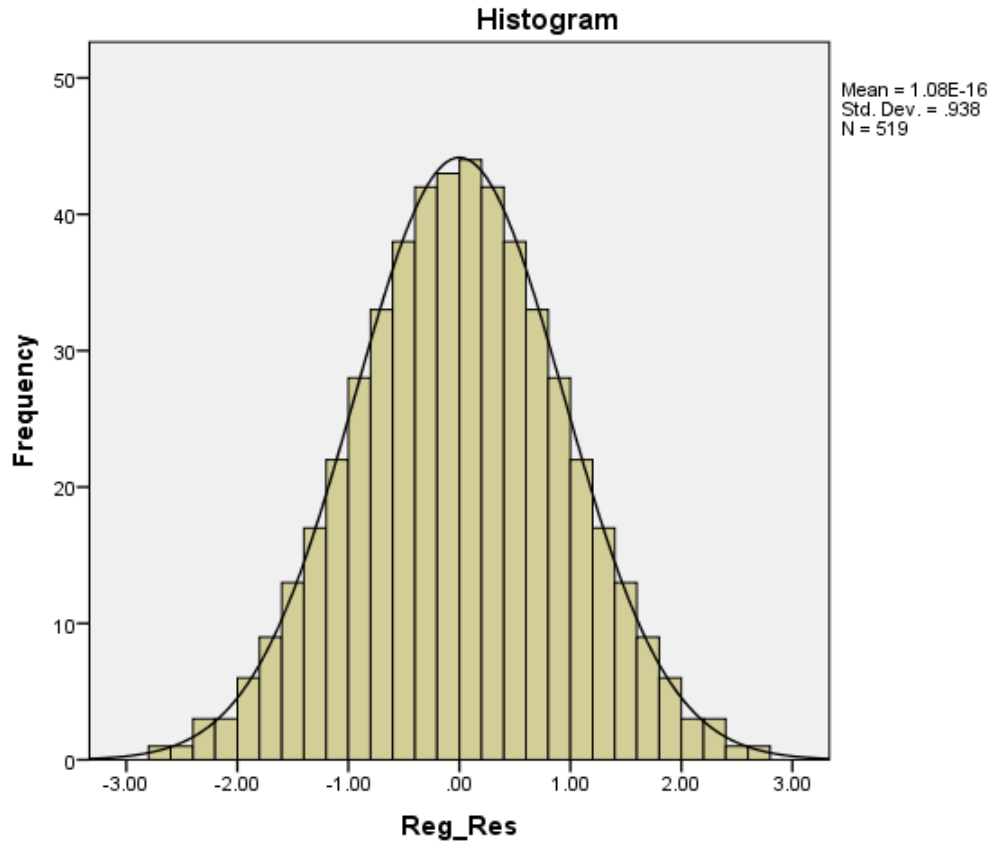
Figure 4.5: Normality Test Histogram Presentation

4.5.2 Linearity Test

The research used analysis of variance (ANOVA) to test for paired interaction linearity. The output is presented in table 4.4.

Table 4.4: Analysis of Variance

Variables			Sum of Squares	df	Mean Square	F-Stat	Sig.	Eta Squared(η^2)
FV * DP	Between Groups	Combined	477.223	349	1.367	2.789	.000	.851
	Within Groups		83.354	170	.490			
	Total		560.577	519				
FV * AC	Between Groups	Combined	559.520	504	1.110	15.750	.000	
	Within Groups		1.057	15	.070			0.998
	Total		560.577	519				
FV * LIQ	Between Groups	Combined	554.044	472	1.174	8.445	.000	.988
	Within Groups		6.533	47	.139			
	Total		560.577	519				

Source: Research Findings, 2023

Interpretation of Eta squared (η^2) is such that, if η^2 ranges between 0.01 and 0.06 the effect is small, 0.07 and 0.14 the effect is medium and when $\eta^2 > 0.14$ the effect is large. Table 4.4 shows that FV and DP (F, (1, 519) =2.789, p=.000, η^2=0.851), FV and AC (F, (1, 519) =15.750, p=.000, η^2=0.998) and FV and LIQ (F, (1, 519) =8.445, p=.000, η^2=0.988). All the F-stat scores were above 0.05. All the p-values were below 0.05 and all pairs had $\eta^2 > 0.14$. The greatest effect as displayed by η^2 occurred in the pairing of firm worth and agency costs (0.998) then liquidity (0.988) and finally dividend payout policy (0.851). Hence, the conclusion that association among the groups or among the criterion and all predictor variables met linearity.

4.5.3 Multicollinearity Test

Variance inflation factor was used to test for collinearity and the output is displayed in table 4.5. The VIF output indicates that payout-policy, agency costs and liquidity, all had VIFs less than 10 (VIF<10) and tolerance less than 1, signifying that there was no multicollinearity or there was existence of an orthogonal state.

Table 4.5: Multicollinearity Test Results

Variable	VIF	1/VIF
DP	1.000	0.998
AC	1.010	0.989
LIQ	1.010	0.988
Mean VIF	1.010	

Source: Researcher Findings, 2023

4.5.4 Heteroscedasticity Test

This research applied Breusch-Pagan to test for heteroscedasticity and the results are captured in table 4.6.

Table 4.6: Heteroscedasticity Test Results

Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
H_0: Constant variance
Chi2(1)= 281.95
Prob> chi2=0.0000

Source: Research Findings, 2023

The null hypothesis states that there is no heteroscedasticity. If p> .05, reject the null hypothesis and affirm that the assumption of homoscedasticity is met. The p-value is 0.000(p<.05) in table 4.6 so, the research failed to reject the null hypothesis with a conclusion that homoscedasticity assumption was not met. Thus, the study used the general least squares (GLS) approach to remedy heteroscedasticity occurring in the dataset.

4.5.5 Autocorrelation Test

Breusch-Godfrey LM test was used to evaluate for existence of serial correlation. The output is as contained in table 4.7.

Table 4.7: Serial Correlation Test results

Breusch-Godfrey LM test for autocorrelation			
lags(p)	chi2	df	Prob> chi2
1	348.214	1	0.0000
	H_0: no serial correlation		

Source: Research Findings, 2023

The null hypothesis stated that serial correlation is absent. The alternate hypothesis stated that serial correlations is present. The decision rule is to reject the null hypothesis if p>.05. Table 4.7 contains a p-value of 0.000(p<0.05). The research failed to reject the null hypothesis and reported that there is serial correlation. Consequently, this study used the general least square model (GLS).

4.5.6 Panel Unit Root Test

This research used Levin, Lin & Chu (LLC) and PP-Fischer Chi-square to carry out panel unit root test. The output is contained in table 4.8;

Table 4.8: Summary of Panel Unit Test

Series: Firm Value, Dividend Policy, Agency Costs and Liquidity
Sample: 2011 2020
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Variable	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root: Levin, Lin & Chu t*				
Firm Value	-6.46970	0.0000	52	416
Dividend policy	30.0547	1.0000	45	360
Agency Costs	-8.48069	0.0000	52	416
Liquidity	-2.52984	0.0057	52	416
Null: Unit root: PP- Fischer Chi-square				
Firm Value	130.554	0.0401	52	468
Dividend policy	235.769	0.0000	48	432
Agency Costs	161.158	0.0003	52	468
Liquidity	267.944	0.0000	52	468

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.
Source: Research Findings, 2023

Table 4.8 contains output for panel unit root test. The output is for both Levin, Lin & Chu and PP-Fischer Chi-square. Under LLC, firm value, agency costs and liquidity were all significant $p<0.05$ and therefore were stationary while dividend policy scored $p>0.05$. Under PP-Fischer Chi-Square all the variables displayed a p-value less than 0.05 meaning they were all stationary.

4.5.7 Test for Fixed or Random Effects

The Hausman test assessed whether to use fixed or random effects model. The results are contained in table 4.9;

Table 4.9: Correlated Random Effects-Hausman Test results

Dependent Variable: Firm Value (Tobin's Q
Method: Panel Least Square
Sample: 2011 2020: Periods included: 10:
Total Panel (balanced) observations: 52
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.699651	3	0.0021

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
DP	0.017828	0.017037	0.000003	0.6238
AC	0.591948	0.507071	0.003560	0.1548
LIQ	0.104865	0.162817	0.000292	0.0007

R-squared	0.779558	Mean dependent var	1.269564
Adjusted R-squared	0.753958	S.D. dependent var	1.039283
S.E. of regression	0.515512	Akaike info criterion	1.612433
Sum squared resid	123.5747	Schwarz criterion	2.062357
Log likelihood	-364.2326	Hannan-Quinn criter.	1.788685
F-statistic	30.45181	Durbin-Watson stat	0.828556
Prob(F-statistic)	0.000000		

Source: Research Findings, 2023

The null hypothesis under Hausman test stated that random-effects model is preferable. The alternative hypothesis states that fixed-effects model is preferable. If $p<0.05$, reject the null hypothesis and apply the fixed-effects model. From the results in table 4.9, Chi-square Statistic is 14.699651 while the $p=0.0021(p<0.05)$. Accordingly, this research rejected the null hypothesis which stated a preference for random-effects model over fixed-effect estimation. This research therefore, followed the fixed-effect model.

4.6 Correlation Analysis

Correlation analysis was undertaken to bring out the relationship among payout-policy, agency costs, liquidity and corporate worth using Pearson Product Moment Correlation Coefficient. The output ranges between -1 and +1 and it provides the magnitude and direction of relations between two variables. The output are contained in table 4.10;

Table 4.10: Correlation Matrix

Correlation t-Statistic Probability	FV	DP	AC	LIQ
FV	1.0000			

DP	-0.0191	1.0000		
	-0.4346	-----		
	0.6640	-----		
AC	0.2173	0.0027	1.0000	
	5.0659	0.0606	-----	
	0.0000	0.9517	-----	
LIQ	0.2788	0.0421	0.1029	1.0000
	6.6062	0.9597	2.3534	-----
	0.0000	0.3377	0.0190	-----

Source: Research Findings, 2023

The interaction among the research variables represented in table 4.10 is such that, firm value related positively and significantly with agency costs and liquidity with values of (r=.2173, p=.0000) and (r=.2788, p=.000) respectively. This implies that as asset utilization ratio increases agency costs will reduce and firm value will increase proportionately. A unit increase of AUR (reduction of agency costs) will cause 21.7% increase in firm value. Similarly, as liquidity increased, institutional value also increased. For each increased unit of liquidity, corporate worth increased by 27.9%. The link between payout-policy and stockholders' wealth produced a correlation score of -0.0191 but the association was insignificant at a p-value of 0.6640 (p>0.05).

A review of the correlation between payout-policy and agency costs showed no significance at p=.9517 (p>.05), same as the one between liquidity and dividend policy which was p=.3377(p>.05). The connection between liquidity and agency costs was however significant (r=0.1029, p=0.0190). In summary, all the coefficient drawn from the correlation analysis did not surpass 0.8 limit which would have indicated existence of multicollinearity in the panel data. The variables therefore displayed weak associations with each other. Statistically significant but weak correlations

imply that the variables are interrelated but do not violate multicollinearity assumption.

4.9 Chapter Summary

This study obtained data for 52 firms which had complete records, constituting 84% response rate. In trend analysis, the trend line was plotted which captured a pattern where payout-policy, agency costs and liquidity had a downward trend. In the same period, the criterion variable (corporate value) also had a downward trend. This implies that as dividend payment reduced and agency costs increased, corporate value was affected negatively. Liquidity equally reduced so profitable projects could not be undertaken, therefore, corporate value diminished.

The assumptions of Normality, collinearity and linearity were also satisfied. However, there was presence of heteroscedasticity and autocorrelation which necessitated the use of weighted least square model as a curative measure. This study specifically used the general least squares (GLS) fixed-effect model. PP- Fischer Chi-square showed stationarity of the data where all the variables reported significant scores (p<0.05). Hausman test for fixed or random effects approved fixed-effect model with a p-value=.0021(p<.05). Correlations showed relationships that were weak and therefore confirmed that the panel data was fit for use since none of the scores surpassed 0.8.

CHAPTER FIVE: HYPOTHESIS TESTING AND DISCUSSION OF THE FINDINGS

5.1 Introduction

This part contains hypothesis testing, results including their interpretations and their respective implications in the domain of finance. The assessment of the hypotheses were directed by the objectives set forth and were tested based on the inferential statistical results. Hypothetical statements were crafted against which realities were tested and knowledge developed. The decision criterion relied on the value of t-statistics. The materiality of the t-statistic was gauged by the p-values.

The first null hypothesis sought to analyze the link between pay-out policy (predictor) and corporate worth (criterion) where, entity worth was measure by Tobin's Q and payout-policy by a composite index computed as interim dividend ratio plus DPR divided by two. The second hypothesis focused on the mediation effect of agency costs in the connection between pay-out policy and corporate worth and the third reviewed the moderation effect of liquidity in the link between dividends and corporate worth. The fourth hypothesis tested the joint influence of payout-policy, agency costs and liquidity on corporate worth. The chapter further presents the findings and their related interpretations.

5.2 Regression Analysis

Hausman fixed and random test approved fixed-effects model. It was also established that there was autocorrelation problem and the dataset was not homoscedastic occasioning application of general least square method (GLS). The panel regression models yielded estimators of goodness of fit coefficients which included; R^2 and adj.R^2, standard error, F-statistics (F), probability (p) and Durbin-Watson (d) statistics

which were imperative for deducing conclusions. The interpretations were based on the significance of p-values of the output. P-values less than 5% (p<0.05) were assumed to be significant.

Coefficient of variation denoted by R-squared or R^2 was used to measure the proportional fluctuation in the criterion variable that is predicted by the explanatory variable. The coefficient of variation is the proportion of the explained variation out of the total variation. The predictive capability of the model gets better as the R^2 gets higher. Thus, this research used the adjusted R-squared (adj.R^2) to evaluate the fitness of the regression model. The research examined how predictor variable (dividend policy), mediating variable (agency costs) and moderating variable (liquidity) affect value of entities at the NSE.

5.2.1 Dividend Policy and Firm Value

The first objective of this research was to analyze the connection between and pay-out policy (composite score of interim dividend ratio and dividend pay-out ratio) and corporate value (Tobin's Q) of entities at the NSE. Data was provided by the Nairobi Securities Exchange for the duration between 2011 and 2020 and the GLS fixed-effect model was used to assess the association.

