THE ASSOCIATION BETWEEN DIVIDENDS AND ACCRUALS QUALITY

Aveen Rampershad
University of South Africa

Charl de Villiers
The University of Auckand, and University of Pretoria

Please cite as:
Rampershad, A. & De Villiers, C. 2019. The Association between Dividends and Accruals Quality, *Australian Accounting Review*, 29(1), 20-35. DOI: 10.1111/auar.12215

Summary at a glance

We examine whether dividend paying status and dividend size are associated with accruals quality. We find that dividend paying status is positively associated with accruals quality and that larger dividend paying firms are associated with better accruals quality, and that this relationship is stronger among firms paying average sized dividends.

Abstract

This paper responds to a specific gap identified in the prior literature by examining whether dividend paying status and dividend size are associated with accruals quality, using three accruals-based earnings quality proxies on a large sample of 2387 firm-year observations over 17 years in a developing economy, South Africa. Univariate tests are also conducted to identify differences in characteristics between dividend and non-dividend paying firms, and large and small dividend paying firms. The paper finds that dividend paying status is positively associated with accruals quality. This association remains robust over sub-groups of firms that differ in size, growth, profitability, age, maturity, leverage, capital intensity and propensity to raise new capital. The prior literature is extended by using quintiles of dividend size to further investigate the association between dividend size and accruals quality. The findings include that larger dividend paying firms are associated with better accruals quality, and that this relationship is stronger among firms that pay average-sized dividends. Additionally, there are significant differences in characteristics between dividend and non-dividend paying firms and between large and small dividend paying firms. Based on these results, policymakers, regulators, legislators and boards may want to explore the use of dividend policy as a corporate governance mechanism..

Keywords – dividend, dividend size, accruals quality, earnings management, earnings quality

INTRODUCTION

Although the dividend signalling hypothesis proposed by Miller and Modigliani (1961) suggests that changes in dividends signal changes in *earnings*, empirical evidence has been inconsistent and inconclusive (e.g., Healy and Palepu 1988; Nissim and Ziv 2001; Grullon *et al.*, 2002; Grullon *et al.* 2005). More recently, motivated by arguments that dividend paying firms need higher earnings quality because they require persistent and authentic earnings to support regular dividend payments (Breeden 2003; Glassman 2005), two studies explore this hypothesis from a different perspective and examine whether dividend paying status and dividend size are associated with accruals quality (Tong and Miao 2011; Sirait and Siregar 2014)[1]. Although both these studies find that dividend paying firms are associated with better accruals quality, Tong and Miao (2011), using United States (US) data, find that larger dividends are associated with higher earnings quality, whereas Sirait and Siregar (2014), using Indonesian data, find that the size of dividends is not associated with accruals quality.

This inconsistency suggests the need for further research, and motivates us to focus our study on the association between *dividend size* and accruals quality. Indeed, Sirait and Siregar (2014) specifically call for further research to address the gap in the extant literature for a study on a large sample, across all industries, in a developing economy. They suggest that US research is not necessarily generalizable to developing economies, because dividend policies differ significantly between economies (Glen *et al*. 1995; Adaoglu 2000; Sirait and Siregar 2014). Further, the US capital market is characterised by a two-tiered structure of dividend payments, with larger firms (first tier) paying the majority of dividends, while there are fewer dividend payers among smaller firms (second tier) (DeAngelo *et al.* 2004). However, in many other countries, for example South Africa (SA) and Australia, both large and small firms tend to pay

[1] Ebrahimpour *et al*. (2013) do something similar, but this study suffers from several shortcomings, including a lack of proper control variables. Therefore, we focus on the two well executed studies.

dividends. Therefore, we investigate whether this cross sectional difference in dividend payers may have contributed to the inconsistent prior findings. We further address the lack of generalizability of Sirait and Siregar's (2014) results by using a *large* sample consisting of all South African listed industrial firms (1996-2012), totalling 2,387 firm-year observations.

Univariate tests indicate that dividend paying firms reflect significantly higher growth, fewer occurrences of losses, higher age (older), greater maturity, lower leverage, lower propensity to raise new capital and lower capital intensity. We also find that firms paying relatively large dividends are bigger, have higher external growth, fewer occurrence of losses, lower age (younger), greater maturity, lower propensity to raise new capital and lower leverage.

Following the prior literature (Tong and Miao 2011; Sirait and Siregar 2014), we use three proxies for accruals quality, namely the (1) absolute value of discretionary accruals *(ADA)*, (2) absolute value of regression residuals associated with the mapping of accruals into cash flows *(AAQ),* and (3) standard deviation of the regression residuals associated with the mapping of accruals into cash flows (*AQ)*. Consistent with the prior research, we find that dividend paying status has a significant positive association with accruals quality, suggesting that dividends signal higher accruals quality, or that dividend payments constrain managers' ability to misappropriate free cash flows, thereby encouraging lower earnings management.

We also find that firms paying larger dividends are associated with better accruals quality. However, when we split the sample into terciles, quartiles, and quintiles, it becomes clear that the relationship is strongest among firms that pay dividends that are average in size. The relationship between dividend size and better accruals quality is not confirmed among firms that pay much larger or much smaller dividends than the norm. These findings clarify the mixed results in the prior literature. We attribute these findings to the wasteful nature of dividends that are too large and too small, and that these large and small dividends are associated with

managers who are more likely to manipulate earnings through accruals management. By contrast average dividend payments may be more efficient and associated with managers who are less likely to engage in such dysfunctional behaviour. Consistent with our findings, Lawson and Wang (2016) find that dividend paying firms are associated with lower audit fees, suggesting that these firms represent lower audit risk engagements, because of a reduced risk of earnings manipulation. Dividend paying firms, and specifically firms that pay average sized dividends may be better managed both in terms of dividend policies and in terms of a lower likelihood of earnings manipulation.

Finally, we find that the association between dividend paying status and accruals quality persists in partitioned samples of firms that are larger and smaller in size, have higher and lower growth, are more/less profitable, more/less mature (in terms of retained earnings), higher/lower leveraged, have a higher/lower predisposition to raise new capital, and have a higher/lower capital intensity. Thus we provide evidence that dividend paying status is strongly associated with accruals quality across firms with different characteristics, something that has not been documented in the prior research.

Our findings should be of interest to investors, creditors, lenders, policymakers, regulators, legislators, boards and researchers. Investors, creditors and lenders would be interested in empirical evidence that dividend paying firms have lower abnormal accruals (higher accruals quality), because this represents lower (investment) risk of misstated earnings. Policymakers, regulators, legislators and boards would be interested in evidence that dividend policy can be used as a corporate governance mechanism to reduce the probability of fraud. Researchers will be interested in our findings, since we provide evidence regarding the dividend signalling hypothesis debate.

Australian firms generally distribute a high proportion of earnings as dividends, because of investor preferences, driven by the full dividend imputation taxation system in Australia (Ho 2003; Coulton and Ruddock 2011; Henry 2011). The opinion has been expressed that introduction of a similar system in the US could prevent another Enron type scandal, because it would encourages higher dividends, which requires authentic earnings (Glassman 2005). Australian and US investors, as well as other stakeholders, would therefore be interested in our empirical evidence that a high dividend environment is associated with higher accruals quality.

Thus, we expect our findings to be relevant to various stakeholders globally and to create a wider awareness that dividend policy can be used as a corporate governance mechanism.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Literature review

"Dividend policy" refers to the strategy a firm selects when adopting a dividend pay-out ratio and there are broadly three categories. Firstly, firms can calculate dividends as a percentage of earnings (target pay-out ratio). This leads to volatile dividends when earnings are unstable and is more prevalent in developing economies (Glen *et al.* 1995; Adaoglu 2000). Secondly, firms can maintain a relatively stable or "smooth" dividend, which is common in developed economies such as the US, where more efficient markets are likely to react swiftly and negatively to dividend volatility (Lintner 1956; Glen *et al.* 1995; Adaoglu 2000; Skinner and Soltes 2011). Thirdly, firms can retain capital and not pay dividends.

DeAngelo *et al.* (2004) find that a small number of large firms with high earnings contribute the majority of aggregate dividends paid in the US and the vast majority of smaller firms contribute modestly to this pool, prompting DeAngelo *et al.* (2004) to call this a *"two-tiered"* structure. Makka (2014) replicates the study by DeAngelo *et al.* (2004) in SA and finds that a

"two-tiered" structure does *not* exist in SA, because the distinction between large and small firms' contribution to aggregate dividends paid is not as pronounced. Taken together, we theorise that these two differences in dividend policy and "cross-section" of dividend payers, may influence the association between dividend paying status, dividend size and accruals quality.

