

THE IMPACT OF FINANCIAL AND NON-FINANCIAL CAPITALS ON JSE-LISTED COMPANIES – AN AUGMENTED INTEGRATED REPORTING FRAMEWORK

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ABSTRACT

The measurement of the impact of non-financial capitals on company value within the context of integrated reporting (IR) has remained an elusive empirical and practitioner question. The IR framework was designed to provide an improved corporate reporting approach to different stakeholders. However, the framework falls short of providing a tool that practitioners and stakeholders could use to determine how company value has changed over time.

Objectives: *The main objective of this research was to produce an enhanced IR framework through an Augmented Integrated Reporting Model (AIRM).*

Methods: *The model tested the relationship of five capitals (financial, manufactured, intellectual, human, and social and relationship capitals) to company value. The study used quantitative research methodology that utilised panel data fixed effects regression analysis in EViews software.*

Results: *The AIRM demonstrates that social and relationship capital have a positive impact on market share price, EVA and TobinQ, while association to share price at book value is negative. Human capital has a positive relationship to market share price and a negative influence on EVA, TobinQ and share price at book value. Intellectual and manufactured capital have positive associations with the four dependent variables of company value.*

Conclusions: *This research implies that a contribution has been made in resolving the challenge of quantifying and measuring non-financial capitals and how they impact company value. The study recommends that IR report preparers, report analysts, investors, academics, and other relevant stakeholders use the AIRM to measure and manage the various capitals in the process of company value creation.*

Keywords: Financial Capital, Integrated Reporting, JSE-Listed Companies, Non-Financial Capitals, Stakeholders.

1. INTRODUCTION

The concept of Integrated Reporting (IR) has been developed as a tool to provide key information to companies' shareholders and other important stakeholders through the Integrated Reporting Framework (IIRC, 2021). The Integrated Reporting Framework is anchored on the Six Capitals model consisting of financial, manufactured, intellectual, human, social and relationship and natural capital. IR is the brainchild of the International Integrated Reporting Council (IIRC), a worldwide coalition of various organisations, which include regulators, investors, companies, standards setters, the accounting profession and Non-Governmental Organisations (NGOs) (IIRC, 2021). In June 2021, the IIRC merged with the Sustainability Accounting Standards Board (SASB), resulting in the formation of the Value Reporting Foundation (VRF) to continue with the advancement of IR).

Reporting and measurement of value creation by organisations has been a challenge and various corporate reporting frameworks continued to be developed with IR being one of the most recent. IR recognises that organisations create value through the combination of six (6) capitals. Financial capital is valued in the statements of financial position, however, the other five (5) capitals are not similarly quantified and valued in the annual IR of organisations. The IR framework states that all capital should be viewed as stocks of value that organisations transform, increase, or decrease through various business activities (IIRC, 2021). It is reasonable that non-financial capital should also have the logic of opening balance plus movements to equal closing balance. The current IR framework does not provide a sufficient basis for the quantification and valuation of non-financial capital so that its impact on company value can be ascertained.

The IR framework states that the integrated report is not there to quantify or monetise the value of the company, the value it has created, preserved, or eroded over some time, or its utilisation of or effects on the capital (IIRC, 2021). This statement by the IIRC creates a conundrum which requires a solution as users of corporate reports are left with no reliable framework that captures the participation of the six capitals in value creation, preservation, or reduction.

This study proposes that IR application can be enhanced through the development of quantification and valuation techniques for non-financial capital and assessing its impact on company value, thereby giving users of IR more measurable information. This study used the stakeholder capital, agency capital, intellectual capital, and financial capital structure theories as a lens.

The study utilised Market share price, Economic Value Added (EVA), TobinQ and Share Price at book value as proxies of company value to empirically test the application of an enhanced IR framework through an enhanced Feltham-Ohlson model. The Augmented Integrated Reporting Model (AIRM) is this study's outcome from an enhanced IR framework and improved Feltham-Ohlson model. This study indicates the adequacies or otherwise of these measurement tools of company value.

