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Does Mandatory IFRS adoption and Macroeconomic Factors Affect Cost of Equity Capital? Empirical Evidence from South African Listed Firms

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ARTICLE DETAILS	ABSTRACT
History <i>Revised format: May 2019</i> <i>Available Online: June 2019</i>	Purpose: This paper investigates the collaboration of International Financial Reporting Standards (IFRS) adopted and macroeconomic variables interaction with information asymmetry, analysts following and managerial opportunism affecting the cost of equity capital, and also influence investor's decision taking on companies in South Africa.
Keywords <i>IFRS Adoption, Cost Of Equity Capital; Macroeconomic Factors; Fixed Effects; South Africa</i>	Design/Approach: A sample of 49 listed Johannesburg mining and manufacturing firms was extracted from archival database of INET BFA/IRESS SA, Morningstar, and Anupedia. A leverage fixed effects panel data set of firms from 2001 to 2014 was examined, which shows that Breusch-Lagrange Multiplier tests and the test of over-identifying restrictions used, form the basis of the content analysis of the most recent IFRS effect after mandatory adoption. We used a hand-collected dataset between 2000 and 2015.
JEL Classification: <i>G3, G30, G32</i>	Findings: Our findings suggest that a significant association is found between IFRS and its interactions with managerial opportunism and integrity but with a reasonable statistical effect. However, the IFRS adoption effect on the cost of equity capital of South African firms' has no significant effect.
	Practical implications: This study reveals that most firms report more, the credibility of annual financial statements which may not be sufficient because of the qualitative data for an assessment of managerial opportunism, information asymmetry and analysts following. Of such myopia of company managers, their reputation causes agency problems and as a result, shareholders interest is mainly focused on improving reporting standards
	Originality: The research considers dual harmonizing facets: first, that the interaction with IFRS adoption and economic factors impact on the cost of equity capital may be so pathetic and obvious; and second, that IFRS moderation impacts on the cost of equity capital in Sub-Saharan African. This finding should be meaningful to managers, analysts, policymakers, and supervisory bodies in nations with similar capital structure decisions and socioeconomic systems.

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1. Introduction

Globalization has resulted in many countries devising means of becoming very competitive to avoid being left out. Therefore, one means used by countries is the improvement of the financial reporting standards. Thus, several nations have adopted IFRS, which is established by the International Accounting Standards Board (IASB). The intended aim of IFRS is a mechanism that should give way to a greater demand for the firm value required by investors and other stakeholders in their quest for financial reporting quality (Jonas & amp; Blanchet, 2000). Prior extant literature links cost of equity capital of IFRS adoption, which obliges listed companies in South Africa to prepare annual reports in conformity to IFRS since 2005.

IFRS is to strengthen corporate reporting and its relation to firms cost of equity capital, which has become a phenomenon of interest (Madhani 2008). Thus, IFRS adoption will increase the credibility of financial reporting and create investment opportunities which would reduce the costs of equity capital and improve the return on investment. The implication to adopt IFRS on stock market aspects of cost of equity capital boils down to the essence of financial information to the users and stock market development (Francis et al., 2006). It, therefore, follows that IFRS should reduce the cost of equity capital because it reduces managerial opportunism and information asymmetry while it increases analyst following of adopted firms. So there is a growing debate on whether IFRS adoption and the cost of equity capital are either complementary or substitutes the approaches to value creation. Therefore, this study emphasizes on how the cost of equity capital of listed manufacturing and mining firms in South Africa has changed after IFRS adoption.

South Africa was the first African countries to adopt IFRS, therefore studies of this nature attract several researchers' attention and also being the most important economy in Africa for investment opportunities, hence the reason for its selection. Despite, after a decade of IFRS adoption in South Africa, there is scanty information about capital structure decisions. This paper examines IFRS adoption and macroeconomic factors impact on the cost of equity capital of South Africa listed manufacturing and mining companies.

The argument on whether companies attribute to the cost of equity capital reduction in information quality is an important and contentious problem for corporate managers, capital market players, and information quality standard setters to establish.

Our estimation is the financial statement data covering the period 2001 to 2014 of 49 South Africa listed manufacturing and mining firms. We estimated the panel data regression method applied to estimate the effect of IFRS adoption on the cost of equity capital and also use control variables as a technique to make it possible for unobserved heterogeneity that correlates with explanatory variables.

Our study reveals that IFRS and its interactions with other variables had no significant effect on the firms' cost of equity capital. We interpret this negative relation because firms find it expensive to implement new efficiency standards. However, managerial opportunism, integrity, and the exchange rate have an inverse relationship with firms' cost of equity capital. This paper, therefore concludes, that IFRS adoption had no meaningful impact on the selected listed firms' cost of equity capital in South Africa.