Using a sample of 51 industrial firms between 1905 and 1910, Sivakumar and Waymire (1993) find that in a time with limited mandatory accounting disclosure, favourable earnings reports were not perceived as credible unless accompanied by dividend pay-outs. This suggests that dividends act as an indicator of earnings quality. More recently, studies on the association between dividends and earnings quality (Farinha and Moreira 2007; Skinner and Soltes 2011; Tong and Miao 2011; Caskey and Hanlon 2013; Sirait and Siregar 2014) theorise that dividend paying firms have an association with earnings quality and use different proxies to measure earnings quality. Caskey and Hanlon (2013) select alleged fraud as their proxy and find that fraudulent firms are less likely to pay or increase dividends both *prior* to and *during* the fraud. This proxy cannot be used in SA for lack of a database of fraudulent firms.

Skinner and Soltes (2011) use earnings persistence as their proxy, and find that dividend paying firms have more persistent earnings than non-dividend paying firms. The caveat is that firms experiencing transitory losses driven by isolated events will reflect low earnings persistence, but may have high earnings quality (Tong and Miao 2011). Since there is a high incidence of transitory losses in our sample, we are discouraged from using this proxy. The number of firms in our sample range between 79 (1996) and 215 (2011). Of these, 134 firms (62 percent) incur a transitory loss (loss in at least one year) over our sample period of 17 years.

According to Dechow et al. (2010), different proxies of earnings quality test different constructs and the model selected should merit its specific use in the study. Following this

assertion, we focus our study on the association between dividends and accruals quality and further motivate our choice. Accruals comprise *both* non-discretionary and discretionary accruals and the former captures adjustments that better reflect firm performance, while the latter captures distortions induced by earnings management (Dechow *et al.* 2010). Thus, if accruals are used to boost earnings, this will be exposed, because the underlying cash flows required to pay dividends will be inadequate and such firms will be unable to maintain their dividend pay-out policy. *Both* accruals and the payment of dividends are within the control of managers, thus we consider accrual-based models most appropriate in the context of our study.

Tong and Miao (2011) use the performance modified Jones (1991) model and the modified Dechow and Dichev (2002) model, which yield three proxies that complement each other and corroborate and triangulate inferences that can be drawn on the association between dividends and accruals quality. Tong and Miao (2011) find that dividend paying status is associated with earnings quality and that when dividend size is larger (smaller), earnings quality is stronger (weaker). Their sample of 10 661 firm-year observations includes all listed industrial firms in the US between 1993 and 2004.

Sirait and Siregar (2014) use the same models, however, their sample of 450 firm-year observations is considerably smaller and consists of 90 firms listed on the Indonesia Stock Exchange from only *one* industry (manufacturing), over a short sample period of five years (2005 to 2009). They similarly find a positive association between dividend paying status and earnings quality, but find that dividend size is *not* associated with earnings quality. They emphasize that their sample is not generalizable and call for a study on a larger developing economy sample.

Lawson and Wang (2016) examine whether dividends provide information to auditors in mitigating concerns over their clients' earnings quality. They find that dividend paying firms are associated with lower audit fees, suggesting that these firms represent lower audit risk.

Hypotheses development

Following Tong and Miao (2011) and Sirait and Siregar (2014), we base our hypotheses on two theoretical frameworks that are difficult to disentangle in our particular study.

Agency theory holds that reducing free cash flows leaves less cash available for management misappropriation and induces higher levels of monitoring of managers by capital markets (Easterbrook 1984; Jensen 1986). Therefore, managers in dividend paying firms have less cash available to manipulate accruals, because earnings must be authentic and sustainable to support consistent dividend payments. Or simply, accruals can only adjust the recognition of cash flows over time, but cannot support cash outflows if earnings are inadequate (Dechow and Dichev 2002).

Miller and Modigliani (1961) hypothesise that dividends signal that earnings are likely to be sustainable and authentic because sustained dividend payments are dependent on the permanent component of earnings. This is known as the "information content of dividends" hypothesis or the "dividend signalling" hypothesis. The prior literature finds that managers are reluctant to cut dividends for fear of negative market reaction (Lintner 1956; Brav *et al.* 2005), suggesting that managers will not follow a policy of paying dividends if they know *ex ante* it cannot be sustained. Taken together, we theorise that dividends signal higher accruals quality because abnormal accruals cannot indefinitely hide inadequate cash flows required for consistent dividend payments.

We therefore express our first hypothesis in the alternate form, as:

Hypothesis 1: *Dividend paying status is positively associated with accruals quality.*

Whilst Tong and Miao (2011) find that firms paying larger dividends are associated with higher accruals quality, Sylvia and Sirait (2014) find that dividend size is not associated with accruals quality. Due to the prior inconsistency in findings, we express our second hypothesis in the null form, as:

Hypothesis 2: *Dividend size is not associated with accruals quality.*

RESEARCH DESIGN

Accruals quality variables

We follow the prior literature (Tong and Miao 2011; Sirait and Siregar 2014) and select the performance modified Jones (1991) and the modified Dechow and Dichev (2002) model.

The performance modified Jones (1991) model

Our first proxy for accruals quality is *ADA* and is derived from the modified Jones (1991) model, further amended for performance by Kothari *et al.* (2005), who add return on assets *(ROA)* to control for profitability. This model is recommended in samples of high performance firms such as dividend paying firms, and we estimate equation (1) for each firm-year observation, ensuring at least five firm-year observations per industry per year:

$$TACC_{it} = \beta_0 + \beta_1 1/ASSET + \beta_2(\Delta SALES_{i,t} - \Delta AR_{i,t}) + \beta_3 PPE_{i,t} + \beta_4 ROA_{i,t} + \epsilon_{it} \quad (1)$$

All variables are defined in Appendix A. Variables are scaled by average total assets for the year. *ADA* is the measure of accruals quality represented by the residual in equation (1). Higher values of *ADA* indicate higher abnormal accruals, thus *lower* accruals quality.

The modified Dechow and Dichev (2002) model

This model measures the extent to which accruals map into cash flow realisations. McNichols (2002) further enhance this model by adding sales growth to reflect performance and *PPE* to include depreciation. Following the prior literature (Tong and Miao 2011; Sirait and Siregar 2014), we derive two measures of accruals quality from this model, namely *AAQ* and *AQ*, and use this modified Dechow and Dichev model to estimate equation (2) for each firm-year observation, ensuring at least five firm-year observations per industry per year:

$$CACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta SALES_{i,t} + \beta_5 PPE_{i,t} + \epsilon_{i,t} \quad (2)$$

All variables are defined in Appendix A. All variables are scaled by average total assets. *AAQ* is represented by the residual in equation (2), and *AQ* is the standard deviation of *AAQ* between the current year (t) and the fourth prior year (t-4). Higher values of *AAQ* and *AQ* represent *higher* abnormal accruals, thus lower accruals quality.

CACC is calculated as follows:

$$CACC_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta ST\_DEBT_{i,t} \quad (3)$$

All variables are defined in Appendix A.

Dividend variables

To test whether dividend paying status is positively associated with accruals quality (Hypothesis 1) in equation (4), we follow the prior literature (Tong and Miao 2011; Sirait and Siregar 2014) and use a dummy variable *(DIV)* coded 1 for firm-year observations when a dividend is paid, and 0 for no dividend.

To test whether dividend size is associated with accruals quality (Hypothesis 2), we firstly calculate the dividend pay-out ratio *(DPR)* as dividends per share divided by earnings per share.

Next, we partition firm-year observations of dividend paying firms into quintiles, where *DIV_Q1* is a dummy variable coded 1 for observations in the lowest quintile, and 0 for all other observations, including all other quintiles of dividends, and no dividends. Similarly, we use dummy variables *DIV_Q2*, *DIV_Q3, DIV_Q4* and *DIV_Q5* to represent successively higher quintiles. In untabulated tests, we follow the same methodology and further test terciles and quartiles of dividend paying firms. As an additional test we also define average dividends (*AVG_DIV*) as a dummy variable coded 1 for observations in the middle tercile and 0 otherwise, and use a *reduced sample* of only dividend paying firm-year observations to test whether there are significant differences between average and non-average dividends.

Next we repeat tests in the prior literature (Tong and Miao 2011; Sirait and Siregar 2014) and replace quintiles with large and small dividends and follow definitions for outliers, large dividends and small dividends. Observations with a *DPR* exceeding 2.0 are outliers, large dividends (*LARGE_DIV*) have a *DPR* greater than 0.25 but less than 2.0 and small dividends (*SMALL_DIV*) have a *DPR* less than 0.25. *LARGE_DIV* is a dummy variable coded 1 for large dividends and 0 otherwise (small dividends, no dividends and outliers). Similarly, *SMALL_DIV* is a dummy variable coded 1 for small dividends and 0 otherwise (large dividends, no dividends and outliers). Finally, in untabulated results, we replace the *DPR* of 0.25 with the mean *DPR* and similarly define large (*LARGE_DIV*) and small dividends (*SMALL_DIV*).

Our accruals quality proxies (*ADA, AAQ* and *AQ)* represent abnormal accruals; therefore *larger* values represent *lower* accruals quality (*higher* earnings management) in our study. Thus a *negative* coefficient on a control variable signifies a *positive* association with accruals quality, whereas a *positive* coefficient signifies a *negative* association.