Research questions, objectives, and hypothesis

Research questions (RQ), research objectives (RO) and hypothesis (H) provide a platform from which the researcher sets out on a goal to identify and collect data for analysis and interpretation, such that new knowledge is created (Mattick et al., 2018)

The Research Question (RQ), Research Objective (RO) and Hypothesis (H) for this model are given below:

RQ: How should companies measure and manage financial and non-financial capitals to create value and reflect integrated company value?

RO: Develop an enhanced IR framework that can be used by practitioners, academics, regulators, and corporate reporting standard setters.

Null hypothesis: The composite of Financial and non-financial capitals does not influence the integrated company value.

Alternative hypothesis: The composite of Financial and non-financial capitals influences integrated company value.

Valuation model for this study

The main background model for this study is the Feltham-Ohlson model, which is then augmented to produce the Augmented Integrated Reporting Model (AIRM).

The Feltham-Ohlson model of company valuation

The Feltham-Ohlson model is a predecessor to the earlier model developed by Ohlson (1995). In the earlier model, Ohlson had proposed that the value of a company was the summation of the share price at the book value of its financial and operating assets and the present value of its future abnormal earnings. The original Ohlson model is also referred to as the Residual Income Valuation Model (RIV) and is expressed as:

$$p_t = bv_t + \sum_{T=1}^{\infty} R_f^{-T} E_t[\tilde{X}_{t+T}^a]$$

Where P_t = company stock value at a particular time t

bv_t = share price at book value of company assets (financial and operating) at a particular time t

X_a = abnormal earnings (residual income) at a particular time t

R_f = risk-free rate prevailing at a particular time t

E_t = earnings at a particular time t

The Ohlson model assumes that company value is a linear function of the share price at the book value of equity and the present value of its abnormal future earnings. This inferred that the difference between market value and accounting value is the present value of the abnormal future earnings.

Although the Ohlson model had indications of strong explanatory power, it was lacking a full decomposition of the market value of the company. It was apparent that there were additional factors that

investors considered, and these factors influenced company value. This query on the Ohlson model gave the impetus to the development of the Feltham-Ohlson model (Feltham & Ohlson, 1995). The two (2) scholars introduced an additional variable, other Information to the original Ohlson model. The purpose of Other Information was to account for the unexplained gap that continued to exist between the market value of the company and the value derived from the Ohlson model. The other Information may be interpreted as the extra goodwill that investors consider which valuation models were failing to identify. The Other Information was valued using Linear Information Dynamics (LID). The LID is expressed using the following equation:

$$\tilde{v}_{t+1} = \gamma v_t + \tilde{\epsilon}_{2,t+1}$$

Where v_t = information other than abnormal earnings at a particular time t

γ = parameter persistence for information other than abnormal earnings to evaluate the sustainability of information other than abnormal earnings.

$\tilde{\epsilon}_2$ = the terms of stochastic errors assumed for having mean zero and normal distribution

The Feltham-Ohlson model, therefore, becomes a combination of RIV and LID. The combined model is expressed as the following linear function:

$$p_t = b v_t + \alpha_1 X_t^a + \alpha_2 v_t$$

Feltham and Ohlson (1995) concluded that company value is a linear function of the share price at the book value of equity, the present value of abnormal future earnings and Other Information.

IR has recognised that apart from financial capital, the other five non-financial capitals are vital in the determination of company value. Despite this recognition, there is no agreed methodology within the IR framework for measuring and valuing the non-financial capitals. Some of the non-financial capitals are tangible while others are intangible. The challenge or gap in IR that this study seeks to close is that no agreed measurement or valuation model within the IR framework is available for non-financial capitals, especially intangible capitals. A model is necessary that may enable the derivation of “company integrated value” where the contribution of the capitals can be measured, valued, and brought together and reported at different time frames in the same fashion that financial capital is reported through annual financial reports.

