

# EVALUATING THE RELATIONSHIP BETWEEN INTEGRATED REPORTING AND FINANCIAL INDICATORS IN JSE-LISTED COMPANIES

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## Abstract

The paper explores the relationships between a comprehensive list of financial indicators and the quality of Integrated Reporting disclosed in companies listed on the Johannesburg Stock Exchange. These relationships were investigated using the Ernst & Young (EY) Integrated Reports Awards and financial information obtained from IRESS Ltd for a selection of 45 companies over four years (2014 to 2017), and using Spearman rank-order correlations, a Breusch Pagan test, and five multiple regression analyses. The results indicate a similar trend in the direction of relationships between the baseline and other models, except for price-earnings and net profit margin. Statistically significant positive relationships were identified between Integrated Report Quality (IRQ) and average debtors collection (DEBT), earnings before interest, taxes, depreciation and amortisation (EBIDTA) and return on equity (ROE). Statistically significant negative relationships were identified between IRQ and fixed-assets turnover (FATURN), inventory turnover (INV), earnings before interest and taxes (EBIT) dividend yield (DIVYIELD), dividend cover (DIVCOV) and return on capital employed (ROCE). The results of this study can assist companies in the effective and productive allocation of their capitals, which in turn will enhance long-term sustainability.

**Keywords:** Integrated Reporting, Financial Indicators, JSE-Listed Companies, Financial Ratios

## 1. INTRODUCTION

Integrated reporting (IR) is a popular point of discussion worldwide when considering alternatives to traditional corporate reporting. Financially successful companies are increasingly using the renowned integrated report as a best-practice norm (Ahmetshina *et al.*, 2018). It has shown to increase reputation and liquidity (Haji & Hossain, 2016; Lai, Melloni & Stacchessini, 2016; Diouf & Boiral, 2017). Additionally, standard-setting bodies, such as the International Accounting Standards Board; stock exchanges, like the Tokyo Stock Exchange Group and Johannesburg Stock Exchange (JSE); the World Business Council for Sustainable Development (WBCSD); the World Economic Forum; and Transparency International also support the application of IR-principles in corporate reporting (Stubbs & Higgins, 2018). Consequently, IR has paved the way for changing legislation within several countries, including South Africa, Brazil, France, and the UK (Ernst & Young (EY), 2014).

The use of IR-principles pre-dates the international implementation of IR. As of March 2010, and according to the King III Report on Corporate Governance, South Africa's listed companies are mandated to apply IR or explain why they failed to do so. In fact, South Africa is one of the few countries where IR is mandatory for its listed entities (De Villiers, Underman & Rinaldi, 2014; Sierra-Garcia, Zorio-Grima & Gracia-Benau, 2015; Wahl, Charifzadeh & Diefenbach, 2020). Applying the corporate governance principles in the King Reports on Governance for South Africa (King Report) and reporting on how the company created value for its stakeholders enhance the confidence and trust of its stakeholders (IoDSA, 2009).

In reporting on the value-creation processes, companies attempt to prove their legitimacy in the market place (Lai *et al.*, 2016; Ntim, Soobaroyen & Broad, 2017). Reporting on these processes clarifies the future value-creation plans of a company (De Villiers & Maroun, 2018). Part of reporting on the value-creation process involves transparently communicating on how companies manage their resources (Smit, Scholtz & Mans-Kemp, 2018). Investors find information about the management of financial capital particularly important when making investment decisions (Nagy & Obenberger, 1994). Accounting information (as contained in the financial statements) is acknowledged as crucial in assessing company financial performance, risk and growth (Aroni *et al.*, 2014; Blessing & Onija, 2015; Robbette, 2015).

Investors focus on the projected financial performance of a company (Aroni, Namusonge & Sakwa, 2014; Robbette, 2015) and merely briefly reflect on modern-day issues, such as national or worldwide operations, environmental performance history, and the ethical standpoint of the company

(Nagy & Obenberger, 1994). Financial performance, risk and growth indicators, therefore, provide investors with a n an all-inclusive view of the financial health of a company. It is for this reason that previous studies sought to understand the relationship between financial performance and the quality of the information included in integrated reports.

Related research examines the relationship between IR quality and limited financial aspects, such as TobinsQ, free cash flow, return on equity (ROE), return on assets (ROA), and market value of equity (Baboukardos & Rimmel, 2016; Barth *et al.*, 2016, 2017; Lee & Yeo, 2016; Bernardi & Stark, 2018). These studies' financial indicators focussed on either internal or external financial performance indicators, but not both. This study sought to evaluate the relationship between IR and a more comprehensive list of financial indicators of JSE-listed companies for both internal and external indicators. This study contributes to the existing literature by exploring the relationship between more than just two or three market effects and IR by including a comprehensive list of ratios related to financial performance, risk and growth - as defined in Correia, Dussault and Pontes (2015).

The rest of the paper proceeds as follows: section 2 provides the background and theory related to the development of IR and financial indicators. Section 3 explains the research design and section 4 provides the findings. Section 5 contains the conclusion and recommendations for further research.

## 2. BACKGROUND AND LITERATURE

### 2.1. Background

The 2008 global financial crisis raised concerns about effective risk management by traditional reporting (WBCSD, 2014). Some companies have economies that surpass that of individual governments (King, 2012). Seemingly minor mistakes could have significant consequences for these companies and various stakeholders (Wijnhoven, 2014). Transparent and accountable reporting practices may mitigate these risks and their related consequences (Demirel & Erol, 2016; Bernardi & Stark, 2018).