This paper draws on recent advances in IFRS adoption literature and firm's cost of equity capital in relation to financial reporting quality and economic factors. Our findings give an insight of IFRS adoption influences on the agent-principal relationship of resource accountability between the owners of the business and those accused of governance. Failed IFRS implementation undermines quality financial reporting and therefore appears to result in unfortunate shareholders indifference.

Therefore, this study contributes to a growing finance and accounting literature on IFRS adoption and firms' cost of equity capital in the following ways. First, most research on IFRS adoption and firms' cost of equity capital was focused on European data. This study uses manufacturing and mining industries of South Africa that is sensitive and therefore offers a better understanding of this relationship. Second, this study recognizes managerial opportunism, analyst following, and information asymmetry as the moderation role of IFRS adoption and firms'

cost of equity in the South African context. Third, this paper utilizes both firm-level and macroeconomic factors as controlling variables from a broader perspective to explain the firms' cost of equity capital as against prior studies. Fourth, this study is first of its kind to allow for longer transition periods (early post-adoption 2006-2009 and late post-adoption 2011- 2014) in IFRS adoption effect on the cost of equity capital, as against previous studies (Houque et al. (2015); Gatsios et al. (2016); Patro and Gupta (2014); Castillo-Merino et al., 2014; and Daske (2014)).

Besides the introduction, the rest of the paper is structured as follows. Section two reviews relevant literature on IFRS adoption and firms cost of equity capital and the development of research hypotheses. Section three presents the specified method. Section four discusses the empirical results and conclusion, while proposals for future research form the fifth section.

2. Theoretical Underpinnings and Hypotheses Development

2.1 Accounting Standard- Settings in South Africa

South Africa is at the same time a code and a common-law nation where investor protection and insider/market positioning opened. The Accounting Standards Board (ASB) is prepared by a legislative instrument, whose main aim is to set standards for all spheres of government, accompany by directives and guidelines. Minister of Finance, in collaboration with the Auditor-General, seek to implement the new standards and ensure complete compliance with the standards. The South African Institute of Chartered Accountants (SAICA) is responsible for managing all accounts setting processes. Because ASB is consider best accounting practices that have the quality to enhance capital markets for foreign investment (Liener, 1995), the International Financial Reporting Standards (IFRS) is approved in 2005. Under this, listed firms prepare financial statements in complying with IFRS. The new standards are to be of quality; therefore it is an opportunity to examine the effect of the cost of equity capital and the adoption.

2.2 Conceptual Backgrounds

IFRS adoption dwells on two theories, the bonding theory of adoption explains the increasing trend of individual firm's fame associated with the financial markets (Coffee, 2002), while the signaling theory stipulates that firm's commitment to quality financial reporting is built on a signal for IFRS adoption (Tarca, 2002). International Accounting Standards Board (IASB) develops IFRS to be acceptable in the world for developing accounting activities, thus promoting accounting rules harmonization. There is an extensive relationship between the quality of IFRS adoption on financial accounting information of listed South African manufacturing and mining companies and to reduce the cost of equity capital and improved investment returns (Tweedie 2006, and Barth et al. 2008). Large numbers of accounting quality indicators associated with IFRS adoption by European countries have enhanced the reporting credibility (Chen et al., 2010; Barth et al., 2008). Paramount to corporate decisions is an entity's cost of equity capital. From defining the target rate for investment plans to influence corporate capital structure decisions, the cost of equity capital effects on firm's operations and its subsequent cost-effectiveness. Given this importance, it is not surprising that a wide range of policy recommendations has been an innovation to help businesses reduce this cost (Easley and O'hara, 2004).

The cost of equity capital is expected to decrease in two ways. First, international comparability of financial statements ought to improve in relation to IFRS adoption of a general accounting 'language'. This entices equity from foreign investors and therefore reduces the barriers to cross-border equity flows. Second, the corporate disclosure must improve when better-quality accounting standards are adopted to the local GAAP which is of lower quality. This enables outside investors to monitor investment returns when information asymmetry is being reduced and improved accounting standards should reduce the costs of equity capital (Core et al. 2011). According to Levitt (1998), the veracity is that high-quality standards would lower the cost of capital.

2.3 Hypotheses Developments

Cost of equity capital: According to Daske et al. (2008), the benefits of capital markets are achieved when firms present credible annual reports. Most specifically, comparability benefits among investors is a question of considerable interest and significance to the financial reporting community. However, the association between accounting information quality and the cost of equity capital is not well addressed and has proved difficult to conclude. It is a fact that most of the benefits following IFRS adoption are linked with Europe. It is not appropriate to accept that the results can be generalized to apply to African situations.