This study proposes that an AIRM be used to value the non-financial capitals, assigning them to the Other Information variables as propounded by the model. Empirical studies have been carried out on IR and the Ohlson and Feltham-Ohlson models. One may arguably mention that these studies sought to establish relationships or impacts of the non-financial capitals on market value not in an integrated manner, leaving the quantification and valuation dilemma largely open.

Demarcation/delimitation of the study

The current study focuses on JSE-listed companies, whereas there are private entities that have similar corporate reporting challenges that this research seeks to address. A study of JSE-listed companies means the study is limited to South Africa. This study is being carried out at a particular time phase (collection of balanced panel data). IR is a fast-evolving phenomenon that may have a different outlook in the future, posing a risk to the relevance of this study in the future

The researcher could not find, in the literature, a suitable measurement proxy for natural capital that was common across all the sectors. A review of IR reports of different entities revealed that natural capital was more prevalent in the basic materials/mining and energy sectors and not so much in the other sectors hence it is excluded.

2. METHOD

This study relies on numerical data, with the main dependent variable (company value) and the independent variables (proxies of financial and non-financial capitals) being values obtained from published financial statements and integrated reports.

Data collection

The study used secondary data collection involving the collection of information from published documents, online portals, and internet archives. For this study, secondary data was collected from mainly

the IRESS database. This secondary data is considered valid as it is collected from audited financial reports and professionally reviewed IR.

Population description of the study

The population for this study is made up of 327 companies listed on the JSE as of 30 August 2021. The companies are from the 10 sectors as listed in the Industry Classification Benchmark (ICB).

Validity and reliability

Validity was managed through reference to similar studies that relied on secondary data in the area of company valuations and IR (Cooray et al., 2020; Joshi et al., 2013; Kheong Chin et al., 2019; Nadeem et al., 2017; Phusavat et al., 2011; Schultz & Molele, 2019; Tlili et al., 2019).

The reliability of the data used in this research is based on the reputation of the IRESS database, built by McGregor BFA, as a source of data gathered from audited financial statements (UCT, 2022). The financial statements are audited according to the Companies Act 2008, IFRS and King IV. IRESS is recognised by universities as a reliable database (UCT, 2022; UNISA, 2022).

Diagnostics and checks for robustness

The data was checked for robustness through tests for collinearity, the Hausman test (1978:1251), specification test for heteroskedasticity, stationarity, and Durbin-Watson statistic autocorrelation. The results of these tests were satisfactory with no concerns on the data quality.

3. RESULTS

Regression models and findings

The sections below will cover the panel regression models and the findings from the variables.

Panel regression models for the Augmented Feltham-Ohlson model (Augmented Integrated Reporting Model)

$$\Delta Y_{it} = \beta_0 + \beta_1 \Delta X1_{it} + \beta_{ij} \sum_{\substack{i=1 \\ t=1 \\ j=4}}^N \Delta X2j_{it} + Du_t + \varepsilon_{it} \tag{1}$$

$$\Delta Y1_{it} = \beta_0 + \beta_1 \Delta X1_{it} + \beta_2 X2a_{it} + \beta_3 X2b_{it} + \beta_4 X2c_{it} + \beta_5 X2d_{it} + Du_t + \varepsilon_{it} \tag{2}$$

$$\Delta Y2_{it} = \beta_0 + \beta_1 \Delta X1_{it} + \beta_2 X2a_{it} + \beta_3 X2b_{it} + \beta_4 X2c_{it} + \beta_5 X2d_{it} + Du_t + \varepsilon_{it} \tag{3}$$

$$\Delta Y3_{it} = \beta_0 + \beta_1 \Delta X1_{it} + \beta_2 X2a_{it} + \beta_3 X2b_{it} + \beta_4 X2c_{it} + \beta_5 X2d_{it} + Du_t + \varepsilon_{it} \tag{4}$$

$$\Delta Y4_{it} = \beta_0 + \beta_1 \Delta X1_{it} + \beta_2 X2a_{it} + \beta_3 X2b_{it} + \beta_4 X2c_{it} + \beta_5 X2d_{it} + Du_t + \varepsilon_{it} \tag{5}$$

