Financial Performance, Intellectual Capital Disclosure and Firm Value: The Winning Edge

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Abstract: Traditional financial performance metrics have served well throughout the inclusion era, but they are no longer in sync with the skills and competitiveness that organizations are attempting to learn. This study examined the role of intellectual capital disclosure (ICD) in mediating the relationship between financial performance and firm value. The sample consists of 39 firms listed on the Nairobi Securities Exchange (NSE) in Kenya. They represent 67% of firms listed on NSE during the period (2010–2022). Data were extracted from individual companies' audited annual reports. The study hypotheses were tested on a fixed and random effects model with the aid of the Stata student version. The results reveal that financial performance has a positive and significant effect on firm value. Furthermore, financial performance has a negative effect on ICD. Finally, ICD was found to have a mediating effect on the relationship between financial performance and firm value. The results confirm that intellectual capital disclosure is an important mediator in the relationship between financial performance and firm value; firm managers should use ICD as a winning edge. Additionally, firms with high intellectual capital are likely to engage in voluntary disclosure to legitimize their success.

Keywords: Financial Performance (FP); Intellectual Capital Disclosure (ICDs); Firm Value (FV); Tobin's Q index

1.0 Introduction

The significant difference between market and book value is caused by the intangible assets often undisclosed under traditional financial reporting (Dashti, Aleemi, & Tariq, 2016; Brand Finance Institute, 2017). Firm investment decisions are concerned with enhancing the firm's value (Suteja & Gunardi, 2016). To achieve high valuation, firms must increase stock price, through profit maximization. According to Ghosh and Saima (2021) profitability is one of the most important factors in determining corporate value. Hence, the main objective of firm is profit maximization, while the ultimate goal is to enhance business value. To achieve the goals, firms will need additional capital to enhance their operations. The additional capital is normally obtained from investors outside the company. Sourcing additional funds from the capital market enables firms to reduce risk and expenses in acquiring financial capital, since they have reliable markets where they obtain funding. Generally, the capital markets allow traders and investors to buy and sell stocks and bonds, and business to raise the financial capital to grow. However, when the potential investors invest in a company, they always require information regarding to how well the company has been managed. Financial reporting is crucial for companies' investors, as it provides Key information that shows financial performance over time.

Hence, it is necessary to ensure that companies engage in fair trade, especially when it comes to financial reporting, to ensure that investors are not misled. Through the capital market authority (CMA), the Kenyan government, in partnership with private regulatory institutions, can monitor and ensure fair trade, compensation, and financial activities (Mwangi, 2016). Generally, the external challenges facing the

Nairobi Security Exchange; Political instability, and intolerance have reduced investor confidence. This study examines the implications of financial performance on intellectual capital disclosure and firm value between 2010-2022 post-election violence, and how firm performance impacts firm value. The post-election chaos resulted from the 2007-2008 election affected nearly all sectors of the economy. For instance, in 2007, foreign direct investment (FDI) was $729m and dropped by almost 75% to $183m in 2008 as a result of election violence (KRA, Financial report 2009/2010). Currently, foreign direct investment (FDI) increased by $ 394m in December 2022 (KRA, Financial report 2021/2022), indicating that the economy is growing as a result of easing political tensions. Addition during the period the COVID 19 pandemic has caused a considerable amount of damage to every facet of life, including financial markets (Baker, 2020).

Previous studies have established a positive and significant effect of political tensions on firm performance (Menge, *et al*., 2013); Kithinji and Ngugi, 2009). Similarly, Irungu (2012) finds a negative relationship. Hence, with the current political stability, we expect that stock prices will be high, hence high firm value as a result of better performance. However, managerial incentives differ depending on whether managers are assumed to act opportunistically or to provide information relevant to discretionary disclosure. Additionally, the majority of problems experienced by firms in developing countries are mainly attributed to poor governance, leading to a loss of investor confidence in the stock market. Generally, shareholders' well-being is demonstrated by the market price per share of the company, which also reflects funding, asset management, and investment decisions (Awais *et al*., 2016). Investors will react differently to information available in the market, which is as a result of rational and irrational investor behavior. According to signaling theory, financial performance is a signal to investors that a company will have prospects. Previous studies have established that the higher a company's profits, the higher the value of the firm, and vice versa (Triani & Tarmidi, 2019; Pernamasari & Mu'minin, 2019).

However, the effect of financial performance on firm value is debatable. The results from different scholars have provided mixed findings, such as Hermawan and Maf'ulah (2014), who established that financial performance did not affect firm value. Martha *et al*. (2018), Husna and Satria (2019), and Mira (2020) find that financial performance has a positive and significant effect on firm value. Considering that contradictory results still exist between financial performance and firm value, there are other factors/variables that have a contingent effect on firm value. Therefore, we added intellectual capital disclosure as a mediating variable. Intellectual capital includes the expertise of employees, organizational processes, and the sum of knowledge contained in the organization (Bontis & Serenko, 2009). Generally, the disclosure of intellectual capital information is important because the increased use of intangible assets in the form of intellectual capital results in an increase in the information asymmetry gap. Finally, intellectual capital disclosure explains the strategy implementation process (Bontis, 2002). Additionally, the voluntary disclosure of intellectual capital is useful in decision making and can be considered an early stage in solving the problem of traditional financial reporting.

The disclosure of intellectual capital will improve weakness in the capital market that was initially oriented towards financial statements, thus reducing volatility and internal trade caused by information known by internal parties (Kristandl & Bontis, 2007). Previous studies have sought to establish the impact of intellectual capital on profitability and have established that intellectual capital

influences firm performance (Ousama *et al*., 2012). However, we sought to establish the effects of financial performance and intellectual capital disclosure on firm value. Previous studies have attributed intellectual capital disclosure to high firm value (Reimsbach *et al*., 2018; Salvi, *et al*., 2020). Generally, the higher the financial performance, the higher the level of intellectual capital disclosure among firms (Solikhah and Subowo, 2016; Sardo and Serrasqueiro, 2017). Additionally, previous studies have attributed intellectual capital disclosure to high performance (Ousama *et al*., 2012; Suhardjanto & Ward, 2010). However, Ramadan and Majdalany (2013) establish a negative link between profitability and intellectual capital disclosure. Hence, increased credibility increases firm value (Cormier and Magnan, 2000).