After the global financial crisis, the IIRC developed the Integrated Reporting Framework (IRF), which contains reporting principles. The IIRC's Discussion Paper, "Towards Integrated Reporting – Communicating Value in the 21st Century" (IIRC, 2011), explains that companies utilise various resources and relationships to ensure their success. The manner in which companies either decrease or increase these resources and relationships is important as it has long-term implications for the company, but also for the broader environment (IIRC, 2011). These resources and relationships are described in the IRF as "capitals" (IIRC, 2011). The majority (76%) of respondents of the 2011 Discussion Paper agreed, or agreed subject to certain conditions, that they find the notion of the various capitals helpful, whereas only 2% disagreed (IIRC, 2013b:2). The concept of disclosure in terms of the multiple capitals has therefore been kept in the IRF (IIRC, 2013b). By applying the reporting principles as per the IRF, companies report on how they utilise and manage the six capitals (financial, manufactured, intellectual, human, social and relationship, and natural) to create value for all stakeholders in the short, medium and long term (IIRC, 2013a). Reporting on these capitals creates connectivity between the different capitals (EY, 2014) and provides a holistic view of the financial performance of a company. Atkins and Maroun (2015) have concluded that IR is seen as an upgrade to the traditional annual report of listed companies in South Africa. The IIRC believes that IR should become the worldwide reporting norm for companies that have their investors' needs at heart (Bernardi & Stark, 2018).

Contrary to the retrospective communication of traditional financial reports that include information relevant to the past two years only, IR produces forward-looking information on how all capitals add value in the short, medium and long term (IIRC, 2011; Dumay & Dai, 2017). A survey by Black Sun Plc (2014) indicated that 79% of companies publishing an integrated report believe that this way of reporting gives providers of financial capital more confidence in the long-term sustainability of their business models. The Association of Chartered Certified Accountants (ACCA, 2017) published a report of IR findings obtained from a review of 41 corporate reports by companies dedicated to IR. The benefits of preparing an integrated report include improved relationships with stakeholders, improved company reputation, and higher gross margins (ACCA, 2017). An analysis by Adegboyegun *et al.* (2020) indicated that although IR has no significant effect on the performance of a company in the short term, the long-term effect is significant. King deliberates a further study comparing

companies publishing an integrated report to companies that did not. The companies that prepared an integrated report presented better bottom lines and share prices than the companies without an integrated report (King, 2017), indicating that IR affects companies' financial indicators.

## 2.2. Literature

Previous research into the relationship between IR and financial performance indicators can be categorised into studies focussing on asset and debt management indicators (Lee & Yeo, 2016; Onder, 2018); those that focus on market indicators (Baboukardos & Rimmel, 2016; Beck, Frost & Jones, 2018); cash flow and cost of capital (Garg, 2015; Barth *et al.*, 2016, 2017; Lee & Yeo, 2016); and returns and liquidity (Beck *et al.*, 2018). The abovementioned studies focus on specific stakeholder groups and support the choice of indicators based on these groups.

Lai *et al.* (2016) argue that companies with lower profitability and higher leverage are more likely to adopt IR practices in order to support their legitimacy in the market. They use ROA as a proxy for profitability and debt-equity ratio for leverage. The results in Lai *et al.* (2016) suggest that there is a significant negative relationship between IR and leverage, but no significant relationship between ROA and IR. Muttakin *et al.* (2020) discovered that companies publishing an integrated report seem to have a lower cost of debt than companies that do not. Similarly, Onder (2018) argues that the inclusion of non-financial information in corporate reports shows a significant negative relationship to leverage, but a positive relationship to profitability (ROA) (Onder, 2018). The positive relationship between IRQ and profitability was confirmed by Barth *et al.* (2016).

Lee and Yeo (2016) investigated the relationship between IR and TobinsQ based on the proprietary cost theory. They posit that if the benefits of preparing integrated reports outweigh the costs of preparing the reports, there is a positive relationship between IR and firm valuation, using TobinsQ as a proxy for firm valuation. Their findings suggest that firm valuation is positively associated with IR and that the benefits, therefore, outweigh the costs. Another study in 2017 investigated the relationship between IRQ and TobinsQ and cost of capital and found a positive relationship between IRQ and firm value (Barth *et al.* 2017).

Vitolla *et al.* (2020) conducted a study specific to the financial industry examining the financial and country-level determinants of IRQ. The results showed that profitability, size, financial leverage and the civil law system has a significant and positive effect on IRQ (Vitolla *et al.* 2020).

Baboukardos and Rimmel (2016) investigated the value relevance of accounting information in an integrated report. While utilising a linear price model, they include the market value of shares, book value of equity, earnings per share, leverage, and ROE as proxies for value. They found a significant increase in earnings per share and a decrease in the book value of equity after the adoption of integrated reports (Baboukardos & Rimmel, 2016).

By investigating the relevance of information in integrated reports to the capital market, Zhou, Simnett and Green (2017) reveal that companies with higher levels of IR-principles applications show a reduction in the cost of capital. Similarly, Bernardi and Stark (2018) found that analysts' understanding of non-financial information is enhanced when making use of integrated reports and that there is an increase in the value relevance of earnings. Churet and Eccles (2014) did not find a statistically significant relationship between IR and return on invested capital.