Control variables

We follow Tong and Miao (2011) by including control variables for size *(SIZE)*, external growth *(BTM)*, internal growth *(SGROWTH)*, performance *(ROA)*, loss *(LOSS)*, age *(AGE)*, maturity *(RE)*, propensity to raise finance *(FIN)*, leverage *(LEV)* and capital intensity *(CAPITAL)*. We also control for industry *(IND)* and year *(YEAR)* effects using dummy variables. All variables are defined in Appendix A. We further discuss our predicted signs on the coefficients of these control variables.

Recent studies find that size *(SIZE)* is positively associated with accruals quality because larger firms can afford better internal controls (Dechow *et al.* 2010). Therefore, we expect a negative coefficient on size. Higher growth firms are more likely to manipulate earnings to mimic steady growth rates (McNichols 2002; Dechow *et al.* 2010), thus we expect a positive coefficient on sales growth *(SGROWTH)*. The book-to-market (*BTM)* ratio is inversely related to growth because higher share prices (market values) reflect a lower *BTM*, thus we expect a negative coefficient on *BTM*.

The prior literature finds weak financial performance and loss-making is an incentive to manage earnings upwards to enhance profitability and avoid negative market reaction (Dechow *et al.*, 2010). We control for performance using return on assets *(ROA)* and loss *(LOSS)* and expect a positive coefficient on these.

Wang (2006) finds that earnings of older firms are less informative and represent lower earnings quality, whereas Tong and Miao (2011) find mixed results. In SA, many new firms listed during our sample period, thus we do not predict a sign on age *(AGE)*. Mature firms are likely to experience steady growth and higher accruals quality (Dechow *et al.* 2010) and we use retained earnings *(RE)* as our proxy and predict a negative coefficient. These proxies

complement each other since an older firm (higher *AGE*) could have lower maturity (lower *RE)* if it has not been profitable.

Dechow *et al*. (2010) find that firms with a higher propensity to raise finance *(FIN)* have greater incentives to influence debt and equity markets and are therefore more likely to manage earnings, thus we predict a positive coefficient on *FIN*. Highly leveraged firms are more likely to manage earnings to avoid violating debt covenants (Dechow 2010), and we expect a positive coefficient on leverage *(LEV)*. Capital intensive firms are more likely to raise finance to acquire assets than non-capital intensive firms (Leuz and Verrecchia 2000), thus we predict a positive coefficient on *CAPITAL*.

Regression models

H1: We use the following regression model to examine the association between dividend paying status and accruals quality, while controlling for ten variables shown to have an association with accruals quality:

$$ACQ_{i,t} = \beta_0 + \beta_1 DIV_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 BTM_{i,t} + \beta_4 SGROWTH_{i,t} + \beta_5 ROA_{i,t} + \beta_6 LOSS_{i,t}$$
$$+\beta_7 AGE_{i,t} + \beta_8 RE_{i,t} + \beta_9 FIN_{i,t} + \beta_{10} LEV_{i,t} + \beta_{11} CAPITAL_{i,t} + industry\ dummies$$
$$+ year\ dummies + \epsilon_{i,t} \quad (4)$$

$ACQ_{i,t}$ is accruals quality measured by three proxies, namely *ADA, AAQ* and *AQ*. We expect to find a *negative* coefficient on *DIV*, indicating that dividend paying firms have higher accruals quality than non-dividend paying firms, as indicated by lower values of *ADA, AAQ* and *AQ*.

H2: To test whether dividend *size* is associated with accruals quality, we use quintiles of dividends paid, and replace *DIV* in equation (4) with *DIV_Q1 (lowest quintile), DIV_Q2, DIV_Q3, DIV_Q4* and *DIV_Q5 (highest quintile)* to arrive at equation (5).

The adjusted model is as follows:

$$ACQ_{i,t} = \beta_0 + \beta_1 DIV\_Q1_{i,t} + \beta_2 DIV\_Q2_{i,t} + \beta_3 DIV\_Q3_{i,t} + \beta_4 DIV\_Q4_{i,t} + \beta_5 DIV\_Q5_{i,t}$$
$$+ \beta_6 SIZE_{i,t} + \beta_7 BTM_{i,t} + \beta_8 SGROWTH_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} LOSS_{i,t} + \beta_{11} AGE_{i,t}$$
$$+ \beta_{12} RE_{i,t} + \beta_{13} FIN_{i,t} + \beta_{14} LEV_{i,t} + \beta_{15} CAPITAL_{i,t} + industry\ dummies$$
$$+ year\ dummies + \epsilon_{i,t} \quad (5)$$

We also follow Tong and Miao (2011) and Sirait and Siregar (2014) and replace *DIV* in equation (4) with *LARGE_DIV* and *SMALL_DIV* and use an *F-test* to determine whether there is a significant difference between the two coefficients.

SAMPLE SELECTION

We start with an *initial* sample of approximately 20 years of all firm-year observations from January 1995 through to February 2014 available on the INET BFA database, the largest provider of stock market and fundamental research data in SA. Table 1 reflects the filtering of our initial sample to arrive at our final sample.

Next, we follow the prior literature (Fama and French 2001; Skinner and Soltes 2011; Tong and Miao 2011) and exclude firms in the financial services industry (ICB industry codes 8000-8999) and firms in the utilities or regulated industries (ICB industry codes 7000-7999).

We exclude firm-year observations that lack sufficient data to compute variables required by the performance modified Jones (1991) model and the modified Dechow and Dichev (2002) model.

We next exclude observations where the financial year is not equal to twelve months to ensure income statement figures are comparable. Finally, we exclude firm-year observations where there are fewer than five firm-year observations per industry per year, to exclude observations

for which the cross-sectional regression-model-based discretionary accrual estimates are likely to be imprecise (Kothari *et al.* 2005).

Collectively these filters result in a *final* sample of 2387 firm-year observations between 1996 and 2012 (seventeen years).

TABLE 1
Sample selection

Initial sample	4522
Firms in financial services industry	(1059)
Firms in utilities industry	(8)
Firm-year observations with insufficient data to estimate accruals based models	(803)
Firm-year observations that report for a period other than 12 months	(164)
Firm-year observations where there are fewer than five per industry per year	(101)
Sample used to test *ADA* and *AAQ*	2387
Firm-year observations lost from calculating four lagged years of data (t-4) for *AQ*	(926)
Sample used to test *AQ*	1461

The sample consists of 2387 firm-year observations from 1996 to 2012 which is used to test the *ADA* and *AAQ* accruals quality proxies, and 1461 observations from 2000 to 2012 to test the *AQ* accruals quality proxy. The smaller sample size to test *AQ* is due to differences in data availability.

Following Tong and Miao (2011), we include a third proxy, *AQ*. However, *AQ* requires four years of prior data because it is the standard deviation of *AAQ* between the current year (t) and prior four years (t-4). This accordingly reduces our sample to test *AQ* to 1461 firm-year observations between 2000 and 2012 (thirteen years).

RESULTS

Descriptive statistics

Table 2, Panel A portrays trends in the dividend paying characteristics of our firm-year observations, i.e. showing large dividend, small dividend, total dividend and total non-dividend paying firms during each of the years between 1996 and 2012. The panel shows a steady

increase in the number of Johannesburg Stock Exchange listed firms and corresponding increases in dividend and non-dividend paying firms.

Table 2, Panel B shows our sample composition. To test the association between dividend paying status and accruals quality proxies *ADA* and *AAQ* (Hypothesis 1), we use a total sample of 2387 firm-year observations between 1996 and 2012, which include 1553 (65 percent) dividend paying firms and 834 (35 percent) non-dividend paying firms. The total sample to test *AQ* comprise 1461 observations between 2000 and 2012, of which 1046 (72 percent) are dividend paying firms and 415 (28 percent) are non-dividend paying firms. To test Hypothesis 2, we exclude outliers from our sample of dividend paying firm-year observations to arrive at 1535 firm-year observations, and thereafter compute quintiles of dividends to test the association between dividend size and accruals quality. Each quintile comprises 307 firm-year observations. To further test the association between accruals quality and large and small dividends, we exclude outliers from large dividend paying firms and arrive at 1147 large dividend and 388 small dividend firm-year observations to test *ADA* and *AAQ*; and 771 large dividend and 260 small dividend firm-year observations to test *AQ*.

In untabulated results, we find that *DIV* is significantly correlated with all our accruals quality variables (*ADA*, *AAQ* and *AQ*) and certain control variables. We test for multicollinearity among our ten control variables and find that the Variance Inflation Factors (VIFs) are all well below the accepted norm of five for all the variables. Hence multicollinearity is not a problem that needs to be addressed in our regression models.