Where:

- Y_{it} = Company Value of company _i at time _t
- X1_{it} = Financial Capital of the company _i at time _t
- X2a_{it} = Intellectual Capital of the company _i at time _t
- X2b_{it} = Agency (Human) Capital of the company _i at time _t
- X2c_{it} = Manufactured Capital of the company _i at time _t
- X2d_{it} = Stakeholder (Social and Relationship Capital) of the company _i at time _t
- Du_t = 0 if no Covid and 1 if there is Covid. Dummy variable used to capture the effects of Covid-19 (year 2020).

Y1 is the company value proxy using market share price, Y2 uses EVA, Y3 is based on TobinQ and Y4 represents share price at book value. The AIRM used the individual proxies that were present in each capital and the regression results are presented in Table 1

Table 1. Summary of results on the AIRM measures

Variables	Variable description	Fixed effects Model Y1 Share Price	Fixed effects Model Y2 EVA	Fixed effects Model Y3 TobinQ	Fixed effects Model Y4 Share Price at Book Value
C	Constant	0,081864*	-0.035128	-0,020798**	0,06223***

Variables	Variable description	Fixed effects	Fixed effects	Fixed effects	Fixed effects
		(0,03487)	(0,008767)	(0,006764)	(0,007306)
EM	Employees (stakeholder capital) (X2d)	0,028732 (0,028124)	-0,031303 (0,017827)	0,015096 (0,017307)	-0,012345 (0,014193)
CU	Customers (stakeholder capital) (X2d)	0,006725 (0,013787)	0,003486 (0,011009)	-0,000369 (0,008436)	0,005712 (0,004342)
LU or D/E	Stakeholder capital, Agency Capital and Financial Capital	0,131228** (0,045009)	-0,020029 (0,021307)	0,009519 (0,018353)	0,00268 (0,012165)
SH	Shareholders (stakeholder capital) (X2d)	0,061472*** (0,017928)	0,012454 (0,017985)	-0,015258 (0,01143)	-0,014997 (0,012714)
GO	Government (stakeholder capital) (X2d)	-0,023939 (0,022952)	0,000906 (0,021981)	0,018482 (0,014125)	-0,01288 (0,009323)
DR	Agency (Directors as stakeholders) (X2b)	0,101137*** (0,028215)	-0,007696 (0,011567)	-0,002383 (0,003789)	-0,000885 (0,002091)
VAIC	Value Added Intellectual Coefficient (Intellectual capital) (X2a)	0,036609 (0,019191)	0,010893 (0,005318)	0,016734** (0,00572)	0,011505 (0,013376)
BD	Buildings (manufactured capital) (X2c)	-0,032479 (0,031175)	-0,007722 (0,019070)	-0,007025 (0,014555)	0,00905 (0,008767)
EQ	Equipment (manufactured capital) (X2c)	0,032514* (0,015908)	0,002591 (0,015642)	0,016262 (0,012059)	-0,008543 (0,006195)
TA_NCA	Tangible assets/Non-current assets (manufactured capital) (X2c)	0,007763** (0,036625)	0,006143** (0,025800)	-0,006658** (0,009791)	0,011609** (0,015929)
LD_NC	Long-Term Debt/Non-Current Assets (Financial Capital) (X1)	0,003638 (0,028801)	-0,016484 (0,018639)	0,011776 (0,012098)	0,001582 (0,011448)
TD_TA	Total Debt/Total Assets (Financial Capital) (X1)	-0,025995 (0,010076)	0,001415 (0,016840)	-0,015623* (0,007285)	0,006718 (0,004864)
DU	Dummy (covid 19_year 2020 effect)	-0,22626*** (0,036544)	-0,049168 (0,012559)	0,101317*** (0,008982)	0,031457*** (0,008907)
Observations		1001	1001	1001	1001
R-squared		0.325903	0.167657	0.148184	0.244085
Adjusted R-squared		0.248498	0.072081	0.050372	0.157285
S, E, of regression		0.367479	0.285464	0.19068	0.169306
F-statistic		4.210373	1.754182	1.514988	2.812045
Prob(F-statistic)		0	0.000017	0.001267	0
Mean dependent var		0.059901	-0.041147	-0.017773	0.108417
S, D, dependent var		0.4232	0.294056	0.195698	0.201848
Sum squared resid		121.1318	73.09603	32.61406	25.71207
Durbin-Watson stat		2.054788	2.144792	1.910927	1.880043

