

## THE IMPACT OF GENDER DIVERSITY IN THE BOARDROOM ON FIRM PERFORMANCE: A SOUTH AFRICAN PERSPECTIVE

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### Abstract

The study employs panel methodology and Ordinary Least Squares (OLS) multiple regression to examine the impact of board gender diversity on firm performance for a sample of 137 Johannesburg Stock Exchange (JSE) listed firms during the period 2002 and 2011. The results show that board gender diversity among South African firms have been improving substantially since 2002 when King II came into force. In 2002, the average South African board had only 4 per cent of women and by 2011, this had increased to 13 per cent. Notably, the findings also show that large South African firms have a greater representivity of women on their boards than small firms. By inference this could mean that gender diversity has a positive influence on firm value as findings further show that firm value in large firms is higher than that in small firms. This study contribute to the debate of whether board gender diversity influences firm value and whether the South African government should consider adopting quota legislation such as in Spain, Norway, The Netherlands and France. The findings suggest that there is evidence of a business case to advocate the implementation of quota legislation in South Africa. Empirical findings proceed to confirm that theories of corporate governance such as agency, resource-dependence, signalling and stakeholding surely provide some support to understanding the relationship between board gender diversity and firm performance.

**Keywords:** Corporate Governance, Gender Diversity, South Africa, JSE, Firm Performance

**JEL Code:** G3, J16

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### Introduction

The monitoring role performed by the board is an important corporate governance mechanism to reduce agency problem. The gender element of the board can affect the quality of this monitoring role and therefore the financial performance of the firm. This corporate governance variable, board gender diversity, has attracted the interest of researchers and policymakers in the past two decades. Compared to the diversity of other demographic attributes such as skills, age, education and ethnicity, gender diversity appears to be the most widely addressed in the literature (Erhardt, Werbel & Shrader, 2003). While the issue of gender diversity in the boardroom has attracted growing research in many developed countries in recent years, there is still a dearth of research conducted in an African emerging setting. Exacerbating the issue, this little research on board gender diversity is contrasting. The conflicting international evidence may partly be explained by the fact that prior studies use different board diversity and performance proxies, sample periods and estimation techniques. However, it may also be explained by country and environmental differences.

This study contributes to the literature by examining the link between board gender diversity and financial performance for an African developing economy that has a different economic and cultural environment to developed economies. In this regard, South Africa offers an interesting research context to explore the impact of board diversity on firm performance. South Africa has ethnically diverse populace (made up of people from almost every part of the world, including European Whites or Caucasians, Chinese, Indians, Mixed Race and Black Africans). Examining board diversity under this context can arguably bring new insights that may enrich the board gender diversity and firm performance literature. The study will

contribute to the debate of whether governments should consider adopting quota legislation to increase the number of women in board of directors, such as in Spain, Norway, The Netherlands and France. Distinct to other prior studies, this study will also use theories of corporate governance such as agency, resource-dependence, signalling and stakeholder to explain the nexus between board gender diversity and firm performance.

This study is the first in South Africa to use a panel data over a 10-year period in order to determine the impact of gender diversity on firm performance. There are advantages for using panel data. By combining time series of cross-sectional observations, balanced panel data provides: (i) more degrees of freedom; (ii) less collinearity among variables; (iii) more cross-sectional and time series variability; (iv) more asymptotic efficiency; (v) more informative data; and (vi) account more for observable and unobservable firm-level heterogeneity in individual-specific variables (Gujarati, 2003).

The remainder of the paper proceeds as follows. The next section lays out the literature on the relationship between gender diversity and firm performance, then followed by hypothesis emanating from the literature, research objectives, data and research methodology, descriptive statistics, discussion on the regression results and conclusion.

## Review of literature

*Board gender diversity (BGD)*: Board diversity is one of the under researched board structure variables and yet a topical subject (Carter, D'Souza, Simkins & Simpson, 2010). Surprisingly, few studies have been carried out in the developing countries (Wachudi & Mboya, 2009). These few studies have been conducted in the context of a few developed economies, such as the USA (Adams & Ferreira, 2009), Canada (Francoeur, Labelle & Sinclair-Desgagne, 2008), Germany (Rose, Munch-Madsen & Funch, 2013) and Spain (Martin-Ugedo & Minguez-Vera, 2014).

Notwithstanding, there are mixed theoretical utterances on the impact of board diversity on firm performance: those who argue for greater diversity in boardrooms and those who favour corporate monoculture and boardroom uniformity.