Thus, null hypothesis was as stated below;

H_{01}:   *The relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange is not significant.*

The study espoused the panel GLS fixed-effect model. The equation was displayed and defined in chapter three, equation (i) as follows;

$Y_{it} = \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$

The results are as captured under table 5.1;

Table 5.1: Regression output for Dividend Policy and Firm Value

Dependent Variable: FV
Method: Panel EGLS (Cross-section weights)
Sample: 2011 2020
Periods included: 10
Cross-sections included: 52
Total panel (balanced) observations: 520

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.265206	0.003429	368.9190	0.0000
DP	0.021536	0.007191	2.994644	0.0029

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.834225	Mean dependent var	4.454999
Adjusted R-squared	0.815766	S.D. dependent var	4.685602
S.E. of regression	0.530897	Sum squared resid	131.6248
F-statistic	45.19355	Durbin-Watson stat	0.968775
Prob(F-statistic)	0.000000		

Source: Research Findings, 2023

Table 5.1 contains the regression results of the effect of payout-policy on stockholders' wealth. Payout-policy ($\beta_1 = .021536$, p=.0029) reported a coefficient that is positive with p-value below 0.05 (p<.05). This confirms that payout-policy influences corporate worth. The score was statistically significant at 95% confidence interval. The overall model was statistically significant (adj.R^2=.82, F (1,519) =45.19, P=.000, d=.969). The adj.R^2 output of 0.82 confirms the fitness of the regression model. It means that 82% variations in company worth is explained by pay-out policy. The null hypothesis H_{01}, stated that the interrelationship between pay-out policy and value of corporates at the NSE is not significant. The findings therefore rejected the null hypothesis and confirmed that payout-policy affects fortunes of institutions at the NSE. The consequential prediction model is displayed in equation (5.1);

$$Y= 1.265206 +0.021536DP…………………………………………… (5.1)$$

5.2.2 Dividend Policy, Agency Costs and Firm Value

Evaluation of the mediation influence of agency cost on the connection between pay-out policy and the value of entities at the NSE formed the second objective. Asset utilization ratio (AUR) was computed by annual turnover sales to total assets and used as the indicator for agency costs. The study followed Baron and Kenny (1986) model to evaluate mediation effect of agency costs in the link between payout-policy and corporate worth in the below outlined steps;

In step one, pay-out policy must directly affect entity value when agency costs is excluded. Proceed to stage two if the interrelationship between pay-out policy and entity worth is established. In step two, the influence of pay-out policy on agency costs must be statistically significant when firm value is excluded from the model. In step three, a positive link between entity worth and agency costs while controlling pay-out policy should exists. In step four, the correlation between entity worth and pay-out policy is experimented where there should be no direct link between the entity worth and pay-out policy for full mediation to occur. In other words, the p-value must be insignificant (p>0.05). When the effect of pay-out policy reduces significantly with the exclusion of the agency costs in the model, then partial mediation is said to have occurred. The null hypothesis and the regression models are as stated below;

H_{02}: *There is no significant intervening effect of agency costs in the relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.*

Step one: Intermediation between payout-policy and corporate value.

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$$

Step two: Intermediation between payout-policy and agency costs

$$AC_{it=} \beta_0 + \beta_1 DP_{it} + \varepsilon_{it}$$

Step three: Intermediation among payout-policy, agency costs and corporate value

$$FV_{it} = \beta_0 + \beta_1 DP_{it} + \beta_2 AC_{it} + \varepsilon_{it}$$

The GLS fixed- effect model output is as contained in the table 5.2;

In step one, the output is displayed in table 5.2, model 1. Payout-policy ($\beta_{1=}0.021536$, p=.0029) was statistically significant with a positive coefficient (β_1). The estimation model (adj.R^2=.815766, F $(1,519)$ =45.19355, p=.000) was a good fit. The link between the response and the predictor variable was confirmed in stage one, (p<0.05). Payout-policy explained 82% of the variations in entity value, progression to stage two was permissible.

Table 5.2: Regression output for Agency Costs and Dividend Policy

Dependent Variable: FV

Method: Panel EGLS (Cross-section weights)

Sample: 2011 2020

Periods included: 10

Cross-sections included: 52

Total panel (balanced) observations: 520

Variable	Model 1	Model 2	Model 3
	DP &FV	DP&AC	DP,AC &FV
Constant	1.265206(0.0000)	0.58072(0.0000)	1.073357(0.0000)
DP	0.021536(0.0029)	-	0.019945(0.0028)
AC	-	0.006743(0.007)	0.330143(0.0000)
Adj R	**0.815766**	**0.953092**	**0.830287**
F	**45.19355(0.0000)**	**203.7912(0.0000)**	**48.90752(0.0000)**

Source: Research Findings, 2023

In step two, table 5.2, model 2, payout-policy policy ($\beta_{1=}.006743$, p=.007) was statistically significant with a coefficient (β_1) that is positive and a p-value below 0.05 (p<0.05). These results demonstrate that payout-policy correlates with agency costs significantly. The overall model was also found to be a good fit (adj.R^2=.953092, F (1,519) =203.7912, p=0.00). The adj.R^2 score shows that the dividend can explain 95% variations in agency costs values. The findings indicate that dividends statistically influenced agency costs since p-value was below 0.05 (p<0.05). The process was successful in stage two, paving way for procedures in stage three.

Step three involved the assessment of the link between the response variable (firm worth) and agency costs (mediator) while controlling dividend policy (explanatory variable). The results as contained in the table 5.2, model 3 reveal that there is a significant influence of agency costs on entity value when pay-out is controlled ($\beta_{1=}.330143$, p=.00000). The model (adj.R^2=.830287, F (1,519) =48.90752 and the p=.000) meant that the model was fit for estimation.

In step four, the link between the criterion variable (firm worth) and the predictor variable (dividend policy) while the intervening variable (agency costs) is controlled was tested and the output is exhibited in model 3, table 5.2. A statistically positive link was found between corporate worth and pay-out ($\beta_{1=}.019945$, p=.0028). The model (adj.R^2=.830287, F (1,519) =48.90752 and the p=.000) shows that it was a good fit for estimation. The results imply that the fourth condition as stipulated by Baron and Kenny (1986) was not fulfilled. However, the first three steps were satisfied which confirms that there was a partial mediation. This confirmed that agency costs mediated the connection between pay-out policy and entity value. The null hypothesis, **H$_{02}$**, which stated that the interrelationship between pay-out policy and value of companies at the NSE is not intervened by agency costs was rejected. The prediction model is as stated as follows;

$$FV = 1.073357 + 0.019945DP + 0.330143AC……………………. (5.2)$$

5.2.3 Dividend Policy, Liquidity and Firm Value

The third objective of this research was to appraise the moderation effect of liquidity in the link between payout-policy and value of corporates at the NSE. The hypothesis was stated as;

H$_{03}$: There is no significant moderating effect of liquidity in the relationship between dividend policy and value of firms listed at the Nairobi Securities Exchange.

Baron and Kenny (1986) was utilized to determine the moderation effect of liquidity in the link between payout-policy and value of corporates at the NSE. This procedure entails the assessment of the interaction between the explanatory and moderation variables and subsequently, establishing an interaction term from the product of

liquidity and payout-policy. To lessen the possibilities of multicollinearity, the dataset was transformed into standardized z scores. The transformed scores were then multiplied to work out the interaction term. Panel GLS fixed-effect method was then utilized to evaluate the moderation effect of interaction term in the interrelation between payout-policy and corporate value. The outcome is contained in table 5.3.

Table 5.3: Output for Dividend policy, Liquidity, Interaction Term and Firm Value

Dependent Variable: FV

Method: Panel EGLS (Cross-section weights)

Sample: 2011 2020

Periods included: 10

Cross-sections included: 52

Total panel (balanced) observations: 520

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.251729	0.006245	200.4529	0.0000
DP	0.008893	0.015404	0.577334	0.5640
LIQ	-0.010354	0.041396	-0.250116	0.8026
LQDP	0.580921	0.247686	2.345395	0.0194

Effects Specification			

Cross-section fixed (dummy variables)

Weighted Statistics			

R-squared	0.812590	Mean dependent var	4.079030
Adjusted R-squared	0.790826	S.D. dependent var	3.888817
S.E. of regression	0.511337	Sum squared resid	121.5817
F-statistic	37.33683	Durbin-Watson stat	0.977989
Prob(F-statistic)	0.000000		

Source: Research Findings, 2023

Table 5.3 presents that the scores for payout-policy (β_1=.008893, p=.5640) and liquidity (β_2=-.010354, p=.8026) were insignificant while the interaction term of LQ*DP (β_3=.580921, p=.0194) was positive and significant. The overall model was significant (adj.R^2 =.79, F (1,519) =37.33683, p=.000, d=.978). The results imply that

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there existed a variation of 79% in the entity value that was accounted for by payout-policy, liquidity and the interaction term. The score of the interaction term shows that the p-value is statistically significant. The findings were that the null hypothesis, **H$_{03}$**, was rejected. Liquidity as evidenced, influences the link between payout-policy and corporate worth. The prediction model is as stated in equation 5.3;

FV= 1.25 +0.01DP - 0.01LQ + 0.58(LQ * DP)………………………… (5.3)

Where; FV$_{it}$ is the predicted value of corporate j in time t, 1.25 is the value of entity when payout-policy, liquidity and the interaction term are all zero, 0.01 is the effect on entity value when liquidity and the interaction term are both zero, - 0.01 is the change on corporate value when dividends and the interaction term are both zero and 0.58 is the impact of the interaction term on firm worth when dividend policy and liquidity scores are zero.

5.2.4 Dividend Policy, Agency Costs, Liquidity and Firm Value

The fourth objective was to evaluate the joint effect of dividend policy, agency costs and liquidity on the value of corporates at the NSE. The null hypothesis was stated as;

H$_{04}$: *The joint effect of dividend policy, agency costs and liquidity on the value of firms listed at the Nairobi Securities Exchange is not significant.*

The study employed the model below which was stated in chapter 3 (equation iv).

FV$_{it}$ = β$_0$ +β$_1$ DP$_{it}$ + β$_2$AC$_{it}$+ β$_3$LQ$_{it}$+ ε$_{it.}$

The criterion variable was entity value while the explanatory variable was payout-policy. Agency costs and liquidity were mediating and moderating variables respectively. The results yielded are as captured in table 5.4.

Table 5.4: Output for Dividend Policy, Agency Costs, Liquidity and Firm Value

Dependent Variable: FV

Method: Panel EGLS (Cross-section weights)

Sample: 2011 2020

Periods included: 10

Cross-sections included: 52

Total panel (balanced) observations: 520

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.078771	0.027856	38.72727	0.0000
DP	0.020376	0.006706	3.038458	0.0025
AC	0.316167	0.047506	6.655366	0.0000
LIQ	0.042136	0.032414	1.299918	0.1943

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.849584	Mean dependent var	4.118416
Adjusted R-squared	0.832117	S.D. dependent var	5.720824
S.E. of regression	0.496490	Sum squared resid	114.6236
F-statistic	48.63768	Durbin-Watson stat	0.997675
Prob(F-statistic)	0.000000		

Source: Research Findings, 2023

Table 5.4 displays the output of how payout-policy, agency costs and liquidity jointly affect corporate worth at the NSE. The results indicate that the regression model was fit for approximation since p-value was less than 5% (p<0.05). The overall model (adj.R^2=.832117, F (1,519) = 48.63768, p=.000, d=0.998) was suitable. The results imply that payout-policy, agency costs and liquidity jointly explained 83% of variations in value of entities at the NSE. Output of the overall model indicates that there is a significant association (p=0.000), thus, rejection of the null hypothesis H_{04}. Dividend policy, agency costs, and liquidity jointly influenced the value of

institutions at the NSE by 83%. The consequential prediction model is stated in equation 5. 4;

$$FV = 1.078771+0.020376DP+ 0.316167AC+ 0.042136LQ\ldots\ldots\ldots\ldots\ldots (5.4)$$

FV_{it} is the predicted value of corporate j in time t, 1.078771 is the value of entity when dividend policy, agency costs and liquidity are all zero, 0.020376 is the effect on firm value when agency costs and liquidity are both zero, 0.316167 is the reaction on firm value when dividend payout policy and liquidity are both zero and 0.042136 is the impact of liquidity on corporation value when dividend distribution policy and agency costs values are zero.

5.3 Discussion of the Results

This research evaluated the interrelationships among payout-policy, agency costs, liquidity and the worth of institutions at the NSE. This section contains the discussions of the output of panel regression analyses conducted using the general least square (GLS) fixed-effect model. The main objective was split into four specific objectives and thereafter, each objective was subjected to hypothesis testing. This section exhibits the inferences generated from the hypotheses testing and their implications. A summary of the findings are detailed in Appendix III.

5.3.1 Dividend Policy and Firm Value

The first specific objective assessed the link between payout-policy and value of listed establishments in Kenya. The null hypothesis H_{01}, announced that the link between pay-out policy and value of corporates at the NSE is not significant. The findings of this study reveal that payout-policy affects value of institutions at the NSE. In line with the gaps identified in this study, payout-policy has been determined to affect

stockholders' wealth and more specifically at the NSE which is a bourse in a third world nation and exhibits constant fluctuations in market capitalization. The results rule out the speculation that payout could be a consequence of investor pressure and short-termism.

Accordingly, the findings are consistent with agency theory (Jensen & Meckling, 1976) which is the anchor theory of this research. From the perspective of imperfect contracting and information asymmetry, payout-policy can grow wealth by signaling that the entity is performing well and also eliminates excess liquidity that can be overinvested. The results further fall in line with signaling hypothesis by Lintner (1956). The results thus, erase the thinking that dividends are paid out of duress to satisfy investors' selfish objectives. This study further argues that income today is preferred over capital appreciation. So, dividend paying stocks should sell at a premium as opined by bird in hand theory proponents. Stockholders defy the assumption of investor rationality by opting for a lower earning today than a higher in the future.

FCF theorem hypothesis by Easterbrook (1984) and the findings of this study also connect. Dividends mop out the discretional funds that could be over-invested, causing corporate worth to grow. The output of this work imply that the proposition of paying out followed by borrowing outweighs the conventional approach of financing projects from internally generated funds first. Moreover, MM (1961) theorem of dividend irrelevance which claims that internally generated funds should be reinvested is challenged. This study further gives credence to the argument that a relaxation of the assumptions under the irrelevance theory would yield results that contradict the said irrelevance theory.

The findings in objective one of this research corroborated Anton (2016), Nwamaka and Ezeabasili (2017) and Alenazi and Barbour (2019) who reported a strong link between payout-policy and corporate value. They concurred that dividends contain information that affect securities' prices positively. Income today is discounted at a lower rate compared to capital appreciation. Additionally, dividend creates debt which enhances insider behaviour. Debt providers monitor managers' actions closely compelling them to align with the investors objectives. Debt obligations also have to be fulfilled otherwise, creditors will bring bankruptcy proceedings against the company. This study has however, introduced a more comprehensive composite score as the proxy for payout-policy which consists of DPR (amount) and IR (frequency) instead of the more popular yet a narrower approach of payout quantum.