Several methods are used to measure the financial performance of companies, including making use of financial ratios, which are popular indicators of financial performance, risk and growth, and are widely used to facilitate decision-making by companies and analysts (Gouws & Lucouw, 1999). Ratios represent a useful tool for identifying financial trends and making comparisons of financial performance (Smart & Maconochie, 2008). Extant studies, however, focus on one or two aspects of ratios only - which leaves a gap in the interpretation of the results, and in addition do not provide a holistic view of the relationship(s) among IR financial indicators.

Correia *et al.* (2015) divide financial indicators into six classes; namely, liquidity, profitability, cash flow, asset management, debt management, and market value. This study concentrates on financial indicators relevant to financial performance, growth and risk – and so excludes the liquidity and cash flow class due to its short-term focus as opposed to the longer-term focus of IR (IIRC, 2013a).

The remaining four classes of financial ratios from Correia *et al.* (2015) will be considered as part of the analysis. The selected ratios are commonly used by stakeholders when evaluating companies; and in the current study, they were used to determine the relationship between IRQ and financial indicators.

**Table 1: Ratio categories**

Category	Variance Abbreviation	Name	Ratio
Asset management	INV	Inventory turnover	$\left(\frac{\text{cost of sales}}{\text{average inventory balance}}\right)$
	DEBT	Average debtors collection period	$\left(\frac{\text{average debtors balance}}{\text{credit sales per day}}\right)$
	FATURN	Fixed-asset turnover	$\left(\frac{\text{sales}}{\text{net fixed assets}}\right)$
	TOTASS	Total asset turnover	$\left(\frac{\text{sales}}{\text{total assets}}\right)$
Debt management	INTCOV	Interest earned (interest cover)	$\left(\frac{\text{EBIT}}{\text{interest}}\right)$
	EBIT	Earnings before interest and tax	EBIT
	EBIDTA	Earnings before interest, taxes, depreciation and amortisation	EBITDA
	DEBTASS	Debt-asset ratio	$\frac{\text{total liabilities}}{\text{total assets}}$
	DEBEQ	Debt-equity ratio	$\frac{\text{total liabilities}}{\text{shareholders equity}}$
Market ratios	DIVYIELD	Dividend yield	$\frac{\text{dividend per share}}{\text{market price per share}}$
	EARNYIELD	Earnings yield	$\frac{\text{earnings per share}}{\text{market price per share}}$
	PE	Price-earnings	$\frac{\text{market price per share}}{\text{earnings per share}}$
	DIVCO	Dividend cover	$\frac{\text{net earnings}}{\text{dividend}}$
Profitability	GP	Gross profit percentage	$\frac{\text{sales} - \text{cost of goods sold}}{\text{sales}}$
	NPMARG	Net profit percentage	$\frac{\text{net income}}{\text{sales}}$
	EBIDTAMAR	EBITDA margin	$\frac{\text{EBITDA}}{\text{total revenue}}$
	NPMARG	Net operating profit after tax	$\text{EBIT}(1 - \text{tax rate})$
	ROCE	Return on capital employed	$\frac{\text{net operating profit after tax (NOPAT)}}{\text{net operating assets}}$
	ROA	Return on asset	$\frac{\text{NOPAT}}{\text{operating capital}}$
	ROE	Return on equity	$\frac{\text{net income}}{\text{total equity}}$

### 3. DATA SET AND RESEARCH METHODOLOGY

#### 3.1. Data set

Since 2012, EY has assessed the quality of South African listed companies on an annual basis (EY, 2018). The purpose of EY's Integrated Report Awards (EIRAs) is to "encourage excellence in the quality of integrated reporting to investors and other stakeholders in South Africa's listed company sector" (EY, 2017:1). EY annually evaluates the top 100 JSE-listed companies, based on the market capitalisation on 31 December or the final working day of the previous year (EY, 2018). They classify the companies in terms as 'Excellent', 'Good', 'Average', or 'Progress to be made', rather than revealing the final scores from the adjudicated reports of the companies (EY, 2018). Three independent specialists in financial reporting adjudicate the EIRAs (EY, 2018). The 2015-2018 mark plan includes the IRF guiding principles and content elements. A score is given for each of the seven guiding principles as well as the eight content elements (EY, 2015, 2016, 2017, 2018). Marks are also given for the extent to which the company's integrated report incorporates the fundamental concepts of the IRF by explaining how they created value in terms of the six capitals (EY, 2015, 2016, 2017, 2018). These EIRAs are publicly available on the Internet. The reports are reliable and trustworthy, considering the rigorous approach followed, and that EY is one of the 'Big Four' accounting firms worldwide (Statista, 2018) and also the winner of the Big 4 Firm of the Year for 2017 at the South African Professional Services Awards (South African Professional Services Awards (SAPSA) 2018). The EY rankings are coded to allow for statistical analysis, where a score of Excellent = 4, Good = 3, Average = 2, and Progress to be made = 1.

Financial data was obtained from IRESS Ltd (IRESS), a technology company comparable to Reuters and Bloomberg, which provides reliable financial and other services and information. The data collected was for the financial period 2014 to 2017. Although companies are obliged to keep their financial records for seven years (Republic South Africa (RSA), 2008), integrated reports from 2014 were selected, because the IIRC issued the first IRF in 2013. At the time of performing the study, financial data for 2018 and later was not yet available.

