The informativeness of dividends and associated tax credits

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Abstract

We investigate the informativeness of dividends and the associated tax credits with respect to earnings persistence. After confirming that dividend paying firms have more persistent earnings than non-dividend paying firms, we show that the taxation status of the dividend is also important. Firms that pay dividends with a full tax credit attached have significantly more persistent earnings than firms that pay dividends which carry no associated tax credit. Consistent with higher levels of tax credits identifying more mature firms, those paying dividends with full tax credits have significantly less persistent losses than firms that pay dividends with only partial tax credits. Further, market pricing tests confirm that the incremental information in dividends **and** tax credits contributes to reductions in market mispricing of the persistence of earnings and earnings components. Our results are robust to alternative model specifications and controlling for dividend size and firm age.

1. INTRODUCTION

We investigate whether two simple indicators, dividends and dividend-related tax credits, provide users with information that helps assess earnings quality. Specifically, we examine whether dividends and higher levels of tax credits indicate higher earnings persistence. Persistence is an important attribute of earnings (Dechow and Schrand, 2004; Hanlon, 2005). A persistent earnings series is more readily useable as a short-cut to valuation (e.g., via multiples; Penman, 1991; Schipper and Vincent, 2003). Persistent earnings are also a better predictor of future earnings (Sloan, 1996). Our persistence tests are further supplemented with market pricing tests that assess whether dividend and tax credit information impact on the efficiency with which investors price the persistence of earnings and earnings components.

Our analysis is motivated by the relative absence of empirical evidence that directly demonstrates a signalling role for dividends. Baker and Wurgler (2012) argue that although surveys suggest that managers view dividends as an important signal for investors (Brav et al., 2005), there is remarkably little empirical evidence of how this occurs. Further, many of the economic mechanisms that underlie well-known signalling models, such as the costs that can be borne in raising external funds or the ability to bear costly taxes, are explicitly ruled out by the same survey evidence used to cite managerial support attributing a signalling role for dividends. In contrast, we identify a link between an existing theory of dividends (the life-cycle theory) and earnings attributes such that dividends **and** their tax status are expected to serve as a signal of earnings persistence.

We draw on an environment (Australia) which is particularly appropriate for investigating these issues. For the period we examine, Australia has had a taxation system which eliminates double taxation on dividends by providing shareholders with an attached entitlement to a tax credit for dividend income received on which company tax has already been paid. This setting has the added advantage of introducing a second dividend related signal, namely its tax status (i.e., the extent to which a tax credit is attached). We therefore consider both the dividend paying status of the firm, as well as the tax status of the dividend. Australian earnings also have lower levels of persistence compared to the U.S., due in part to the higher frequency of losses (Coulton et al., 2005). Hayn (1995) shows that losses reduce the informativeness of earnings. Given the increasing frequency and persistence of losses in Australia and elsewhere, it is important to explicitly consider losses in explaining the low level of earnings persistence (Hayn, 1995; Balkrishna et al., 2007). Hence, we also explicitly examine how dividend paying status (and the tax status of the dividend) informs assessment of loss persistence.

Our research makes a number of contributions that are likely to be of interest to investors, policy makers and academics. First, similar to Skinner and Soltes (2011), we identify circumstances in which earnings are more persistent. Second, we provide evidence on whether dividends and the associated tax credits increase the informativeness of profits, losses and accruals. Third, our tests show that the information in dividends and tax credits helps investors correctly price the persistence of earnings components. This is particularly important as the failure by investors to correctly price the persistence of earnings and its components can lead to mispricing (Sloan, 1996). Fourth, our study also contributes more

broadly to the existing literature on the impact of taxation regimes on dividends and their informativeness (Li 2014, Baker et al. 2012).

Dividend-paying firms have different characteristics to firms that do not pay dividends (Fama and French, 2001; DeAngelo et al., 2006; Hand and Landsman, 2005). DeAngelo and DeAngelo's (2006) full payout model lends itself to dividend payments corresponding to the different stages in the firm life cycle.[1] As firms mature, becoming more profitable and self-funding, they are more likely to pay dividends. Firm characteristics such as profitability and low growth options associated with dividend payments are also likely to drive earnings persistence. Hence, we expect to observe a positive association between dividend payments and earnings persistence. Our approach contrasts with much of the dividend signalling literature, which focuses on the implications of dividend changes, and which yields mixed results. On the other hand, survey evidence (Brav et al., 2005) suggests that managers are primarily concerned with dividend persistence, which also underlies the arguments of Lintner (1956). Our approach provides a link between the payment of dividends and firm valuation (i.e., the signalling role of dividends as outlined by Miller and Rock (1985) and others) by recognizing that dividends are informative about earnings persistence, and earnings persistence is itself a consideration in valuation.