The credibility of the information disclosed adds to the value of the enterprise, as the details are released to assist in reducing the risk associated with an investor's decision-making process. Lack of intellectual capital disclosure reporting is a risk that intellectual capital does not receive sufficient attention from management and other stakeholders (Guthrie and Petty, 2000), thereby diluting firm value. Failure to disclose important intellectual capital information can lead to low valuation in the capital market (Mubarak and Mousa Hamdan, 2016). Consequently, companies must report more intellectual capital disclosures to enhance firm value. According to Sheu *et al*. (2010), the market rewards corporations that choose to disclose full details with higher valuation. Furthermore, the level of organizational disclosure has a significant effect on firm value (Anam *et al*., 2011; Dhaliwal *et al*., 2011; Garay *et al*., 2013). This study sought to establish the effects of financial performance, intellectual capital disclosure, and firm value from the perspective of signaling theory. Higher performance is a signal to investors because it contributes to a better reputation; however, due to the weak oversight of intellectual capital disclosure, management might manipulate information to suit their needs (McCraken, 2018). We attribute firms with high valuations to small differences in the ability of CEOs, which could lead to enormous differences in the results. The difference between a high-, average-, or mediocre-valued firm is not a huge difference in the ability of the CEO, but a few small things done consistently and repeatedly, such as the presentation of intangible assets in financial reports. Intellectual capital disclosure is expected to affect the relationship between financial performance and firm value, because firms with high intellectual capital are more likely to engage in voluntary disclosure to legitimize their success, away from the traditional symbol of firm success based on tangible resources.

Based on this discussion, this study sought to examine and analyze: [1] the effect of financial performance on intellectual capital disclosure. [2] The effect of financial performance on firm value. [3] Intellectual capital disclosure on firm value. [4] Mediating effect of intellectual capital disclosure on the relationship between financial performance and firm value.

2.0 Theoretical foundation

2.1 Institutional VS Impression Management Theories

Agency theory explains the connection between the agent and principal. Hence, the principal (management) is responsible for completing the principal (stakeholder) task (Fama and Jensen, 1983). Scholars have attributed agency theory to a focus on poorly performing firms. Generally, agency problems arise when incentives or motives present themselves to an agent, so they will not act in the full interest of the principal.

However, managerial incentives differ depending on whether managers are assumed to act opportunistically or to provide information relevant to discretionary disclosure. The information asymmetry between the principal and agent has long been a concern in many studies on exploration (Spence, 2002) which explains that the information gap between the principal and agent can be reduced if the party with information can send a signal to a related party with no information.

Therefore, the signals given by the firm are highly dependent on the management's decision to make a comprehensive disclosure. Hence, CEOs/managers disclose information regarding financial performance and intellectual capital to signal that the company has better prospects in the future. Signaling theory has been widely used to describe the behavior of management in well-performing firms. Therefore, high profitability signals to investors that the firm has the potential to perform better in the future. Similarly, legitimacy theory asserts that organizations operate in a continuously changing environment and always attempt to pursue a society in which their activities are within set standards (Brown & Deegan, 1998). Organizations present annual reports to legitimize the operations and activities of corporations. Hence, intellectual capital disclosure is applied as an explanatory framework to analyze firms facing legitimacy treats as a result of high and unjustified profits.

Essentially, agency theory considers CEOs or managers to use impression management. Previous scholars (Heider, 1958; Kelley, 1967; Clatworthy & Jones, 2006) have attributed management to opportunistic behavior to select a style of presentation and choice of content to be reported, as it will be beneficial to them and provide information relevant to discretionary disclosure. Hence, CEOs disclose more intellectual capital with opportunistic behaviors to justify themselves. Additionally, management might also report high performance by deferring some expenses to signal better prospects in the future. The overall goal of an organization is to provide useful information to stakeholders. From the legitimacy theory perspective, organizations take actions to guarantee that their operations are viewed as legitimate as part of a social contract. Therefore, organizations with high levels of intellectual capital will engage in voluntary disclosure, as intellectual capital disclosure cannot be legitimate through traditional business success symbols, such as tangible assets (Guthrie et al., 2004).

3.0 Hypothesis Development

3.1 Financial Performance and Firm Value

Financial performance is a periodic determination of an organization's operational effectiveness. Hence, an analysis was conducted to determine the extent to which a company has carried out its activities. Generally, financial performance has been considered a prospect for future growth and potentially good development for the company (Barlian, 2003; Hasanudin et al., 2020). Firm value is an indication of management's effectiveness and efficiency in managing resources (Husman and Pudjiastuti, 2002; Wijaya and Sedana, 2020). Firm value is the price that will be given by a potential buyer. Hence, value is an impression that the firm is linked to high stock prices as a result of high financial performance (Brigham and Houston, 2006; Sasongko, 2019). From the signaling theory perspective, a company's financial performance is constantly represented by its current status and future potential growth. Generally, a positive profitability signal is expected to enhance firm value.

According to Ghosh and Ghosh (2008), profitability, as a measure of financial success, is one of the most important criteria for evaluating firm value. Similarly, Hassan and Halbouni (2013) employed return on assets (ROA) to measure financial performance and established that ROA had a positive effect on business value. In addition, Chen and Chen (2011) established that financial performance influenced the value of green energy companies in China for a period of (2008-2017). Similarly, Muliani *et al.* (2014), Wayan (2014), Ketut (2016), Alien (2016), Kevin (2017), and Nurul (2017) find that profitability (ROA) influences company value. However, Hermawan and Nurul (2014) established that organizational profitability does not influence firm value. Handley and Li (2018) and Karima (2016) established that there is no relationship between financial performance and firm value. The inconsistency in the results is attributed to measurement faults of indicators based on accounting data that are historical and do not consider expected cash flows in the future. Hence, there is a need to re-examine the effect of financial performance on firm value by first ensuring the most appropriate financial performance measurement model and whether better financial performance contributes to a positive reputation as it sends signal asymmetry.