Jakata and Nyamugure (2014) on the contrary reported that dividend does not react with entity value in Zimbabwe. It is however, notable that at the time of their research, Zimbabwe was experiencing hyperinflation and companies preserved cash for re-investments since raising new capital becomes expensive. Their study was also limited to 10 entities where, each respective firm represented a corresponding sector in Zimbabwe. Velnampy et al. (2014) equally proved that dividend is irrelevant at the Colombo Stock Exchange. The study focused on a developed country and the sample of 25 manufacturing firms was also limiting since manufacturing firms have unique characteristics especially on variables like liquidity. This study focused on all firms with complete records at the NSE between 2011 and 2020.

5.3.2 Dividend Policy, Agency Costs and Firm Value

Specific objective number two set out to experiment the mediation effect of agency costs in the link between payout-policy and value of corporates at the NSE. The null

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hypothesis **H$_{02}$**, stated that the connection between pay-out policy and value of institutions at the NSE is not intervened by agency costs. The study rejected the null hypothesis and consequently, reported that agency costs intervened the link between payout-policy and value of institutions at the NSE. This research accordingly, bridges the gaps identified earlier in this study by detailing that agency costs intervene the link between pay-out policy and stockholders' wealth. It further explains the link between pay-out policy and entity fortunes via agency costs as an intervener

This study findings are consistent with agency theory. Agency problems can be resolved by payouts. The FCF can be reduced by payouts so that the finances are not deployed sub-optimally or channeled to pay perquisites. The study also corroborates signaling hypothesis by Lintner (1956). Investor can estimate firm worth through dividends when information asymmetry makes it problematic to estimate the intrinsic value of securities. The findings further mirror the arguments of FCF theory by Easterbrook (1984). Dividends eliminate the discretional funds that could be invested in non-rewarding projects. The results of this research were however found to contravene dividend irrelevance theory by MM (1961) who stated that value can only magnify if the earnings are reinvested in the firm. In as much as the ideal strategy is to re-invest the earnings, the intrigues of imperfect contracting and resultant agency costs are found to be more critical, hence, firms should pay dividends.

The results of objective two of this thesis are in line with Mahdzan et al. (2016) who reported that payout-policy reduced agency costs for institutions listed in Malaysia. Similarly, Marfo-Yiadom and Agyei (2011) discovered that there was a link between pay-out policy, agency costs and institutional worth for listed banks in Ghana. Dividends sweep the discretional funds that can be overinvested and also signal that

the firm performed and will continue to perform well. Accordingly, stock prices grow. Ghosh and Sirmans (2003) studied REITs in the USA from 1999 to 2009. The study reported that leverage minimizes non-asymmetrical information and controls agency problems thereby, lowering agency costs and the COC.

On the contrary, Al-Malkawi (2007) studied the interrelationship between payout-policy and agency costs, for 160 entities at the Amman Stock Exchange (ASE). While the current study determined a link between payout-policy and corporate worth, Al-Malkawi (2007) did not find this association. There were also contextual differences between the current study and Al-Malkawi (2007). This study brought out a new conceptualization where the link between pay-out policy and corporate worth is tested through an intervener. Thus, payout-policy mitigates agency costs, accordingly growing wealth for stockholders. Conversely, Al-Malkawi (2007) reviewed determinants of payout-policy.

5.3.3 Dividend Policy, Liquidity and Firm Value

The third specific objective was to explore the moderation effect of liquidity in the link between pay-out and value of institutions at the NSE. The null hypothesis, H_{03}, declared that the link between pay-out policy and value of corporates at the NSE is not significantly moderated by liquidity. The study rejected the null hypothesis and affirmed that liquidity moderated the link between payout-policy and firm worth at the NSE. This study develops knowledge by testing the relationship between payout-policy and stockholders' fortunes by introducing liquidity as a moderator. It further confirms that liquidity moderates the aforementioned relationship. The perception and conviction of many scholars is that re-investment of the earnings is more rewarding. Internally generated funds are also inexpensive compared to debt and equity as

explained by pecking order theory. Nonetheless, the perennial agency problems and the consequential agency costs have promoted use of dividends to wipe out the excess FCF that could be overinvested by insiders.

The results of the third objective of this research concur with agency theory (Jensen & Meckling, 1976) and FCF hypothesis by Easterbrook (1984). Agency problems can be resolved by dividends. The FCF can be reduced by dividends so that the finances are not deployed sub-optimally. Debt is created once the internally generated finances are distributed. Debt providers evaluate the entity continuously to ensure that the debt covenants are fulfilled. There are claims by scholars such as MM (1961) in their irrelevance theory that instead of making payouts, these funds could be re-invested to create more value. It is additionally claimed that even if dividends are paid, the gains in dividends will be lost when new equity providers are introduced to the entity. The current study has provided irrefutable evidence that liquidity moderates the link between payout-policy and wealth and as such, supports suggestions that payouts are necessary.

The results in the third objective mirror Juhandi et al. (2019) who studied the interrelationships among payout-policy, liquidity and entity worth for manufacturing entities at the Indonesia Stock Exchange. Liquidity was found to affect corporate value. High liquidity enabled firms to finance viable projects causing stock prices to grow. The current study, confirms moderation effect of liquidity from the perspective of containing agency costs and overinvestments. Badu (2013) also confirmed the FCF by establishing a relationship between payout-policy and liquidity for institutions listed in Ghana. Companies holding excess liquidity will be prone to high levels of

overinvestments. Payout diminishes the excess cash and creates debtors who monitor insider behaviour.

Third objective results are on the contrary inconsistent with Gill et al. (2010) who studied the interrelationships among pay-out policy, liquidity and value of 266 institutions listed in the USA. The study did not find a relationship among payout-policy, liquidity and entity worth. There was also a contextual difference with the current study. Furthermore, they failed to test for the moderating effect of liquidity. Additionally, Sukmawardini and Ardiansari (2018) examined the relationship among payout-policy, liquidity and corporate worth for 14 institutions at the ISE. There was no link found among the study variables. Measurement of firm worth using price to book value and liquidity using current ratio was limiting. This study specifically used OCF to test for liquidity which is a more comprehensive indicator.

5.3.4 Dividend Policy, Agency Costs, Liquidity and Firm Value

The fourth specific objective experimented the joint effect of payout-policy, agency costs and liquidity on the value of entities at the NSE. Hence, the fourth null hypothesis, H_{04}, stated that the joint influence of payout-policy, agency costs and liquidity on the value of corporates at the NSE is not significant. The study rejected the null hypothesis and concluded that there is a relationship among payout-policy, agency costs, liquidity and value of corporates listed at the NSE.

The results are consistent with agency theory (Jensen & Meckling, 1976), signaling hypothesis by Lintner (1956), bird in hand theorem by Lintner (1962) and FCF theory by Easterbrook (1984). Dividend signals that the institution is profitable and will continue to do well. It also curtails FCF which can be overinvested by insiders. Once payout is made, debt capital is acquired exposing managers to constant monitoring

and evaluation. Debt also presents the risk of bankruptcy proceedings which managers dislike. Income today is also worth more in the future so, dividend paying securities trade at a premium. The findings however, failed to justify MM (1961) theory of dividend irrelevance perhaps augmenting the argument that a relaxation of MM (1961) assumptions yields different results since the assumptions under MM (1961) theory are not tenable.

The results of objective four are in harmony with Afzal and Mirza (2010) who investigated the interrelationships among payout-policy, agency costs, liquidity and entity worth at the KSE between 2005 and 2007. Payouts were minimal when agency costs were low implying that when agency costs are elevated, stockholders push for higher payouts to grow fortunes. However, when liquidity mushroomed, payouts proportionately grew. The same outcome was reported by Anazonwu et al. (2018). They observed that management acted more responsibly when they are allocated more shares. Another discovery was that when liquidity was high, there was a tendency for elevated DPR since investors will attempt to avoid overinvestment of the excess liquidity through dividend payouts. When a substantial amount of earnings is dispensed as dividends, entities have to seek funding from capital markets where they will be exposed to intense scrutiny and continuous monitoring thereby, impacting stockholders wealth positively.

The results however, contravened Al-Kuwari (2009) who examined the relationships among payout-policy, agency costs, liquidity and wealth for entities at the GCC between 1999 and 2003. The study established a link between payout-policy and fortunes but did not find a link between payouts and liquidity implying that payout policy, agency costs and liquidity jointly do not affect shareholders' wealth. There is a

contextual difference between the current study and Al-Kuwari (2009). This study also reviewed all entities with full records at the NSE and tested for mediation and moderation effect of agency costs and liquidity respectively while Al-Kuwari (2009) sampled non-financial firms and ignored the effect of mediating and moderating variables.

5.3.5 Summary of Hypothesis Tests Results

Firstly, the results from tests on the null hypothesis one H_{01}, reveal that payout-policy significantly affects corporate value. Secondly, agency costs was found to significantly intervene the interrelationship between the criterion variable (dividend policy) and the predictor variable (firm value). Thirdly, liquidity significantly moderated the link between the criterion and predictor variables and fourthly, the joint effect of payout-policy, agency costs and liquidity on value of entities listed at the NSE was significant.

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMENDATIONS

6.1 Introduction

Chapter six contains a summary of the overall study, conclusions and contributions to knowledge, theory, managerial policy and practice. This segment closes with limitations of the study and areas that require additional studies.

6.2 Summary of Findings

The central objective of this research was to examine the effect of payout-policy on corporate worth. To fulfil this objective, four variables were conceptualized, that is; predictor, mediating, moderating and dependent variables. The dependent variable was corporate value measured by Tobin's Q while the explanatory variable was payout-policy measured by a composite of DPR (quantum) and IR (frequency). The mediating variable was agency costs with an indicator of asset utilization ratio (AUR) and finally the moderating variable was liquidity whose proxy was operating cash flow ratio (OCF). There were four specific objectives which guided formulation of the four hypothetical statements. The hypotheses were consistent with the gaps brought out in theoretical and empirical literature review, with an aspiration to remedy the study gaps and establish knew knowledge. A summary of gaps is displayed in table 2.1 which included, conceptual, contextual and methodological gaps. The findings of this study aligned to the study gaps pinpointed in chapter one and two of this thesis.

The first objective evaluated the connection between pay-out policy and value of entities at the NSE. The null hypothesis, H_{01}, assumed that there was no significant link between pay-out policy and value of corporates at the NSE. The results are contained in the panel regression output table 5.1, ($\beta_{1=}.021536$ and p=.0029). The p-value is less than 0.05 (p<.05), confirming a significant link between payout-policy

and entity value and hence, the null hypothesis was rejected. The output of this study concludes that payout policy affects shareholders' wealth.

The second objective examined the mediation effect of agency costs in the link between payout-policy and value of institutions at the NSE. The null hypothesis **H02**, stated that there is no significant mediating effect of agency costs in the link between payout-policy and value of entities at the NSE. Table 5.2 contains panel regression output where agency costs are confirmed to mediate the link between payout-policy and entity value. The p-value was significant ($p<0.05$) in the fourth stage but the first three stages were successful implying partial mediation which led to a conclusion that agency costs intervene the interrelationship between pay-out policy and corporate worth. Consequently, the study rejected the null hypothesis and brought to light that agency costs mediate the association between payout-policy and entity value.

The third objective evaluated the moderation effect of liquidity in the link between payout-policy and value of institutions listed at the NSE. The null hypothesis three **H03**, assumed that there is no significant moderating effect of liquidity in the relationship between payout policy and value of entities listed at the NSE. The interaction term LQ*DP ($\beta_{3=}.580921$, p=.0194) exhibited in table 5.3 was positive and significant. The overall regression model was good (adj.R^2 =.79, F $(1,519)$ =37.34, p=.000, d=.97). The null hypothesis was rejected, liquidity moderated the link between payout-policy and value of the institutions trading at the NSE.

The fourth objective experimented the joint effect of payout-policy, agency cost and liquidity on value of corporates at the NSE. The null hypothesis **H04**, presented that the joint effect of payout-policy, agency costs and liquidity on the value of entities at the NSE is not significant. The findings are outlined in table 5.4. Payout-policy

($\beta_{1=}$.020376, p=.0025) and agency costs ($\beta_{2=}$.316167, p=.000) were significant while liquidity ($\beta_{3=}$ .042136, p=.1943) was insignificant. The overall model was fit for prediction (adj.$R^{2=}$.832117, F (1,519) = 48.63768, p=.000, d=.998). The research rejected the null hypothesis and affirmed that payout-policy, agency costs and liquidity jointly influenced value of corporates at the NSE.

6.3 Conclusions

The central objective of this study was to evaluate the interrelationships among pay-out policy, agency cost, liquidity and value of institutions at the NSE. The anchor theory of the study was agency theory and a positivistic philosophical approach was adopted in testing the four hypothetical statements. Secondary panel data was collected from the NSE. The response rate was 84% which represented 52 institutions with full records across the study period. All the 52 entities had dividend plans implying that payout-policy is a major consideration for firms. The status of the study variables at the NSE over the study duration are depicted in trend analysis in section 4.3. The trend lines for both firm value and payout-policy are dropping suggesting that a drop in payouts causes equivalent drop in corporate worth. The trend line for AUR equally dropped meaning that agency costs were elevated and therefore firms did not generate returns commensurate with their investments. In the same period, liquidity also dropped suggesting that the growing agency costs is wiping out finances and low liquidity is hindering uptake of profitable investments.

The first null hypothesis H_{01}, was rejected implying that payout-policy predicts corporate worth. Investors at the NSE are keen on dividend-paying stocks for resolution of agency problems and information asymmetry. They push for consistent and high pay-outs to deny insiders FCF that can be overinvested and devalue the firm.

Insiders use dividends to signal that the entity is valuable by implying that the current performance is good and sustainable. Insiders also maintain a constant level of pay-out until they are certain that the growth in profitability will not reverse. Thus, dividend-paying stocks at the NSE are considered more valuable and sought after. Insiders should pay more attention to payout-policy that is most rewarding. They should be keen on the quantum to pay and the frequency of payment in order to grow wealth for stockholders.

The second null hypothesis H_{02}, was rejected and the conclusion was that the relationship between pay-out and entity worth is mediated by agency costs. At the NSE entities declare dividends to signal that the entity is valuable consequently, resolving information asymmetry. It is problematic to for stockholders to determine the true intrinsic value of securities under information asymmetry. The investors at the NSE view dividend-paying stocks as valuable so, dividends enables valuation of stocks. Stockholders also angle for dividends to cut FCF and introduce debtors who monitor insider behaviour. Agency costs and non-symmetrical information are the major consequences of principal/agent conflicts and they erode fortunes and distress the firm eventually. As such, resolution of agency problems should be given more attention from the payout-policy perspective. Dividends will further provide the alternate valuation basis of the securities when there is no reliable way to do so.