TABLE 2
Descriptive statistics

Panel A: Trends in large, small and non-dividend paying firm-year observations between 1996 and 2012

Year	Large dividend paying firms	Small dividend paying firms	Total dividend paying firms	Total non-dividend paying firms	Total firm-year observations
1996	48	19	67	12	79
1997	53	16	69	14	83
1998	50	14	64	15	79
1999	59	16	75	18	93
2000	42	19	61	50	111
2001	54	17	71	49	120
2002	56	23	79	49	128
2003	56	27	83	42	125
2004	66	18	84	44	128
2005	75	20	95	41	136
2006	72	24	96	38	134
2007	78	21	99	50	149
2008	79	34	113	69	182
2009	84	31	115	88	203
2010	97	28	125	89	214
2011	96	31	127	88	215
2012	100	30	130	78	208
Total	**1165**	**388**	**1553**	**834**	**2387**

Panel B: Sample composition to test Hypotheses 1 and 2

	ADA	%	*AAQ*	%	*AQ*	%
Dividend paying firms – large dividends	1147	48%	1147	48%	771	53%
Dividend paying firms – small dividends	388	16%	388	16%	260	18%
Dividend paying firms excluding outliers	1535	64%	1535	64%	1031	71%
Dividend paying firms - Outliers	18	1%	18	1%	15	1%
Total dividend paying firms	1553	65%	1553	65%	1046	72%
Non-dividend paying firms	834	35%	834	35%	415	28%
Total sample to test Hypotheses 1 and 2	2387	100%	2387	100%	1461	100%

The sample consists of 2387 firm-year observations from 1996 to 2012 which is used to test the *ADA* and *AAQ* accruals quality proxies, and 1461 observations from 2000 to 2012 to test the *AQ* accruals quality proxy. The smaller sample size to test *AQ* is due to differences in data availability. Large dividends have a *DPR* greater than 0.25 but less than 2.0 (outliers), and small dividends have a *DPR* less than 0.25. Panel A reflects 1165 firm-year observations of large dividend paying firms that include 18 observations of outliers.

Univariate results

Univariate tests to compare dividend and non-dividend paying firms

Panel A, Table 3 reflects univariate results that dividend paying firms have significantly higher (at one percent level) accruals quality than non-dividend paying firms. Specifically, the mean differences between these groups are 0.015 for *ADA*, 0.023 for *AAQ* and 0.015 for *AQ*.

TABLE 3
Univariate results - Dividend paying status

Panel A: Accruals quality proxies

	Dividend paying firms		Non-dividend paying firms		Analysis of means		
Variables	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Difference in means**	**p-value**	
ADA	0.061	0.066	0.076	0.082	-0.015	0.000	***
AAQ	0.061	0.067	0.083	0.097	-0.023	0.000	***
AQ	0.052	0.041	0.068	0.053	-0.015	0.000	***

Panel B: Control variables

	Dividend paying firms		Non-dividend paying firms		Analysis of means		
Variables	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Difference in means**	**p-value**	
SIZE	14.525	1.962	12.798	2.183	1.727	0.161	
BTM	1.119	2.470	1.496	2.865	-0.377	0.004	***
SGROWTH	0.183	0.618	0.463	2.148	-0.280	0.000	***
ROA	0.147	0.157	0.013	0.259	0.135	0.000	***
LOSS	0.040	0.196	0.327	0.470	-0.287	0.000	***
AGE	5.616	0.841	5.450	0.799	0.166	0.000	***
RE	0.385	0.393	-0.440	2.483	0.825	0.000	***
FIN	0.401	0.490	0.454	0.498	-0.053	0.000	***
LEV	0.345	0.861	0.950	2.257	-0.605	0.000	***
CAPITAL	0.297	0.436	0.482	0.991	-0.185	0.000	***

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Significance levels are based on *t-tests* for mean differences. See Appendix for definitions of variables. The sample consists of 2387 firm-year observations from 1996 to 2012 that is used to test *ADA* and *AAQ*. This comprises 1553 dividend paying and 834 non-dividend paying firm-year observations. The sample for *AQ* consists of 1461 observations (1046 dividend paying and 415 non-dividend paying firm-year observations) from 2000 to 2012 due to differences in data availability.

Panel B, Table 3 reports univariate results on mean differences between firm characteristics of dividend and non-dividend paying firms. We find significant differences (at the one percent level) in the means of all firm characteristics, except for firm size (*SIZE).* The size *(SIZE)* of dividend and non-dividend paying firms does not differ significantly, which is *contrary* to findings in the US. This appears consistent with previous findings that there is a *"two-tiered"* structure in the US (DeAngelo *et al.* 2004), where large firms pay the majority of aggregate dividends, whereas both large and small firms pay dividends in SA (Makka 2014).

Dividend paying firms have significantly higher external growth *(*lower *BTM)* but significantly lower internal growth *(SGROWTH),* suggesting that investors find stable growth of dividend paying firms more attractive (higher share prices and lower *BTM*). Non-dividend paying firms grow at faster internal rates *(*higher *SGROWTH),* supporting the view that rapidly growing firms retain cash for growth and expansion. This is consistent with US findings (Fama and French, 2001).

Dividend paying firms are significantly more profitable and less likely to incur losses *(*higher *ROA* and lower *LOSS*). Both findings are consistent with evidence on US firms (Fama and French 2001; DeAngelo *et al.* 2004).

Non-dividend paying firms are significantly younger *(*lower *AGE)* and less mature *(*lower *RE).* This suggests that younger and less mature firms prefer to retain cash for growth, while older and mature firms are more likely to pay dividends. This is consistent with findings of De Angelo *et al.* (2004).

Non-dividend paying firms are more likely to be highly leveraged (higher *LEV*), have higher propensity to raise new capital (higher *FIN*) and have higher capital intensity *(*higher *CAPITAL).*This is consistent with the prior literature that these firms borrow more to fund higher growth rates and asset purchases (Fama and French 2001).

We thus contribute to the paucity of literature on dividends in SA by identifying differences between dividend and non-dividend paying firms.

Univariate tests to compare large and small dividend paying firms

TABLE 4

Univariate results - Dividend size

Panel A: Accruals quality proxies

	Large dividend paying firms		Small dividend paying firms		Analysis of means		
Variables	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Difference in means**	**p-value**	
ADA	0.058	0.057	0.069	0.086	-0.011	0.000	***
AAQ	0.058	0.065	0.067	0.073	-0.009	0.004	***
AQ	0.051	0.042	0.057	0.038	-0.006	0.849	

Panel B: Control variables

	Large dividend paying firms		Small dividend paying firms		Analysis of means		
Variables	**Mean**	**Standard deviation**	**Mean**	**Standard deviation**	**Difference in means**	**p-value**	
SIZE	14.590	1.905	14.306	2.067	0.284	0.059	*
BTM	1.013	2.428	1.456	2.618	-0.443	0.002	***
SGROWTH	0.171	0.672	0.226	0.430	-0.055	0.150	
ROA	0.154	0.157	0.131	0.158	0.023	0.557	
LOSS	0.015	0.121	0.111	0.314	-0.096	0.000	***
AGE	5.565	0.870	5.754	0.728	-0.189	0.003	***
RE	0.388	0.374	0.375	0.436	0.013	0.053	*
FIN	0.386	0.487	0.446	0.498	-0.060	0.001	***
LEV	0.270	0.627	0.571	1.317	-0.301	0.000	***
CAPITAL	0.293	0.428	0.314	0.468	0.021	0.239	

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Significance levels are based on *t-tests* for mean differences. See Appendix for definitions of variables. The sample consists of 1535 firm-year observations of dividend paying firms from 1996 to 2012 that is used to test *ADA* and *AAQ*. This includes 1147 large dividend and 388 small dividend firm-year observations. The sample for *AQ* consists of 1031 firm-year observations from 2000 to 2012 due to differences in data availability (771 large dividend and 260 small dividend firm-year observations).

Panel A, Table 4 illustrates univariate results that accruals quality is significantly higher for firms that pay large dividends on *only* two of our three accruals quality proxies, namely *ADA* and *AAQ* (at the one percent level). These differences are not as strong as differences between

dividend and non-dividend paying firms and suggests that dividend paying status is more strongly associated with accruals quality than dividend size. We investigate this later with regression analysis for stronger evidence.

Panel B, Table 4 reports that the means on seven firm characteristics are significantly different (at levels varying between one and ten percent) between large and small dividend-paying firms. The three exceptions are sales growth (*SGROWTH),* return on assets *(ROA)* and capital intensity (*CAPITAL).* In relation to small dividend paying firms, large dividend paying firms are larger (greater *SIZE*), have higher external growth (lower *BTM*), lower occurrence of losses (lower *LOSS*), lower age (lower *AGE*), higher maturity (higher *RE*), lower predisposition to raise finance (lower *FIN*) and lower leverage (lower *LEV*). These differences resemble several differences between dividend and non-dividend paying firms.

Regression analysis

Hypothesis 1: dividend paying status is positively associated with accruals quality

Table 5 presents the results from multivariate regression analysis that tests the association between dividend paying status and accruals quality (Hypothesis 1).