Variables	Variable description	Fixed effects	Fixed effects	Fixed effects	Fixed effects
Hausman Stats		22,972394*	11,174917	9,693759	0
Heteroskedasticity		509,8498***	352,6179***	414,1509***	443,1215***
CSD Tests					
Breusch-Pagan LM		6156,437***	4573,213***	4882,488***	5330,994***
Pesaran scaled LM		22,77866***	5,284204***	8,701654***	13,6576***
Pesaran CD		38,16197***	1,608121	10,33698***	24,31011***

*Note: Robust Standard errors in parentheses and * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

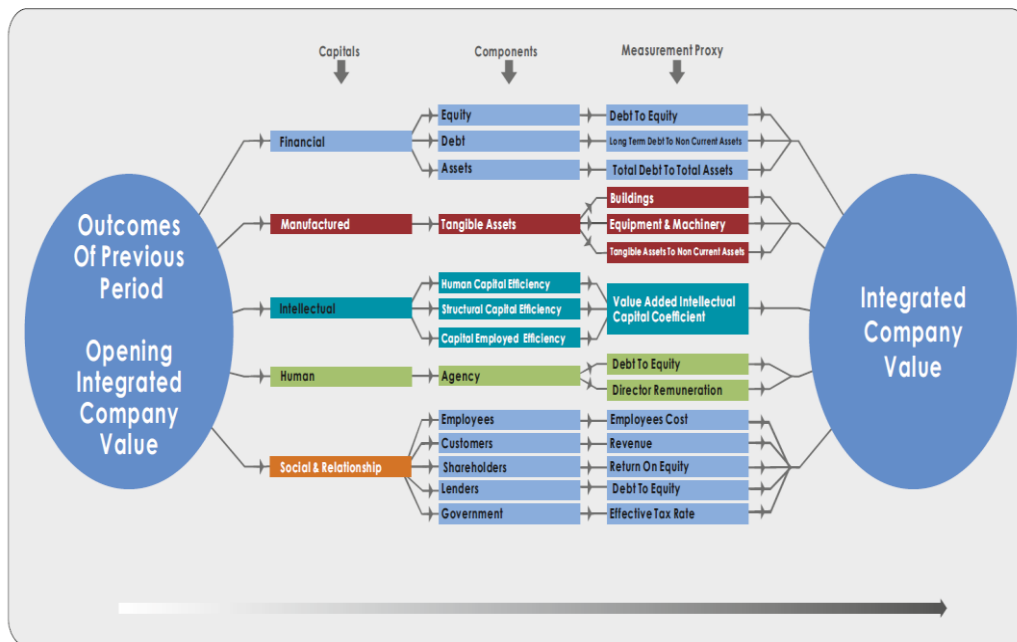
The results displayed in Table 1 show that some of the variables have a statistically significant association with company value while others have weak relationships. Out of the 13 predictor variables in this model, ten variables have a positive influence on market share price, with six of them having statistically strong relationships while the other four have weak associations.

4. DISCUSSION

The augmented integrated reporting model

As covered in preceding sections, the market share price and the independent variables listed will be used to build the AIRM. This fulfils the main objective of this research which is to produce an enhanced IR framework that reflects the influence of non-financial capitals on company value.

Figure 1 shows how the different capitals can be expanded into components, and a measurement proxy gets attached to each.