The third null hypothesis H_{03}, was rejected and the study reported that the connection between pay-out policy and entity value is moderated by liquidity. While liquidity is preferable, imperfect contracting makes the insider invest sub-optimally. Stockholders at the NSE focus on mopping out these excess liquidity using pay-outs. Minimal FCF benefits the firms by cutting the finances that could be overinvested and creation of

debtholders to make insiders more objective. Furthermore, debt covenants and fear for loss of jobs make insiders more disciplined, resulting into objectivity and good performance. Insiders consequently should focus on payouts in order to grow wealth. Managers should endevour to develop an optimal payout-policy that maximizes wealth for investors.

The fourth null hypothesis H_{04}, was rejected with a conclusion that payout-policy, agency costs and liquidity jointly affect entity value. Stockholders at the NSE are keen on pay-outs to control agency problems and information asymmetry. Entities attempt to communicate their values through consistent declaration of pay-outs making dividend paying securities to be sought after. Pay-outs further keep liquidity minimal and introduce debtholders to monitor insider behaviour. Dividends should therefore be used to keep agency costs and liquidity minimal, consequently, impacting corporate worth positively.

6.4 Contribution of the Study

The findings of this research advances the vast literature on the interrelations among dividend pay-out policy, agency costs, liquidity and corporation value. This section discusses how the outcome of this study will enrich knowledge, theory and managerial policy and practice.

6.4.1 Contribution to Knowledge

This study contributes to knowledge by establishing that payout policy is a predictor of firm worth in a more scientific and practical approach as prescribed by positivists. The study is particularly important since it was conducted in a developing nation. The findings justify dividends and eliminates the thinking that dividend is paid out of coercion by investors in pursuit personal gains and short-termism. The study brings

out a more comprehensive measure of payout-policy which incorporates DPR (quantum) and IR (frequency) contrary to most studies that only apply quantum of dividends. This study also examined the direct link between pay-out policy and firm worth which is different from most studies that review determinants of payout-policy.

This study further brings out the moderation effect of agency costs in the link between payout-policy and corporate worth which very few studies have focused on especially in Kenya. The study reports that pay-out can be used to control agency costs instead of incurring bonding and monitoring costs to resolve agency problems. Most studies conducted a bivariate relationship between payout-policy and agency costs or conceptualized agency costs as an explanatory variable against corporate value. This study further singles out AUR as the measure for agency costs. This ratio reveals the efficiency with which firm assets were deployed.

With the existence of information asymmetry and agency costs, payout-policy is found to be a convenient medium for controlling overinvestment. Thus, liquidity moderates the relationship between payout-policy and corporate worth, so investors can use liquidity to control insider behaviour. Most studies regressed entity value against liquidity or conceptualized liquidity as an explanatory variable against firm value. This study used OCF as the indicator for liquidity which is more comprehensive compared to current ratio. It adds back all non-cash items like depreciation.

Finally this research contributed to knowledge by establishing that payout-policy, agency costs and liquidity jointly affected corporate worth. Most authors who reviewed these variables conceptualized them as explanatory variables against corporate worth. This study established a relationship among these variables in a third

world nation. It also reveals the mediating and moderating effect of agency costs and liquidity respectively in the association.

6.4.2 Contribution to Theory

When a study is directed by an empirically examinable hypothesis the output either validates or falsifies the theory. This study validates agency theory which was the anchor theory of this study. From the perspective of agency problems, payout policy explains variations in corporate value by enabling valuation of securities and also cutting the excess FCF that can be deployed sub-optimally by insiders. In line with agency theory, signaling hypothesis by Lintner (1956) was also validated by the findings of this study. Dividend payout provides an alternate valuation basis of securities when agency problems persist. Free cash flow hypothesis by Easterbrook (1984) was also confirmed to be consistent with the output of this work. Dividends curtail the discretional funds that can be overinvested by managers and thereafter, create debt which improves entity worth.

Bird in hand theory by Lintner (1962) is also upheld by the findings of this study. Stockholders are skeptical about future returns. Income today is preferred over capital appreciation which is prone to risk. The discounting rate for dividend is lower than capital appreciation which is risk adjusted so, dividend paying stocks sell at a premium since stockholders are able to earn income from their investment regularly. This study however, falsified MM (1961) theorem which advocates for re-investment of earnings. This research has proven that dividend facilitates valuation of securities and also sweeps the excess FCF. Introduction of debtholders make insiders more objective.

6.4.3 Contribution to Managerial Policy and Practices

Firm value is the main focus for stockholders and a practical and scientific discovery that payout policy predicts corporate worth is a critical finding. Insiders can adopt these findings to develop wealth maximizing strategies. As a matter of policy, retained finances can either be re-invested or distributed. While it is believed that re-investment in profitable undertakings is more rewarding as claimed by proponents of MM (1961), imperfect contracting and information asymmetry cause agency problems and result into value erosion. This work brings forth that attention must be paid to consistent pay-out policies that enlarge fortunes. Pay-out policy should be looked at broadly in terms of amount and frequency. Pay-outs and incorporation of debt should be a key consideration since it reduces agency costs and enhances insider supervision.

This study further informs Kenya Revenue Authority and other related organs of the government that pay-outs enhance wealth and economic growth, hence should be encouraged through a more favourable taxation rate. These findings are also valuable to stakeholders such as the NSE, CMA and KASIB specifically on investor training initiatives and policy formulation. These trainings are important since they are informative to investor and enhance trade at the NSE. The results of this research further firm up policy development by the CMA. Dividend-paying stocks have been considered valuable yet the same entities have later on been put under receivership, statutory management or liquidation. Agency costs and liquidity add more dimensions to assessment criterion for entity worth for CMA.

This work contributes immensely to entities at the NSE since it guides them into a conclusion that fortunes can be enhanced through pay-outs and as such dividend is a

key consideration. More specifically, this study presents that investor can rely on the signaling effect of dividend to determine portfolio selection. The perception that dividend-paying stocks record lesser agency costs and low liquidity with enhanced fortunes is confirmed by this research. As a consequence the fluctuations of market capitalization at the NSE can be contained through a payout-policy that keeps agency costs and liquidity minimal. Shareholders pressure on insiders to pay dividends will be accepted as a normal practice intended to grow wealth and not an attempt to recoup investments. Additionally, the knowledge discovered about the interrelationships among the four variables will empower stockholder to make well-informed judgements when selecting their portfolios.

6.5 Limitations of the Study

First, variability in corporate value can be caused by financial and non-financial factors. This research focused on financial indicators, more specifically, it relied on regression modeling. While regression models have the capability of informing the researcher about the magnitude of the association from the coefficient of determination, the models do not allow for the incorporation of non-quantifiable attributes. The relationship among the study variables was accordingly, limited to financial and quantifiable attributes leaving the non-quantifiable attributes unexplored.

Second, this research strictly considered companies at the NSE. This poses difficulty in generalization of the results. These are publicly held entities, so, their governance and regulations differ from the non-listed organizations. Therefore, generalization of these discoveries to non-listed corporations in Kenya and beyond may be problematic. The population of the entities at the NSE however, contained firms from majority of

the sectors of the economy and the response rate was 84%. Therefore, the characteristics of most sectors was captured with reasonable accuracy. For instance, the liquidity levels and patterns for a listed entity and a non-listed entity would be almost similar.

Lastly, developing a comprehensive indicator for payout policy was problematic. An ideal indicator is comprised of amount, frequency and mode of pay-out. While this study was able to incorporate the forms of frequency and quantum, the mode was majorly in cash and was therefore, omitted. The variation in the mode in which the dividends are paid would have brought a new dimension. For instance, the impact it would have on certain clienteles like corporate investors who require constant dividends. Rewarded investors by bonus shares instead of cash payouts may yield new results. The composite score was however, considered adequate for this undertaking.

6.6 Suggestions for Further Research

This research identified a couple of research gaps that could be considered for future research. First, the indicator for dividend policy in this study was a composite score computed from payout-payout ratio and interim dividend ratio which denote quantity and frequency of payout-policy respectively. A further research that includes the mode of payment is recommended to assess if the study would yield dissimilar outcome from the one arrived at in this research. In Kenya, it was not possible to examine payment mode since the common mode is cash.

Second, agency costs have been measured in past study by asset utilization ratio, Rozeff (1982) cost minimization model and expense ratio. Expense ratio is an attribute that focuses on how efficiently operating costs were managed. A research

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that uses both AUR and expense ratio as proxies of agency costs needs to be conducted. Additionally, other mediators between payout-policy and entity value could be examined to establish if the impact could be different. Agency costs could also be tested for the moderation effect between payout-policy and entity value.

Third, value of an entity could either be gauged using accounting measures such as ROA or market base measure like Tobin's Q. Further research could be done using a different measure of corporate value like ROA or variability in market stock prices to establish if the relationship remains the same. Scholars such as Fajaria and Isnalita (2018) used stock prices as the proxy for corporate value. Regressing stock prices against payout-policy could yield different results. It could as well yield full mediation of agency costs in the link between payout-policy and corporate value.

REFERENCES

Aduda, J. O., & Kimathi, H. (2011). The applicability of the Constant dividend model for companies listed at the Nairobi Stock Exchange. *Journal of Financial Studies & Research*, *11*(1), 1-16.

Ahmad, M. A., Alrjoub, A. M., & Alrabba, H. M. (2018). The effect of dividend policy on stock price volatility: empirical evidence from the Amman Stock Exchange. *Academy of Accounting and Financial Studies Journal*, 22(2), 1-8.

Alenazi, H., & Barbour, B. (2019). The relationship between dividend policy and firm value within Qatari banks. *QScience Connect*, *2019*(1), 5.

Ali, S., Khan, H., Shah, I., Butt, M. M., & Suhail, M. (2021). A comparison of some new and old robust ridge regression estimators. *Communications in Statistics-Simulation and Computation*, *50*(8), 2213-2231.

Allen, F., Bernardo, A. E., & Welch, I. (2000). A theory of dividends based on tax clienteles. *The journal of finance*, *55*(6), 2499-2536.

Arnott, R. & Asness, C. (2003). Surprise! Higher dividends = higher earnings growth. *Financial Analysts Journal*, *59*(1), 70-87.

Afza, T. & Mirza, H. H. (2010). Ownership structure and cash flows as determinants of corporate dividend policy in Pakistan. *International Business Research, 3*(3), 210-221.

Al-Kuwari, D. (2009). Determinants of the dividend policy of companies listed on emerging stock exchanges: the case of the Gulf Cooperation Council (GCC) countries. *Global Economy & Finance Journal*, *2*(2), 38-63.

Al-Malkawi, H. (2007). Determinants of corporate dividend policy in Jordan: An application of the Tobit Model. *Journal of Economics and Administrative Sciences*, 23(2), 44-70.

Al-Malkawi, H. A. N., Rafferty, M., & Pillai, R. (2010). Dividend policy: A review of theories and empirical evidence. *International Bulletin of Business Administration*, *9*(1), 171-200.

Alli, K. L., Khan A. Q. & Ramirez G.G. (1993). Determinants of Corporate Dividend Policy: A Factorial Analysis. *The Financial Review* 28, 523-547.

Anazonwu, H. O., Egbunike, F. C., & Echekoba, F. N. (2018). Agency Cost and Dividend Payout: A Study of Selected Listed Manufacturing Firms in Nigeria. *Indonesian Journal of Management and Business Economics*, 1(1), 42–51.

Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency Costs and Ownership Structure. *The Journal of Finance*, 55(1), 81–106.

Antonakis, J., & Dietz, J. (2011). Looking for validity or testing it? The perils of stepwise regression, extreme-scores analysis, heteroscedasticity, and measurement error. *Personality and Individual Differences*, *50*(3), 409-415.

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Anton, S. G. (2016). The impact of dividend policy on firm value. A panel data analysis of Romanian listed firms. *Journal of Public Administration, Finance and Law*, (10), 107-112.

Azhagaiah, R., & Priya, S. N. (2008). The impact of dividend policy on shareholders' wealth. *International Research Journal of Finance and Economics*, 20, 180 – 187.

Badu, E. A. (2013). Determinants of Dividend Pay-out Policy of Listed Financial Institutions in Ghana. *Research Journal of Finance and Accounting,* 4(7), 185–90.

Baker, H. K., Dewasiri, N. J., Premaratne, S. P., & Koralalage, W. Y. (2020). Corporate governance and dividend policy in Sri Lankan firms: a data triangulation approach. *Qualitative Research in Financial Markets*.

Baker, H. K., Dewasiri, N. J., Weerakoon Banda, Y. K., & Azeez, A. A. (2019). Determinants of Dividend Policy: A Triangulation Approach. *Managerial Finance*, *45*(1), 2-20.

Baker, H. K., & Smith, D. M. (2006). In search of a residual dividend policy. *Review of Financial Economics*, *15*(1), 1-18.

Baker, H. K., & Weigand, R. (2015). Corporate dividend policy revisited. *Managerial Finance*.

Baker, M. J. (2009). Editorial. *Journal of Customer Behaviour, 5*(3), 197–200.

Ball, R., Brown, P., Finn, F. J., & Officer, R. R. (1979). Dividends and the value of the firm: evidence from the Australian equity market. *Australian Journal of Management*, *4*(1), 13-26.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173.

Baskin, J. B., & Miranti Jr, P. J. (1997). History of Corporate Finance [w:] Cambridge University Press, 263–270.

Baskin, J. B. (1988). The development of corporate financial markets in Britain and the United States, 1600–1914: Overcoming asymmetric information. *Business History Review*, *62*(2), 199-237.

Baysinger, B. D., & Butler, H. D. (1985). Corporate governance and the board of directors: Performance effects of changes in board composition. *Journal of Law, Economics and Organization,* 1, 101−124.

Bernstein, P. L. (1996). Dividends: The puzzle. *Journal of Applied Corporate Finance*, *9*(1), 16-22.

Bhattacharya, S. (1979). Imperfect information, dividend policy, and" the bird in the hand" fallacy. *The bell journal of economics*, 259-270.

Black, F. (1976). The Dividend Puzzle, The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don't fit together,". *The Journal of Portfolio Management*, *2*(2).

Black, F. & Scholes, M. (1974). The effects of dividend yield and dividend policy on common stock prices and returns. *Journal of Financial Economics, 1*(1), 1-22.