The coefficient on our variable of interest *(DIV)* is significantly negative for all three accruals quality proxies and reflects coefficients of -0.006 for *ADA*, -0.012 for *AAQ* and -0.008 for *AQ*. Specifically, this indicates that dividend paying firms are associated with significantly lower absolute values of discretionary accruals (*ADA*), significantly lower absolute values of regression residuals associated with the mapping of accruals into cash flows (*AAQ*), and significantly lower standard deviations of regression residuals associated with the mapping of accruals into cash flows (*AQ*). This supports Hypothesis 1 that dividend paying status is significantly positively associated with accruals quality.

TABLE 5

Regression result for Hypothesis 1 - dividend paying status (equation 4)

Variables	Predicted Sign	*ADA* Coefficient	*ADA* p-value		*AAQ* Coefficient	*AAQ* p-value		*AQ* Coefficient	*AQ* p-value	
Intercept	+/-	0.119	0.000	***	0.101	0.000	***	0.059	0.000	***
DIV	-	-0.006	0.082	*	-0.012	0.002	***	-0.008	0.006	***
SIZE	-	-0.005	0.000	***	-0.002	0.007	***	-0.002	0.000	***
BTM	-	-0.000	0.937		-0.001	0.112		0.001	0.053	*
SGROWTH	+	0.002	0.054	*	0.001	0.364		0.001	0.424	
ROA	+	0.070	0.000	***	0.030	0.004	***	0.064	0.000	***
LOSS	+	0.007	0.209		0.020	0.001	***	0.018	0.000	***
AGE	+/-	0.003	0.126		0.000	0.914		0.005	0.000	***
RE	-	-0.005	0.000	***	-0.001	0.654		-0.009	0.000	***
FIN	+	0.011	0.000	***	0.014	0.000	***	0.003	0.255	
LEV	+	0.003	0.016	**	0.002	0.119		-0.000	0.910	
CAPITAL	+	-0.001	0.700		0.006	0.023	**	-0.002	0.515	
INDUSTRY DUMMIES		Included			Included			Included		
YEAR DUMMIES		Included			Included			Included		
n		2387			2387			1461		
Adj. R^2 (percent)		10.5			7.6			15.6		
F-statistic		9.517			6.939			10.674		
Prob. (F-statistic)		0.000***			0.000***			0.000***		

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively. See Appendix for definitions of variables. The sample consists of 2387 observations from 1996 to 2012 that is used to test *ADA* and *AAQ*. This comprises 1553 dividend paying and 834 non-dividend paying firm-year observations. The sample for *AQ* consists of 1461 observations (1046 dividend paying and 415 non-dividend paying firm-year observations) from 2000 to 2012 due to differences in data availability.

As an additional test (untabulated), we exclude *DIV* from equation (4) and find that the adjusted R^2 decreases for *ADA* by 0.1 percent, *AAQ* by 0.3 percent, and for *AQ* by 0.4 percent. According to the relevant *F-test*, these decreases are all statistically significant as follows: *ADA* at the ten percent level (F = 3.022; p = 0.082), *AAQ* at the one percent level (F = 9.508; p = 0.002), and *AQ* at the one percent level (F = 7.659; p = 0.006). This suggests that dividend paying status is associated with accruals quality because it improves the overall explanatory power of the model as measured by the adjusted R^2.

Our overall findings support the dividend signalling hypothesis because the payment of dividends is associated with higher accruals quality, i.e. dividend paying firms (which is easy

to observe) are likely to have a higher accruals quality (which is not easy to observe). Our findings also support agency theory because dividend payments appear to constrain earnings management by reducing cash available for management misappropriation.

Findings on coefficients of control variables

The signs on all significant coefficients are consistent with our previous predictions and the prior literature, with the exception of a positive *BTM* coefficient for *AQ*, significant at only the ten percent level. We further comment on certain evidence of differences between developing and developed economies.

We find a significant negative coefficient on *SIZE* which suggests that larger firms in SA are associated with higher accruals quality. Coefficients on *ROA* and *LOSS* are positive and significant, which indicates that profitable firms in SA are generally associated with higher accruals quality.

We find a positive significant coefficient on *AGE* suggesting that younger firms are associated with higher accruals quality. This is consistent with findings of Sirait and Siregar (2014) in a developing economy but contrary to findings of Tong and Miao (2011) in a developed economy. Searching for possible reasons, we venture the following explanation. Untabulated findings show that the number of Johannesburg Stock Exchange listed firms grew from 128 (1995) to 328 (2013). This increase of 200 firms informs us that most firms in our sample are relatively young, which may be a phenomenon of developing markets. In comparison, a developed economy like the US may have relatively older firms. We find a significant negative coefficient on firm maturity (*RE)*. Taken together, our findings suggest that younger firms with higher levels of retained earnings are associated with higher accruals quality than older firms with lower levels of retained earnings.

We find positive significant coefficients on *FIN*, *LEV* and *CAPITAL* which suggests that firms with higher capital intensity, higher leverage and higher propensity to borrow, are associated with lower accruals quality.

Hypothesis 2: the association between dividend size and accruals quality

Table 6 presents results from the multivariate regression analysis that tests the association between dividend size and accruals quality (Hypothesis 2).

Table 6 reflects that the coefficients (between -0.013 and -0.022) on the average quintile, Quintile 3 (*DIV_Q3*), are higher than for other quintiles, and are most significantly associated (at the one percent level) with *all three* accruals quality proxies (*ADA*, *AAQ* and *AQ*). Quintile 4 (*DIV_Q4*) reflects the next highest negative coefficients (between -0.011 and -0.012) and is the next quintile most significantly associated with *all three* accruals quality proxies (*ADA*, *AAQ* and *AQ*), at levels varying between one and ten percent. Quintile 2 (*DIV_Q2*) reflects the next most negative coefficients (between -0.009 and -0.013), but is significantly negative for only two proxies, *ADA* and *AQ*, at levels of five and one percent respectively. Quintile 1 (*DIV_Q1*) is significantly negative only for *AAQ* and *AQ* at the level of ten percent, and Quintile 5 *(DIV_Q5)* is *not* significant. Taken together, we conclude that the three *middle* quintiles, representing firms paying *average* dividends, are most significantly associated with higher accruals quality. These three quintiles (*DIV_Q2*, *DIV_Q3* and *DIV_Q4*) represent a dividend pay-out ratio (*DPR*) between 0.22 and 0.56.

TABLE 6

Regression result for Hypothesis 2 - dividend size in quintiles (equation 5)

		ADA			*AAQ*			*AQ*		
Variables	**Predicted Sign**	**Coefficient**	**p-value**		**Coefficient**	**p-value**		**Coefficient**	**p-value**	
Intercept	+/-	0.122	0.000	***	0.103	0.000	***	0.061	0.000	***
DIV_Q1	-	-0.003	0.561		-0.010	0.078	*	-0.006	0.091	*
DIV_Q2	-	-0.013	0.012	**	-0.009	0.111		-0.010	0.007	***
DIV_Q3	-	-0.013	0.009	***	-0.022	0.000	***	-0.015	0.000	***
DIV_Q4	-	-0.012	0.022	**	-0.011	0.054	*	-0.011	0.004	***
DIV_Q5	-	-0.000	0.993		-0.009	0.123		-0.003	0.363	
SIZE	-	-0.005	0.000	***	-0.002	0.007	***	-0.002	0.000	***
BTM	-	-0.000	0.907		-0.001	0.105		0.001	0.065	*
SGROWTH	+	0.002	0.051	*	0.001	0.358		0.001	0.424	
ROA	+	0.067	0.000	***	0.027	0.010	**	0.060	0.000	***
LOSS	+	0.004	0.407		0.019	0.001	***	0.016	0.000	***
AGE	+/-	0.002	0.192		-0.000	0.987		0.005	0.001	***
RE	-	-0.005	0.000	***	-0.001	0.681		-0.009	0.000	***
FIN	+	0.011	0.000	***	0.013	0.000	***	0.002	0.310	
LEV	+	0.002	0.019	**	0.002	0.125		0.000	0.867	
CAPITAL	+	-0.001	0.599		0.006	0.026	**	-0.002	0.440	
INDUSTRY DUMMIES		Included			Included			Included		
YEAR DUMMIES		Included			Included			Included		
n		2387			2387			1461		
Adj. R^2 (percent)		10.8			7.7			16.1		
F-statistic		8.824			6.363			9.784		
Prob. (F-statistic)		0.000***			0.000***			0.000***		

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively. See Appendix for definitions of variables. The sample consists of 2387 firm-year observations from 1996 to 2012 that is used to test *ADA* and *AAQ*. The sample for AQ consists of 1461 observations from 2000 to 2012 due to differences in data availability. The sample of 1535 dividend paying firms, excluding outliers, is divided into quintiles of 307 firm-year observations.