However, while our initial focus is on the dividend-paying status of the firm, we also recognize that dividend paying firms are themselves not a homogenous group. Australia's dividend tax system potentially provides users with an additional signal about firm

[1] Similar results supporting a life-cycle theory have been reported for Australian firms (Coulton and Ruddock, 2011).

profitability.[2] When Australian companies pay tax in Australia they accrue imputation credits (known as "franking credits") that can then be attached to dividends (Jun et al. 2011). This system eliminates double taxation on dividends (i.e., where income is taxed in the hands of the company and then in the hands of the shareholders). Dividends can be declared fully franked (with a 100% tax credit); partially franked or unfranked (0% tax credit). The higher the level of franking credits the less tax certain shareholders are required to pay. We argue that as firms mature they will pay more tax, so consistent with the firm life cycle we expect that, for dividend paying firms, franking credits provide an additional incremental indicator of earnings persistence.[3]

At the same time, there is also an important difference between a dividend and a franking credit. While the decision to pay a dividend and the size of any dividend is a choice that managers make, there is less discretion with respect to the level of franking. During the early years of our sample, the relevant regulations meant that the maximum level of available franking would be applied to any dividends paid. Subsequent to tax simplification rules that came into effect on 1 July 2002, corporate tax entities can allocate a franking credit up to the maximum franking credit allowable, and can select the level of franking having regard to their existing and expected franking surplus (ATO, 2004). As there is no benefit to the entity

[2]Australia and New Zealand are the only two OECD countries to currently have a full imputation system. Dividend imputation systems have been abandoned in the United Kingdom (in 1999), Germany (2001), Finland (2005) and Norway (2006) See Chapter B2-3 The Future of Dividend Imputation in Australia's Future Tax System Report to the Treasurer (2010). In 2003 the U.S. reduced the tax rate on dividends to 15 percent. During this time Treasury argued for the full removal of this tax. It is conceivable that the US may adopt a dividend imputation system in the future (see Report by the President's Advisory Panel on Federal Tax Reform pp 99-102). Canada has a system which provide for a dividend tax credit for part of the underlying corporate tax rate.

[3] In the remainder of the paper we use the term "franking credit" to describe the tax credits associated with dividends under the Australian imputation system.

to hold onto franking credits, and some benefit to shareholders in receiving them, entities typically pay out the maximum amount of franking credits allowed.

Our results confirm that under a full imputation system, paying a dividend signals more persistent profits (i.e., greater earnings persistence where the earnings result is a profit rather than a loss). Given the increasing incidence of accounting losses, especially in Australia, we explicitly test whether dividends send an asymmetric persistence signal that profits will persist and losses will reverse. We find strong evidence that firms that pay dividends have more persistent profits and less persistent losses than firms that do not pay dividends. Payment of dividends therefore increases the informativeness of losses. This evidence is consistent with earnings persistence being a function of the life cycle of the firm where dividends proxy for the steady state profitability stage of the life-cycle, and is also consistent with the results in Skinner and Soltes (2011)

We also find that earnings persistence is increasing in dividend franking. Firms paying fully franked dividends that report an accounting loss have significantly less persistent losses (i.e., their losses are more likely to reverse). Higher levels of franking credits are evidence of a history of prior profitability, and we would expect this inherent firm characteristic to be associated with higher earnings persistence.

Finally, we use market pricing tests to assess whether the market acts as if it uses dividend and franking credit information to correctly price the expected persistence of earnings and its components. These tests provide support for the claim that dividend and franking credit information can reduce market mispricing of earnings. Dividend and franking credit

information also improves the market's pricing of the cash flow and accrual components of earnings.