#### 3.2. Sample

The population for the study was all JSE-listed companies as at 31 December 2017. Judgement sampling was applied to select the top 100 companies listed on the JSE as the original sample. These companies were selected based on their market capitalisation as at 31 December 2017, as claimed by EY's EIRAs for 2018. Judgement sampling further occurred by removing industrial metals and mining companies, as these are more specialised with a focus on profitability and asset structures, unlike other sectors (Rama, 2012). The final sample used in the study included up to 45 companies for each year.

Table 2 shows the distribution of the sample over the four years and the respective rating categories. Forty-one companies in the sample were listed on the JSE for all four years; 42 for three years; 44 for two years; and one additional listing in 2017.

**Table 2: Sample of companies**

	Rating 1	Rating 2	Rating 3	Rating 4	Total
<b>2014</b>	9	10	10	12	41
<b>2015</b>	10	10	10	12	42
<b>2016</b>	11	10	11	12	44
<b>2017</b>	11	11	11	12	45

#### 3.3 Research design

Financial ratios focused on the companies' financial performance, growth and risk in order to determine the effect of IR on the financial capital. SPSS Version 25 and MS Excel were used to sort and analyse the collected variables for 2014 to 2017 (the financial indicators and EIRA rankings).

Descriptive statistics in the form of bivariate analysis was performed with IR ranking and the financial indicators as the variables, followed by a Spearman's rank-order correlation. Not all of the companies were listed for the full four years; thus, the Spearman's rank-order correlation was tested for the entire period. Due to several instances where the correlation coefficient was higher than 0.700, a multi-collinearity test was performed. All variance inflation factors (VIFs) with a value of 15 or more were analysed to determine which variances had possible collinearity. For six of the identified variances, variance proportions were compared to identify all instances where the proportion had a value of more than 0.700 with two or more other variances. The results indicate that none of the variances had multi-collinearity.

A Breusch Pagan test using squared residuals and the independent variables was performed to check the homoscedasticity of the data. All p-value results were more than 0.05, indicating that the data is homogenous.

Five regression models tested the relationships between IRQ and financial indicators per year. The first model included all the ratios in one model with the following formula:

Baseline model

$$IRQ = \beta_0 + \beta_1 INV + \beta_2 FATURN + \beta_3 GP + \beta_4 EBIDTAM + \beta_5 DEBT + \beta_6 DEBTASS + \beta_7 DEBTEQ + \beta_8 DIVCOV + \beta_9 DIVYIELD + \beta_{10} EBIT + \beta_{11} EBITDA + \beta_{12} EARNYIELD + \beta_{13} INTCOV + \beta_{14} MARKCAP + \beta_{15} NPMAR + \beta_{16} PE + \beta_{17} ROCE + \beta_{18} ROE + \beta_{19} TOTASS" \quad (1)$$

Subsequently, the ratios were divided into four categories, namely, asset management, debt management, market ratios, and profitability. The following four regression models were tested:

*Model 1 – Asset management*

$$IRQ = \beta_0 + \beta_1 INV + \beta_2 FATURN + \beta_3 DEBT + \beta_4 TOTASS" \quad (2)$$

*Model 2 – Debt management*

$$IRQ = \beta_0 + \beta_1 INTCOV + \beta_2 EBIDTA + \beta_3 DEBTASS + \beta_4 DEBTEQ" \quad (3)$$

*Model 3 – Market ratios*

$$IRQ = \beta_0 + \beta_1 DIVYIELD + \beta_2 EARNYIELD + \beta_3 DIVOC + \beta_4 PE" \quad (4)$$

*Model 4 – Profitability*

$$IRQ = \beta_0 + \beta_1 GP + \beta_2 NPMAR + \beta_3 EBIDTAM + \beta_4 ROE + \beta_5 ROCE" \quad (5)$$

## 4. FINDINGS

### 4.1 Descriptive statistics

Table 3 presents the results of the Spearman's rank-order correlation in which the association between IRQ and ratios was tested. One ratio within the asset management class provided a statistically negative relationship with IRQ (FATURN -0.170, p-value 0.026). Under debt management, three of the four ratios show a significant association with IRQ.



Table 3: Spearman's rank-order correlations

	Correlation Coefficient	Sig. (2-tailed)
<b>Asset management</b>		
INV	-0.091	0.236
DEBT	0.094	0.215
FATURN	-.170*	0.026
TOTASS	-0.140	0.065
<b>Debt management</b>		
INTCOV	0.078	0.305
EBITDA	.247**	0.001
DEBTASS	.150*	0.046
DEBTEQ	.158*	0.036
<b>Market ratios</b>		
DIVYIELD	.252**	0.001
EARNYIELD	-0.002	0.975
PE	0.001	0.989
DIVCOV	-.253**	0.001
<b>Profitability</b>		
GP	.340**	0.000
EBIDTAM	.298**	0.000
NPMARG	.172*	0.022
ROCE	0.105	0.166
ROE	.252**	0.001
EBIT	.252**	0.001
<b>Market capitalisation</b>		
MARKCAP	.235**	0.002

\* Correlation is significant at the 0.05 level (2-tailed)

\*\* Correlation is significant at the 0.01 level (2-tailed)

Companies that showed an increase in IRQ also showed an increase in earnings before interest and tax (EBITDA 0.247, p-value 0.001), the debt-to-asset ratio (DEBTASS 0.150, p-value 0.046), and the debt-to-equity ratio (DEBEQ 0.158, p-value 0.036). This may be as a result of improved management decision-making following a process of integrated thinking (IIRC, 2013a). Barth *et al.* (2016: 11) posit that "real decisions made by managers are different from the decisions that would be made in the absence of IR". Better decision-making by management will result in improved ways to manage debt. Improved choices could also result in more thoughtful investment decisions and strategies, which ultimately lead to improved financial performance.