Source: Developed for this study and IIRC (2013, 2021)

**FIGURE 1
 THE AUGMENTED INTEGRATED REPORTING MODEL**

Main outcomes of AIRM

Figure 1 demonstrates that the model starts with an opening integrated company value balance, and the capitals get deployed into the company’s value-adding activities during a certain period. Using the different measurement proxies for the components of the capitals, the value created during the period is measured and evaluated. Adding the value created during the period to the opening balance will result in the (closing) integrated company value. It should be noted that there are circumstances where capital will cause a decrease in company value if its activities harm the business. For example, government, which is a component of social and relationship capital and whose measurement proxy is the effective tax rate, gave a

negative correlation to company value under market share price as the dependent variable. In the context of this model, a negative relationship between government and market share price is viewed as reducing company value. The model is in line with the IR concept, which states that the capitals should be viewed as stocks of value that organisations transform, increase or decrease through various business activities (IIRC, 2021). The following sections provide more details on the main outcomes or implications of AIRM.

Stakeholder reporting requirements addressed

One of the criticisms levelled against the existing IR framework is that the IR reports do not address the information requirements of the various stakeholders (du Toit, 2017). The stakeholders' contribution to value creation is not adequately reported, and the IR reporting principles are not implemented (Flower, 2015; Ruiz-Lozano & Tirado-Valencia, 2016).

The AIRM developed through this study has addressed the issues observed by the above scholars. The model has identified the various stakeholders involved in the value-creation activities of the company and the measurement proxies defined. Through regression equations, the impact of each stakeholder was assessed.

Existing reporting improved

The current reporting frameworks still concentrate on measuring the effects of financial capital (Atkins, 2020). The AIRM produced by this study has looked at a total of five capitals, which are; financial, manufactured, intellectual, human and social and relationship capitals. The model provides measurement proxies for each of the capitals, making it possible to measure their impact on company value over some time. This is a potential solution to the problem created by the IR framework where it stated that it was not the intention of IR reporting to quantify or monetise the value of the company, the value it has created, preserved or eroded over some time, or its utilisation of or effects on the capitals (IIRC, 2021).

More importance given to other providers of capital

The existing IR framework gives more importance to providers of financial capital to explain how an organisation creates, preserves or erodes value (Eccles & Spiesshofer, 2016; Herbert & Graham, 2018; IIRC, 2021). Companies still require enlightenment on the premise that financial capital is not the only capital that adds value to the company (Adams et al., 2016; de Villiers & Sharma, 2016; du Toit, 2017; King, 2018).

Although scholars have highlighted the shortcomings of the IR framework, they have not provided a holistic solution. The current study has provided a solution by providing a model that brings integrated company value as a summation of various capitals. The model, therefore, gives relevance to the other providers of capital. Reporting the impact of the other capitals allows the providers of these capitals to know their value addition or otherwise, making it possible to make informed decisions about future company involvement.

Model can be used

The main objective of this research was to produce an enhanced IR framework that reflects the influence of non-financial capitals on company value. The AIRM that has been produced by this study fulfils the main objective of this study. The model can be used by practitioners, academics, regulators, and corporate reporting standard setters.

5. RECOMMENDATIONS

The findings of the study have revealed insights that are of benefit to listed companies that utilise integrated reporting.

The recognition of employees as capital will benefit companies as they carry out their value-adding activities. The weak relationship between employees and company value exhibited in the study is a pointer that the current environment does not consider employees as critical in the formation, increase and sustenance of company value. Companies, corporate governance practitioners, the government and trade unions are encouraged to make policy interventions to change the current situation. The repercussions of the exclusion of employees as stakeholders are manifested through strikes and the general mistrust between employees and directors. This is a signal that policies and interventions are required to make employee participation as stakeholders recognised. Employee share schemes, where employees become part of the ownership structure, will improve their value-adding drive as this directly refers to the increase of their wealth. The involvement of employee bodies in company strategy formulation and performance monitoring will create a sense of ownership of the value-adding activities agreed upon. Industrial relations can be

improved with increased employee participation, as employees will consider the well-being of the business as a measure of their success.