H0[1]   *We hypothesize that financial performance has no statistically significant effect on firm value.*

3.2 Financial Performance and Intellectual Capital Disclosure

A company's success is generally measured by its financial performance: companies with higher earnings are more vulnerable to regulations that require more detailed information to be disclosed in annual reports to justify financial performance (Mondal & Ghosh, 2014). Therefore, disclosure level can be used to differentiate firms' profitability. According to Purnomosidhi (2005), an organization's financial performance is an indicator used to differentiate between companies with high and low voluntary disclosure. Essentially, the level of disclosure is positively associated with an organization's profitability (William, 2001). Similarly, good financial positions intensify the credibility of an organization's information (Hughes, 1986; Scott, 1994; Beaner, 1989). Companies with high profitability tend to disclose more human resource accounting information (Syed, 2009). Two theoretical perspectives justify the relationship between financial performance and firm value. From an agency theory perspective, high financial performance makes it easier for managers to persuade shareholders that their managerial abilities are superior. Firms use voluntary disclosure to gain investor trust. Second, signaling theory attributes highly profitable companies to the benefit of signaling that they are better in the industry.

Therefore, profitable companies have a greater incentive to disclose more information regarding intellectual capital disclosure. Organizational profitability enhances intellectual capital disclosure (Ousama *et al.*, 2012). Additionally, companies that report higher earnings are subject to more rules that require them to provide additional information to justify their high performance (Mondal & Ghosh, 2014). Firms' willingness to disclose more voluntary information (intellectual capital) is attributed to high financial performance (Hamrouni, Miloudi, & Benkraiem, 2015). According to Rahim et al. (2011), profitability influences intellectual capital disclosures. Similarly, Ousama *et al.* (2012) and Suhardjanto and Ward (2010) attribute intellectual capital disclosure to high financial performance. However, (Purnomosidhi, 2006; Ferreira et al., 2012; Ibikunle et al., 2013; Kateb, 2014)

demonstrate that profitability does not affect intellectual capital disclosure. Moreover, Ramadan and Majdalany (2013) established a negative and significant relationship between financial performance and intellectual capital disclosure. The inconsistent results from previous studies have necessitated the need to re-examine the effect of financial performance on intellectual capital disclosure by first ensuring the most appropriate intellectual capital disclosure.

> H0$_2$ *We hypothesize that financial performance has no statistically significant effect on intellectual capital disclosure.*

3.3 Intellectual Capital Disclosure and Firm Value

Intellectual capital is widely recognized as an important resource for creating value (Mention & Bontis, 2013). Generally, intellectual capital disclosure is designed to meet stakeholders' information needs of the stakeholders about intellectual capital (Musfiqur, Raihan, & Shafiqul, 2019). According, to Price waterhouse cooper (2017) between the period (200 –2017) the capital market had valued the market value than book value. The difference between the market and book value was attributed to the intangible assets referred to as intellectual capital, which are frequently unreported in standard financial reporting (Ferchichi & Paturel, 2013; Boujelbene & Affes, 2013; Dashti, Aleemi, & Tariq, 2016; Brand Finance Institute, 2017). Hence, the disclosure of intangible assets assists stakeholders in understanding managers' perspectives, as well as the source and development of intellectual capital among the firm's current and future achievements (McCracken *et al*., 2018). Generally, the disclosure of intellectual capital enhances transparency and increases faith among stakeholders (Taliyang, 2008). However, empirical evidence of the effect of intellectual capital disclosure on firm value is limited in certain industries and geographies (Soukhakian & Khodakarami, 2019).

Therefore, there is a need to establish a relationship between intellectual capital disclosure and firm value. However, we attributed the limited number of studies to measurement difficulty since it cannot be immediately identified and measured. Previous studies have established a positive and significant effect of the organizational disclosure level on firm value (Anam *et al*., 2011; Gordon *et al*., 2010; Garay *et al*., 2013). Thus, intellectual capital disclosure is expected to positively influence firm value. Generally, an increase in the level of disclosure is associated with a reduction in mispricing, cumulative profitability and an increase in firm value (Botosan and Plumlee, 2002). The direction and magnitude of the relationship between intellectual disclosure and firm value vary depending on the type of disclosure (Hassan et al., 2009) and proxy used for firm value (Uyar and Kiliç, 2012).

This study sought to establish the effect of intellectual capital disclosure on firm value in the context of the Nairobi Security Exchange in Kenya across all sectors. Considering that previous studies looked at the relationship between intellectual capital disclosure and firm value in specific sectors (Pratama, Wibowo, and Innayah, 2019). As a result, it is necessary to determine whether intellectual capital disclosure has an impact on firm value.

> H0$_3$ *We hypothesize that intellectual capital disclosure has no significant effect on firm value.*

3.4 Mediating Effect of Intellectual Capital Disclosure

Intellectual capital disclosure levels can be used to differentiate between firms' profitability. Previous studies established that financial performance is an indicator used to differentiate between companies with high and low voluntary disclosure. Hence, it is expected to be enhanced at a higher level of financial performance. Generally, the level of disclosure is positively associated with an organization's financial profitability of an organization (William, 2001). Intellectual capital disclosure (ICD) describes the outcome of a company's knowledge-based activities. Hence, a CEO will disclose intellectual capital as a statement to stakeholders to legitimize company activities (Striukova *et al*., 2008). Similarly, good financial positions intensify the credibility of an organization's information (Hughes, 1986; Scott, 1994; Beaner, 1989).

Companies with high profitability tend to disclose more human resource accounting information to justify their source of effectiveness and efficiency (Syed, 2009). Therefore, based on previous studies, the relationship between financial performance and intellectual capital disclosure varies. According to Rahim et al. (2011), profitability influences intellectual capital disclosures. Similarly, Ousama *et al*. (2012) and Suhardjanto and Ward (2010) attribute intellectual capital disclosure to high financial performance. However, Purnomosidhi (2006), Ferreira et al. (2012), Ibikunle *et al*. (2013), and Kateb (2014) demonstrate that profitability does not affect intellectual capital disclosure. Ramadan and Majdalany (2013) establish a negative and significant effect of financial performance on intellectual capital disclosure. The inconsistency in the results between financial performance and firm value may be attributed to intellectual capital disclosure.