Proponents of diversity in corporate boardrooms usually base their arguments on agency, resource-dependence, signalling and stakeholding theories (Goodstein, Gautum & Boeker, 1994; Carter, Simkins & Simpson, 2010). First, agency theory suggests that board members from diverse backgrounds increase board independence and lead to improved monitoring (Van der Walt & Ingley, 2003). Secondly, a diversity of ideas, perspectives, experience and business knowledge is brought to the decision-making process in boardrooms (Baranchuk & Dybvig, 2009). This can lead to a heightened appreciation of the complexities of the corporate external environment and marketplace. Thirdly, resource-dependence theory indicates that board diversity helps to link a firm to its external environment and to secure critical resources, such as skills, business contacts, prestige and legitimacy (Goodstein *et al.*, 1994). Fourthly, Rose (2007) asserts that a higher degree of board diversity may send out a positive signal to potential job applicants.

However, opponents contend that board diversity can impact negatively on firm performance. First, it is suggested that a more diverse board will not necessarily result in more efficient monitoring and better decision-making. This is because diverse board members from diverse backgrounds may be appointed as tokens, and as such their contributions may be marginalised (Rose, 2007). Secondly, organisation theory indicates that diversity within the board may significantly constrain its efforts to take decisive action and initiate strategic changes, especially in times of poor corporate performance and environmental turbulence (Goodstein, *et al.*, 1994). Thirdly, a diversity of board members could mean that they bring their individual and constituencies' interests and commitments to the board (Baysinger & Butler, 1985). Finally, Rose (2007) argues that the idea that company boards should be constituted to reflect all important stakeholders and society as a whole, is incompatible with the notion of business.

In a panel study of 12 years with a sample of 32 Commercial banks in Kenya from 1998 to 2009, Wachudi and Mboya (2009) found that the board gender diversity has no effect on performance of banks in Kenya. They found that on average, in a typical board size of 8 members, only 1 is female director. In support of a no-effect impact on firm value is Carter *et al.* (2010) study of firms in the S&P 500 index for the 5-year period over the period 1998 to 2002, which reveals that the inclusion of women and ethnic minorities on corporate boards have no effect on firm performance. Contrary to the preceding, Julizaerma and Sori (2012) find a positive association between gender diversity and firm performance. Similarly Oba

and Fodio (2013) find that both female director presence and proportion have positive impact on financial performance. Triana, Miller and Trzebiatowski (2013) provide a different perspective to the debate by suggesting that board gender diversity is double-edged because it can propel or impede strategic change depending on firm performance and the power of women directors. In a study of 354 Indonesian listed firms in 2007, Darmadi (2013) reports that the presence of women in the boardroom negatively and significantly affects both ROA and Tobin's Q.

The South African Employment Equity Act 1998 stipulates that every firm with more than 100 employees should ensure that its labour force, including top management is constituted by a balance between non-whites and whites. Among the non-whites, black men and women are expected to be given special preference. King III and the JSE's Listings Rules do not set any specific targets for firms. However, they suggest that every company should consider whether its board is diverse enough in terms of skills (profession and experience) and demographics (age, ethnicity and gender). This is expected to ensure that the composition of South African corporate boards reflect the diverse South African context, as well as make them effective.

They also encourage firms to comply with the provisions of the Employment Equity Act. This indicates that King III expects board gender diversity to have positive impact on the financial performance of firms.

*H: Board gender diversity is positively related to financial firm performance, as measured by both ROA and the Tobin's Q.*

## Data and Methodology

### Sample data

The initial sample of the present study consisted of 341 firms, the total number of firms listed on the Johannesburg Stock Exchange (JSE) as of 16 August 2012. Firms listed on the Alternative Exchange (AltX) were not considered, because they are subject to different listings, financial reporting and corporate governance requirements. After excluding firms with incomplete data, the final sample consisted 137, which is 40.2 per cent of the JSE listed firms. The financial data, consisting of ROA, was obtained from McGregor BFA datastream. Additionally, from the same source, the data of total assets, shareholders' equity and market capitalization were collected to compute Tobin's Q. Data for board gender was manually collected from published annual reports.