2.3.1 Cost of Equity Capital and IFRS Interaction With Information Asymmetry

Signaling theory identifies problems relating to information asymmetry in capital markets and also illustrates how it causes alarm to investors (Morris, 1987). Akerlof (1970) shows that, in the existence of unaware buyers, value prices are based on perceptions about products but not on their quality.

Agency theory heightens information asymmetry between those charged with governance and the owners of the business. Information asymmetry focuses on the disclosure of inside information to benefit managers at the expense of shareholders. IFRS mandatory enjoins the management to disclose all material items as part of the financial statements to avoid distortion of information for decision making. An incentive to shift to IFRS may suggest better economic performance and firm value, under reduced information asymmetry. This sort is to reconcile diverse / contradictory findings on information asymmetry impact on the cost of equity in conjecture market situations wherein imperfect markets information asymmetry cause risk factors (Armstrong, et al. 2011). In an international research, Hail and Leuz (2006) concludes that nations with a better information environment have a lower cost of equity capital. IFRS adoption of listed manufacturing and mining firms in South Africa increases information asymmetry which decreases inherent conflict of interest, reducing the cost of equity capital. Hence, we have a positive relationship between the cost of equity capital and IFRS interaction with information asymmetry and hypothesize that:

Hypothesis 1: Combined effect of IFRS-adopted firms and information asymmetry pertains to reducing the cost of equity capital than firms under a pre-adoption period.

2.3.2 Cost of Equity Capital and IFRS Interaction With Analysts Following

Both public and private sources of information needed by investors are supplied by financial analysts. This information is important in order to aid in capital market development (Healy and Palepu, 2001). Therefore, financial analysts are used as an intermediary between investors and firms (Schipper, 1991). Investors rely on financial analysts to find out more about a firm and to make investment portfolio decisions. IFRS adoption improves public disclosure and reduces the costs of getting information which tends to increase the analysts following firms. Analyst following is invoked as a proxy for the richness of a firm's information environment (Lys and Soo, 1995; Bae et al. 2008; Brown and Higgins, 2002). In a more concentrated study, a reduced cost of equity capital is a combined function of analyst following forecast properties and IFRS. In summary, higher combine effect of analyst following and IFRS adoption enables the environment to improve capital structure decisions. The hypothesis is:

Hypothesis 2: Combined effect of IFRS-adopted firms and analyst following is positively associated with the decreased cost of equity capital than firms under the pre-adoption period.

2.3.3 The Cost of Equity Capital and IFRS Adoption Interaction With Managerial Opportunism

Williamson (1985) noted that opportunism is "self-interest seeking with guile". Managerial opportunism is an inevitable consequence of costly information. In the world of no transaction cost, including the cost of determining behavior and actions of stewards (managers), there would be no opportunism. In another direction, the study examines whether the shift to IFRS reduces managerial opportunism. Quality of financial reporting expects under IFRS as the different standards heighten informative disclosure and promote investor protection mechanisms. We posit that IFRS adoption would lead to lowering managerial opportunism (Luez, 2003; Latridis and Rouvolis, 2010). We anticipated an adverse relationship with the cost of capital of firms and their interaction with IFRS adoption and managerial opportunism. The hypothesis tested is:

Hypothesis 3: Interaction effect of IFRS-adopted firms and managerial opportunism are negatively associated with lower cost of equity capital than firms under the pre-adoption period.

2.3.4 Macroeconomic Factors and IFRS Adoption

Quality of macroeconomic factors under the IFRS adoption has a negative impact and reduces the effect on firm's cost of equity capital (Wang and Welker, 2011). This underlines the score that macroeconomic factors are high and that accounting systems would develop so as to motivate investors based on firms' performance, all things being equal (Li, 2010 and Castillo-Merino et al., 2014). Despite that from all the studies above, none of them was done in Africa. We expect macroeconomic factors under IFRS adoption to increase shareholders' value in the country. Based on this argument, we hypothesize that:

Hypothesis 4: Quality macroeconomic factors decrease the cost of equity capital under IFRS adoption.

3. Research Design

3.1 Sample and Dataset Selection

The population for this study is mining and manufacturing firms listed on the JSE. The characteristics of the listed firms enhance the research since they report in a similar format for the study periods. However, sample companies must meet the conditions below:

- The companies that have been consistently listed on the JSE for fifteen years prior to the research.
- Firms that have consistently published annual reports within the study period.

Applying these standards resulted in a sample of 49 companies (refer to table 1).