Generally, financial performance has a positive and significant effect on firm value (Wayan, 2014; Ketut, 2016; Kevin, 2017; and Nurul, 2017). Similarly, Pascareno and Siringoringo (2016), Hakim and Sugianto (2018), and Sigit and Nurul (2014) establish that financial performance does not affect firm value. However, Al and Nawaiseh (2017) revealed that financial performance has no statistically significant effect on a firm's value, citing a lack of appropriate measures to measure financial performance. However, there are still contradictory results regarding intellectual capital disclosure (ICD) and firm value. According to Abdolmohammadi (2005), intellectual capital disclosure influences market capitalization value among the 500 comp financial performance, firm value, intellectual capital disclosure, and firm value. Additionally, intellectual capital disclosure has a positive and significant effect on firm value in cross-sectional analysis (Orens *et al*., 2009). Similarly, Vafaei *et al*. (2011) established that intellectual capital disclosure has a positive effect on firm value-based control for country and industry characteristics.

Based on this description, the relationship between financial performance, intellectual capital disclosure, and firm value has sufficient theoretical and empirical support to propose the following hypothesis:

> $H0_4$ *We hypothesize that intellectual capital disclosure does not mediate the relationship between financial performance and firm value.*

3.5 Conceptual Framework

Figure 1 represents the mediating effect of intellectual capital disclosure on the relationship between financial performance and the value of firms listed on the Nairobi Security Exchange. The independent variable in this study was financial

performance. The mediating variable is intellectual capital disclosure (ICD) and the dependent variable is firm value, as illustrated in Figure 1.
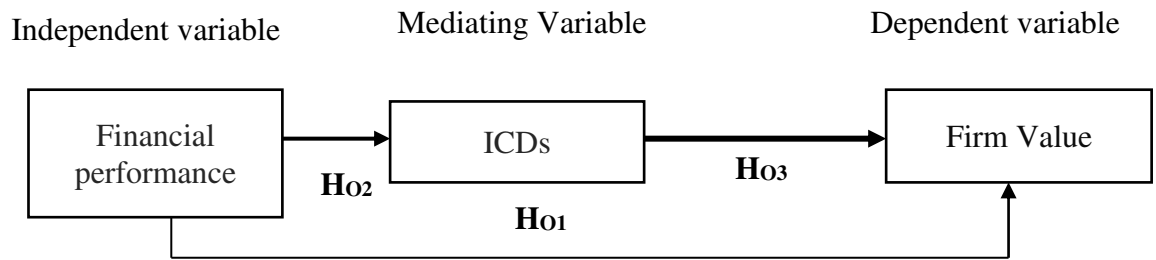
Independent variable   Mediating Variable   Dependent variable

Figure 1: Conceptual Framework

Source Data, Researcher (2023)

4.0 Research Methodology

4.1 Sample Selection

The study considered 63 listed firms on the Nairobi Security Exchange (NSE), and few studies have sought to investigate the association between financial performance, intellectual capital disclosure, and firm value in NSE, which has the most efficient, active, and capitalized stock market in East Africa (CMA 2019). Additionally, NSE offers great insight because it is composed of firms from different sectors. For accurate analysis, we trimmed the sample through the following ways to enable the testing of the research hypothesis, we excluded (9) firms that dint have complete audited published reports on their website, as well as (15) that had missing CEOs statements and at one point they were discontinued from trading their shares in NSE during the period (2010-2022) Post-election Violence 2007/2008 and at high market uncertainty during the pandemic of COVID 19, that the capital market witness a lot of turbulent and low efficiency. Consequently, we deleted 312 observations from 819 observations, and the remaining 507 observations from 39 firms were used for the analysis. This study adopted a balanced panel data approach for analysis. Table 1 shows the sampled firms classified based on classification standards by the NSE. We extracted data from published financial reports on various company websites and databases.

Table 1: Sample Selection and Industry Cluster

Sample Selection (Section A)	No of firms	Observation
Sample	63	819
Companies with a total lack of data	12	156
Companies suspended listing	3	039
Companies with missing audited reports on Website	9	117
Final Sample	**39**	**507**
Industry (Section B)	**Observation**	**%**
Agricultural	52	10.256
Automobiles & Accessories	13	2.564
Banking	78	15.385
Commercial And Services	65	12.821
Construction & Allied	78	15.385
Energy & Petroleum	39	7.6923
Insurance	39	7.6923
Investment	26	5.1282
Investment Services	13	2.564
Manufacturing & Allied	65	12.821
Telecommunication	13	2.564
Real Estate Investment Trust	13	2.564
Exchange Traded Funds	13	2.564
Total	**507**	**100.00**

Note(s): Section A describes the sample selection procedure; section B presents sample distribution by industry.

Source: Research Data, 2023

4.2 Measurement of Variables and Research Model

4.2.1 Dependent variable.

Firm value is the ability of a firm to give its stakeholders a satisfactory return on investment. The study measured firm value using Tobin's Q. Tobin's Q has been widely utilized in previous studies (Brainard & Tobin, 1968; Tobin, 1969; Gompers et al., 2003). Tobin's Q is the ratio of the firm's market value to the asset replacement cost. Therefore, Tobin's Q parameter used for the study was expressed using the following formula (Balagobei, 2018):

$$\text{Tobins Q} = \frac{\text{EMV}}{\text{EBV}} \qquad (3.1)$$

where *EBV* is equity book value and *EMV* is the equity market value

4.2.2 Mediating variable.

Intellectual capital disclosure was the mediating variable. This study measures intellectual capital disclosure using a content analysis index approach. This is in accordance with previous studies (Sardo & Serrasqueiro, 2017; Tejado-Romero *et al.*, 2017).