The dividend yield ratio within the market ratio class suggested a positive correlation between the return (DIVYIELD 0.252, p-value 0.001) that an investor receives on the investment by way of a dividend and IRQ. A negative association exists between the DIVCO and IRQ (DIVCOV -0.253, p-value 0.001), indicating a reduction in the dividend to IRQ.

In terms of profitability ratios, Spearman's rank-order correlation indicated a significant positive relationship between all ratios tested and IRQ. Descriptive statistics demonstrated a significant association for the gross profit percentage (GP 0.340, p-value 0.000) and net operating profit after tax ratios (EBIDTAM 0.298, p-value 0.000; EBIT 0.252, p-value 0.001). These results complement previous research, such as Coelho (2016) and Lopes, Oliveira & Coelho (2017), which also suggests that IRQ can provide improved operating profit and ROE figures.

Additionally, there is a positive association between market capitalisation and IRQ (MARKCAP 0.235, p-value 0.002), and therefore shows an increase in companies' value to stakeholders (IIRC 2012). These findings are in agreement with previous research that also advocates that IRQ can improve the financial performance of a company (Coelho, 2016; Lee & Yeo, 2016; Lopes *et al.*, 2017; Mervelskemper & Streit, 2017; Van den Akker, 2017; Zhou *et al.*, 2017).

#### 4.2 Regression

Table 4 below presents the regression results for all five models. Supporting the findings from Wahl *et al.* (2020), the results indicate a positive relationship between DEBT and IRQ in both the baseline (coefficient 0.008, p-value 0.004) and asset management (coefficient 0.002, p-value 0.369) models. However, only in the baseline model, where both internal and external performance measures are considered, is DEBT a significant contributor (p-value 0.004) to the IRQ. Companies that take longer to recover their debt (DEBT) therefore tend to have higher-quality IR.

In line with the legitimacy drive of companies (Lai *et al.*, 2016; Ntim *et al.*, 2017) in showing how they manage their resources and investors' focus on relevant information (Nagy & Obenberger, 1994), the results indicate a significant positive relationship between EBITDA (coefficient 0.000, p-value 0.027; coefficient 0.000, p-value 0.001), GP (coefficient 9.215, p-value 0.005; coefficient 8.918, p-value 0.005) and ROE (coefficient 0.029, p-value 0.073; coefficient 0.024, p-value 0.019) in all models. The findings support those in Baboukardos and Rimmel (2016), Tlili, Othman and Hussainey (2019), Barth *et al.* (2017) and Lai *et al.* (2016). These results suggest that companies with higher GP's, earnings and returns for investors issue higher-quality integrated reports, and drive further growth (Wen & Heong, 2017).



Table 4: Regression of IRQ models

	ALL		Asset management		Debt management		Market ratios		Profitability	
	B	Sig.	B	Sig.	B	Sig.	B	Sig.	B	Sig.
(Constant)	1.990	0.000	3.473	0.000	3.016	0.000	4.116	0.000	2.910	0.000
FATURN	- 0.005	0.064	-0.010	0.000						
DEBT	0.008	0.004	0.002	0.369						
INV	- 0.014	0.327	-0.015	0.295						
TOTASS	0.221	0.266	0.117	0.310						
INTCOV	0.000	0.804			0.000	0.480				
EBIT	- 0.000	0.043			-0.000	0.001				
EBITDA	0.000	0.027			0.000	0.001				
DEBTASS	0.514	0.241			0.636	0.122				
DEBTEQ	0.146	0.394			0.120	0.245				
DIVYIELD	- 0.106	0.000					-0.072	0.005		
EARNYIELD	0.041	0.318					0.055	0.156		
DIVCOV	- 0.094	0.070					-0.186	0.001		
PE	0.006	0.200					-0.006	0.227		
GP	9.215	0.005							8.918	0.005
NPMARG	0.011	0.162							-0.006	0.283
EBIDTAM	- 5.550	0.101							-6.241	0.065
ROE	0.029	0.073							0.024	0.019
ROCE	- 0.048	0.049							-0.034	0.021
MARKCAP	- 0.000	0.012								
R	.676		.676		.307		.325		.385	
R Square	0.457		0.457		0.094		0.106		0.148	

Significant negative relationships exist between IRQ and FATURN, EBIT, DIVYIELD, DIVCOV, ROCE and MARKCAP. The negative relationship between IRQ and FATURN supports the goal of the IRF for a long-term value-creation perspective of an integrated report (De Villiers & Maroun, 2018). The findings support those in Vitolla *et al.* (2019) as well as Kılıç and Kuzey (2018) and indicate that companies with higher fixed assets are more likely to produce higher quality integrated reports (coefficient -0.005, p-value 0.064; coefficient -0.010, p-value 0.000). Similarly, the results show that companies with higher levels of operating assets (ROCE) (coefficient -0.048, p-value 0.049; coefficient -0.034, p-value 0.021) are more likely to produce higher-quality integrated reports; thus refuting the results of Churet and Eccles (2014). These results may be due to the greater access of companies to resources and the consequential affordability of higher disclosure cost for these companies (Kılıç & Kuzey, 2018; Wahl *et al.* 2020).