The empirical analysis was based on data retrieved from the annual financial statements of 49 listed companies on the JSE during a fourteen-year periods, 2001- 2014. Fourteen years were selected because these were apt to test before and after adoption. In all, 686 firm-years reports of listed manufacturing and mining companies for the period 2001-2014 were utilized. The sample companies are those firms that have consistently published annual reports and showed existing information before and after the adoption periods.

The companies' annual financial data were downloaded from archival databases of INET BFA/IRESS SA, Morningstar, and Anupedia. Table 1 shows that sampled firms represent 75.39% of the total population.

Table 1: sample selection process

	Firm/Year obs.	(%)
Initial sample of observations: Manufacturing	38	
Mining	27	
	65	100
Firms with insufficient observations: Manufacturing	(12)	-18.46
Mining	(4)	-6.15
Final sample	49	75.39

We used firm's specific control variables as IFRS adoption in South Africa is mandatory for all listed reporting entities. There are no other firms that use alternative accounting standards after the obligatory adoption period for comparison. Therefore, the 49 listed firms in a standardized firm-year observation was used to explain pre-adoption and the post-adoption periods. It is very likely that the change observed on firms' cost of equity capital was linked to IFRS adoption. Firm-specific factors are controlled by having the same requirements.

Four separate periods of data were employed in the study; the pooled (2001-2014), a pre-adoption (2001-2004), the early post-adoption (2006-2009), and the late post-adoption period of 2011-2014. These approaches ensure that data covering the four reporting periods under IFRS for all firms have an equal number of observations for pre-IFRS and post-adoption periods (Chua et al., 2012), except for the pooled regression model which uses 2001 to 2014 years excluding 2005 period. The exclusion of 2005 as the adoption of transitional year is consistent with Chua et al. (2012) and Zeghal et al. (2012).

Table 2: Description of Variables and Sources

Variables	Description/ measurement	Source (s)
Dependent var		
Cost of Equity Capital (LNCOEC)	=Market price per share (MPPS)/ Earnings per share (EPS) in natural logarithm where; MPPS=share price (MPS)/ total share outstanding (T.SHS) in natural logarithm EPS=turnover (TUROV)/ total share outstanding (T.SHS) in natural logarithm	Walter A. Morton (1970). hwww.economicdiscussion.net
Managerial Opportunism	Earnings management measured as discretionary accrual (i.e. residuals from total accrual) in natural	Modified Jones Model

(LNMO)	logarithm formula: $DA = TA - (\beta_0 + \beta_{1t} \frac{1}{A_{i,t-1}} + \beta_{2t} \frac{\Delta Rev_{i,t} - \Delta Rec_{i,t}}{A_{i,t-1}} + \beta_{3t} \frac{PPE_{i,t}}{A_{i,t-1}})$	
Information Asymmetry (LNIA)	Bid-Ask spread measured by high and Low share price in natural logarithm	Corwin and Schultz (2010)
Analyst Following (LNAF)	Number of analysts actively tracking and publishing an opinion on firm and its stock; i.e handy collection in natural logarithm	The INET BFA Database
IFRS	Pre-adoption (2001-2004), early adoption (2006-2009) and late-adoption (2011-2014).	Author's Design
Macroeconomic factors	Interest rate (LNIR) (bank rate: the rate at which Central Bank of South Africa lends to the commercial banks) Exchange rate (LNEX) (RAND to dollar rate) Gross Domestic Product (GDP)[GDP at constant price (% change)] Bankruptcy(LNBR) Government borrowing (LNGOVB) (Government net debt as a % of GGP) Integrity (LNINTG) (All variables are in their natural logarithms)	Fred. Stlouisfed.org Federalreserve.org Resbank.co.za/World Development Indicators The Global Economy-South Africa. Worldwide governance indicators
Control variables	Leverage (LNLEV) equal to the total debt divided by total asset) in natural logarithm Liquidity (LQ): ratio of current asset to current liability in natural logarithm Tangibility (TANG): Ratio of net plant proper equipment to total asset in natural logarithm	Badertscher et al. (2014) Baker and Martin (2011) Breuer et al. (2012)

3.2 Control Variables

In accordance with previous literature, we applied three control variables with the aim of avoiding bias results. The control variables used includes; leverage, liquidity, and tangibility. The inclusion of control variables is expected to correlate with cost of equity capital estimation as their exclusion from the tests may bias the coefficients estimated.