Buigut, K. K., & Soi, N. C. (2020). Effect of Firm Characteristics on Dividend Policy in Firms Listed in Nairobi Security Exchange, Kenya. *Journal of Business Management and Economic Research*, *4*(4), 299.

Burell, G., & Morgan, G. (1979). Sociological paradigms and organizational analysis. *Elements of the sociology of corporate life*.

Cai, L., & Hayes, A. F. (2008). A new test of linear hypotheses in OLS regression under heteroscedasticity of unknown form. *Journal of Educational and Behavioral Statistics*, *33*(1), 21-40.

Chen, N., & Mahajan, A., (2010). Effects of Macroeconomic Conditions on Corporate Liquidity—International Evidence. *International Research Journal of Finance and Economics*, 35, 112-129.

Choi, I. (2001). Unit root tests for panel data. *Journal of international money and Finance*, *20*(2), 249-272.

Cohen, M. P. (1998). Determining sample sizes for surveys with data analyzed by hierarchical linear models. *Journal of Official Statistics*, *14*(3), 267.

Connelly, B.L., Certo, S.T., Ireland, R.D., & Reutzel, C.R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management*, 37, 39-67.

Crotty, M. J. (1998). The foundations of social research: Meaning and perspective in the research process. *The foundations of social research*, 1-256.

Davis, A. K., Piger, J. M., & Sedor, L. M. (2012). Beyond the numbers: Measuring the information content of earnings press release language. *Contemporary Accounting Research*, *29*(3), 845-868.

Das, K. R., & Imon, A. H. M. R. (2016). A brief review of tests for normality. *American Journal of Theoretical and Applied Statistics*, *5*(1), 5-12.

DeAngelo, H., DeAngelo, L., & Stulz, R. M. (2006). Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory. *Journal of Financial economics*, *81*(2), 227-254.

DeAngelo, H., & DeAngelo, L. (2007). Capital structure, payout policy, and financial flexibility. *Marshall School of business working paper no. FBE*, 02-06.

Donaldson, G. (2000). *Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity*. Beard Books.

Driver, C., Grosman, A., & Scaramozzino, P. (2020). Dividend policy and investor pressure. *Economic Modelling*, *89*, 559-576.

Easterbrook, F.H. (1984). Two agency-cost explanations of dividends. *American Economic Review*, 74 (4), 650-659.

Fajaria, A. Z., & Isnalita, N. I. D. N. (2018). The effect of profitability, liquidity, leverage and firm growth of firm value with its dividend policy as a moderating variable. *International Journal of Managerial Studies and Research (IJMSR)*, *6*(10), 55-69.

Ferris, S. P., Noronha, G., & Unlu, E. (2010). The more, the merrier: An international analysis of the frequency of dividend payment. *Journal of Business Finance & Accounting*, *37*(1-2), 148-170.

Fisher, G. R. (1961). Some factors influencing share prices. *The Economic Journal*, *71*(281), 121-141.

Frankfurter, G. M., & Wood Jr, B. G. (1997). The evolution of corporate dividend policy. *Journal of financial education*, 16-33.

Gill, A., Biger, N. & Tibrewala, R. (2010). Determinants of dividend payout ratios: Evidence from United States, *The Open Business Journal, 31*(3), 8-13.

Gordon, M. J. (1959). Dividends, earnings, and stock prices. *The review of economics and statistics*, 99-105.

Gordon, M. J. (1963). Optimal investment and financing policy. *The Journal of finance*, *18*(2), 264-272.

Ghosh, C., & Sirmans, C. F. (2003). Board independence, ownership structure and performance: evidence from real estate investment trusts. *The Journal of Real Estate Finance and Economics*, *26*(2), 287-318.

Graham, B., Dodd, D. L. F., & Cottle, S. (1934). *Security analysis* (Vol. 452). New York: McGraw-Hill.

Hardin III, W., & Hill, M. D. (2008). REIT dividend determinants: excess dividends and capital markets. *Real Estate Economics*, *36*(2), 349-369.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.

Howe, K. M., He, J., & Kao, G. W. (1992). One-time cash flow announcements and free cash-flow theory: Share repurchases and special dividends. *The Journal of Finance*, *47*(5), 1963-1975.

Hsiao, C. (1995). Panel analysis for metric data. In *Handbook of statistical modeling for the social and behavioral sciences* (pp. 361-400). Springer, Boston, MA.

Hsiao, F. S., & Hsiao, M. C. W. (2006). FDI, exports, and GDP in East and Southeast Asia—Panel data versus time-series causality analyses. *Journal of Asian Economics*, *17*(6), 1082-1106.

Huber, P. J. (1973). Robust regression: asymptotics, conjectures and Monte Carlo. *The annals of statistics*, 799-821.

Husain, T., & Sunardi, N. (2020). Firm's Value Prediction Based on Profitability Ratios and Dividend Policy. *Finance & Economics Review*, *2*(2), 13-26.

IASB. (1998). International Accounting Standard 34, International Accounting Standards Board, IFRS Foundation.

Iraya C.M. (2014). *Socially responsible investment, portfolio management, institutional characteristics and performance of mutual funds in Kenya*. (Doctoral dissertation, Business Administration, University of Nairobi).

Jakata, O., Nyamugure, P. (2015). The effects of dividend policy on share prices: Empirical evidence from the Zimbabwe stock exchange. *International Journal of Science and Research,* 4(10), 674-683.

Jensen, M. (2001). Value maximization, stakeholder theory, and the corporate objective function. *European financial management*, *7*(3), 297-317.

Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American economic review*, *76*(2), 323-329.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, *3*(4), 305-360.

Juhandi, N., Fahlevi, M., Abdi, M. N., & Noviantoro, R. (2019, October). Liquidity, Firm Size and Dividend Policy to the Value of the Firm (Study in Manufacturing Sector Companies Listed on Indonesia Stock Exchange). In *2019 International Conference on Organizational Innovation (ICOI 19)*.

Judge, G. G., Griffith, W. E., Hill, R. C., Lutkepohl, H., and Lee, T. 1985). *The Theory and Practice of Econometrics*.

Kimunduu, G. M. (2018). *Financial performance, cash holdings, firm characteristics and dividend policy of firms listed at the Nairobi Securities Exchange*. (Doctoral dissertation, Business Administration, University of Nairobi).

Kirkham, R. (2012). Liquidity analysis using cash flow ratios and traditional ratios: The telecommunications sector in Australia. *Journal of New Business Ideas & Trends*, *10*(1), 1-13.

Kosslyn, S. M., & Kosslyn, S. M. (2006). *Graph design for the eye and mind*. OUP USA.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.

Kurshev, A., & Strebulaev, I. A. (2015). Firm size and capital structure. *Quarterly Journal of Finance*, *5*(03), 1550008.

Lambert, R. A. (2001). Contracting theory and accounting. *Journal of accounting and economics*, *32*(1-3), 3-87.

Lamberg, S., & Vålming, S. (2009). Impact of Liquidity Management on Profitability: A study of the adaption of liquidity strategies in a financial crisis.

Lease, R. C., Kose, J., Kalay, A., Loewenstein, U., & Sarig, O. H. (2000). Dividend Policy: It's Impact on Firm Value, New York": Harvard Business School Press.

Levin, A., Lin, C. F., & Chu, J. (1992). Unit Root Tests in Panel Date: Asymptotic and Finite Sample Properties. *Department of Economics Discussion Paper*, (92), 93.

Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics*, *108*(1), 1-24.

Lie, E. (2000). Excess funds and agency problems: an empirical study of incremental cash disbursements. *The Review of Financial Studies*, *13*(1), 219-248.

Lintner, J. (1962). Dividends, earnings, leverage, stock prices and the supply of capital to corporations. *The review of Economics and Statistics*, 243-269.

Lintner, J. (1956). Distribution of incomes of corporations among dividends, retained earnings and taxes. *American Economic Review*, 46(2), 97– 113.

Luvembe, L., Njangiru, M. J., & Mungami, E. S. (2014). Effect of dividend payout on market value of listed banks in Kenya. *International journal of innovative research and development*, *3*(11), 350-370.

Mahdzan, N. S., Zainudin R. & Shahri N. K., (2016). Interindustry dividend policy determinants in the context of an emerging market. *Economic Research-Ekonomska,* 29(1), 250-262.

Manduku, G. O., Mulwa, J. M., Omolo, J. W., & Lari, L. R. A. (2020). Influence of Corporate Governance Practices on Financial Distress of Firms Listed at the Nairobi Securities Exchange, Kenya.

Marfo-Yiadom, E., & Agyei, S. K. (2011). Determinants of dividend policy of banks in Ghana. *International Research Journal of Finance and Economics*, *61*(61), 99-108.

Mathur, I. (1979). Introduction to Financial Management, McMillan publishing company Inc. New York.

McKnight, P. J., & Weir, C. (2009). Agency costs, corporate governance mechanisms and ownership structure in large UK publicly quoted companies: A panel data analysis. *The quarterly review of economics and finance*, *49*(2), 139-158.

Michaely, R., & Allen, F. (2002). Payout policy. *Available at SSRN 309589.*

Michaely, R., Rossi, S. and Weber, M. (2017). The Information Content of Dividends: Safer Profits, Not Higher Profits. *Chicago Booth Research Paper*, 17-30

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. *The Journal of Business,* 34(4), 411-433.

Millet-Reyes, B., & Zhao, R. (2010). A comparison between one-tier and two-tier board structures in France. *Journal of International Financial Management & Accounting*, *21*(3), 279-310.

Mizon, G. E. (1993). Empirical analysis of time series: Illustrations with simulated data.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of financial economics*, *13*(2), 187-221.

Nairobi securities exchange (2018). History of the NSE. [Online] Available www.nse.co.ke. (Accessed 15 May 2020).

Nairobi securities exchange (2020). History of the NSE. [Online] Available www.nse.co.ke. (Accessed 20 January 2023).

Nissim, D., & Ziv, A. (2001). Dividend changes and future profitability. *The Journal of finance*, *56*(6), 2111-2133.

Nyamute, W. I. (2016). *Investor Behaviour, Investor Demographic Characteristics, Investment Style and Individual Investor Portfolio Performance at the Nairobi Securities Exchange* (Doctoral dissertation, Business Administration, JKUAT).

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of financial economics*, *52*(1), 3-46.

Ouma, O. P., & Murekefu, T. M. (2012). The relationship between dividend payout and firm performance: a study of listed companies in Kenya. *European Scientific Journal*, 8 (9).

Nwamaka, O. C., & Ezeabasili, V. (2017). Effect of dividend policies on firm value: Evidence from quoted firms in Nigeria. *International Journal of Management Excellence*, *8*(2), 956-967.

Panagiotidis, T. (2002). Testing the assumption of linearity. *Economics Bulletin*, *3*(29), 1-9.

Perron, P., & Phillips, P. C. (1987). Does GNP have a unit root?: A re-evaluation. *Economics Letters*, *23*(2), 139-145.

Rehman, O. U. (2016). Impact of capital structure and dividend policy on firm value. *Journal of Poverty, Investment and Development*, *21*(1), 40-57.

Rehman, A., & Takumi, H. (2012). Determinants of dividend payout ratio: Evidence from Karachi Stock Exchange (KSE). *Journal of Contemporary Issues in Business Research*, *1*(1), 20-27.

Rencher, A. C., & Schaalje, B. G. (2000). Linear Models in Statistics. A. John Wiley&Sons. *Inc.: New York, NY, USA*.

Rizqia, D. A., & Sumiati, S. A. (2013). Effect of managerial ownership, financial leverage, profitability, firm size, and investment opportunity on dividend policy and firm value. *Research Journal of Finance and Accounting*, *4*(11), 120-130.

Rosopa, P. J., Schaffer, M. M., & Schroeder, A. N. (2013). Managing heteroscedasticity in general linear models. *Psychological Methods*, *18*(3), 335.

Rozeff, M. (1982). Growth, beta and agency costs as determinants of dividend payout ratios. *Journal of Financial Research*, 5(3), 249-259.

Rustagi, R. P. (2001). Financial Management-Theory. *Concepts and Problems*.

Saunders, M. N., Lewis, P., & Thornhill, A. (2000). *Research Methods for Business Students: Lecturers' Guide*. University of Surrey.

Saisana, M., & Tarantola, S. (2002). State-of-the-art report on current methodologies and practices for composite indicator development.

Sheytanova, T. (2015). The accuracy of the Hausman Test in panel data: A Monte Carlo study.

Short, H., & Keasey, K. (1999). Managerial Ownership and the Performance of Firms: Evidence from the UK. *Journal of corporate finance*, *5*(1), 79-101.

Singh, M., & Davidson III, W. N. (2003). Agency Costs, Ownership Structure and Corporate Governance Mechanisms. *Journal of Banking & Finance*, 27(5), 793–816.

Skinner, D. J., & Soltes, E. (2011). What do dividends tell us about earnings quality?. *Review of Accounting Studies*, *16*(1), 1-28.

Spence, M. (2002). Signaling in retrospect and the informational structure of markets. *American Economic Review*, *92*(3), 434-459.

Stephens, C. P., & Weisbach, M. S. (1998). Actual share reacquisitions in open-market repurchase programs. *The Journal of finance*, *53*(1), 313-333.

Suddaby, R. (2006). From the editors: What grounded theory is not. *Academy of management journal*, *49*(4), 633-642.

Sukmawardini, D., & Ardiansari, A. (2018). The influence of institutional ownership, profitability, liquidity, dividend policy, debt policy on firm value. *Management Analysis Journal*, *7*(2), 211-222.

Thanatawee, Y. (2011). Life-cycle theory and free cash flow hypothesis: Evidence from dividend policy in Thailand. *International Journal of Financial Research*, *2*(2).

Velnampy, T., Nimalthasan, M. P., & Kalaiarasi, M. K. (2014). Dividend policy and firm performance: Evidence from the manufacturing companies listed on the Colombo stock exchange. *Global Journal of Management and Business Research*.