Data regarding intellectual capital disclosure were obtained from the corporate website and NSE in the HTML format. The data were utilized for analysis because they were comprehensive and available to all stakeholders at a lower cost. The HTML web pages of the sample firms were analyzed based on the presence of intellectual capital disclosure on CEO statements. Additionally, the study adopted an unweighted approach, assigning similar weights for each intellectual capita item analyzed. It allowed all disclosed items to get an equal level of importance, which helped to avoid unforeseen subjectivity in the analysis (Cooke, 1989). Generally, we assign a score of 1 if the item is disclosed in the CEO statement, and 0 otherwise. We calculate the ICD indices (HC, SC, and RC) and the overall ICDs for the firm as follows:

$$HC_{it} = \frac{\sum_{j=1}^{h} d_{jit}}{M} \tag{3.2}$$

$$SC_{it} = \frac{\sum_{j=1}^{s} d_{jit}}{M} \tag{3.3}$$

$$RC_{it} = \frac{\sum_{j=1}^{r} d_{jit}}{M} \tag{3.4}$$

$$ICDs_s = HC_{it} + SC_{it} + RC_{it} \tag{3.5}$$

where d_{jit} is the score conferred on each *IC* item (1 if the item is disclosed in the CEO statement and 0 otherwise), and h, s, and r represent the number of *IC* items disclosed in the HC, SC, and RC categories, respectively. *M* denotes the total number (36) of *IC* items.

Appendix I: lists the 36 items of the three IC components.

4.2.3 Independent variable.

Financial performance is attributed to a company's ability to make a profit (Nurazi, Zoraya and Wiardi, 2020). Financial performance is measured and evaluated using accounting ratio return on assets (ROA). ROA measures the extent to which a company uses its resources. Thus, a high ROA indicates that the firm is maximizing the value of its assets (Gul, Irshad, & Zaman, 2011; Shaw *et al*., 2013; Van Vu, Tran, Van Nguyen, & Lim, 2018). ROA was calculated as follows:

$$ROA_{it} = \frac{PBT}{TA} \tag{3.6}$$

where ROA is the return on assets (ROA), *PBT* is profits before tax, and *TA* is the total assets.

4.2.4 Research model.

This study employed Baron and Kenny's (1986) approach to establish the mediating effect of intellectual capital disclosure on the relationship between financial performance and firm value. Intellectual capital disclosure is considered a moderator because it extends the relationship between financial performance and firm value. According to Baron and Kenny (1986), to establish a mediating effect, the independent variable must affect the mediator.

Second, the independent variable must affect the dependent variable. Third, the mediator has to have an effect on the dependent variable. The four steps of mediation followed by the study are as follows (Kenny et al., 1998; Salhi *et al.*, 2019; Koubaa & Jarboui, 2017):

(1) Step 1: the independent variable must affect the dependent variable (M.1)
(2) Step 2: the independent variable must affect the mediating variable (M.2)
(3) Step 3: the mediating variable to affect the dependent variable (M.3)
(4) Step 4: To determine if the mediating variable completely mediates XY, the effect of X on Y Controlling for M should be zero (estimate and test path c') (M.4).

The study developed the 4 multiple regression model to test the study hypothesis:

$$TQ_{it} = \alpha_{it} + \beta_{11}ROA_{it} + \varepsilon \qquad \qquad (M.1)$$
$$ICD_{it} = \alpha_{it} + \beta_{21}ROA_{it} + \varepsilon \qquad \qquad (M.2)$$
$$TQ_{it} = \alpha_{it} + \beta_{31}ICDs_{it} + \varepsilon \qquad \qquad (M.3)$$
$$TQ_{it} = \alpha_{it} + \beta_{41}ROA_{it} + \beta_{42}ICDs_{it} + \varepsilon \qquad \qquad (M.4)$$

where the $ICDs$ are the Intellectual Capital Disclosure (mediating variable), TQ is firm value (dependent variable), and ROA is financial performance (independent variable).

5.0 Results and Discussion

5.1 Descriptive and Correlation Results

The study presented descriptive data such as mean, minimum, maximum, and standard deviation, as shown in Table 2. Firm values ranged from a minimum of 0.149 to a maximum of 4.355, allowing for sufficient variation, and an average value of 0.963. Financial performance represented by return on asset, was (minimum= -0.412 and maximum = 0.280; standard deviation = 0.104). The financial performance varies widely across firms. Moreover, leverage varied from a minimum range of 0.077 to a maximum of 0.901, with a mean of 0.554. The majority of the firms had a larger equity multiplier, suggesting that they were more financially leveraged.

Table 2: Descriptive Statistics

	Mean	Std. Deviation	Minimum	Maximum
Tobin's Q	.607483	.29501	.10064	1.60517
ROA	.070471	.12832	-1.38569	.92807
ICD	.093378	.22872	.00000	1.95371
Institution ownership	.690935	.16545	.10148	.96932
Firm Size	7.33757	1.84722	3.51157	13.69782
LEV	2.00880	1.89080	.08497	9.13304
LIK	1.87682	1.52901	.07963	9.63869

Note: Tobin's Q – firm value; ROA firm performance; ICD – Intellectual capital disclosure; LEV- Leverage; LIK- Liquidity; Obs = 507

Source: Research Data, 2023

5.2 Robustness Checks

A robustness test was performed to establish normality, multicollinearity, unit root test for heteroscedasticity, autocorrelation, and specification error.

Test of Normality

Table 3 presents the skewness and kurtosis of the study variables. Skewness/kurtosis shows the number of observations and the probability of skewness (ρ = value of skewness < 0.05). While, (Kurtosis) indicated that kurtosis was asymptotically distributed (ρ value of kurtosis < 0.05). The results show that the hypothesis that firm value is normally distributed was not rejected, at least at the 9.2% level, in the joint Prob [chi (2) = 4.677, ρ >0.05 (ρ = 0.092)]. The kurtosis for firm value is 2.3, and the p-value of 0.0312 is significantly different from the kurtosis of the normal distribution at the 5% significance level. Further, the results indicate that we cannot reject the hypothesis that financial performance (ROA) is normally distributed, at least at 12.3% of the joint Prob [chi (2) = 4.190, ρ > 0.05 (ρ = 0.123)]. The kurtosis for financial performance is 1.885 and the p-value of 0.0445 is significantly different from the kurtosis of a normal distribution at the 5% significance level. Lastly, the hypothesis that intellectual capital disclosure (ICD) is normally distributed was not rejected, at least at the 11.8% level, the joint Prob [chi (2) = 4.027, ρ > 0.05, ρ = 0.118)]. The kurtosis for intellectual capital disclosure is 1.602, and the ρ-value of 0.0428 is significantly different from the kurtosis of a normal distribution at the 5% significance level. Regarding the control variables, the hypothesis of normality was not rejected for firm size, leverage, liquidity, and institutional ownership (asymptotically distributed) (p > 0.05).