3.2.1 Leverage (Lev)

Important governance mechanism includes management of debt (Shleifer and Vishny, 1997). Due to the interest and principal payments on debts, managers are liable to generate cash flow to meet them. It, therefore, ensures credible financial reporting standard to manage liability arrangements. To meet such commitments, managers make an incentive programme to increase earnings. We made use of the ratio of total debt divided by total assets (Zamri et al., 2013) to calculate leverage (LEV) (Mahoney et al., 2008). Lower leverage level expects under IFRS adoption as full disclosure of information is obligatory, therefore corporate value would be higher (Tu, 2012; Daske et al., 2008).

3.2.2 Liquidity (LQ)

It shows how companies could meet their financial obligations in the short-term when they fall due (Fabozzi et al., 2010-RRB). Liquidity heightens if there are fewer costs to convert company's assets into cash. Higher firm value is reached under IFRS adoption, when the adoption limits managerial accounting manipulations, but can maintain cash flow for satisfying short-term commitments (Gitman, 2004).

3.2.3 Asset Tangibility (TANG)

Akintoye (2009) stipulates that, keeping large investments tangible assets of firms associates with smaller costs of financial distress, will impact the optimum performance. This enhances and generates more revenue from sales. We

measured Tangibility as the Net Property, Plant, and Equipment divided by Total Assets and in percentage form. IFRS adoption shows a positive relationship with asset tangibility and firms' cost of equity capital.

3.3 Model Specifications And Analysis Techniques

Since the data were a panel, the pooled ordinary least square regression (POLS), a random effects (RE) and a fixed effects (FE) estimation were used depending on which is the best. This is tantamount to select the best econometric model that can lead to correct inferences arising from coefficient estimates (Onali et al., 2017). Therefore, the Breusch and Pagan Lagrangian multiplier test are used to select between the RE and the POLS regression, and if the RE is the better option. To assess the validity of usable instruments, the Sargan test of over-identifying restrictions (Sargan-Hansen statistic) chooses between the RE and the FE. The test of over-identifying restrictions is used for the study controlled for heteroskedasticity by using robust standard errors and hence the Hausman test would not have been appropriate. However, if the POLS are ahead of the RE, the F-test chooses between the POLS and the FE. In comparing the POLS to FE, the FE is run without a robust standard error option to display the F-test result. Therefore, if the test chose the FE model ahead of the POLS, the FE is re-run with the robust standard error option. Thus, in this study, all standard errors were robust catering for any possible heteroskedasticity. Therefore, the empirical models used are as shown in equations 1 and 2, where equation 1 is used for the pooled data of 2001-2014 periods, excluding 2005 the adoption year. The data for pooled regression period are denoted by equation 1 as follows:

$$\text{coec}_{it} = \alpha_0 + \alpha_1 \text{tang}_{it} + \alpha_2 \text{LQ}_{it} + \alpha_3 \text{lev}_{it} + \alpha_4 \text{IA}_{it} + \alpha_5 \text{AF}_{it} + \alpha_6 \text{MO}_{it} + \alpha_7 \text{IFRS} * \text{IA}_{i,t} + \alpha_8 \text{IFRS} * \text{AF}_{it} + \alpha_9 \text{IFRS} * \text{MO}_{i,t} + \alpha_{10} \text{INTG}_{it} + \alpha_{11} \text{IR}_{it} + \alpha_{12} \text{EX}_{it} + \alpha_{13} \text{govb}_{it} + \alpha_{14} \text{BR}_{it} + \alpha_{15} \text{IFRS}_{it} + \varepsilon_{it} \dots \dots \dots 1$$

$$\text{coec}_{i,t} = \alpha_0 + \alpha_1 \text{tang}_{it} + \alpha_2 \text{LQ}_{it} + \alpha_3 \text{lev}_{it} + \alpha_4 \text{IA}_{it} + \alpha_5 \text{AF}_{it} + \alpha_6 \text{MO}_{it} + \alpha_7 \text{INTG}_{it} + \alpha_8 \text{IR}_{it} + \alpha_9 \text{EX}_{it} + \alpha_{10} \text{govb}_{it} + \alpha_{11} \text{BR}_{it} + \varepsilon_{it} \dots \dots \dots 2$$

$$\text{coec}_{i,t} = \alpha_0 + \alpha_1 \text{tang}_{it} + \alpha_2 \text{LQ}_{it} + \alpha_3 \text{lev}_{it} + \alpha_4 \text{IA}_{it} + \alpha_5 \text{AF}_{it} + \alpha_6 \text{MO}_{it} + \alpha_7 \text{IR}_{it} + \alpha_8 \text{EX}_{it} + \alpha_9 \text{govb}_{it} + \alpha_{10} \text{BR}_{it} + \varepsilon_{it} \dots \dots \dots 3$$

$$\text{coec}_{i,t} = \alpha_0 + \alpha_1 \text{tang}_{it} + \alpha_2 \text{LQ}_{it} + \alpha_3 \text{lev}_{it} + \alpha_4 \text{IA}_{it} + \alpha_5 \text{AF}_{it} + \alpha_6 \text{MO}_{it} + \alpha_7 \text{INTG}_{it} + \alpha_8 \text{IR}_{it} + \alpha_9 \text{EX}_{it} + \alpha_{10} \text{govb}_{it} + \alpha_{11} \text{BR}_{it} + \varepsilon_{it} \dots \dots \dots 4$$