The remainder of this paper is structured as follows. In section 2 we explain why dividends and franking credits are likely to be associated with different phases of the life cycle, and in turn why the life cycle is itself likely to be associated with earnings persistence. We subsequently develop testable hypotheses. Section 3 explains our data sources, sample selection and research design, while in Section 4 we discuss our results. Sensitivity tests are described in Section 5 and our conclusions in Section 6.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

(i) Earnings persistence

Earnings persistence is an important characteristic of earnings quality (Dechow and Schrand, 2004). Given the low level of earnings persistence and the increasing incidence of accounting losses it is important to know what helps investors assess earnings persistence. Sloan (1996) shows that investors do not appear to correctly price the different components of earnings, in that they overestimate the persistence of the accrual component of earnings and underestimate the persistence of cash flows, thus resulting in mispricing. Dechow et al. (2008) attempt to disentangle two competing explanations (i.e., growth or earnings management) for the accrual anomaly identified in Sloan (1996). They focus on whether cash is retained or distributed, and decompose the cash flow component of earnings accordingly, as sources and uses of cash will likely have different levels of persistence. Cash retained can be wasted by poor or opportunistic managerial decisions (Jensen, 1986). In comparison to

distributions to debt holders, distributions to shareholders are discretionary and are more likely to signal incrementally greater earnings persistence.

The retention and distribution of cash is also known to vary systematically over the life cycle of the firm (DeAngelo and DeAngelo, 2006; DeAngelo et al., 2006; Fama and French, 2001; Grullon et al., 2002). Dechow et al.'s (2008) results are therefore consistent with earnings persistence varying over a firm's life cycle as they find the cash component of earnings retained is the least persistent component of cash flows.

Firms establishing profitability typically have higher growth options, rely on external funding and retain more cash than mature, profitable firms. At this stage in their life cycle these firms are more likely to have persistent losses. For example, the challenge for new entrants to a market is to build and maintain a customer base for their products. As smaller players they lack bargaining power and their earnings may be squeezed by powerful suppliers or customers. Even if they are not reporting losses, such firms often have volatile earnings. The fact that firms in the initial phase of the life cycle have significant growth opportunities may also result in less persistent earnings, cash flows and accruals (Fairfield et al., 2003; Hribar and Collins, 2002). Accruals (such as the purchase of inventory) can be inflated in the current period in preparation for future growth and thus are more likely to reverse. It also takes time to realise a return on investment. As firms mature they become more profitable and are able to internally generate cash in excess of their investment requirements. The optimal policy will then be to retain sufficient earnings to invest in positive NPV projects and distribute excess cash to shareholders. Payment of a dividend is therefore expected to be evidence of a firm reaching sustainable profitability.

(ii) Dividends and earnings quality

There is a long history of research from Miller and Modigliani (1961) that examines the link between dividends and earnings. A particular focus has been whether dividend changes signal future earnings changes and stock price reactions (Healy and Palepu, 1988; Grullon et al., 2002). More recent evidence examines whether dividends *per se* are a signal with respect to earnings quality. There is evidence of dividends and cash distributions being associated with more persistent earnings (Dechow et al., 2008; Skinner and Soltes, 2011), as well as a lower level of both unexpected accruals and errors in the mapping of accruals into cash flows (Tong and Miao, 2011).

Using a simple one-period persistence model, Skinner and Soltes (2011) show that dividends convey information about future earnings incremental to information in current period earnings. We expect the impact of dividends to be stronger than those reported in U.S. studies for a number of reasons. First, once an Australian firm reaches the stage in the life cycle where it is optimal to distribute cash there is no tax disincentive to start making distributions. Secondly, earnings persistence has been shown to be lower for Australian firms than their U.S. counterparts (Balkrishna et al., 2007). This leads to our first hypothesis:

H1: *Firms that pay dividends have more (less) persistent profits (losses) than firms that do not pay dividends*

Australian firms can declare fully-franked dividends (i.e., a full tax credit is attached to the dividend); partially-franked dividends (i.e., a partial tax credit); or unfranked dividends (i.e.,

no tax credit). Hence, the level of franking potentially communicates information about the effective tax rate on declared income and by implication, the life cycle of the firm (Coulton and Ruddock, 2011). Firms that pay dividends with a higher level of franking have a higher effective tax rate. Hanlon (2005) argues that small differences in book-tax income for U.S. firms are seen as a signal of high quality earnings. We argue that the lower effective tax rate is a function of firm life cycle rather than managerial opportunism, and that a higher earned-to-contributed equity ratio indicates that firms have a history of profits. Coulton and Ruddock (2011) show that dividend-paying (Australian) firms have a higher proportion of retained earnings in total shareholders' equity than non-dividend paying firms. It also implies a greater likelihood of recovering from losses (DeAngelo et al., 2006). We therefore expect that the level of franking on dividends to be positively associated with a higher persistence of profits and lower persistence of losses. Our second hypothesis follows:

H2: *Profitable (Loss-making) firms that pay highly franked dividends have more (less) persistent earnings than firms that pay dividends with lower franking levels*

(ii) Pricing of earnings, dividends and franking credits

Our first two hypotheses predict that dividends and franking credits are incrementally informative with respect to earnings persistence. Such information should therefore assist investors to correctly price earnings and its components. Dividends represent a commitment to distribute cash. Hence, they may be viewed as a more credible source of information about the persistence of earnings (and therefore the future prospects of the firm) than say, management earnings forecasts. Brealey and Myers (2003, pg 428) state that dividends send a signal to the market because management is "putting money where their mouth is". Similarly Penman (1983) finds dividend-based forecast models to be more accurate than the direct forecast models. A dividend is a signal backed by cash, and is more visible than other

announcements (Asquith and Mullins, 1983). More importantly, dividends are expected to indicate that the firm is reaching the mature phase of its life cycle. As such the market is better able to assess the firm's growth opportunities and the resulting earnings persistence. Further, Dechow et al. (2008) find evidence that cash distributions are informative. Our third set of hypotheses follows:

H3a: *Earnings persistence expectations are more efficiently priced where earnings are supplemented with earnings information embedded in dividends and franking credits*

H3b: *Persistence expectations for both the accruals and cash flow components of earnings are more efficiently priced where earnings are supplemented with earnings information embedded in dividends and franking credits.*

3. RESEARCH DESIGN

(i) Data and sample selection

We use data from three sources. Financial statement data are taken from the Morningstar Aspect Financial database. Dividend and franking credit data are extracted from the SPPR dataset.[4] We capture the total cash dividends paid each year and estimate the extent of franking by taking the weighted average value of franking credits.[5] If the company has a dividend reinvestment scheme, we manually check our calculations against dividends paid as reported in the cash flow statement. For all firms distributing unfranked dividends, we investigate whether the firm is eligible to accrue franking credits.

[4] The Share Price and Price Relative dataset is maintained by SIRCA.

[5] For example, if the first dividend was 100% franked and paid on 2,000,000 shares and the second dividend was 50% franked and paid on 2,500,000 shares, we would calculate the total franking credit as [100 * (2,000,000/4,500,000)] + [50 * (2,500,000/4,500,000)] = 72.22% franked.

Our sample period is between January 1993 and December 2010. We require observations to have both operating income and total asset data. As shown in Table 1, we begin with a maximum of 27,121 firm-year observations. Observations missing any required data items as well as companies having a change of financial year are excluded. This results in the loss of 6,880 observations, the vast majority of which are due to the requirement for observations to have both leading (future) earnings and lagged assets. We exclude 1,832 observations that are financial institutions (ASX code 16, 17, 19 or 20 or GICS code 40) as they have a unique set of rules governing revenue and expense recognition.[6] To reduce the influence of extreme observations we delete the top and bottom 1% of our sample on current year and one year-ahead earnings (637 observations).[7]

Our final sample consists of 16,663 firm-year observations. Our selection procedure biases our sample towards larger, older and more profitable firms. Similarly the coverage of the databases used in this study (particularly the Aspect database) increases over time, meaning the bias is more prevalent in earlier sample years.

[Insert Table 1 here]

(ii) Earnings persistence of dividend paying firms

Our basic test is a one-period-ahead persistence model (as in Skinner and Soltes, 2011). We regress future earnings on current earnings. The parameter on current earnings implies the level of earnings persistence. The incremental signaling value is captured by the interaction

[6] Financials and Property Trusts (GICS 40) also includes a number of property developers, which we do not exclude.

[7] Inferences from both our persistence and our pricing tests are not affected by this exclusion. Similar results also obtain if we winsorize the top and bottom 1% of earnings and future earnings.

terms between earnings and our variables of interest. Our sample contains a large number of loss observations (over 53% of sample firm-year observations have negative operating earnings after tax), and a number of firms reporting a loss that pay dividends in the loss year.[8] The behavior of losses is likely to vary with the firm life cycle. We therefore test the incremental earnings persistence of dividend-paying firms and loss making firms by estimating the following equation:

$$EARN_{i,t+1} = \alpha_0 + \alpha_1 EARN_{i,t} + \alpha_2 DIV_{i,t} + \alpha_3 DIV_{i,t} * EARN_{i,t} + \alpha_4 NEG_{i,t} + \alpha_5 NEG_{i,t} * EARN_{i,t} + \alpha_6 NEG_{i.t} * DIV_{i,t} * EARN_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where:

$EARN_{it}$ = Operating income after tax for company *i* in year *t* scaled by start of year total assets

DIV_{it} = indicator variable coded "1" if dividends were distributed by company *i* in year *t*, and zero otherwise.