Table 3: Skewness/Kurtosis Tests for Normality

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj	chi2(2)	Prob>chi2
					------ joint ------	
Firm value	507	0.5359	0.0312		4.677	0.092
ROA	507	0.9115	0.0445		4.190	0.123
ICDs	507	0.8760	0.0428		4.027	0.118
Firm Size	507	0.6350	0.0310		2.919	0.086
IO	507	0.8450	0.0413		3.884	0.114
LEV	507	0.7342	0.0358		3.375	0.099
LIK	507	0.5751	0.0237		2.234	0.065

Note(s): the table presents test of normality of the study: ROA firm performance; ICD – Intellectual capital disclosure; LEV- Leverage; LIK- Liquidity; SIZE- firm size (ln TA); IO – Institution Ownership

Source: Research Data, 2023

Test of Heteroskedasticity

Table 4 shows the results of the heteroscedasticity test. Heteroscedasticity was tested using the Breusch-Pagan test. The assumption was that the independent variables should be cross-clustered (Gould & Rogers, 1994). The findings showed that Chi2 [chi (1) = 3.21, $\rho > 0.05$ ($\rho = 0.0733$]; hence, the null hypothesis was not rejected. Thus, the assumption of a constant variance is not violated.

Table 4: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance		
Variables: fitted values of FirmValue		
chi2(1)	=	3.21
Prob > chi2	=	0.0733

Source: Research Data, 2023

Test of Autocorrelation

Table 5 presents the results of the autocorrelation test using the Wooldridge test, as recommended by Drukker (2003). The results showed that the null hypothesis could not be rejected at the 5% significance level based on the p-values [F (1, 506) = 176.60, $\rho > 0.05$, 95% CI (-.0108, .01238)]. Hence, the null hypothesis was rejected because there was no serial correlation at the 5% level of significance. Therefore, the model has no serial correlation problems.

Table 5: Wooldridge test for autocorrelation in panel data

Source	SS	df	MS				
				Number of obs	=	507	
Model	9.45459176	1	9.45459176	F(1, 506)	=	772.20	
Residual	4.27303988	506	.0084280865	Prob > F	=	0.0000	
				R-squared	=	0.6887	
				Adj R-squared	=	0.6878	
Total	13.7276316	455	.030170618	Root MSE	=	.11065	

u	Coef.	Std. Err.	t	$\rho >|t|$	[95% Conf. Interval]	
u						
L1.	.0007686	.0059064	0.13	0.897	-.0108481	.0123853

test L.u==-0.5

(1) L.u = -.5

F(1, 506) = 176.60

Prob > F = 0.07231

Source: Research Data, 2023

Test of Specific Error

Table 6 presents the results of the specific error test using the Ramsey RESET test. From the findings, the probability values of the computed statistics were greater than 0.05, implying that the model was not misspecified [F $(3, 379) = 10.50$, $\rho>0.05$, $(\rho=0.4576)$].

Table 6: Ramsey RESET test using powers of the fitted values of Firm Value

Ho: model has no omitted variables		
F (6, 501) =	10.50	
Prob > F =	0.4576	

Source: Research Data, 2023

Correlation Results

Table 7: Presents results on correlation analysis between the studied variables. Firm value and financial performance are positively correlated (r = 0.267; $\rho < 0.05$). Hence, financial performance was suitable in predicting firm value. Hence a high financial performance is a positive signal that the company will have better prospects in the future. Similar, findings were established by Sucuahi and Carbarihan (2016) and Yanto (2018) established a positive and significant association between financial performance and firm value. Additionally, the findings also established that intellectual capital disclosure and firm value were positively correlated (r = 0.175; $\rho < 0.05$). Thus, intellectual capital disclosure is expected to influence firm value positively. The findings are consistent to Mansour *et al*. (2014), Alfraih *et al*. (2017) and Mardiati, (2018) attributed that disclosure of intellectual capital in the annual financial statement influences firm value positively. Lastly, in relation to the control variables; firm size and firm value had a negative and significant correlation (r = -0.507; $\rho < 0.05$). Secondly, leverage and firm value also had a negative and significant association (r = -0.663; $\rho < 0.05$). Finally, institution ownership and firm value had negative association based on the coefficient of correlation (r = -0.122; $\rho < 0.05$), however the association was not significant. Lastly, liquidity and firm value also had a negative and significant association (r = -0.230; $\rho < 0.05$).

Table 7: Correlation Matrix between Variables and VIF Values

	Tobin's Q	ROA	ICD	SIZE	IO	LEV	LIK	VIF
Tobin's Q	1							_
ROA	.267**	1						1.24
ICD	.175**	.262**	1					1.34
SIZE	-.507**	.034	.179**	1				2.30
IO	.053	-.043	-.106*	-.235**	1			1.13
LEV	-.663**	-.213**	-.139**	.634**	-.046	1		2.14
LIK	-.230**	.159**	.198**	.445**	-.294**	.213**	1	1.37

Note(s): the table presents the correlation matrix between variables of the study: Tobin's Q – firm value; ROA firm performance; ICD – Intellectual capital disclosure; LEV- Leverage; LIK- Liquidity; IO- Institution ownership; SIZE- firm size (ln TA); Obs = 507; All numbers are rounded to four decimal places; ***ρ-value < 0.01; **ρ-value < 0.05; *ρ-value < 0.1; VIF <10 ; $\frac{1}{VIF}$ < 1 (Tolerance)

Source: Research Data, 2023

5.2 Analysis of Financial Performance, Intellectual Capital Disclosure and Firm Value

Table 8 presents results of:

Model 1[a] shows the relationship between financial performance and firm value. The results depicts a coefficient estimate of financial performance that is positive and statistically significant [β_1 = 0.112, ρ < 0.05 (ρ > $|t|$ = 0.000)]. The results indicate that financial performance is positively associated with firm value. Thus, the null hypothesis (H0$_1$) was rejected. We conclude that financial performance is positively associated with firm value. Further, a unit change in financial performance leads to a 0.112 unit change in firm value. High financial performance is a positive signal that a company will have better prospects in the future from the perspective of signaling theory. The study findings are in line with those of (Sucuahi & Carbarihan, 2016; Gharaibeh & Qader, 2017; Yanto, 2018). They attribute high firm value to better financial performance.