The meanings of all the notations were set out, and it must be emphasized that all the variables were used in their natural logarithm forms (LN) except IFRS and its interactions with other variables. Furthermore, all analyses in this study needed to be done using STATA 11.2 and 14 versions.

4. Empirical Results and Discussion

This section covered analysis and discussion on correlation analysis, as well as regression results.

4.1 Descriptive Statistics And Correlation Analysis

This section covered descriptive variables and correlation analysis of the study, i.e. the standard deviation, mean, minimum and maximum values of variables employed in the study as well as the strength of association between the variables.

Table 3: Descriptive Statistics of used Variables

Variable	Mean	Std. Dev.	Min	Max	Observ.
Coec overall	.0048982	.0339538	2.34e-08	.445382	N = 637
Between	.0278361	1.50e-07	.1924169		n = 49
Within		.019815	-.0720787	.416017	T = 13
Tang overall	.4233627	.2217169	-.9939135	1.485497	N = 637
Between		.1573793	.1578005	.901558	n = 49
Within		.1576624	-1.018307	1.212745	T = 13
LQ overall	1.656138	1.162449	.1543981	19.45693	N = 637

Between		.5433952	.4174591	3.79206	n = 49
Within		1.03033	-.3953993	18.37016	T = 13
Lev overall	.3536813	.3536813	.1112685	1.349616	N = 637
Between		.1123075	.2085788	.8583845	n = 49
Within		.2131733	-.1899268	1.075835	T = 13
IA overall	.3356972	.4432782	0	8.5604	N = 637
Between		.1599642	.0938	.8744538	n = 49
Within		.4139926	-.4980182	8.021643	T = 13
AF overall	4.954474	3.248047	2	12	N = 637
Between		1.210563	2.538462	7.153846	n = 49
Within		3.018609	-.1993721	11.87755	T = 13
AF overall	4.954474	3.248047	2	12	N = 637
Between		1.210563	2.538462	7.153846	n = 49
Within		3.018609	-.1993721	11.87755	T = 13
MO overall	.0023402	.6518441	-12.78741	6.846503	N = 636
Between		.1106116	-.4706663	.2900195	n = 49
Within		.6425592	-12.31441	7.31951	T-bar = 12.9796
INTG overall	3.966154	.4946873	3.3	5	N = 637
Between		0	3.966154	3.966154	n = 49
Within		.4946873	3.3	5	T = 13
IR overall	7.885777	2.28305	4.94	12.73	N = 637
Between		.1112641	7.687692	8.006923	n = 49
Within		2.280388	4.878085	12.69885	T = 13
EX overall	8.230195	1.668219	5.645	24.8112	N = 637
Between		.1922378	8.068615	9.279608	n = 49
Within		1.657316	5.510033	23.76179	T = 13
Govb overall	2.22e+07	7.68e+07	19.25307	2.88e+08	N = 637
Between		3.76e-09	2.22e+07	2.22e+07	n = 49
Within	7.68e+07	19.25307	2.88e+08		T = 13
BR overall	116.4615	43.25186	55	191	N = 637
Between		0	116.4615	116.4615	n = 49
Within	43.25186	55	191		T = 13
IFRS overall	.6923077	.4619012	0	1	N = 637
Between		0	.6923077	.6923077	n = 49
Within		.4619012	0	1	T = 13

From Table 3, cost of equity capital had an overall mean value.0048982. Also, it can be seen that the overall mean values of the variables as showed in parenthesis were liquidity (1.656138), tangibility (.4233627), leverage (.3536813), analyst following (4.954474), information asymmetry (.3356972), integrity (3.966154), managerial opportunism (.0023402), exchange rate (8.230195), interest rate (7.885777), government borrowing (2.22e+07) and bankruptcy (116.4615). Thus, bankruptcy had the highest overall mean value. In addition, results in the minimum and maximum values, number of observation and standard deviation of all variables can further be seen in Table 3. Also, the IFRS dummy had both maximum and minimum values at 1 and 0 representing IFRS adoption periods (1) and no IFRS adoption periods (0).