DIVYIELD (coefficient -0.072, p-value 0.005) and DIVCOV (coefficient -0.186, p-value 0.001) both show statistically negative relationships. These two yield ratios display interaction of a real effect (the dividend paid and earnings made by the entity based on management's decisions) and a capital market effect (the market value of the shares, which is driven by shareholders' expectations of future earnings) (Higgins, 2012). Should the shareholders' expectations increase, the share price will increase, resulting in lower yield ratios. Management utilises the IR process to create actual value for stakeholders in terms of dividends and earnings. However, the DIVCO market ratio weakened with improved quality in IR, suggesting that management may be inclined to increase dividends to prove that the company is adding value, even though the earnings did not increase to the same extent.

Results related to the relationship between DEBTASS, DEBEQ and IRQ yielded contradictory results in prior studies (Baboukardos & Rimmel, 2016; Conway, 2019; Lai *et al.*, 2016; Lee & Yeo, 2016; Vitolla *et al.*, 2020). This study found that no statistical relationship exists between DEBTASS (coefficient 0.514, p-value 0.241; coefficient 0.636, p-value 0.122), DEBEQ (coefficient 0.146, p-value 0.394; coefficient 0.120, p-value 0.245) and IRQ and support the findings of Baboukardos and Rimmel (2016) and Barth *et al.* (2017).

## 5. CONCLUSION

Whereas other studies included selected variables for inclusion in testing the relationship between IRQ and financial indicators, this study included a more comprehensive list of ratios and variables to provide a holistic picture of a company. The results of this study can assist companies in the effective and productive allocation of their capitals, which in turn will enhance financial stability (IIRCa, 2013).

Using data from JSE-listed companies, this study divided financial indicators into four categories; namely, indicators addressing asset management, debt management, market ratios, and profitability ratios. The evidence reveals that a positive relationship exists between IRQ and debt management ratios. Both positive and negative relationships exist between IRQ and asset management, market and profitability ratios. Debtors collection period (DEBT), total assets turnover (TOTASS), interest coverage (INTCOV), debt-to-assets (DEBTASS), debt-to-equity (DEBTEQ), earnings yield (EARNYIELD), gross profit (GP), and return on equity (ROE) all show a positive relationship to IRQ. A negative relationship exists between IRQ and fixed assets turnover (FATURN), earnings before interest and taxations (EBIT), dividend yield (DIVYIELD), and market capitalisation (MARKCAP).

The results may be of interest to stakeholders and other users of IR in evaluating the quality of IR before investing in these companies. Institutional investors may also use these findings to assist them in investing their scarce resources and capital in companies that show responsible and transparent disclosures, and how this relates to the long-term value a company adds. Regulators in countries other than South Africa may also use these results in determining whether or not to mandate the implementation of IR.

## REFERENCES

- ACCA. 2017. *ACCA report highlights benefits and challenges of adopting Integrated Reporting*. Available from: <https://www.iasplus.com/en-gb/news/2017/04/acca-integrated-reporting> [Accessed on 19 Feb 2020].
- Adegboyegun, A. E., Alade, M. E., Ben-Caleb, E., Ademola, A. O., Eluyela, D. F. & Oladipo, O. A. 2020. Integrated reporting and corporate performance in Nigeria: Evidence from the banking industry. *Cogent Business & Management*, 7(1): 1-12.
- Atkins, J. & Maroun, W. 2015. Integrated reporting in South Africa in 2012: Perspectives from South African institutional investors. *Meditari Accountancy Research*, 23(2): 197-221.
- Ahmetshina, A., Kaspina, R., Molotov, L. & York, N.Y. 2018. Economic security indicators forecasting for management decisions based on integrated reporting data. In Procházka, D. (Ed.), *The Impact of Globalization on International Finance and Accounting* (403–409). Springer: Cham, Switzerland.
- Aroni, J., Namusonge, G. & Sakwa, M. 2014. The effect of financial information on investment in shares – A survey of retail investors in Kenya. *International Journal of Business Commerce*, 3(8): 58–69.
- Baboukardos, D. & Rimmel, G. 2016. Value relevance of accounting information under and integrated reporting approach: A research note. *Journal of Accounting and Public Policy*, 2(35): 437–452.
- Barth, M.E., Cahan, S.F., Chen, L. & Venter, E.R. 2017. The economic consequences associated with integrated report quality: Capital market and real effect. *Accounting, Organisations and Society*, 62. DOI: 10.1016/j.aos.2017.08.005.
- Barth, M.E., Cahan, S.F., Chen, L. & Venter, E.R. 2016. *The economic consequences associated with integrated report quality: Early evidence from a mandatory setting*. University of Pretoria, unpublished working paper.
- Beck, C., Frost, G. & Jones, S. 2018. CSR disclosure and financial performance revisited: A cross-country analysis. *Australian Journal of Management*, 43(4): 517–537.
- Bernardi, C. & Stark, A.W. 2018. Environmental, social and governance disclosure, integrated reporting, and the accuracy of analyst forecast. *The British Accounting Review*, 50: 16–31.
- Black Sun Plc. 2014. *Realising the benefits: The impact of integrated reporting*. Available from: <https://www.slideshare.net/BlackSunplc/black-sun-research-sept-14> [Accessed on 4 Jun 2020].
- Blessing, A. & Onija, E. 2015. The role of financial statements on investment decision making: a case of united bank for Africa PLC (2004-2013). *European Journal of Business, Economics and Accountancy*, 3(2): 12–37.
- Churet, C. & Eccles, R. G. 2014. Integrated reporting, Quality Management, and Financial Performance. *Journal of Applied Corporate Finance*, 26(1): 56–65.
- Coelho, A.M.C. 2016. *Towards the existence of integrated reporting: An international perspective*. Masters dissertation. Lisbon University Institute.
- Conway, E. 2019. Quantitative impacts of mandatory integrated reporting. *Journal of Financial Reporting and Accounting*, 17(4): 604-634.
- Correia, T., Dussault, G. & Pontes, C. 2015. The impact of the financial crisis on human resources for health policies in three southern-Europe countries. *Health Policy*, 119(12): 1600–1605.
- De Villiers, C., Unerman, J. & Rinaldi, L. 2014. Integrated Reporting: Insights, gaps and an agenda for future research. *Accounting, Auditing & Accountability Journal*, 27(7): 1042-1067.