We also perform our tests in terciles and quartiles of size of dividend in dividend paying firms (untabulated). We again find that average dividends (represented by the middle tercile and middle quartiles) reflect the strongest association with accruals quality. With terciles, we can hone in on the differences between small, average and large dividend paying firms. We find that the middle tercile, that represents average dividends, reflects coefficients (*p-values*) as follows: *ADA* -0.013 (p = 0.004), *AAQ* -0.016 (p = 0.001), and *AQ* -0.013 (p = 0.000). These coefficients are higher than for the other two terciles and are most significantly associated (at the one percent level) with *all three* accruals quality proxies. This supports our conclusion that

average dividends are most strongly associated with accruals quality. The tercile of small dividends reflects coefficients and *p-values* of -0.007 (p = 0.075), -0.011 (p = 0.016) and -0.008 (p = 0.012) for *ADA, AAQ* and *AQ* respectively. These coefficients are lower than for average dividends, and are significant at lower levels, varying between five and ten percent. The tercile of large dividends reflects coefficients and *p-values* of -0.003 (p = 0.451), -0.008 (p = 0.112) and -0.006 (p = 0.073) for *ADA, AAQ* and *AQ* respectively. These coefficients are again lower than for average dividends and significant only for *AQ* at the ten percent level.

As an additional test, we estimate equation (5) using a *reduced sample* of dividend paying firm-year observations, and replace quintiles of dividends (*DIV_Q1, DIV_Q2, DIV_Q3, DIV_Q4* and *DIV_Q5*) with average dividends (*AVG_DIV*), represented by the middle tercile of dividends. Again, we find that average dividends are significantly associated with accruals quality for all accruals quality proxies. Specifically, we find coefficients (*p-values*) as follows: *ADA* -0.007 (p = 0.038), *AAQ* -0.007 (p = 0.070), and *AQ* -0.007 (p = 0.011).

These results lend further support for our conclusion that average dividends are more strongly associated with accruals quality than either small or large dividends. Overall, we conclude that firms paying average dividends are most strongly associated with higher accruals quality.

We further follow tests (Table 7) used in the previous two studies (Tong and Miao 2011; Sirait and Siregar 2014) and compare the association of large (*LARGE_DIV)* and small (*SMALL_DIV*) dividends with accruals quality. We find that *LARGE_DIV* is significantly associated with *all* three accruals quality proxies (*ADA, AAQ* and *AQ*) at levels between one and five percent, whereas *SMALL_DIV* is significantly associated with only *AAQ* and *AQ* at levels of ten and five percent respectively. Specifically, coefficients for *LARGE_DIV* (*SMALL_DIV)* are -0.010 (-0.003) for *ADA*, -0.013 (-0.010) for *AAQ* and -0.009 (-0.008) for *AQ*. We use the *F-test* to test the equality of coefficients between *LARGE_DIV* and

SMALL_DIV and find that firms paying large dividends are more significantly associated with accruals quality than firms paying small dividends for one proxy, *ADA*. These results are similar to the US study of Tong and Miao (2011), but differ from the Indonesian study of Sirait and Siregar (2014), and based on these results, we conclude that firms paying higher dividends do reflect higher accruals quality.

TABLE 7

Regression result for Hypothesis 2 - dividend size – large versus small dividends (equation 5)

		ADA			*AAQ*			*AQ*		
Variables	**Predicted Sign**	**Coefficient**	**p-value**		**Coefficient**	**p-value**		**Coefficient**	**p-value**	
LARGE_DIV	-	-0.010	0.007	***	-0.013	0.003	***	-0.009	0.001	**
SMALL_DIV	-	-0.003	0.538		-0.010	0.052	*	-0.008	0.020	**
n		2387			2387			1461		
Adj. R^2 (percent)		10.7			7.5			15.8		
F-statistic		9.401***			6.727***			10.424***		
LARGE_DIV - SMALL_DIV = 0		-0.007			-0.003			-0.001		
Prob. (F-statistic)		3.188*			0.402			0.160		

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively. See Appendix for definitions of variables. The sample consists of all 2387 firm-year observations from 1996 to 2012 that is used to test *ADA* and *AAQ*. Included in this are 1147 firm-year observations of large dividends *(LARGE_DIV)* and 388 observations of small dividends *(SMALL_DIV)*. The sample for *AQ* consists of 1461 observations from 2000 to 2012 due to differences in data availability and includes 771 observations of large dividends and 260 observations of small dividends. Large dividends have a *DPR* greater than 0.25 but less than 2.0 (outliers), and small dividends have a *DPR* less than 0.25.

In untabulated results, we find the *mean* and *median DPR* in our sample is 0.36, and define large dividend (*LARGE_DIV*) as firm-year observations with a *DPR* greater than 0.36 but less than 2.0 (outliers), and small dividends (*SMALL_DIV*) as observations with a *DPR* less than 0.36. We find that both large and small dividends are associated with higher accruals quality, but using the *F-test*, we find that *neither* group is more significantly associated with accruals quality than the other.

Overall results suggest that firms paying larger dividends are associated with higher accruals quality. However, using terciles, quartiles, and quintiles, reveal that the relationship is strongest among firms that pay dividends that are average in size. The relationship between dividend size and accruals quality is not confirmed among firms that pay much larger and much smaller dividends than the norm.

Additional analysis: Hypothesis 1

The previous two studies by Sirait and Siregar (2014) and Tong and Miao (2011) conclude that dividend paying status is significantly associated with accruals quality. We seek to extend this finding to determine whether this result holds true across firms with different characteristics. We extend the prior literature by partitioning our sample on the median of all ten firm characteristics (control variables) to obtain twenty (20) sub-groups. Table 8 reports the *p-values* and coefficients on dividend paying status (*DIV)* for each of the regressions that we estimate, on each of the twenty (20) sub-groups of firm characteristics, for each of the three accruals quality proxies *(ADA, AAQ* and *AQ).* This results in sixty (60) regressions.

We find that *all* coefficients on *DIV* are negative and range from -0.000 to -0.018. We also note that the association between accruals quality and dividend paying status is significant for thirty-seven (37) of the sixty (60) sub-groups (61.7 percent) and for nine of the ten firm characteristics. Specifically, we find that dividend paying status is positively associated with accruals quality for larger and smaller firms *(SIZE),* higher and lower growth firms *(BTM* and *SGROWTH),* profitable and less profitable firms *(ROA),* older and younger firms *(AGE),* firms with higher and lower maturity (*RE*), firms with higher and lower leverage *(LEV),* firms with higher and lower propensity for new borrowings *(FIN)* and firms with higher and lower capital intensity *(CAPITAL).*

TABLE 8

Regression result for Hypothesis 1 across ten firm characteristics (equation 4)

Variables	*ADA*				*AAQ*				*AQ*			
	Coefficient on *DIV* and *p-value*				**Coefficient on *DIV* and *p-value***				**Coefficient on *DIV* and *p-value***			
	Above median		**Below median**		**Above median**		**Below median**		**Above median**		**Below median**	
SIZE	(-0.007)		(-0.009)		(-0.013)		(-0.014)		(-0.008)		(-0.008)	
	0.125		0.091	*	0.015	**	0.021	**	0.041	**	0.057	*
BTM	(-0.004)		(-0.008)		(-0.012)		(-0.014)		(-0.011)		(-0.007)	
	0.313		0.221		0.016	**	0.035	**	0.002	***	0.147	
SGROWTH	(-0.010)		(-0.002)		(-0.009)		(-0.012)		(-0.007)		(-0.012)	
	0.085	*	0.612		0.107		0.039	**	0.147		0.002	***
ROA	(-0.008)		(-0.009)		(-0.011)		(-0.015)		(-0.009)		(-0.010)	
	0.163		0.027	**	0.060	*	0.005	***	0.067	*	0.006	***
LOSS	(-0.004)		(-0.009)		(-0.003)		(-0.014)		(-0.009)		(-0.008)	
	0.714		0.013	**	0.849		0.000	***	0.478		0.004	***
AGE	(-0.014)		(-0.001)		(-0.019)		(-0.008)		(-0.018)		(-0.000)	
	0.017	**	0.857		0.003	***	0.095	*	0.000	***	0.970	
RE	(-0.004)		(-0.006)		(-0.012)		(-0.008)		(-0.007)		(-0.005)	
	0.411		0.259	**	0.021	**	0.189		0.055	**	0.298	
FIN	(-0.008)		(-0.006)		(-0.013)		(-0.012)		(-0.010)		(-0.005)	
	0.238		0.145	**	0.069	*	0.014	**	0.026	**	0.146	
LEV	(-0.007)		(-0.007)		(-0.012)		(-0.014)		(-0.009)		(-0.012)	
	0.161		0.226		0.036	**	0.017	**	0.012	**	0.011	**
CAPITAL	(-0.007)		(-0.006)		(-0.008)		(-0.018)		(-0.008)		(-0.007)	
	0.141		0.315		0.167		0.001	***	0.062	*	0.058	*

*, **, *** Denotes significance at the 10 percent, 5 percent, and 1 percent levels, respectively, of *DIV* in equation (4) across sub-groups of firm characteristics See Appendix for definitions of variables. The sample is partitioned on the median of each of the ten firm characteristics resulting in sub-groups above and below the median. The regression in equation (4) is estimated for each of these sub-groups for each of the three accruals quality proxies (*ADA*, *AAQ* and *AQ*). This results in sixty regressions. The corresponding coefficients on *DIV* and p-values and are reported for each of these sixty regressions (coefficients on *DIV* are reported in parentheses above the p-value) for each of these sub-groups. The sample consists of 2387 observations from 1996 to 2012 that is used to test *ADA* and *AAQ*. The sample for *AQ* consists of 1461 observations from 2000 to 2012 due to differences in data availability.