Customer interests, represented by revenue in this study, have a positive but statistically weak correlation with company value. This calls for companies, government, and other stakeholders to improve this status. Revenue growth is arguably the foremost driver of cash flow generation and, consequently, company value. Revenue growth can be improved through the production of market-relevant and competitive goods and services that consumers will be prepared to pay for higher values.

The Debt to Equity ratio emerged as the most robust variable as it retained its positive significant relationship with market share price through three individual capital models and in AIRM. These are the stakeholder (Lenders), agency and financial capitals models. Companies, financial institutions, and government agencies responsible for business growth should implement policies that promote debt capital available to businesses. Collateral requirements should be relooked at against the potential growth possibilities of companies.

Shareholders' interests have shown a positive statistically significant relationship with company value. Through AIRM, it has been seen that shareholders do not have absolute control over the company's value but that other stakeholders have relevance. Shareholders are advised to look at the other value-adding stakeholders and consider how they can partner holistically to increase company value.

The government, with effective tax as a proxy, gave a negative, statistically insignificant relationship to the market share price. This means that in South African listed companies, the government is probably viewed as a value-eroding stakeholder. For IR philosophy to thrive, this assumed perception must be changed so that government becomes a value-adding enabler for companies. The usage of tax revenues to fund public capital projects that make business possible is one way.

Directors' remuneration as a proxy for Agency capital emerged with a positive statistically significant relationship to the market share price. This indicates the importance of directors' interests in company value. There is a risk that directors will abuse their influence for personal gain to the detriment of other stakeholders. Corporate governance practitioners should strengthen ethics codes to continue minimising the agency problem.

Manufactured capital is represented by buildings, equipment and machinery and tangible assets to non-current assets ratio in this study. The positive significant association demonstrated by equipment and machinery and the tangible assets to non-current assets ratio shows the value relevance of manufactured capital in integrated company value. Companies and governments should implement the modernisation of equipment and machinery through localised research and development and funding innovation initiatives.

Intellectual capital has shown a positive impact on company value. As disclosed through literature review and empirical evidence from other jurisdictions, the influence of intellectual in company value is on an upward trend. This is facilitated by the growth in the knowledge economy, where innovation is vital.

Companies, government, and other stakeholders should promote intellectual capital by offering incentives for research and development in areas that will result in the improvement of processes, productivity and quality of goods and services. Investment in skills development becomes relevant for the furtherance of intellectual capital development.

Financial capital has Debt to Equity ratio, Long-term Debt to Non-current Assets ratio and Total Debt to Total Assets ratio as proxies. The Debt to Equity ratio has been covered in the earlier paragraph. Long-term Debt to Non-current Assets indicated a positive statistically weak correlation to the market share price in AIRM. This requires improvement by making debt facilities available for the funding of non-current assets that are associated with positive future cash flows. Total Debt to Total Assets has a negative association with company value, indicating that value is eroded if the debt is used to fund all business operations, including current assets. Debt providers should carefully assess the purpose of debt so that value can be preserved or increased rather than lost because of liquidity or bankruptcy risks.

The dummy variable for this study was the Covid-19 pandemic effect which affected the year 2020. It is recommended that valuation specialists, CFOs, IR practitioners and academics consider the impact of macroeconomic shocks (including global pandemics) on company performance and, consequently, company value. It is, therefore, advisable to capture such effects in valuation models.

The study, through the AIRM, has revealed that it is possible to quantify and evaluate the effect of both financial and non-financial capitals on company value. It is recommended that the VRF, standard setter,

IR practitioners and accounting firms use AIRM in preparation for IR. The accounting firms, notably EY and PwC, release annual reports that mostly cover IR quality and progress without providing a model of how value addition, erosion or maintenance has changed from one period to another. AIRM provides the measurement solution on how each capital added, eroded, or sustained value, giving users an opportunity to make informed decisions on the capitals.

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