### Methodology

A panel data was used because the sample contained data across firms and over time. The ordinary least squares (OLS) method is used to estimate the relationship between the internal attributes of corporate governance and the measures of performance. We consider some other corporate governance variables which are known to have an effect on firm performance, to be included in the regression model as control variables. These variables are board size, the proportion of independent non-executive directors, director share-ownership, CEO duality, presence of key internal board committees and frequency of board meetings. Additionally, a sensitivity test is conducted on other control variables that have an impact on firm performance. They are firm size (measured by taking the natural logarithm total firm assets), Leverage (measured by the ratio of total debt to assets), Big 4 Audit firm size (a dummy one if firm audited by one of the big 4, otherwise zero) and Big 5 industry (a dummy 1 if firm is in a big 5 industry, otherwise zero). Studies such as (Ntim, 2013; Botosan, 1997; Shockley, 1981; Palmrose, 1986; Sori, Mohamad & Karbhari, 2006; Haniffa & Cooke, 2002; Lim, Matolcsy & Chow, 2007) have reported positive relationship between firm size, leverage, Audit firm size, industry and firm performance.

Therefore the econometric equation to be tested is as follows:

$$FP_{it} = a_0 + (\beta_1 BS)_{it} + (\beta_2 NEDs)_{it} + (\beta_3 CDUAL)_{it} + (\beta_4 BGD)_{it} + (\beta_5 FBMs)_{it} + (\beta_6 PCOM)_{it} + (\beta_7 DEQTY)_{it} + \sum_{k=1}^n (\beta_k CONTROLS)_{it} + \varepsilon_{it} \quad (1)$$

where,  $FP_{it}$  stands for ROA (proxy for accounting based financial performance measure for the  $i$ th firm at time  $t$ ) and Tobin's Q (proxy for the market based financial performance measure for the  $i$ th firm at time  $t$ ),  $BS$  is board size for the  $i$ th firm at time  $t$ ,  $i$   $NEDs$  is outside directors for the  $i$ th firm at time  $t$ ,  $i$   $CDual$  is CEO non-duality for the  $i$ th firm at time  $t$ ,  $FBM$  is frequency of board meetings for the  $i$ th firm at time

$t$ ,  $BGD$  is board gender diversity for the  $i$ th firm at time  $t$ ,  $PCom$  is the presence of key internal board committees for the  $i$ th firm at time  $t$ ,  $DEQTY$  is the director share-ownership for the  $i$ th firm at time  $t$ ,  $Control$  is the  $j$ th control variables for the  $i$ th firm at time  $t$  and  $\varepsilon_{it}$ .

### Robustness tests

This study uses OLS multivariate regressions for hypothesis testing. However, the regression analysis is constrained by several assumptions such as normality, multicollinearity, linearity and homoscedasticity, which the data will be tested against. Although the studentized residual indicates no outliers, Cooks D test show that there are twelve observations which are influential and therefore are deleted from the data. As the outliers have been deleted, all variables of interest show a normal distribution except for frequency of board meetings (FBMs), CEO non-dual or role (CDual), director share-ownership (DEQTY) and the control variable, Big 5 industry (B5I). Thus, the normality test shows no serious problem of normality.

According to Gujarati (2003), multicollinearity may exist whenever the correlation coefficient among particular independent variables exceeds 0.80. As shown in Table IV, none of the pairwise correlations between independent variables are above 0.8, indicating that the likelihood of multicollinearity issues arising in the OLS regressions is low. According to Gozali (2007), Park tests might detect the presence of heteroscedasticity whenever the coefficient of estimates is significant at conventional levels. The results of Park tests reveal that none of the coefficients of the estimates reaches such significance levels and thus the Homocedasticity assumption is not violated. Thus, robustness or sensitivity analyses suggest that the empirical results are generally reported to be robust to potential endogeneity problems.

### Variables

In line with South Africa's King III best practice of corporate governance and prior research, this study includes board gender diversity as a governance measure.