This provides compelling evidence that dividend paying status is *positively* associated with accruals quality across various firm characteristics, and strengthens our finding on Hypothesis 1.

We do not find a significant association on the sub-group of above median loss-making firms (*LOSS)* probably because this group consists of firm-year observations in which the relationship goes in opposite directions thus diluting overall results.

Overall these results support our conclusion that dividend paying status is significantly positively associated with accruals quality.

CONCLUSION

Our study pursues a recent trend in the international literature (Skinner and Soltes 2011; Tong and Miao 2011; Caskey and Hanlon 2013; Sirait and Siregar 2014) that examines the association between dividends and earning quality. More specifically, we follow Tong and Miao (2011) and Sirait and Siregar (2014), who use two accrual-based models that provide three proxies for accruals quality, namely *ADA, AAQ* and *AQ*. However their findings are inconsistent, and motivate our study. Furthermore, Sirait and Siregar (2014) caution that their findings are not generalizable and identify a gap in the extant literature to use a large sample in a developing economy. We respond to this call, and to the best of our knowledge, this is the first such study on a large sample in a developing economy, i.e. South Africa.

We find that characteristics of dividend paying firms differ significantly from non-dividend paying firms and further that characteristics of firms paying large and small dividends differ significantly.

We find that dividend paying status is significantly positively associated with accruals quality and that dividend size is associated with accruals quality. Specifically, we find that firms paying larger dividends are associated with higher accruals quality. However, using terciles, quartiles, and quintiles, we determine that the relationship is strongest among firms that pay dividends that are average in size. The relationship between dividend size and better accruals

quality is not confirmed among firms that pay much larger or much smaller dividends than the norm. These findings clarify the mixed results in the prior literature. We attribute these findings to the wasteful nature of dividends that are too large and too small. By contrast average dividend payments may be more efficient and associated with managers who are less likely to engage in accruals management. Lending weight to these arguments, Lawson and Wang (2016) find that dividend paying firms are associated with lower audit fees, because of lower audit risk, because of lower earnings manipulation risk. Dividend paying firms, and specifically firms that pay average sized dividends may be better managed, both in terms of dividend policies and in terms of a lower likelihood of earnings manipulation.

We further extend the prior literature with evidence that the association between dividend paying status and accruals quality holds for partitioned samples of larger and smaller firms, higher and lower growth firms, profitable and less profitable firms, firms with higher and lower maturity (retained earnings), firms with higher and lower leverage, firms with higher and lower propensities to raise capital, and firms with higher and lower capital intensity. These additional analyses were not used in either of the previous two studies (Tong and Miao 2011; Sirait and Siregar 2014) and may inform research designs of future studies.

Our findings are consistent with both the dividend signalling hypothesis and agency theory because dividends do act as a signal of higher accruals quality and dividend paying firms may have higher accruals quality because they have less cash available for management misappropriation. Firms paying average dividends reflect the most significant association with accruals quality, which extends the prior literature, which only partitioned large and small dividend paying firms. We expect investors, creditors, lenders, policymakers, regulators, directors and academics to benefit from these findings.

Our study is limited to accrual-based earnings quality proxies, thus further studies could use other proxies that measure other constructs of earnings quality, such as occurrences of fraud and earnings persistence. Further, a limitation of accrual-based models is that they may not accurately decompose accruals into discretionary and non-discretionary components. There are few studies that explore the association between dividends and accruals quality, and further research in both developing and developed economies could further inform our understanding and shed light on the generalizability of findings under different conditions.

APPENDIX A – VARIABLE DEFINITIONS

Accruals quality variables	***Definition***
ADA	*ADA* is the absolute value of discretionary accruals and is represented by the error term (ϵ_{it}) in equation (1): $TACC_{it} = \beta_0 + \beta_1 1/ASSET + \beta_2 (\Delta SALES_{it} - \Delta AR_{it}) + \beta_3 PPE_{it} + \beta_3 ROA + \epsilon_{it}$ (1) *TACC* is total accruals and measures the difference between earnings and cash flows from operations. *1/ASSET* is one divided by average total assets. Δ*SALES* is the change in sales from the prior year to the current year. Δ*AR* is change in accounts receivables from the beginning of the year to the end of the year. *PPE* is gross property, plant and equipment at end of year. *ROA* is earnings divided by average total assets. All variables are scaled by average total assets for the year.
AQ	*AQ* is the standard deviation of the regression residuals associated with the mapping of accruals into cash flows based on equation (2): $CACC_{i,t} = \beta_0 + \beta_1 CFO_{i,t-1} + \beta_2 CFO_{i,t} + \beta_3 CFO_{i,t+1} + \beta_4 \Delta SALES_{i,t} + \beta_5 PPE_{i,t} + \epsilon_{i,t}$ (2) *CACC* is current accruals and is calculated in equation (3). *CFO* is operating cash flows. Δ*SALES* is change in sales. *PPE* is the balance of property, plant and equipment at the end of the year. All variables are scaled by average total assets: $CACC_{i,t} = \Delta CA_t - \Delta CL_t - \Delta CASH_t + \Delta ST\_DEBT_t$ (3) Δ*CA* is change in current assets for the year. Δ*CL* is change in current liabilities for the year. Δ*CASH* is the change in cash for the year. Δ*ST_DEBT* is change in short-term debt for the year.
AAQ	*AAQ* is the absolute value of the regression residuals ($\epsilon_{i,t}$) associated with the mapping of accruals into cash flows based on equation (2).

Dividend variables	***Definition***
DPR	*DPR* is the dividend pay-out ratio calculated as dividend per share divided by earnings per share
DIV	*DIV* is a dummy variable coded 1 for observations when cash dividends are paid and 0 otherwise
DIV_Q1, DIV_Q2, DIV_Q3, DIV_Q4, DIV_Q5	These are dummy variables representing quintiles of dividend paying firm-year observations, coded 1 for observations falling within the percentile and 0 otherwise. Observations with a *DPR* that exceeds 2.0 are regarded as outliers.
AVG_DIV	*AVG_DIV* is a dummy variable coded 1 for observations in the middle tercile of dividend paying firm-year observations.
LARGE_DIV	*LARGE_DIV* is a dummy variable coded 1 for observations that have a *DPR* exceeding 0.25 but less than 2.0 (outliers)
SMALL_DIV	*SMALL_DIV* is a dummy variable coded as 1 for firms with a *DPR* less than 0.25

Control variables	***Definition***
SIZE	*SIZE* is the natural log of total assets
BTM	*BTM* is the ratio of book to market value of equity calculated as book value of equity scaled by market value of equity
SGROWTH	*SGROWTH* is the sales growth calculated as change in sales scaled by beginning period sales
ROA	*ROA* is the return on assets calculated as earnings divided by average total assets
LOSS	*LOSS* is a dummy variable coded as 1 if earnings are negative and 0 otherwise
AGE	*AGE* is firm age calculated as the natural log of the number of months from the first appearance of the firm in the INET BFA database
RE	*RE* is retained earnings deflated by total assets
FIN	*FIN* is an external financing dummy variable set to 1 if the firm issues debt or equity during the year that amounts to 20 percent or more of existing debt or equity, and 0 otherwise
LEV	*LEV* is leverage calculated as the sum of current and long-term debt divided by market value of equity
CAPITAL	*CAPITAL* is capital intensity calculated as net property, plant and equipment (PPE) divided by total assets

REFERENCES

Adaoglu, C. 2000, 'Instability in the dividend policy of the Istanbul Stock Exchange (ISE) corporations: evidence from an emerging market', *Emerging Markets Review*, 1(3), 252-270.

Asquith, P. & Mullins Jr, D.W. 1983, 'The impact of initiating dividend payments on shareholders' wealth', *Journal of Business*, 77-96.

Barth, M.E., Landsman, W.R. & Lang, M.H. 2008, 'International accounting standards and accounting quality', *Journal of Accounting Research*, 46, 3: 467-498.

Benartzi, S., Michaely, R., & Thaler, R. 1997, 'Do changes in dividends signal the future or the past?' *The Journal of Finance*, 52,3: 1007-1034.

Bhattacharya, S. 1979, 'Imperfect information, dividend policy, and "the bird in the hand" fallacy', *Bell Journal of Economics*, 10, 1: 259-270.