NEG_{it} = indicator variable coded "1" if operating income after tax for company *i* in year *t* is less than 0, and zero otherwise.

If firms paying dividends have more persistent profits, then α_3 should be positive. Losses are more likely to be persistent in the early phase of the life cycle (i.e., α_5 will be positive) whereas mature firms that pay dividends while reporting a loss are more likely to have a temporary loss.[9] We therefore expect α_6 to be negative.

[8] There were 800 firm-years where firms reported operating losses while paying a dividend (over four percent of our sample).

[9] Mature firms that report losses and do not pay dividends could be in the declining phase of their life cycle. We would suspect such firms to be more likely to have persistent losses.

To take into account the time series and cross-sectional dependence in the error terms of our persistence regressions, we calculate *t*-statistics using standard errors that are clustered by both firm and year (Petersen, 2008; Gow et al., 2010).[10]

(iii) The role of franking credits

Our second hypothesis is specific to firms that distribute dividends in a given year. Our aim is to assess whether higher franking credits indicate more persistent profits and less persistent losses. We test this in a number of different ways. First, we compare the earnings persistence of franked versus unfranked dividend paying firm-year observations. Second, we test for different levels of earnings persistence between fully franked and partially franked dividend payers. To test the former, we estimate the following equation:

$$EARN_{i,t+1} = \theta_0 + \beta_1 EARN_{i,t} + \beta_2 FRANK_{i,t} + \beta_3 FRANK_{i,t} * EARN_{i,t} + \beta_4 NEG_{i,t} + \beta_5 NEG_{i,t} * EARN_{i,t} + \beta_6 NEG_{i.t} * FRANK_{i,t} * EARN_{i,t} + \varepsilon_{i,t} \quad (2)$$

where:

$FRANK_{it}$ = indicator variable coded "1" if franked dividends (i.e., partially franked or fully franked dividends) are distributed by company *i* in year *t*, and zero otherwise.

[10] The results of our persistence tests are qualitatively similar if we estimate our regressions annually and calculate coefficients and *t*-statistics following Fama and MacBeth (1973).

We partition our sample on profitability to help distinguish between these two types of unfranked dividend payers. The first type will only distribute dividends when profitable, whereas firms in the declining phase may continue distributing unfranked dividends while reporting a loss. In equation (2) the coefficient on EARN (β_1) captures the earnings persistence of all profit-making unfranked dividend paying firms and β_3 captures the incremental persistence of profit-making franked dividend paying firms (both partially and fully franked dividends). If β_3 is positive this is evidence of franked dividend paying firms having more persistent earnings than firms that distribute unfranked dividends. We include an indicator variable for loss observations to test whether loss making firms that distribute unfranked dividends are providing a signal consistent with a steady state firm entering a declining phase (i.e., if β_6 is positive).[11]

We next refine our tests by investigating the earnings persistence of firms that pay fully franked dividends. To do this we limit our analysis to a sample of firms that pay dividends with at least some level of franking. If profit-making firms that pay fully franked dividends have greater earnings persistence than those that pay partially franked dividends, the δ_3 coefficient will be positive. We estimate the following equation to capture the incremental earnings persistence of fully franked dividends over partially or unfranked dividends:

$$EARN_{i,t+1} = \delta_0 + \beta_1 EARN_{i,t} + \delta_2 FFRANK_{i,t} + \delta_3 FFRANK_{i,t} * EARN_{i,t} + \delta_4 NEG_{i,t} + \delta_5 NEG_{i,t} * EARN_{i,t} + \delta_6 NEG_{i.t} * FFRANK_{i,t} * EARN_{i,t} + \varepsilon_{i,t} \quad (3)$$

where

[11] Only Australian companies are eligible to accrue franking credits, so we estimate equation (2) on a sample of dividend-paying firms that excludes listed trusts and overseas domiciled firms.

$FFRANK_{it}$ = indicator variable coded "1" if fully franked dividends are distributed by company *i* in year *t*, and zero otherwise.