APPENDICES

Appendix I: List of Firms Quoted at the NSE

A	**BASIC MATERIALS**	36	Equity Group Holdings
1	B O C Kenya	37	HF Group
2	Carbacid Investments	38	Home Afrika
3	Crown Paints Kenya	39	I&M Holdings
4	Flame Tree Group Holdings	40	Jubilee Holdings
B	**CONSUMER GOODS**	41	KCB Group
5	BAT Kenya	42	Kenya Re-Insurance Corporation
6	Eaagads	43	Kurwitu Ventures
7	East African Breweries	44	Liberty Kenya Holdings
8	Eveready East Africa	45	Nairobi Securities Exchange
9	Kakuzi	46	National Bank of Kenya
10	Kapchorua Tea Kenya	47	NIC Group
11	Kenya Orchards	48	Sanlam Kenya
12	Limuru Tea	49	Stanbic Holdings
13	Mumias Sugar Co	50	Standard Chartered Bank Kenya
14	Sameer Africa	51	Stanlib Fahari I-REIT
15	Sasini	E	**INDUSTRIAL**
16	Unga Group	52	ARM Cement
17	Williamson Tea Kenya	53	Bamburi Cement
C	**CUSTOMER SERVICE**	54	East African Cables
18	Car & General (K)	55	East African Portland Cement
19	Deacons (East Africa)	56	Olympia Capital Holdings
20	Express Kenya	57	TransCentury
21	Kenya Airways	F	**OIL AND GAS**
22	Longhorn Publishers	58	Total Kenya
23	Nairobi Business Ventures	G	**TELECOMMUNICATIONS**
24	Nation Media Group	59	Safaricom
25	Standard Group	H	**UTILITIES**
26	TPS Eastern Africa	60	KenGen Company
27	Uchumi Supermarkets	61	Kenya Power & Lighting
28	WPP Scangroup	62	Umeme
D	**FINANCIALS**		
29	Absa Bank Kenya		
30	BK Group		
31	Britam (Kenya)		
32	Centum Investment		
33	CIC Insurance Group		
34	Co-operative Bank of Kenya		
35	Diamond Trust Bank Kenya		

Appendix II: Data Collection Sheet

Variable	Indicator	Study Period									
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Firm Value	**Tobin's Q**										
	Market Capitalization										
	Total Assets										
	Equity										
Dividend Policy	**∑(IP+ΔΠP)/2**										
	Total Interim Dividend										
	Total Dividend										
	Total Earnings										
Agency Costs	**Asset Utilization Ratio**										
	Annual Sales										
	Total Assets										
Liquidity	**OCF**										
	PAT										
	Depreciation										
	Average Total Assets										
	Average Cash										
	Average Cash Equivalent										

Appendix III: Summary of Comparative Results and of Hypothesis Testing

Objectives	Hypotheses	Results	Inference
i) To establish the relationship between payout-policy and value of institutions listed at the Nairobi Securities Exchange.	H_{01}: There is no significant relationship between dividend policy and value of entities listed at the Nairobi Securities Exchange.	Pay-out policy yielded a p-value score of 0.0029(p<0.05). The output is significant.	Reject the null hypothesis (H_{01}), dividends affects value of institutions at the NSE. Prediction model; Y= 1.265 +0.022DP……………… (5.1)
ii) To determine the effect of agency cost in the relationship between payout-policy and value of corporates listed at the Nairobi Securities Exchange.	H_{02}: Agency cost does not significantly intervene in the association between dividend policy and value of institutions listed at the Nairobi Securities Exchange.	The p-value in step 4 was significant (p<0.05), however, the first three steps were satisfied implying that partial mediation occurred.	Reject the null hypothesis (H_{03}), agency costs mediated the link between payout-policy and value of entities at the NSE. Prediction model; FV = 1.073 +0.02DP+ 0.33AC………… (5.2)
iii) To establish the moderating effect of liquidity on the relationship between pay-out policy and value of entities listed at the Nairobi Securities Exchange.	H_{03}: There is no significant moderating effect of liquidity in the relationship between payout-policy and value of corporates listed at the Nairobi Securities Exchange.	Liquidity had an interaction term that was statistically significant p-value (p=.0194). It moderated the link between payout-policy and value of corporates at the Nairobi Securities Exchange.	Reject the null hypothesis (H_{03}) since the interaction term influenced the association between payout-policy and corporate value. The below model was established; FV= 1.25 +0.01DP - 0.01LQ + 0.58(LQ * DP)… (5.3)
iv) To establish the joint effect of agency cost and liquidity on the relationship between payout-policy and value of entities listed at the Nairobi Securities Exchange.	H_{04}: There is no significant joint effect of agency costs and liquidity on the relationship between payout-policy and value of institutions listed at the Nairobi Securities Exchange.	The overall model was a good fit (adj.R^2=0.832117, F (1,519) = 48.63768, p=.000, d=0.998)	The null hypothesis (H_{04}) was rejected, payout-policy, agency costs and liquidity jointly affect corporate value. The predictor model is as stated below; FV = 1.079+0.020DP+ 0.316AC+ 0.042LQ ….(5.4)

Source: Research Findings, 2023

Appendix IV: Data on Research Variables

NAME	YEAR	FV	DP	AC	LIQ	NAME	YEAR	FV	DP	AC	LIQ
SCOM	2011	1.4404493	0.3039751	0.8329228	0.7325945	Longhorn	2011	0	0.345	0	0
SCOM	2012	2.0616107	0.3484429	0.8777343	0.3194096	Longhorn	2012	1.5011627	0	1.1709007	-0.0377924
SCOM	2013	3.7489474	0.3538757	0.9645473	0.3611572	Longhorn	2013	1.5895953	0.8656	1.508418	0.1970522
SCOM	2014	4.5043111	0.2954	1.0748251	0.4361298	Longhorn	2014	3.4189034	0.84515	1.8561123	0.2343728
SCOM	2015	4.496423	0.21215	1.0408167	0.5420293	Longhorn	2015	2.0394258	0.10715	1.2307448	0.1469539
SCOM	2016	5.0865918	0.3995577	1.2293131	0.5359521	Longhorn	2016	1.4435844	0.26515	0.8054714	0.1216153
SCOM	2017	6.9636846	0.4011174	1.3166325	0.5718722	Longhorn	2017	1.2827045	0.3061	0.7810553	0.0986463
SCOM	2018	5.5720442	0.39856	1.3958337	0.5881366	Longhorn	2018	1.0898484	0.31162	0.7045888	0.1208202
SCOM	2019	6.807061	0.4007152	1.3003381	0.6447861	Longhorn	2019	1.3145563	0.3826308	0.6826951	0.1073211
SCOM	2020	6.7646213	0.3807575	1.2313557	0.702093	Longhorn	2020	1.2427366	0	0.435859	-0.0968721
CARB	2011	1.9690809	0.4811121	0.3400203	0.2769931	TPS (SERENA)	2011	1.0090966	0.1564188	0.4746194	0.09498
CARB	2012	2.4530327	0.5118654	0.4948611	0.316772	TPS (SERENA)	2012	0.8212786	0.1951768	0.4778245	0.0731467
CARB	2013	1.8697326	0.71435	0.6903358	0.5689665	TPS (SERENA)	2013	0.8322862	0.2726492	0.5040939	0.0692244
CARB	2014	2.5700882	0.5282143	0.5444951	0.6175524	TPS (SERENA)	2014	0.7211475	0.83975	0.481243	0.0494151
CARB	2015	1.616204	0	0.2975157	0.3953054	TPS (SERENA)	2015	0.6309059	0.12015	0.4620928	0.0113804
CARB	2016	1.2542155	0.2375021	0.2854228	0.2419783	TPS (SERENA)	2016	0.6177059	0.10705	0.4390215	0.0495208
CARB	2017	1.0545678	0.2531882	0.2396655	0.1450818	TPS (SERENA)	2017	0.7842315	0.1622	0.4262352	0.0241383
CARB	2018	0.84784	0.2992666	0.1735903	0.1122331	TPS (SERENA)	2018	0.6111334	0.1780982	0.5182279	0.0274083
CARB	2019	0.6736136	0.3371198	0.1890246	0.1045353	TPS (SERENA)	2019	0.6023439	0	0.4519042	0.0452596
CARB	2020	0.9511148	0.2748958	0.1982232	0.1198097	TPS (SERENA)	2020	0.6453948	0	0.1349143	-0.0472933
unga group	2011	0.463369	0.1131037	2.3147102	0.0875911	SMER	2011	0.6719781	0.2871019	0.2564594	0.0714655
unga group	2012	0.5318103	0.0815371	2.492374	0.0958308	SMER	2012	0.6553758	0.1846222	0.3160869	0.1012973
unga group	2013	0.6388253	0.1072	1.867453	2.2868215	SMER	2013	0.667897	0.0867242	0.2938874	0.1450667
unga group	2014	0.7909675	0.0989	2.1182504	0.0979927	SMER	2014	0.775395	-0.4686	0.2427835	0.0176302
unga group	2015	0.6799763	0.06605	2.1682652	-0.1564239	SMER	2015	0.613816	0	0.25632	0.0399216
unga group	2016	0.6646907	0.0743971	2.0596077	0.109248	SMER	2016	0.679162	0	0.1775641	-0.149884
unga group	2017	0.7128718	0.4368	2.0653762	0.030989	SMER	2017	0.6435884	0	0.2628874	0.0206628

unga group	2018	0.7359862	-0.0022008	2.0117533	-2.4580653	SMER	2018	0.7624869	0	0.1321785	-0.1338571
unga group	2019	0.6729958	-0.0012119	1.6809655	-1.836684	SMER	2019	1.5821419	0	0.1766009	-0.3650626
unga group	2020	0.6943284	0	1.5152877	0.03189	SMER	2020	1.7543265	0	0.2327191	0.0326366
EABL	2011	3.2063694	0.6128571	0.9066158	0.3027609	SCAN	2011	1.8791395	0.135	1.3856007	0.8548169
EABL	2012	4.6794328	0.4678571	1.0171817	0.2808694	SCAN	2012	2.7470871	0.135	1.491596	0.1734318
EABL	2013	4.8420607	0.4713636	1.0234224	0.7749328	SCAN	2013	1.7967143	0.0911471	1.1098697	0.1598872
EABL	2014	4.7959281	0.4563636	0.9835397	0.2140565	SCAN	2014	1.6474667	0.1514307	1.2711748	0.1187783
EABL	2015	4.1251047	0.41	0.9940377	0.2673242	SCAN	2015	1.221494	0.197873	1.3466826	0.1254731
EABL	2016	3.7725242	0.5808333	0.9794225	-0.6724004	SCAN	2016	0.8567269	0.205735	1.2091032	0.1280288
EABL	2017	4.2337529	0.4433333	1.2380901	0.336951	SCAN	2017	0.8715936	0.2972623	1.0261436	0.0965733
EABL	2018	2.8606205	0.5420414	1.0801315	0.1947369	SCAN	2018	0.8309073	0.3529481	0.9581699	0.1167869
EABL	2019	2.6253037	0.270532	0.9527311	0.4446387	SCAN	2019	1.0187853	0	0.7250022	0.0973083
EABL	2020	5.9361317	0.5805289	0.8448313	0.5009893	SCAN	2020	0.6940493	0	0.7253752	0.1011605
Kenya Orch	2011	1.5495502	0	0.382169	0.0270737	SGL	2011	1.0562059	0	0.9039507	0.086054
Kenya Orch	2012	1.558244	0	0.4306078	0.0191189	SGL	2012	0.980957	0	1.0332047	0.0876012
Kenya Orch	2013	1.5116757	0.215	0.6670301	0.0486754	SGL	2013	1.0216514	0.1074993	1.1576802	0.0924879
Kenya Orch	2014	4.2744488	0.105	1.1565675	-0.4075295	SGL	2014	1.3074535	0.0926606	1.3376505	0.1233301
Kenya Orch	2015	2.5252153	0.095	0.7744616	0.458548	SGL	2015	1.0943434	0	1.0304859	-0.0303647
Kenya Orch	2016	2.2607739	0.0735	0.7237259	0.0513276	SGL	2016	0.8348398	0	1.0931674	0.0691065
Kenya Orch	2017	2.010429	0.0735	0.6805745	0.0738626	SGL	2017	1.2598465	0	1.0443648	-0.0055938
Kenya Orch	2018	2.3608724	0	0.6305483	0.0962157	SGL	2018	1.0976816	0.0938421	1.0341943	0.0885022
Kenya Orch	2019	1.9428298	0	0.4412372	0.0791442	SGL	2019	1.1979295	0	0.965663	-0.0615673
Kenya Orch	2020	1.9263194	0	0.4586507	-0.0822194	SGL	2020	1.1774146	0	0.7136975	-0.0386824
Eveready	2011	1.0866303	0	1.3519876	-0.0675068	NMG	2011	2.8005513	0.67855	1.2755691	0.7813377
Eveready	2012	1.0703997	0	1.1947114	0.0725857	NMG	2012	3.5808552	0.4379478	1.1563489	0.952644
Eveready	2013	1.181658	0	1.5165455	0.0581384	NMG	2013	5.4528126	0.4351	1.1686007	0.8973231
Eveready	2014	1.6005385	0	1.3080704	-0.1346239	NMG	2014	4.4174059	0.22075	1.1177968	0.6842016
Eveready	2015	0.9134132	0	0.8431446	-0.126185	NMG	2015	3.1310952	0.549129	0.9718667	0.4755835
Eveready	2016	1.0063927	0	0.5109974	-0.1337113	NMG	2016	1.7254362	0.54385	0.9302371	0.2842639