**Table 1.** Definition of variables

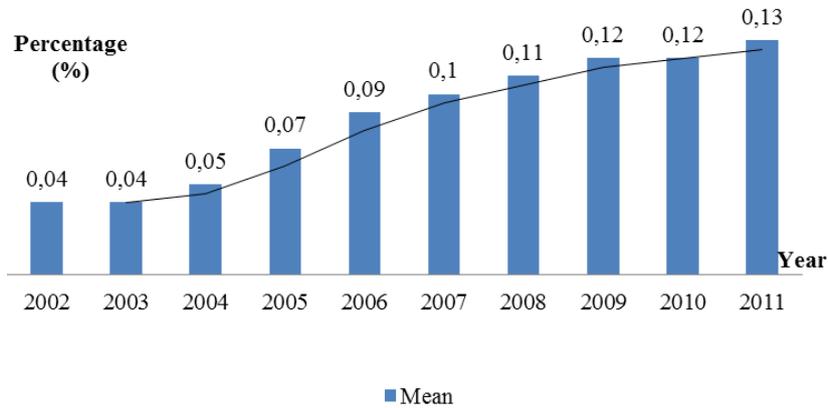
Variable	Definition
<b>Dependent variables</b>	
Return on assets (ROA)	Ratio of profit before taxes to total assets
Tobin's Q	Ratio of a firm's total assets minus its total book value of ordinary equity plus total market value of equity divided by its assets
<b>Independent variables</b>	
Board gender diversity (BGD)	The number of women to total directors in firm's board
<b>Control variables</b>	
Board size (BS)	The total number of directors on the board of a firm
Independent non-executive (INED)	The number of independent non-executive directors to total directors in a firm's board
Frequency of board	The number of times the firm holds board meetings in a financial year meetings (FBMs)
CEO non-duality (CDual)	A binary 1 if CEO and chairperson roles are separate, 0 otherwise
Internal key board committees	A binary 1 if firm has established ALL key board committees, 0 otherwise (PCom)
Director share-ownership	A binary 1 if CEO of firm has shares, 0 otherwise (DEQTY)

### Empirical results

#### Descriptive statistics and correlation of variables

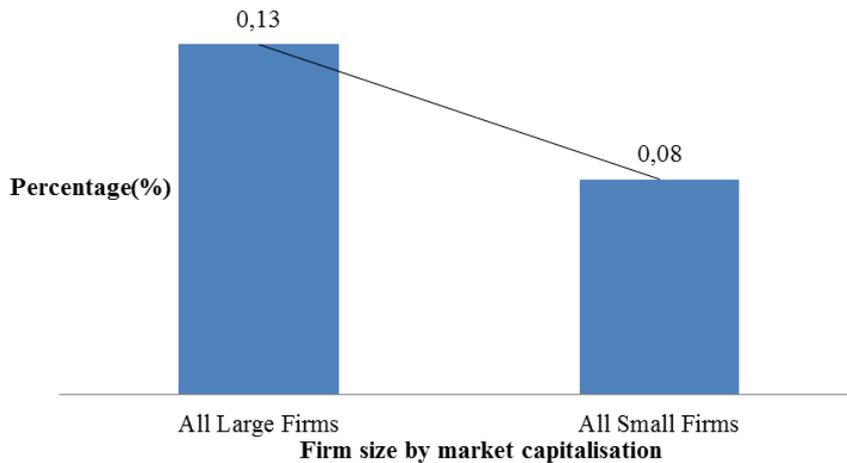
Table 2 shows that the average sampled firm has approximately 9% of its board members as women. This means that the average South African listed firm's board is dominated by males with a representation of 91%. Even though the average of all firms is still very low, Figure 2 indicates that large South African firms seem to have a greater representation of women (13%) in their boards than small firms (8%). Figure 4 shows that the market places a higher value on firms with a high representation of women, which incidentally are larger firms.

**Figure 1.** Mean of board gender diversity for all firms

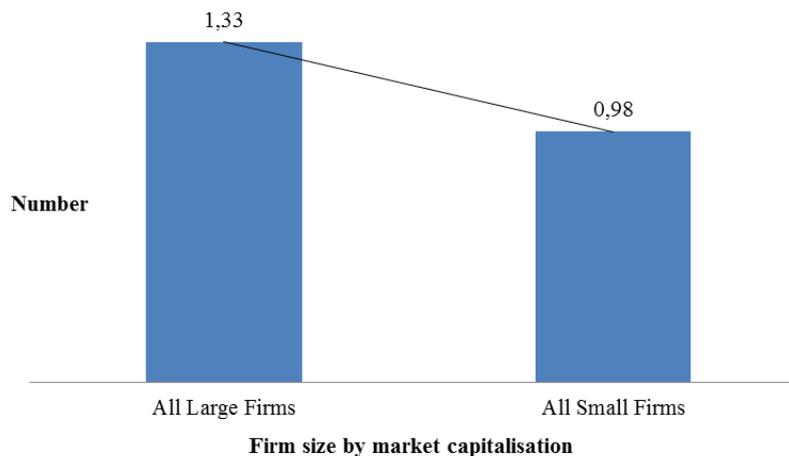


As depicted in Figure 1, board diversity among South African corporate boards has substantially improved over time. For instance, the average sampled firm’s board had only 4% of its members originating from diverse gender backgrounds in 2002. By 2011, it had increased to 13%, a 9 percentage point increase over the 10-year period of examination.