However, the results contradict the findings of Pascareno and Siringoringo (2016) and Hakim and Sugianto (2018), who find no significant association between financial performance and firm value. Therefore, high firm value is attributed to organizational financial performance, which acts as a signal to investors regarding future prospects. With regard to the control variable introduced in the model, the results showed that all the control variables had no significant effect on the study phenomenon, except firm size (ln TA), which is negatively associated with firm value. Generally, firm size is an important determinant of firm value (Sudiyatno *et al*., 2020). Similar findings were established by Bhabra (2007) and Hirdinis (2019), who found that large firms had lower values due to inefficiencies. Hence, investors do not consider firm size.

Model 2^a relates to the effect of intellectual capital disclosure (ICDs) on firm value, revealing that ICD had a positive and statistically significant effect on firm value based on the coefficient estimate [β_1 = 0.07503, ρ < 0.05 (ρ >│z│ = 0.010)]. Thus, intellectual capital disclosure positively influences firm value. Therefore, a unit increase in intellectual capital disclosure results in 0.07503 changes in firm value. Therefore, the more a CEO of a firm discloses intellectual capital in its annual financial statements, the more it enhances firm value. The disclosure of intellectual capital shows better intellectual capital investment decisions from an impression management perspective. These results are consistent with those of (Mansour et al., 2014; Alfraih et al., 2017; Sudibyo and Basuki, 2017; Subaida, Nurkholis, and Mardiati, 2018). Therefore, we attribute high firm value to intellectual capital disclosure (ICD) by organizations. Annual reports are generally presented to legitimize their operations and corporate activities to legitimize treats as a result of high or unjustified profits. Regarding the control variables introduced in the model, the results showed that only firm size (β = -0.06413, ρ < .005) and leverage (β = -0.02003, ρ < .005) had a significant effect on the study phenomenon. Firm size affects intellectual capital disclosure and firm value, because large companies provide more information to stakeholders. Generally, larger companies are managed by competent managers. Hence, smaller firms disclose less intellectual, resulting in low firm value. The higher the leverage, the higher the transaction cost as a percentage of trading capital.

Model 3^a shows the effect of financial performance on intellectual capital disclosure. The study findings indicated that financial performance had a negative and significant effect on intellectual capital disclosure, based on the coefficient estimate [β_1 = -0.188, ρ < 0.05 (ρ >│t│ =0.039)]. Hence, $H0_2$ is rejected, and we conclude that financial performance is negatively associated with intellectual capital disclosure. Further, a unit change in financial performance led to a -0.188 unit change in intellectual capital disclosure. Thus, implies that an increase in financial performance will result in a decrease in intellectual capital disclosure, since firms with high financial performance will not need to legitimize their operations, while high financial performance acts as a signal to investors. These findings are consistent with those of Ramadan and Majdalany (2013), who establish a negative and significant effect between financial performance and intellectual capital disclosure. However, this contradicts the findings of Ousama *et al.* (2012) and Suhardjanto and Ward (2010), who attributed intellectual capital disclosure to high financial performance. A firm's willingness to disclose more intellectual capital is determined by its financial performance. From a strategic point of view, the disclosure of intellectual capital information reflects the effectiveness of a firm's management. Hence, a CEO discloses more intellectual capital with opportunistic behavior to justify themselves. With regard to the control variable introduced in the model, the results showed that none of the control variables had a significant effect on the study phenomenon, except for firm size, which did not have a significant association. Therefore, a highly profitable firm will not need to disclose its intellectual capital to legitimize its activities and future prospects.

Model 4[a] relates intellectual capital disclosure's mediating effect on the relationship between financial performance and firm value. The study results establish a full mediating effect of intellectual capital disclosure on the relationship between financial performance and firm value among firms listed on the Nairobi Security Exchange, since all four steps have significant effects, as suggested by Kenny *et al.* (1998). Four steps of mediation were followed (Kenny et al., 1998; Salhi et al., 2019; Koubaa & Jarboui, 2017), and we established that intellectual capital disclosure mediated the relationship between financial performance and firm value. The study model (M.4) is equivalent to

$$TQ_{it} = \alpha_{it8} + \beta_{14}ROA_{it} + \beta_{24}ICDs_{it} = \alpha_{it8} + \Theta_{ROA_{it} \to ICDs_{it}}ROA_{it} + \beta_{24}ICDs_{it}$$
$$= \beta_{13} * \beta_{24}$$

The study findings revealed that financial performance had coefficients of estimate, which were significant based on the coefficient [$\beta_1 = 0.112$, $p < 0.05$ ($p > |t| = 0.000$)] on firm value. The findings also show the coefficients of path a = -0.188 on the effect of financial performance on intellectual capital disclosure, which was significant, based on the coefficient [$\beta_1 = -0.188$, $p < 0.05$ ($p > |t| = 0.039$)]. While, path b' = 0.076, effect of intellectual capital disclosure on firm value was also significant based on the coefficient [$\beta_1 = 0.07503$, $p < 0.05$ ($p > |z| = 0.010$)]. Finally the coefficients of the indirect effect [c" = 0.1264, $P < 0.05$ ($p > |t| = 0.002$)], was significant, which the effect of financial performance on firm value controlling for intellectual capital disclosure [$\beta_1 = 0.0769$, $p < 0.05$ ($p > |t| = 0.005$)] which was also significant based on model 4[a]b[3]. Additionally, to establish the mediating index, we adopted the 2×2 condition process analysis design of Igartua and Hayes (2021). Where $\Theta_{x \to y} = ab$ at [5000 bootstrap] sample, the index -0.0144572 = [-0.188*0.0769], the indirect effect at 5000 bootstrap ranged from (LLCI= -.79000, ULCI=3.006). Generally, a decrease of 0.014193 units of intellectual capital disclosure, on average, resulting from increase in financial performance is associated with higher firm value. The estimated effect -0.014193, which lied between the interval range (LLCI= -.79000, ULCI=3.006).