De Villiers, C. & Maroun, W. 2018. The future of sustainability accounting and integrated reporting. In De Villiers, C., and Maroun, W. (Eds). *Sustainability Accounting and Integrated Reporting* (163–170). Abington: Routledge.

Demirel, B. & Erol, I. 2016. Investigation of integrated reporting as a new approach of corporate reporting. *International Journal of Business and Social Research*, 6(10): 32–46.

Diouf, D. & Boiral, O. 2017. The quality of sustainability reports and impression management: A stakeholder perspective. *Accounting, Auditing and Accountability Journal*, 30(3): 643–667.

Dumay, J. & Dai, T. 2017. Integrated thinking as a cultural control? *Meditari Accountancy Research*, 25(4): 574–604.

EY. 2014. *Integrated reporting – Elevating value*. Available from: <https://www.ey.com/Publication/vwLUAssets/EY-Integrated-reporting/%24FILE/EY-Integrated-reporting.pdf> [Accessed on 16 Feb 2019].

EY. 2015. *EY Excellence in Integrated Reporting Awards 2015 Johannesburg*. Available from: <https://cdn.24.co.za/files/Cms/General/d/575/ddb09270c5c544238d1efc43381c9b78.pdf> [Accessed on 13 Mar 2019].

EY. 2016. *EY Excellence in Integrated Reporting Awards 2016 Johannesburg*. Available from: <http://integratedreporting.org/resource/ey-excellence-in-integrated-reporting-awards-2016> [Accessed on 13 Mar 2019].

EY. 2017. *EY Excellence in Integrated Reporting Awards 2017 Johannesburg*. Available from: [https://www.bbrieff.co.za/content/uploads/2018/08/EY-Excellence-In-Integrated-Reporting\\_2018final.pdf](https://www.bbrieff.co.za/content/uploads/2018/08/EY-Excellence-In-Integrated-Reporting_2018final.pdf) [Accessed on 13 Mar 2019].

EY. 2018. *EY Excellence in Integrated Reporting Awards 2018 EY Excellence in Integrated Reporting*. Available from: <https://integratedreportingsa.org/ey-excellence-in-integrated-reporting-awards-2018> [Accessed on 13 Mar 2019].

Garg, P. 2015. Impact of sustainability reporting on firm performance of companies in India. *International Journal of Marketing and Business Communication*, 4(3): 38–45.

Gouws, D.G. & Lucouw, P. 1999. The process beyond the numbers and ratios. *Meditari Accountancy Research*, 7: 99–122.

Haji, A.A. & Hossain, D.M. 2016. Exploring the implications of integrated reporting on organisational reporting practice: Evidence from highly regarded integrated reporters. *Qualitative Research in Accounting and Management*, 13(4): 415–444.

Higgins, R.C. 2012. *Analysis for Financial Management*. McGraw-Hill Education: Boston, MA.

IIRC. 2011. *Towards Integrated Reporting: Communicating value in the 21st century* Available from: [http://www.theiirc.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011\\_single.pdf](http://www.theiirc.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_single.pdf) [Accessed on 13 Mar 2019].

IIRC. 2012. *Understanding transformation: Building the business case for integrated reporting*. Available from: <https://integratedreporting.org/wp-content/uploads/2012/11/building-the-business-case-for-integrated-reporting.pdf> [Accessed on 13 Mar 2019].

IIRC. 2013a. *The International <IR> Framework*. Available from: <https://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-the-international-ir-framework-2-1.pdf> [Accessed on 13 Mar 2019].

IIRC. 2013b. *CAPITALS Background paper for IR*. Available from: <https://integratedreporting.org/wp-content/uploads/2013/03/IR-Background-Paper-Capitals.pdf> [Accessed on 20 Jan 2021].