Table 4: Correlation Analysis

Variables	Coec	Tang	LQ	Lev	IA	AF	INTG	IR	EX	govb	MO	BR
coec	1.0000											
tang	0.0979	1.0000										
LQ	0.0297	0.0425	1.0000									
Lev	0.0342	0.1660	0.0064	1.0000								
IA	-0.0106	-0.0238	-0.0159	0.0711	1.0000							
AF	-0.0559	-0.0241	-0.0344	0.0341	-0.0817	1.0000						
INTG	-0.0525	0.0050	0.0026	-0.0383	-0.0539	0.0545	1.0000					
IR	0.0321	0.0099	-0.0876	-0.0776	-0.0892	0.1374	0.1352	1.0000				
EX	0.0407	0.0308	0.0159	0.0422	0.0738	-0.0816	-0.6653	-0.0025	1.0000			
govb	-0.0182	-0.0041	0.0279	0.0094	-0.0201	0.0654	0.1186	-0.3045	-0.1648	1.0000		
MO	0.0229	-0.0149	-0.1991	0.0180	0.0173	-0.0176	-0.0181	-0.0083	0.1062	0.0198	1.0000	
BR	0.0553	0.0074	-0.1016	-0.1003	-0.0936	0.1011	0.1968	0.8358	-0.1677	-0.1898	-0.0460	1.0000

Source: Author's Computation from Anupedia, INET BFA/IRESS SA, and Morningstar, 2017. Obs=636

The correlation analysis as shown in Table 4 was conducted to investigate the direction and strength of relationship among the variables used in the study. Therefore, a negative sign implies that the variables move in opposite directions (negatively correlated) and a positive sign means the variables move in the same direction (positively correlated). In addition, the closer the correlation coefficient is tantamount to 1, the greater the strength of association and the farther the correlation coefficient is to 1, the weaker the strength of association. Therefore, the same variables would be perfectly correlated with a coefficient of 1 as seen in the results. Regarding the correlation between different variables, only the correlation between exchange rate and integrity (-0.6653), and the correlation between bankruptcy and interest rate (0.8358) was relatively stronger; negatively and positively respectively. However, the strength of the association between the remaining variables was weak generally.

Table 5: The Effect of IFRS on Cost of Equity Capital of Listed Firms in South Africa

	2001-2014 excluding (FE)	2005	2001-2004 (FE)		2006-2009 (FE)		2011-2014 (FE)
	LNcoec		LNcoec		LNcoec		LNcoec
LNtang	0.0806 (0.139)	LNtang	0.237 (0.232)	LNtang	0.0608 (0.260)	LNtang	-0.281* (0.159)
LNLQ	0.362 (0.275)	LNLQ	1.897*** (0.682)	LNLQ	0.138 (0.137)	LNLQ	0.0990 (0.175)
LNlev	-0.0298 (0.0930)	LNlev	-0.0629 (0.168)	LNlev	-0.298** (0.141)	LNlev	0.105 (0.0802)
LNIA	0.0716 (0.106)	LNIA	0.320* (0.172)	LNIA	-0.177*** (0.0545)	LNIA	0.0323 (0.0691)
LNAF	0.145 (0.188)	LNAF	0.135 (0.165)	LNAF	-0.0793 (0.0899)	LNAF	0.0511 (0.0918)
LNMO	-0.0833*** (0.0304)	LNMO	-0.0153 (0.0767)	LNMO	-0.00418 (0.0215)	LNMO	-0.0856* (0.0433)
IFRSIA	-0.283 (0.382)	LNINTG	-1.866 (1.484)	LNIR	0.378 (0.282)	LNINTG	0.986 (1.698)
IFRSAF	-0.00883 (0.0453)	LNIR	0.0895 (1.058)	LNEX	-1.692** (0.730)	LNIR	-2.107 (1.470)
IFRSMO	-0.0296 (0.141)	LNEX	-0.678 (1.857)	LNgovb	-2.426** (0.985)	LNEX	1.367 (1.811)
LNINTG	-2.269*** (0.754)	LNgovb	-1.586 (1.924)	LNBR	-0.413 (0.510)	LNgovb	0.0424 (0.0368)
LNIR	0.404	LNBR	1.106	_cons	-0.410	LNBR	-0.974

	(0.306)		(1.023)		(3.824)		(1.032)
LNEX	-1.828***	_cons	-9.303**			_cons	-10.00
	(0.386)		(4.129)				(7.904)
LNgovb	-0.00890						
	(0.00743)						
LNBR	0.205						
	(0.384)						
IFRS	-0.00609						
	(0.376)						
_cons	-7.516***						
	(1.378)						
N	365		104		111		121
R2	0.183		0.375		0.606		0.157
adj. R2	0.148		0.301		0.566		0.072
F	4.432		4.164		8.273		1.161