Company	Year					Company	Year				
Eveready	2017	0.9412802	0	0.4386593	0.409988	NMG	2017	2.2106221	0.8441878	0.9385705	0.2126546
Eveready	2018	0.6032072	0	0.4387139	-0.3130239	NMG	2018	1.4498613	0.5717948	0.8627076	0.1887591
Eveready	2019	1.4868666	0	0.7671914	-1.1575316	NMG	2019	0.9757358	0.6651948	0.7482123	0.1366046
Eveready	2020	2.0493523	0	0.6643459	-0.9209134	NMG	2020	0.5999591	0	0.5763498	0.0520915
BAT	2011	2.3227063	0.549669	2.0957999	0.307529	KQ	2011	0.8276695	0.0978552	1.0905072	0.1287221
BAT	2012	3.7807529	0.5506586	2.0099213	0.2816236	KQ	2012	0.9229872	0.1126859	1.393442	0.0908728
BAT	2013	4.0865789	-0.2960049	1.8789478	-0.3003226	KQ	2013	0.9048047	0	0.8057312	-0.0361406
BAT	2014	5.5291606	0.5405521	1.152235	0.2748157	KQ	2014	0.8976858	0	0.7131114	0.0260209
BAT	2015	4.7281803	0.5327154	1.9173086	0.2933019	KQ	2015	1.073028	0	0.6050708	-0.0941442
BAT	2016	5.4380594	0.5484517	1.9825214	0.2478796	KQ	2016	1.2853283	0	0.7117384	-0.1166252
BAT	2017	4.8279992	0.4569952	1.9357802	0.2081483	KQ	2017	1.6271341	0	0.5429235	-0.0149141
BAT	2018	4.4458425	0.4784466	1.9901432	0.2461342	KQ	2018	1.388308	0	0.8356998	-0.0050682
BAT	2019	2.8364389	0.4833122	1.8155919	0.2446583	KQ	2019	1.1509839	0	0.652507	-0.0414685
BAT	2020	2.1169308	0.4466829	1.789612	0.333907	KQ	2020	1.5011376	0	0.3079691	-0.1714266
BOC	2011	1.3434569	0.5870588	0.6634577	0.1671464	Express LTD	2011	0.977568	0	0.5872792	-0.1172118
BOC	2012	1.2446135	0.4480198	0.6489412	0.2110978	Express LTD	2012	0.8499352	0	0.4638891	0.1184728
BOC	2013	1.1384762	0.5005288	0.4719172	0.1745143	Express LTD	2013	0.8742181	0	0.8063965	0.0902228
BOC	2014	1.3014766	0.35555	0.5636951	0.1759172	Express LTD	2014	1.0822223	0	0.3620517	-0.0998717
BOC	2015	1.1195583	0.3722	0.5111773	0.1528669	Express LTD	2015	1.0887036	0	0.2802704	-0.072516
BOC	2016	0.9602658	0.39905	0.4841715	0.1095152	Express LTD	2016	1.2700466	0	0.165492	-0.173098
BOC	2017	1.2145409	0.6086385	0.4341721	0.0569686	Express LTD	2017	1.5554734	0	0.1398125	-0.1742943
BOC	2018	0.9742792	1.0001073	0.4512872	0.0728698	Express LTD	2018	1.9779924	0	0.0821967	-0.1340085
BOC	2019	0.8353162	0	0.523628	0.0805565	Express LTD	2019	1.6287929	0	0.0428591	-0.0072954
BOC	2020	0.8011756	0.398553	0.578411	0.1191761	Express LTD	2020	0.6576166	0	0.0117505	-0.009704
HF group	2011	0.9437084	0.4306433	0.0538191	0.0231909	Car and general	2011	0.7914455	0.035	1.0941828	0.0754577
HF group	2012	0.9635002	0.4670065	0.0427836	0.0221827	Car and general	2012	0.7649441	0.035	1.0010742	0.0593342
HF group	2013	1.0330584	0.4215627	0.0479534	0.0256911	Car and general	2013	0.7824226	0.0423312	1.0223999	0.0600645
HF group	2014	1.0693334	0.4312837	0.0407266	0.0212207	Car and general	2014	0.9182099	0.05765	1.0178775	0.0467089
HF group	2015	0.9611863	0.4413757	0.0433744	0.0229095	Car and general	2015	0.8401174	0.0946	1.1047105	0.0226479

HF group	2016	0.9116444	0.0972636	0.0449735	0.0172887	Car and general	2016	0.7778768	0	1.0031519	0.0167535
HF group	2017	0.8847457	0.4886299	0.0355364	0.0047484	Car and general	2017	0.728554	0.1506869	1.039666	0.0165007
HF group	2018	0.8642485	0	0.0300054	-0.0072896	Car and general	2018	0.7305015	0.0710686	0.9907826	0.0307828
HF group	2019	0.8634864	0	0.0371313	0.00123	Car and general	2019	0.7817393	0.0936768	0.0045071	0.0075846
HF group	2020	0.8686115	0	0.0309876	-0.0295504	Car and general	2020	0.7431805	0.0583942	0.0073213	0.0059769
HAFR	2011	0.914131	0	0.2327921	-0.1992923	Williamson Tea	2011	0.7013057	-0.0503667	1.1851786	-1.5633411
HAFR	2012	0.8876582	0	0.1406112	0.053784	Williamson Tea	2012	0.559065	0.4731826	0.4980389	-1.6424712
HAFR	2013	1.6694778	0	0.2122984	0.0341502	Williamson Tea	2013	0.5427152	0.0383753	0.435039	-1.6701376
HAFR	2014	1.3531308	0	0.184826	0.0052581	Williamson Tea	2014	0.48368	0.043	0.4112898	-2.197946
HAFR	2015	1.2836052	0	0.0672584	-0.1116673	Williamson Tea	2015	0.6236972	-0.7693265	0.3026697	0.0310725
HAFR	2016	1.250061	0	0.0565361	-0.0419051	Williamson Tea	2016	0.5972536	0.23725	0.3791138	-0.6772734
HAFR	2017	1.2780876	0	0.0586864	-0.0418137	Williamson Tea	2017	0.6042908	-0.36415	0.4084515	-0.1181344
HAFR	2018	1.2967373	0	0.0242175	-0.0760631	Williamson Tea	2018	0.5559781	0.35895	0.4192467	-0.8676677
HAFR	2019	1.5023983	0	0.0834856	-0.2003042	Williamson Tea	2019	0.5316247	-1.0160383	0.4075078	-0.3855164
HAFR	2020	1.5518469	0	0.0605717	-0.0759221	Williamson Tea	2020	0.5120411	1.2764129	0.3884664	-0.8448488
Centum	2011	0.9531838	0	0.1838326	0.2177605	KAPC	2011	0.6895962	0.0784471	0.8757677	0.3147157
Centum	2012	0.8424029	0	0.1099884	0.0987835	KAPC	2012	0.6576392	0.1881541	0.7166927	0.0507193
Centum	2013	1.4386159	0	0.2059777	0.1871889	KAPC	2013	0.6175018	-0.60135	0.6960695	0.1061532
Centum	2014	1.6865209	0	0.1649885	0.1358035	KAPC	2014	0.5621304	0.061221	0.6718247	0.0968597
Centum	2015	0.8947825	0	0.1634794	0.1919568	KAPC	2015	0.6746338	-0.4292298	0.4904981	-0.0128388
Centum	2016	0.7612292	0	0.1042947	0.1853894	KAPC	2016	0.5857967	0.2212336	0.5706838	0.1358292
Centum	2017	0.769633	0	0.1063709	0.1392865	KAPC	2017	0.5552258	-0.2266994	0.6657936	0.035707
Centum	2018	0.6735526	0.1430085	0.1056323	0.0515114	KAPC	2018	0.5641622	0.2350891	0.5935647	0.1392761
Centum	2019	0.6860836	0.0969032	0.106758	0.0624467	KAPC	2019	0.5859703	-0.3113039	0.6709218	0.0204819
Centum	2020	0.5882503	0.0862657	0.0575873	0.0611765	KAPC	2020	0.5794963	2.0126563	0.5904458	0.0901929
Olympia	2011	0.5166248	0	0.620561	0.0317676	Rea Vipingo	2011	0	0.07	0	0
Olympia	2012	0.5013822	0.0824844	0.4145841	0.0337191	Rea Vipingo	2012	0.7523369	0.085	0	0
Olympia	2013	0.530748	0	0.4347691	0.0165824	Rea Vipingo	2013	0.8335709	0	0.9068783	0.2312683
Olympia	2014	0.3994517	0.111005	0.3254038	0.0332374	Rea Vipingo	2014	0.7396382	0	0.843096	0.1818414

Olympia	2015	0.3623147	0	0.3385954	-0.016373	Rea Vipingo	2015	0.2236475	0	0.7018958	0.5842231
Olympia	2016	0.3076297	0	0.328796	0.1372453	Rea Vipingo	2016	0.1875259	0.9988778	0.855123	0.5827024
Olympia	2017	0.2889841	0	0.3164884	0.0388731	Rea Vipingo	2017	0.2140916	1.141103	0.7654021	0.3134839
Olympia	2018	0.2663612	0	0.2765258	0.0107904	Rea Vipingo	2018	0.25883	0.9187586	0.6699128	0.4341279
Olympia	2019	0.2603045	0	0.3152258	0.018294	Rea Vipingo	2019	0.2476476	0.7030087	0.6296419	0.1581482
Olympia	2020	0.2806793	0	0.2913161	0.0208579	Rea Vipingo	2020	0.239585	0	0.5976406	0.1339278
SLAM	2011	0.9886537	0.2165064	0.3168785	0.0550152	Eaagads	2011	1.7674496	0	0.5201058	0.4051965
SLAM	2012	1.0904929	0.205	0.3302666	0.0623957	Eaagads	2012	1.5624359	0.9217209	0.2739572	0.0470367
SLAM	2013	1.2505757	0.1727403	0.2516411	0.0913082	Eaagads	2013	1.723821	0	0.1361696	-0.110488
SLAM	2014	1.3147379	-0.00075	0.2132786	0.0492045	Eaagads	2014	3.2210802	0	0.2145278	-0.0882769
SLAM	2015	1.1784612	0	0.191138	0.0031913	Eaagads	2015	1.2806529	0	0.1385138	0.0360172
SLAM	2016	1.0009759	0	0.1836874	0.0047412	Eaagads	2016	1.2421843	0	0.1655515	0.0006405
SLAM	2017	0.9981232	0	0.2136707	0.003729	Eaagads	2017	0.8710043	0	0.1519842	0.0215255
SLAM	2018	1.0543255	0	0.2180574	-0.0725631	Eaagads	2018	0.6137648	0	0.0923904	-0.0514956
SLAM	2019	1.0255074	0	0.240419	0.0077895	Eaagads	2019	0.44591	0	0.1906085	0.0203525
SLAM	2020	1.0065914	0	0.2759346	0	Eaagads	2020	0.5468015	0	0.0512576	-0.0597231
LBTY	2011	0.979468	0.143981	0.2629932	0.1294949	kakuzi	2011	0.6346743	0.065	0.4087027	0.3887099
LBTY	2012	0.9712481	0.11625	0.2540485	0.0572828	kakuzi	2012	0.6108226	0.095	0.4381085	0.2396557
LBTY	2013	1.0847222	0.23255	0.2352136	0.0712725	kakuzi	2013	0.7196998	0.2226895	0.3723898	0.1140934
LBTY	2014	1.2012506	0.09345	0.2421191	0.0632651	kakuzi	2014	1.1408369	0.2293936	0.4380913	0.1074335
LBTY	2015	1.131672	0	0.2708244	0.0400263	kakuzi	2015	1.6364412	0.106588	0.5567075	0.2975724
LBTY	2016	1.0145898	0	0.2741804	0.0312112	kakuzi	2016	1.4364062	0.1045473	0.5234957	0.3356693
LBTY	2017	0.9821531	0.06835	0.2810351	0.0277934	kakuzi	2017	1.3700517	0.1159483	0.4914487	0.3264149
LBTY	2018	0.9883139	0.3596933	0.2793295	0.0223845	kakuzi	2018	1.236747	0.1831418	0.5306865	0.2466966
LBTY	2019	0.9431499	0.2866249	0.2866794	0.0292166	kakuzi	2019	1.2237528	0.192308	0.4470897	0.3031125
LBTY	2020	0.8910932	0.292421	0.2843794	0.0236287	kakuzi	2020	1.2298527	0.2835858	0.5225188	0.2580135
JUB	2011	1.0454287	0.1692897	0.317005	0.1343063	Sasini LTD	2011	0.6046897	0.315	0.2817448	0.0767525
JUB	2012	1.0351719	0.1723786	0.3258619	0.0630445	Sasini LTD	2012	0.5787783	0.3333333	0.3161205	0.0054427
JUB	2013	1.0560806	0.1551872	0.2957519	0.0543338	Sasini LTD	2013	0.6640408	0.0094	0.3111023	0.0358347

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JUB	2014	1.1405767	0.1025235	0.3326209	0.0552668	**Sasini LTD**	2014	0.3844129	0.0089	0.1850385	0.0193351
JUB	2015	1.139684	0.0960816	0.2795641	0.0485755	**Sasini LTD**	2015	0.4328272	0.43825	0.1736496	0.0903333
JUB	2016	1.1199295	0.1040316	0.6044868	0.049551	**Sasini LTD**	2016	0.4628664	0.1248833	0.2834921	0.0610978
JUB	2017	1.1104044	0.1091056	0.5265422	0.0510877	**Sasini LTD**	2017	0.6523014	0.0974833	0.3183682	0.0479375
JUB	2018	1.0173278	0.1345859	0.4685888	0.0462421	**Sasini LTD**	2018	0.4764849	0.6384798	0.2712072	0.0406253
JUB	2019	0.9609183	0.1367287	0.4530559	0.0404716	**Sasini LTD**	2019	0.3845784	0.3311885	0.1904567	-0.0146975
JUB	2020	0.897486	0.1353406	0.4098807	0.0348437	**Sasini LTD**	2020	0.4096497	0	0.2843653	0.0161694
CIC	2011	0.6138638	0.165	1.1556854	0.1744959	**Limuru tea**	2011	2.3192186	0.111155	0.1815135	0.2500008
CIC	2012	1.161105	0.08	1.2209778	0.1400798	**Limuru tea**	2012	1.8554604	0.0441896	0.1263722	0.4202727
CIC	2013	1.3896432	0.04355	1.2402661	0.1080713	**Limuru tea**	2013	2.0002149	0.35245	0.3037606	0
CIC	2014	1.7556538	0.1201508	1.1433042	0.0702955	**Limuru tea**	2014	2.9890195	-24.28775	0.2724446	-0.0020946
CIC	2015	1.3365079	0.1208	0.9662022	0.0621809	**Limuru tea**	2015	3.357122	0.62735	0.4279724	0.1075903
CIC	2016	1.0916842	0.76445	0.9013536	0.0191656	**Limuru tea**	2016	3.6516887	0	0.3682409	0.018557
CIC	2017	1.2297925	0.3279857	0.9579649	0.0266307	**Limuru tea**	2017	4.86331	0	0.3067452	0.0093157
CIC	2018	1.0713515	0.353493	1.0159251	0.0236813	**Limuru tea**	2018	4.7534212	0.4709576	0.4054649	0.0727572
CIC	2019	0.9761128	0	0.9912064	0.0167426	**Limuru tea**	2019	4.7593839	0.4421053	0.3863411	0.0690436
CIC	2020	0.946956	0	0.8825929	-0.0041898	**Limuru tea**	2020	3.930913	0	0.4208606	-0.0043174
KNRE	2011	0.6251799	0.0548422	0.3468861	0.1328681	**DTK**	2011	1.0413586	0	0.0883616	0.0436084
KNRE	2012	0.7205904	0.0499662	0.342817	0.1683451	**DTK**	2012	1.0493703	0	0.0904034	0.045162
KNRE	2013	0.7776329	0.0752	0.3491039	0.2490814	**DTK**	2013	1.1111871	4.42	0.0863582	0.0443017
KNRE	2014	0.7495739	0.0780901	0.3596071	0.131209	**DTK**	2014	1.1374962	5.09	0.0925728	0.0442808
KNRE	2015	0.7409897	0.0738499	0.4676243	0.153878	**DTK**	2015	1.026926	4.585	0.0769469	0.041414
KNRE	2016	0.7166586	0.0851705	0.4475838	0.144198	**DTK**	2016	0.9559504	2.335	0.1399424	0.0338178
KNRE	2017	0.5609872	0.0831563	0.4478102	0.1340934	**DTK**	2017	1.0001758	0.0525641	0.1276912	0.0249453
KNRE	2018	0.4568001	0.0384033	0.4331412	0.0806321	**DTK**	2018	0.9598006	0.0513241	0.1249292	0.024721
KNRE	2019	0.3870031	0.0352941	0.4576798	0.1368725	**DTK**	2019	0.9118542	0.0519307	0.1181589	0.0243324
KNRE	2020	0.320489	0.0951366	0.4514005	0.1022473	**DTK**	2020	0.8885881	0	0.104603	0.0121531
Britam	2011	1.0793581	-0.0724766	0.2187124	-0.0817747	**Stanbic**	2011	0.9441852	0	0.055889	0.0151505
Britam	2012	0.9686318	0.0938421	0.1912245	0.0937668	**Stanbic**	2012	0.9257229	0.535	0.0646651	0.0254786