Essentially, we ask whether it is possible (5000 bootstrap) that the indirect effect is equal to zero. If the indirect effect is equal to zero, full mediation (Igartua & Hayes, 2021). The findings show an indirect effect at 5000 bootstrap ranged from (LLCI= -.79000 to ULCI=3.006). The estimated mediating effect index (-0.014193) lies between the interval range and, hence, is not equal to zero. The study concluded that the indirect effect is significant; hence, partial mediation exists. Therefore, we reject Hypothesis (H_{o4}) that states that intellectual capital has no significant mediating effect on the relationship between financial performance and firm value. Hence, intellectual capital disclosure partially mediates the relationship between financial performance and firm value. The result provides clear support that intellectual capital disclosure is a strong reputation capability. As an organization capability, firms can effectively utilize financial performance and intellectual capital disclosure by transforming them into imperfect intangible resources to enhance firm value. This result means that financial performance does not directly affect firm value, but rather indirectly through intellectual capital disclosure. Therefore, intellectual capital disclosure can be used by company management to gain investor trust, which can be reflected in higher compensation. According to the agency theory high performance makes it easier for managers to persuade shareholders that their managerial abilities are superior.

Table 8: Financial Performance, Intellectual Capital Disclosure and Firm Value

	MODEL 1[a]		MODEL 2[a]		MODEL 3[b]		MODEL 4[a]	
	ß	P>|t|	ß	P>|z|	ß	P>|t|	ß	
(Constant)	1.0735**(.152)	7.08	1.1656**(.114)	10.22	.484**(.080)	6.027	1.0424**(.1507)	6.91
Predictor Variables								
ROA	.112**(0.046)	2.44	_	_	-.188**(.083)	-2.26	.1264**(.0459)	2.75
ICD	_	_	.07503**(.0295)	2.54	_	_	.0769**(.0295)	2.61
SIZE	-.0550**(.018)	-3.00	-.06413**(.0128)	-5.01	-.032(.036)	-1.11	-.0522**(.0182)	-2.87
IO	-.0378(.0713)	-0.53	-.05066(.0687)	-0.74	-.022(.131)	-0.01	-.0377(.0707)	-0.53
LEV	-.0123(.007)	-1.69	-.02003**(.0068)	-2.95	-.023(.013)	-1.55	-.0107(.0072)	-1.49
LIK	-.0103(.007)	-1.45	-.01032(.0069)	-1.49	.008(.013)	0.62	-.0109(.007)	-1.55

Indirect Effect $[\theta_{x \to y} = ab]$ 5000 bootstrap sample

			Effect	LLCI	ULCI			
Indirect Effect			0.0144572	-0.7900	3.006			

Model Summary								
R	.6363		.59153		.6117		.6689	
R Square	.4049		.34991		.3742		.4474	
Adjusted R Square	.3674		.34315		.3677		.5583	
F Value	38.24**		_		38.089**		36.08**	
Wald chi2(1)	_		47.40**		_		_	
chi2 [χ2]	0.0009**		0.89		0.0000**		.00028**	

[a] Dependent Variable: firm value

[b] Dependent variable: Intellectual capital disclosure (ICD)

Note(s): the table presents the regression between variables of the study: Tobin's Q – firm value; ICD – Intellectual capital disclosure; ROA firm performance; ***ρ-value < 0.01; **ρ-value < 0.05; *ρ-value < 0.1; Obs= 507; Standard errors are given in parentheses; ** FE/RE: fixed or random effect; χ2(k) <χ2(Hausman) RE ; χ2(k) <χ2(Hausman)

Source: Research Data, 2023

5.3 Conclusion

High performance is a signal to investors because it contributes to a better reputation. However, due to the weak oversight of intellectual capital disclosure, managers can manipulate them to suit their needs. Thus, organizations disclose intellectual capital to legitimize their success away from the traditional symbol of firm success based on tangible resources. From an impression management perspective, we attribute the high valuation of firms to CEOs' ability to present intangible assets in their statements as a way to present management in the most favorable light possible to enhance firm reputation and impact stakeholder perceptions in relation to key value drivers. Consistent with agency theory, this study contributes to the literature by providing evidence that intellectual capital disclosure in CEOs' statements reduces information asymmetry.

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Appendix I: lists the 36 items of the three IC components

Table 1: Intellectual Capital Coding Framework

Internal (structural) capital	External (relational) capital	Human capital
Patents	Brands	Employee
Copyrights	Customers	Education and vocational qualifications
Trademarks	Customer satisfaction and loyalty	Training
Corporate culture	Company reputation	Human resource management
Management processes	Distribution channels	Innovativeness of employees/partners
Information systems	Business collaborations	Recruitment policies
Communication systems	Favourable contracts/ licensing	Career opportunities
Financial relations	Public relations	Diversity

Source: Adapted from Bozzolan et al. (2003), Cerbioni and Parbonetti (2007), Guthrie and Petty (2000), Haji and Ghazali (2013), Martins et al., (2018) and Striukova et al., (2008)

Appendix III: Condition process analysis of 2*2 Design

	ICD (M)	TQ (Y)
Constant	$\alpha_{it3} = 5.894$	$\alpha_{it4} = 5.516$
ROA (x)	$\beta_{13} = 0.01$	$\beta_{14} = 0.37501$
Identification (M)		$\beta_{24} = 0.1599$
R	*.3742*	*.4474*
$\beta_{11}\beta_{24}$ = Index of mediation [0.00591*0.1599 = 0.000945]		

Source: research (2023)