- IoDSA. 2009. *King Report on Governance for South Africa 2009*. Available from: [https://cdn.ymaws.com/www.iodsa.co.za/resource/resmgr/king\\_iii/King\\_Report\\_on\\_Governance\\_fo.pdf](https://cdn.ymaws.com/www.iodsa.co.za/resource/resmgr/king_iii/King_Report_on_Governance_fo.pdf) [Accessed on 13 Mar 2019].
- Kılıç, M. & Kuzey, C. 2018. Determinants of forward-looking disclosures in integrated reporting. *Managerial Auditing Journal*, 33(1): 115-144.
- King, M. 2017. Why a CFO is the true change maker inside a company. *CPA Journal*. Available from: <https://www.cpajournal.com/2017/10/04/why-a-cfo-is-the-true-change-maker-inside-a-company-cpe-season> [Accessed on 12 Apr 2018].
- King, M. 2012. Integrated reporting – a concept whose time has come. *85E Jaargang, Nov.* 535–536. Available from: <https://mab-online.nl/article/12864/download/pdf/333051> [Accessed on 13 Mar 2019].
- Lai, A., Melloni, G. & Stacchessini, R. 2016. Corporate sustainable development: Is 'integrated reporting' a legitimization strategy? *Business Strategy and the Environment*, 25: 165–177.
- Lee, K.W. & Yeo, G.H. 2016. The association between integrated reporting and firm valuation. *Review of Quantitative Finance and Accounting*, 47(4): 1221–1250.
- Lopes, A.I., Oliveira, J. & Coelho, A.M. 2017. *How relevant is integrated reporting?* Available from: [https://repositorio.iscte-iul.pt/bitstream/10071/16358/1/How\\_relevant\\_is\\_Integrated\\_Reporting.pdf](https://repositorio.iscte-iul.pt/bitstream/10071/16358/1/How_relevant_is_Integrated_Reporting.pdf) [Accessed on 19 Feb 2020].
- Mervelskemper, L. & Streit, D. 2017. Enhancing market valuation of ESG performance: Is integrated reporting keeping its promise? *Business Strategy and Environment*, 26(4): 536–549.
- Muttakin, M. B., Mihret, D. G., Lemma, T. & Khan, A. 2020. Integrated reporting, financial reporting quality and cost of debt. *International Journal of Accounting & Information Management*, 28(3): 517–534.
- Nagy, R. & Obenberger, R. 1994. Factors influencing individual investor behavior. *Financial Analysts Journal*, 50(4): 63–68.
- Ntim, C., Soobaroyen, T. & Broad, M. 2017. Governance structures, voluntary disclosures and public accountability: The case of UK higher education institutions. *Accounting, Auditing and Accountability*, 30(1): 66–118.
- Onder, S. 2018. Impact of sustainability performance of company on its financial performance: An empirical study on Borsa Istanbul. *Dumlupinar Universitesi Sosyal Bilimler Dergisi*, 56: 115–127.
- Rama, K. 2012. *An empirical evaluation of the Altman (1968) failure prediction model on South African JSE listed companies*. Research report, University of the Witwatersrand.
- Robbetze, N. 2015. *The effect of earnings per share categories on the share prices of the top 40 JSE listed companies*. Master's dissertation. North-West University.
- RSA. 2008. *Company's Act 71 of 2008*. Government Printers: Pretoria.
- SAPSA. 2018. *SA's best professionals and firms recognised*. Available from: <https://saproawards.co.za/sapsa-awards-2018-all-the-winners> [Accessed on 19 Mar 2020].
- Sierra-García, L., Zorio-Grima, A. & García-Benau, M. A. 2015. Stakeholder engagement, corporate social responsibility and integrated reporting: An exploratory study. *Corporate Social Responsibility and Environmental Management*, 22(5): 286-304.
- Smart, C.J. & Maconochie, I. 2008. How and why do you declare a major incident? *Prehospital and Disaster Medicine*, 23(1): 70–75.

Smit, S., Scholtz, H. & Mans-Kemp, N. 2018. Assessing the extent of application of integrated reporting guidelines by South African banks. *Southern African Journal of Accountability and Auditing Research*, 20: 57–69.

Statista. 2018. *Revenue of the Big Four accounting/audit firms worldwide in US*. Available from: <https://www.statista.com/statistics/250479/bigfouraccountingfirmsglobalrevenue> [Accessed on 7 March 2020].

Stubbs, W. & Higgins, C. 2018. Stakeholders' perspectives on the role of regulatory reform in integrated reporting. *Journal of Business Ethics*, 147(3): 489–508.

Tlili, M., Othman, H.B. & Hussainey, K. 2019. Does integrated reporting enhance value relevance of organizational capital? Evidence from the South African context. *Journal of Intellectual Capital*, 20(5), 642-661.

Van den Akker, M. 2017. *The association between integrated reporting and information asymmetry*. Masters thesis. Erasmus University Rotterdam.

Vitolla, F., Raimo, N., Rubino, M. & Garzoni, A. 2020. The determinants of integrated reporting quality in financial institutions. *Corporate Governance (Bingley)*, 20(3): 429–444. Available from: <https://doi.org/10.1108/CG-07-2019-0202> [Accessed on 21 Jan 2020].

Wahl, A., Charifzadeh, M. & Diefenbach, F. 2020. Voluntary Adopters of Integrated Reporting—Evidence on Forecast Accuracy and Firm Value. *Business Strategy and the Environment*, 29: 2542-2556.

Wen, L. & Heong, A. 2017. Integrated Reporting and financial performance: Evidence from Malaysia. *Management and Accounting Review*, 16(2): 101–130.

Wijnhoven, J. 2014. *Determining the value of integrated reporting*. Enschede University of Twente. Available from: [http://essay.utwente.nl/66450/1/Wijnhoven\\_MA\\_management\\_governance.pdf](http://essay.utwente.nl/66450/1/Wijnhoven_MA_management_governance.pdf) [Accessed on 19 Feb 2020].

WBCSD. 2014. *Integrated reporting in South Africa – From concept to practice*. Available from: <https://www.wbcd.org/Projects/Education/Leadership-program/Resources/Integrated-Reporting-in-South-Africa-From-Concept-to-Practice> [Accessed on 19 Feb 2020].

Zhou, S., Simnett, R. & Green, W. 2017. Does Integrated Reporting matter to the capital market? *ABACUS*, 53(1): 94–132.