Britam	2013	1.2964262	0.4968	0.1886286	0.0639328	**Stanbic**	2013	1.0108979	0.1341195	0.059449	0.0445574
Britam	2014	1.5000417	0.5029	0.1938675	0.051905	**Stanbic**	2014	1.0669876	0.2720913	0.0663896	0.0428737
Britam	2015	1.0969307	0.49735	0.2525452	-0.010758	**Stanbic**	2015	0.9724119	0.391697	0.060905	0.0342737
Britam	2016	1.0180119	0.50775	0.2426018	0.0404541	**Stanbic**	2016	0.9428426	0.3539034	0.0656902	0.0281493
Britam	2017	1.0626181	0.3897	0.2352774	0.0112693	**Stanbic**	2017	0.9560397	0.2407984	0.0602732	0.023676
Britam	2018	1.0123359	0	0.2346708	-0.0218495	**Stanbic**	2018	0.9698937	0.1826354	0.0589436	0.0316895
Britam	2019	0.9467801	0.0890401	0.2166328	0.0374369	**Stanbic**	2019	0.9807489	0.2183499	0.0625805	0.033414
Britam	2020	1.0091535	0	0.205893	-0.0767202	**Stanbic**	2020	0.9448325	0.144667	0.0530656	0.0272197
UMME	2011	0.8083734	0	0.81728	0.2930226	**Equity group**	2011	1.1346987	0.14345	0.0525997	0.100633
UMME	2012	0.6832431	0.21325	1.1436622	0.1862424	**Equity group**	2012	1.1851583	0.1915758	0.0496772	0.1011801
UMME	2013	0.7022693	0.24065	1.1018364	0.1995973	**Equity group**	2013	1.2243388	0.2091492	0.0478092	0.0872636
UMME	2014	0.7692866	0.13415	0.815867	0.1489039	**Equity group**	2014	1.3522133	0.1943035	0.0497748	0.0858112
UMME	2015	0.7365193	0.27	0.6592441	0.1379019	**Equity group**	2015	1.1841112	0.2177916	0.0404778	0.0764184
UMME	2016	0.7294073	0.10995	0.6133246	0.1380202	**Equity group**	2016	1.065935	0.2272887	0.0350486	0.0630311
UMME	2017	0.7247749	0.17385	0.6568255	0.1025961	**Equity group**	2017	1.1084182	0.1994754	0.036071	0.0615318
UMME	2018	0.6754986	0.0865	0.6370014	0.1586786	**Equity group**	2018	1.0637541	0.1903589	0.0345737	0.0563887
UMME	2019	0.6773614	0.1205	0.6989595	0.109497	**Equity group**	2019	1.1356388	0	0.0339584	0.0541662
UMME	2020	0.7030498	0.1146548	0.6231955	0.068753	**Equity group**	2020	0.9992974	0	0.0198011	0.0448902
KenGen	2011	0.6841954	0.2642108	0.0893766	0.0504788	**Co-op Bank**	2011	1.1298492	0.1302491	0.0903417	0.0463848
KenGen	2012	0.6890863	0.2336528	0.0972884	0.048619	**Co-op Bank**	2012	1.1166694	0.1356461	0.0977968	0.0613972
KenGen	2013	0.7658878	0.1262289	0.0871941	0.0568914	**Co-op Bank**	2013	1.1634991	0.17315	0.0996051	0.1452172
KenGen	2014	0.7839114	0.0002	0.0696378	0.0377861	**Co-op Bank**	2014	1.1923965	0.14795	0.0975815	0.0286408
KenGen	2015	0.6321799	0.0620341	0.0855173	0.0641985	**Co-op Bank**	2015	1.1130058	0.17315	0.0855036	0.0381135
KenGen	2016	0.6286974	0	0.099252	0.0506409	**Co-op Bank**	2016	1.0111385	0.17315	0.097687	0.0362209
KenGen	2017	0.6643536	0.1602	0.1152867	0.0526834	**Co-op Bank**	2017	1.0621993	0.2057745	0.0874192	0.0289004
KenGen	2018	0.6205572	0.1671481	0.1194967	0.0507158	**Co-op Bank**	2018	1.0317776	0.2303988	0.097281	0.0315861
KenGen	2019	0.6082831	0.104551	0.114507	0.0497809	**Co-op Bank**	2019	1.0339424	0.2049848	0.09802	0.0340548
KenGen	2020	0.5634623	0.0538267	0.106824	0.0783161	**Co-op Bank**	2020	0.9659571	0.271305	0.0911421	0.0205409
KPLC	2011	0.9243759	0.4938889	0.6037229	0.0879558	**BK Group**	2011	0.7860911	0.3359455	0.0726721	0.0878799

KPLC	2012	0.9243919	0.105	0.7131962	0.0780979	BK Group	2012	0.8044968	0.3360563	0.0945768	0.0950777
KPLC	2013	0.8939456	0	0.482647	0.0575588	BK Group	2013	0.8324565	0.3343897	0.1089026	0.0816584
KPLC	2014	0.8798464	0	0.4770623	0.070278	BK Group	2014	0.8144504	0.3997439	0.1039236	0.0753457
KPLC	2015	0.8817042	0	0.3921006	0.0707393	BK Group	2015	0.8231631	0.2659538	0.1035661	0.0644192
KPLC	2016	0.8498701	0	0.374244	0.0644757	BK Group	2016	0.8300495	0.2657113	0.1094383	0.0502137
KPLC	2017	0.8745535	0	0.3727072	0.054561	BK Group	2017	0.8312028	0.2659681	0.1131032	0.046663
KPLC	2018	0.8414541	0	0.395399	0.0525881	BK Group	2018	0.811817	0.199887	0.1052219	0.0461501
KPLC	2019	0.8455158	0	0.4053061	0.0486324	BK Group	2019	0.8079616	0.1730623	0.1071992	0.0520325
KPLC	2020	0.8414849	0	0.4096894	0.0475525	BK Group	2020	0.815215	0	0.0963111	0.0412046
Total	2011	0.8121168	-1.2804878	2.9998824	0.0227786	SCBK	2011	1.1538492	0.285	0.0807883	-0.039248
Total	2012	0.6431682	-0.086587	3.6321042	0.0181676	SCBK	2012	1.2144849	0.235	0.0874054	0.0169282
Total	2013	0.6297161	0.0400134	4.7516146	0.0693422	SCBK	2013	1.2621648	0.24645	0.0918463	0.0039378
Total	2014	0.6085013	0.043017	4.9883239	0.0726271	SCBK	2014	1.2827531	0.3883029	0.0951523	0.0021797
Total	2015	0.5535484	0.041725	3.8144496	0.0764135	SCBK	2015	1.0813595	0.5580029	0.0929677	0.0010215
Total	2016	0.5475022	0.0415188	3.0559979	0.102306	SCBK	2016	1.0811266	0.5755319	0.0936446	0.0043508
Total	2017	0.544798	0.0415571	3.6066638	0.1123722	SCBK	2017	1.0902461	0.6085434	0.0786467	0.003241
Total	2018	0.5452816	0.0492057	3.4814567	0.115488	SCBK	2018	1.0706831	0.5841754	0.0857329	0.0034935
Total	2019	0.4790886	0.0448968	3.8331316	0.1436341	SCBK	2019	1.0721478	0.292603	0.080336	0.0009796
Total	2020	0.4728954	0.0416881	2.2646714	0.1789936	SCBK	2020	1.0111041	0.3763441	0.0715437	0.0038349
CRWN	2011	0.7445027	0.20105	1.7394838	0.1059436	ABSA	2011	1.2494091	0.5712687	0.1391315	0.1440964
CRWN	2012	0.9256931	0.24245	1.9629587	0.1071812	ABSA	2012	1.3027766	0.4606931	0.1337536	0.0612549
CRWN	2013	1.1418504	0.0970858	1.7515218	0.1273665	ABSA	2013	1.3058109	0.3923071	0.1227635	0.0461221
CRWN	2014	1.333877	1.0530624	1.5674416	0.0358366	ABSA	2014	1.2318076	0.32385	0.1149836	0.0479282
CRWN	2015	1.6585507	0.694494	1.484223	0.0414674	ABSA	2015	1.1417856	0.42335	0.1123436	0.0444665
CRWN	2016	1.282166	0.1620254	1.4523651	0.0623443	ABSA	2016	1.0271024	0.4671	0.1082097	0.0343183
CRWN	2017	1.6704917	0.0956331	1.2520126	0.0648557	ABSA	2017	1.0296229	0.4921	0.09969	0.029542
CRWN	2018	1.8524254	0.116174	1.5186954	0.0618842	ABSA	2018	1.0469373	0.4937334	0.0848936	0.0310101
CRWN	2019	1.5689539	0	1.5581976	0.1068953	ABSA	2019	1.0728773	0.4915723	0.0781533	0.0280216
CRWN	2020	1.1412516	0	1.6323796	0.1674444	ABSA	2020	1.0157169	0	0.076162	0.0153854

Company	Year	Val1	Val2	Val3	Val4	Company	Year	Val1	Val2	Val3	Val4
EA cables	2011	1.0794381	0.5092043	0.9957206	0.0909868	NCBA	2011	0.9867643	0.045	0.0121314	0.0488275
EA cables	2012	1.0058466	0.442429	0.6882468	0.122541	NCBA	2012	1.048801	0.0894009	0.0091265	0.0400257
EA cables	2013	1.1715345	0.5178349	0.6583228	0.0855152	NCBA	2013	1.1239865	0.18625	0.0102469	0.0352479
EA cables	2014	1.1278596	0.4355	0.6462285	0.0688077	NCBA	2014	1.0922356	0.0778963	0.0100648	0.0385919
EA cables	2015	0.9443166	0	0.4441971	-0.063576	NCBA	2015	1.0080314	0.13755	0.0106636	0.0349362
EA cables	2016	0.860856	0	0.4836055	-0.0440339	NCBA	2016	0.9191145	0.0389	0.0112708	0.0304331
EA cables	2017	0.9290649	0	0.3331835	-0.0587851	NCBA	2017	0.9363733	0.0772057	0.0057799	0.0258366
EA cables	2018	0.8769216	0	0.246993	-0.0500846	NCBA	2018	0.9549655	0.0879341	0.0746595	0.0386397
EA cables	2019	0.7614788	0	0.2526269	0.1345594	NCBA	2019	0.9756064	0.2385498	0.0496824	0.0431028
EA cables	2020	0.8241938	0	0.3034297	-0.0999023	NCBA	2020	0.9460526	0.2703294	0.0745398	0.0247117
EA Portland	2011	0.9571426	12.5	0.756623	0.0468019	KCB	2011	1.0167391	0.2500678	0.0263998	0.0568748
EA Portland	2012	0.9219118	0	0.6087318	-0.0319828	KCB	2012	1.0925764	0.231223	0.0246558	0.0519105
EA Portland	2013	0.9454399	0	0.5709453	0.153635	KCB	2013	1.1986573	0.561	0.0254131	0.053612
EA Portland	2014	0.9055385	0	0.5762642	0.0060782	KCB	2014	1.1926576	0.46665	0.0243562	0.0558685
EA Portland	2015	0.5845513	0	0.3642008	0.3913752	KCB	2015	1.0915605	0.15415	0.0234763	0.0559623
EA Portland	2016	0.4313738	0	0.3186344	0.1838004	KCB	2016	0.9858597	0.2301	0.0212083	0.0470897
EA Portland	2017	0.4714048	0	0.2532518	-0.026436	KCB	2017	1.0388281	0.3222667	0.0227226	0.0414652
EA Portland	2018	0.3785494	0	0.1378253	0.2477003	KCB	2018	1.0016282	0.1652181	0.0199324	0.0444898
EA Portland	2019	0.446788	0	0.0779197	-0.0741627	KCB	2019	1.0484628	0.160173	0.0162001	0.0399336
EA Portland	2020	0.4950339	0	0.0703559	-0.0615637	KCB	2020	0.9797632	0.8195937	0.0137405	0.0273413
Bamburi	2011	1.6326759	0.445	1.0711002	0.379852	I&M Holdigs	2011	0.8596507	0	0.0633783	0.0407055
Bamburi	2012	1.8431262	0.51	0.8711139	0.2754304	I&M Holdigs	2012	0.837265	0	0.0629344	0.0409917
Bamburi	2013	2.0394144	0.6344092	0.7887298	0.2032149	I&M Holdigs	2013	1.1643079	1.2590811	0.0762562	0.0464251
Bamburi	2014	1.5204152	0.8079697	0.878949	0.2155512	I&M Holdigs	2014	1.1676974	1.6865154	0.0706707	0.0382949
Bamburi	2015	1.80447	0.6325464	0.9326671	0.2941362	I&M Holdigs	2015	1.0287749	1.3098119	0.078328	0.0453677
Bamburi	2016	1.6923252	0.6197378	0.9380069	0.2866987	I&M Holdigs	2016	1.0177103	0.1043313	0.0862177	0.0394199
Bamburi	2017	1.6807336	0.5554263	0.7621126	0.1048731	I&M Holdigs	2017	1.022852	1.0397454	0.0776823	0.0393206
Bamburi	2018	1.295579	1.7161269	0.7430702	0.0554639	I&M Holdigs	2018	0.9454635	0.4433954	0.0667955	0.0386667
Bamburi	2019	0.9369409	0	0.7496384	0.0587348	I&M Holdigs	2019	0.9485732	0.0978941	0.0608631	0.0465056
Bamburi	2020	0.5891884	0.4822311	0.7054969	0.084736	I&M Holdigs	2020	0.9138322	0.1105683	0.0542929	0.0326598