**Figure 2.** Mean of board gender diversity for large and small firms



**Figure 3.** Mean of Tobin’s Q for large and small firms



The table below shows statistics on characteristics of independent variables. Column 1 shows the independent variables and column 2 shows the mean, standard deviation and median

**Table 2.** Descriptive statistics

Independent Variable column (1)	Statistics (2)	All Firms (N=1370) (3)	All Large Firms (N=276) (4)	All Small Firms (N=1094) (5)
BGD	Mean	0,09	0,13	0,08
	Std Dev	0,1	0,09	0,1
	Median	0,08	0,13	0

Notes: Large (Small) firms are those with a market value above (below) the average at the year end

This table below shows statistics on characteristics of dependent variables. Column 1 shows the dependent variables and column 2 shows the mean, standard deviation and median.

**Table 3.** Descriptive statistics

Dependent Variable column (0)	Statistics (1)	All Firms (N=1370) (2)	All Large Firms (N=1094) (3)	All Small Firms (N=276) (4)
ROA	Mean	0.08	0.08	0.08
	Std Dev	0.07	0.07	0.07
	Median	0.08	0.07	0.08
Tobin's Q	Mean	Mean	1.33	0.98
	Std Dev	Std Dev	1.01	0.81
	Median	Median	1.20	0.82

Notes: Large (Small) firms are those with a market value above (below) the average at the year end

**Table 4.** Spearman and Pearson correlation matrix for All (N=1370) sampled firms

	ROA	Tobin's Q	NEDs	FBMs	BGD	CDual	DEQTY	BS	Pcom
ROA		(0.56)***	(-0.11)***	(-0.04)	(0.07)**	(0.09)***	(-0.01)	(0.07)**	(-0.07)**
Tobin's Q	(0.5)****		(0.06)*	(0.09)	(0.09)***	(0.1)***	(0.07)**	(0.15)****	(0.06)*
NEDs	(-0.09)***	(0.08)***		(0.3)****	(0.26)****	(0.07)**	(0.2)****	(0.24)****	(0.46)****
FBMs	(-0.04)	(0.05)	(0.25)****		(0.18)****	(0.09)***	(0.1)	(0.37)****	(0.24)****
BGD	(0.07)**	(0.1)***	(0.25)****	(0.12)****		(0.22)****	(0.09)***	(0.32)****	(0.24)****
CDual	(0.07)***	(0.08)***	(0.08)***	(0.05)*	(0.2)****		(0.28)****	(0.29)****	(0.17)****
DEQTY	(-0.01)	(0.06)**	(0.2)****	(0.04)	(0.06)**	(0.28)****		(0.22)****	(0.17)****
BS	(0.04)*	(0.08)***	(0.21)****	(0.28)****	(0.24)****	(0.25)****	(0.2)****		(0.46)
Pcom	(-0.07)****	(0.08)***	(0.26)****	(0.22)****	(0.21)****	(0.17)****	(0.17)****	(0.43)****	

Notes: the bottom left half of the table presents Pearson's parametric correlation coefficients, while the upper right half presents Spearman's non-parametric correlation coefficients (Coefficient estimates in brackets and p values represented as \*\*\*\* significant at 0.1%; \*\*\* significant at 1%; \*\* significant at 5%; \*significant at 10%)

**Table 5.** A Summary Table of All Hypothesis and Results on All JSE listed Firm

Dependent Variable	Return on Assets (ROA)					Tobin's Q			
	Hypothesis Number	Hypothesized Sign	Actual sign of result	Statistical Significance of result	Conclusion (Hypothesis)	Hypothesized Sign	Actual sign of result	Statistical Significance of result	Conclusion (Hypothesis)
Board Gender diversity	1	+	+	Insignificant	Reject	+	+	Insignificant	Reject

Notes: The Table presents a summary of all the seven hypothesis tested and results for the equilibrium-variable model