Brav, A., Graham, J.R., Harvey, C.R. & Michaely, R. 2005, 'Payout policy in the 21st century', *Journal of Financial Economics*, 77, 3: 483-527.

Breeden, R., 2003. Restoring trust: Report to the Hon. Jed S. Rakoff, The United States District Court for the Southern District of New York on Corporate Governance for the Future of MCI, Inc. Available at: http://www.law.du.edu/images/uploads/restoring-trust.pdf

Caskey, J. & Hanlon, M. 2013, 'Dividend Policy at Firms Accused of Accounting Fraud', *Contemporary Accounting Research*, 30, 2: 818-850.

Chen, S., Shevlin, T., & Tong, Y. H. 2007, 'Does the pricing of financial reporting quality change around dividend changes?' *Journal of Accounting Research*, 45, 1:1-40.

Cohen, D.A. 2008, 'Does information risk really matter? An analysis of the determinants and economic consequences of financial reporting quality', *Asia-Pacific Journal of Accounting & Economics*, 15, 2: 69-90.

Cohen, D.A., Dey, A. & Lys, T.Z. 2008, 'Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods', *The Accounting Review*, 83, 3: 757-787.

Coulton, J.J. & Ruddock, C. 2011, 'Corporate payout policy in Australia and a test of the life-cycle theory', *Accounting & Finance*, 51, 2: 381-407.

DeAngelo, H., DeAngelo, L. & Skinner, D.J. 2004, 'Are dividends disappearing? Dividend concentration and the consolidation of earning', *Journal of Financial Economics*, 72, 3: 425-456.

Dechow, P.M. & Dichev, I.D. 2002, 'The quality of accruals and earnings: The role of accrual estimation errors', *The Accounting Review*, 77, 1: 35-59.

Dechow, P.M. & Ge, W. 2006, 'The persistence of earnings and cash flows and the role of special items: Implications for the accrual anomaly', *Review of Accounting Studies*, 11, 2-3: 253-296.

Dechow, P.M., Sloan, R.G. & Sweeney, A.P. 1995, 'Detecting earnings management', *Accounting Review*, 193-225.

Dechow, P., Ge, W. & Schrand, C. 2010, 'Understanding earnings quality: A review of the proxies, their determinants and their consequences', *Journal of Accounting and Economics*, 50, 2: 344-401.

Easterbrook, F.H. 1984, 'Two agency-cost explanations of dividends', *American Economic Review*, 74, 4: 650-659.

Ebrahimpour, M., ZadehSalteh, H., & Hasan Zadeh, R. 2013, 'The study of the effect of dividend earnings on the quality of earnings with emphasis on the industry type', *European Online Journal of Natural and Social Sciences*, 2(3(s)), 1034-1042.

Fama, E.F. & French, K.R. 2001, 'Disappearing dividends: changing firm characteristics or lower propensity to pay?' *Journal of Financial Economics*, 60, 1: 3-43.

Farinha, J. & Moreira, J. A. 2007. 'Dividends and earnings quality: the missing link'. *CETE/Faculty of Economics/University of Porto.* Retrieved 27 January 2017.Givoly, D., Hayn, C.K. & Katz, S.P. 2010, 'Does public ownership of equity improve earnings quality?', *The Accounting Review*, 85, 1: 195-225.

Glassman, J., 2005. 'When numbers don't add up', *Kiplinger's Personal Finance*, 59(8), 32-34.
Glen, J. D., Karmokolias, Y., Miller, R. R., & Shah, S. 1995, 'Dividend policy and behaviour in emerging markets: To pay or not to pay', International Financial Corporation, Discussion Paper, 26.
Grullon, G., Michaely, R., Benartzi, S. & Thaler, R.H. 2005, 'Dividend Changes Do Not Signal Changes in Future Profitability', *The Journal of Business,* 78, 5: 1659-1682.
Grullon, G., Michaely, R. & Swaminathan, B. 2002, 'Are Dividend Changes a Sign of Firm Maturity?' *The Journal of Business,* 75, 3: 387-424.
Hanlon, M., J. Myers, and T. Shevlin. 2007. 'Are dividends informative about future earnings?' Working paper, University of Washington.
Healy, P.M. & Palepu, K.G. 1988, 'Earnings information conveyed by dividend initiations and omissions', *Journal of Financial Economics,* 21, 2: 149-175.
Henry, D., 2011, 'Ownership structure and tax-friendly dividends', *Journal of Banking & Finance,* 35, 10: 2747-2760.
Ho, H., 2003, 'Dividend policies in Australia and Japan', *International Advances in Economic Research*, 9, 2: 91-100.
Hribar, P. & Craig Nichols, D. 2007, 'The use of unsigned earnings quality measures in tests of earnings management', *Journal of Accounting Research,* 45, 5: 1017-1053.
Jensen, M.C. 1986, 'Agency costs of free cash flow, corporate finance, and takeovers', *The American Economic Review*, 323-329.
Jensen, M.C. & Meckling, W.H. 1976, 'Theory of the firm: Managerial behavior, agency costs and ownership structure', *Journal of Financial Economics,* 3, 4: 305-360.
Jones, J. J. 1991. 'Earnings management during import relief investigations', *Journal of Accounting Research*, 193-228.
Koch, A.S. & Sun, A.X. 2004, 'Dividend changes and the persistence of past earnings changes', *The Journal of Finance*, 59, 5: 2093-2116.
Kothari, S.P., Leone, A.J. & Wasley, C.E. 2005, 'Performance matched discretionary accrual measures', *Journal of Accounting and Economics,* 39, 1: 163-197.
Larcker, D.F., Richardson, S.A. & Tuna, I. 2007, 'Corporate governance, accounting outcomes, and organizational performance', *The Accounting Review,* 82, 4: 963-1008.
Lawson, B.P. & Wang, D. 2016, 'The earnings quality information content of dividend policies and audit pricing', *Contemporary Accounting Research*, 33, 4: 1685-1719.
Leuz, C., & Verrecchia, R. E. 2000, 'The economic consequences of increased disclosure', *Journal of Accounting Research*, 91-124.
Lintner, J. 1956, 'Distribution of incomes of corporations among dividends, retained earnings, and taxes', *American Economic Review,* 46, 2: 97-113.
Makka, K. 2014, 'Increasing dividends by industrial firms on the JSE', Masters Dissertation, University of the Witwatersrand, South Africa. Available from: http://146.141.12.21/bitstream/handle/10539/14042/Masters%20Research%20Report%20Final%20Submission%20v3.pdf?sequence=1 [last accessed: 14 September 2014]
McNichols, M.F. 2002, 'Discussion of the quality of accruals and earnings: The role of accrual estimation errors', *The Accounting Review,* 77, 1: 61-69.
Mikhail, M.B., Walther, B.R. & Willis, R.H. 2003, 'Reactions to dividend changes conditional on earnings quality', *Journal of Accounting, Auditing & Finance,* 18, 1: 121-151.
Miller, G.S. 2002, 'Earnings performance and discretionary disclosure', *Journal of Accounting Research,* 40, 1: 173-204.
Miller, M.H. & Modigliani, F. 1961, 'Dividend policy, growth, and the valuation of shares', *The Journal of Business,* 34, 4: 411-433.
Miller, M.H. & Rock, K. 1985, 'Dividend policy under asymmetric information', *The Journal of Finance,* 40, 4: 1031-1051.

Nissim, D. 2003, 'Discussion - Reactions to dividend changes conditional on earnings quality', *Journal of Accounting, Auditing & Finance,*18, 1: 153-161.

Nissim, D. & Ziv, A. 2001, 'Dividend changes and future profitability', *The Journal of Finance,* 56, 6: 2111-2133.

Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. 1998, 'Using the correct statistical test for the equality of regression coefficients', *Criminology*, 36, 4: 859-866.

Sirait, F., & Siregar, S. V. 2014, 'Dividend payment and earnings quality: evidence from Indonesia', *International Journal of Accounting and Information Management*, 22, 2: 103-117.

Sivakumar, K.N., & Waymire, G. 1993, 'The information content of earnings in a discretionary reporting environment: Evidence from NYSE industrials, 1905-10'. *Journal of Accounting Research*, 31: 62-91.

Skinner, D.J. 2008, 'The evolving relation between earnings, dividends, and stock repurchases', *Journal of Financial Economics*, 87, 3: 582-609.

Skinner, D.J. & Soltes, E. 2011, 'What do dividends tell us about earnings quality?', *Review of Accounting Studies*, 16, 1: 1-28.

Tong, Y.H. & Miao, B. 2011, 'Are Dividends Associated with the Quality of Earnings?', *Accounting Horizons*, 25, 1: 183-205.

Wang, D. 2006, 'Founding family ownership and earnings quality', *Journal of Accounting Research*, 44, 3: 619-656.

Wysocki, P. 2005, 'Assessing earnings and accruals quality: US and international evidence', Unpublished Working Paper, Massachusetts Institute of Technology, Cambridge, MA.