Standard errors are in parentheses +p< 0.10, *p< 0.1, **p< 0.05, ***p< 0.01. LNTANG represents tangibility in natural logarithm, LNLQ represents natural logarithm of liquidity, LNLEV represents natural logarithm of leverage, LNIA represents natural logarithm of information asymmetry, LNAF represents natural logarithm of analyst following, LNMO represents natural log of managerial opportunism, LNINTG represent natural log of integrity, LNIR represents natural log of interest rate, LNEX represents natural log of exchange rate, LNGOVB represents natural log of government borrowing, and LNBR represents bankruptcy.

5. Regression Results

This section tackled analysis and discussion of the regression models used in attaining the objectives of the study noted in Table 5. Of all the periods/models considered, the tests (Breusch and Pagan Lagrangian multiplier test, the test of over identifying restrictions (Sargan-Hansen statistic) and an F-test) chose the fixed effect model to be the best. Therefore, the results revealed that in the 2001-2014 model, excluding 2005, managerial opportunism (LNMO) had a 1% significant coefficient of -0.0833 and hence the cost of equity capital decreased by 0.0833% when there is a 1% increase in managerial opportunism. Furthermore, the coefficient of integrity (LNINTG) was -2.269, which was significant at 1% and hence a 1% rise in integrity led to a 2.269% decrease in firms' cost of equity capital. Also, a coefficient (-1.828) of the exchange rate that was significant at 1% implies that, when exchange rate rose by 1%, the cost of equity capital fell by 1.828%. Thus, managerial opportunism, integrity, and the exchange rate had decreased the effects on IFRS.

However, it was disclosed that IFRS as a variable and also as its interactions with other variables have no significant impact on firms' cost of equity capital and hence the null hypothesis could not be rejected. Our result agrees with the findings of Gatsios et al. (2016) which revealed that IFRS adoption does not decrease firms' cost of equity capital in Brazil. Daske (2014) who didn't find lower anticipated cost of equity capital for IAS/IFRS adopters as well as the result of Patro and Gupta (2014) who found IFRS to have no significant influence on the cost of equity capital of Chinese and Israeli firms. Never the less, the results contradict those of Houque et al. (2015) who found IFRS adoption to have a negative impact on the cost of equity capital as well as those of Castillo-Merino et al. (2014) who revealed a negative significant impact with IFRS adoption and the cost of equity capital of Spanish listed firms.

With regard to the Pre-IFRS adoption period (2001-2004), only information asymmetry (LNIA) and liquidity (LNLQ) were significant at 10% and 1% respectively. Therefore, given their respective coefficients of 0.320 and 1.897 implied that a 1% increase in information asymmetry and liquidity led to a 0.320% and 1.897% increase in the firms' cost of equity capital (coec) respectively. Information asymmetry and liquidity had positive impacts on the cost of equity capital. Regarding an early IFRS adoption period (2006-2009), leverage (LNlev) was found to have a 5% significant coefficient of -0.298 and hence cost of equity capital fell by 0.298% when leverage increased by 1%. Moreover, a 1% rise in information asymmetry was found to decrease the cost of equity capital by 0.177% bestowed its 1% significant coefficient of -0.177. Also, it was revealed that an increase in the exchange rate would cause the cost of equity capital of firms' to decrease. Thus, a 1% rise in the exchange rate was found to reduce firms' cost of equity capital by 1.692% since the exchange rate had a 5% significant coefficient of -1.692. In addition, government borrowing had a decreasing impact on the cost of equity capital given its 5% significant

coefficient of -2.426. Thus, a 1% increase in government borrowing would reduce firms' cost of equity capital by 2.426%.

Last but not the least, in the late IFRS adoption period (2011-2014), tangibility and managerial opportunism had 10% significant coefficients of -0.281 and -0.0856 respectively. Thus 1% increases tangibility and managerial opportunism led to 0.281% and 0.0856% decrease in cost of equity capital respectively.

6. Conclusion

From the findings, it can be said that, even though managerial opportunism, integrity, and the exchange rate have negative effects on the firms' cost of equity capital, IFRS adoption with its interaction with other variables had no significant impacts on the cost of equity capital among listed firms in South Africa. This requests that the need to realign the adoption to suit African economies in order to reap its numerous anticipated benefits, which include a reduced cost of equity capital. It further sends signals to other African economies on the need to tread cautiously in embarking on mandatory adoption of IFRS.

Conflict of Interest

The authors declare no competing interest.

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