**Table 6.** ROA regression estimates of factors influencing internal corporate governance structures

Variable	Expected sign	Parameter estimate	Standard error	P-value
NEDs	+	-0.014	0.010	0.171
FBMs	+	-0.001	0.001	0.538
BGD	+	0.016	0.021	0.446
CND	-	0.013	0.007	0.07227 *
DEQTY	+	-0.007	0.008	0.377
BS	+	0.003	0.001	1.70e-05 ***
PCom	+	-0.013	0.004	0.00488 **
Intercept	?			
Multiple R <sup>2</sup>		0.122		
Adjusted R <sup>2</sup>		0.1127		
F-Statistics		13.13		2.20e-16 ***
Degrees of freedom		1050		

Notes: \*\*\*\* Significant at 0.1%; \*\*\* significant at 1%; \*\* significant at 5%; \* significant at 10%

**Table 7.** Tobin's Q regression estimates of factors influencing internal corporate governance structures

Variable	Expected sign	Parameter estimate	Standard error	P-value
INEDs	+	355.923	115.546	0.00212 **
FBMs	+	16.098	12.618	0.202
BGD	+	126.152	247.921	0.611
CND	-	152.977	81.366	0.06037*
DEQTY	+	39.615	94.465	0.675
BS	+	33.308	7.854	2.42e-05 ***
PCom	+	47.732	52.056	0.359
Intercept	?			
Multiple R <sup>2</sup>		0.1214		
Adjusted R <sup>2</sup>		0.1121		
F-Statistics		13.05		2.20E-16***
Degrees of freedom		1050		

Notes: \*\*\* Significant at 0.1%; \*\* significant at 1%; \* significant at 5%; \* significant at 10%

## Discussion of empirical results

### *Results based on the accounting and market-based measures of financial performance*

Table VI and VII contain OLS multiple regression results for the econometric model based on the accounting-based measure of financial performance (ROA) and market-based measure of financial performance (Tobin's Q). The statistically insignificant relationship between board gender diversity and both performance measures proves that hypothesis one can be rejected, as shown in Table V. This is so because the number of women serving on South African corporate boards is very small that they will not be able to make any significant impact on board decisions. The positive coefficient is also consistent with theory. Adler (2001) reports that board diversity impact positively on accounting returns and Carter *et al.*, 2003 suggest that board diversity increases creativity and innovation in decision-making due to differences in cognitive abilities, which impacts positively on performance. The findings do not lend support to the recommendations of King III and the general efforts in South Africa to diversify corporate boards. As has been explained already, this is empirically less surprising given the small number of women that are currently on South African corporate boards.

### Debate on regression results

In addition to internal attributes of corporate governance, four control variables were included in the regression equations to control the firm-specific characteristics that may affect the performance. Leverage is negatively related to corporate firm performance which indicates that agency issues may lead firms to use higher than appropriate levels of debt, which in turn increase a lender's influence that might limit

managers' ability to manage the operations effectively, hence negatively affecting the performance. The negative relationship between leverage and firm performance is consistent with the findings of Abor and Biekpe (2007) and Sheikh *et al.* (2013).

Industry effects are positively significant to firm performance. The significance of industry effects points to consistent differences in industry structures that are pervasive around the world (Victor & McGahan, 2006). The Big 4 Audit firm size in this study has no effect on firm performance. This is also corroborated by the study of Farouk and Hassan (2014) whose results shows that auditor size and auditor independence has significant impact on the financial performance of quoted cement firms in Nigeria. Firm size has a positive relationship with firm performance. This indicates that large size firms enjoy the benefits of scale economies which in turn positively affect firm performance. The positive relationship between firm size and performance is consistent with the findings of Sheikh, Wang and Khan (2013)

## Conclusions

With no prior comprehensive evidence in South Africa, the study sought to ascertain empirically whether compliance to the South African code of corporate governance, in terms of women representation translates into financial performance. The findings of this study show that the introduction of a code of best practice on corporate governance in South Africa in 2002 has resulted in more companies appointing women in their boards. The study reveals that a compliance level of women representation is higher in large firms than in small firms. Further the study confirms that large firms exhibit greater firm performance than their counterparts. By inference the larger firms could be yielding higher financial returns as a result of a relatively higher number of women in their boardrooms. Notably the results also show that only 9 per cent of the positions in the SA listed boards are occupied by women. Though startling, the number is still higher than Brazilian listed firms which has 5, 4 per cent of women in their boards (Lazzaretti, Godoi, Camilo & Marcon, 2013).

Based on the preceding, the study revealed the several policy implications. First, the findings suggest that regardless of the firm performance measure used, board gender diversity has no statistically significant impact on firm performance in SA. This implies no support for the recommendations of King III and for the general efforts in SA to diversify corporate boards on grounds of gender.

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