Firms accumulate franking credits by paying tax (in Australia). A firm reporting a current or prior year loss may pay a partially franked dividend rather than reducing the dividend payment but leaving the reduced dividend fully franked. We include a slope and interaction term for firms reporting losses.

(iv) Market pricing tests

Our next set of tests investigates whether investors correctly price the differential earnings persistence associated with various dividend-related firm categories. We separately classify firm-years into those that distribute no dividends; unfranked dividends; partially franked dividends; and fully franked dividends.

We estimate the following equation using OLS.

$$RETURN_{i,t+1} = \alpha_0 + \alpha_1 EARN_{i,t} + \sum \alpha_k SIZE + \varepsilon_{i,t} \quad (4)$$

Following Sloan (1996), Xie (2001) and Hanlon (2005), we use a reporting year-end abnormal return measure ($RETURN_{it+1}$), computed by taking the raw buy-hold return, inclusive of dividends and any liquidating distributions and subtracting the buy-hold return on a value-weighted portfolio of ASX-listed firms.[12] The 12-month return accumulation period begins three months after the fiscal year-end of the year in which the financial

[12] The use of some form of market adjusted returns (rather than raw returns) in prior studies reflects the basic implication of market efficiency underlying the Mishkin (1983) test, namely that expected abnormal returns are zero.

variables are measured. This is to allow enough time for the earnings information to be released and embedded in stock prices. If investors correctly price the persistence of earnings, we should not be able to reject the hypothesis that α_1 in Equation (4) is equal to zero.

Given that dividend paying and franking credit status are associated with firm size, we include a size control in our tests to produce a more robust specification of the pricing equation. Consistent with Kraft et al. (2007), $SIZE_{it}$ is an indicator variable created by ranking sample observations into quintiles based on start of year total assets.

We next allow for the persistence of the cash flow and accrual components of earnings to vary, and estimate the following equation:

$$RETURN_{i,t+1} = \alpha_0 + \alpha_1 CFO_{i,t} + \alpha_2 ACCRUALS_{i,t} + \sum \alpha_k SIZE + \varepsilon_{i,t} \qquad (5)$$

Where:

CFO_{it} is cash from operations, and $ACCRUALS_{it} = EARN_{it} - CFO_{it}$

We estimate each equation first on the full sample and then separately for our four categories of distribution: no dividends, unfranked dividends, partially franked dividends and fully franked dividends.

It is possible that evidence of mispricing for the full sample may be attributable to loss observations. Given dividends and franking credits are particularly informative about the

persistence of losses, we also control for loss observations in our pricing tests, and estimate the following equation:

$$RETURN_{i,t+1} = \alpha_0 + \alpha_1 CFO_{i,t} + \alpha_2 ACCRUALS_{i,t} + \alpha_3 NEG_{i,t} + \alpha_4 NEG_{i,t} * CFO_{i,t} + \alpha_5 NEG_{i,t} * ACCRUALS_{i,t} + \sum \alpha_k SIZE + \varepsilon_{i,t} \quad (6)$$

If we find that α_1 or α_2 are statistically different from zero, we would conclude that investors are not efficiently pricing the information about future returns in current period CFO and ACCRUALS respectively.

Kraft et al (2007) show that omitted variables that may be useful in forecasting returns (and earnings) can impact on the inferences drawn in tests of market pricing. To address these concerns, we include the level and change in sales (REV and ΔREV), the level and change in capital expenditure (CAPEX and ΔCAPEX), lagged cash flows (CFO_{t-1}), and lagged accruals ($ACCRUALS_{t-1}$). These variables have been found by prior research to predict future returns or future earnings.

$$RETURN_{i,t+1} = \alpha_0 + \alpha_1 CFO_{i,t} + \alpha_2 ACCRUALS_{i,t} + \alpha_3 CFO_{i,t} + \alpha_4 ACCRUALS_{i,t} + \alpha_5 REV_{i,t} + \alpha_6 \Delta REV_{i,t} + \alpha_7 CAPEX_{i,t} + \alpha_8 \Delta CAPEX_{i,t} + \alpha_9 CFO_{i,t-1} + \alpha_{10} ACCRUALS_{i,t-1} + \sum \alpha_k SIZE + \varepsilon_{i,t} \quad (7)$$

Consistent with our earlier tests, we include a loss indicator and interactions term with CFO and accruals:

$$RETURN_{i,t+1} = \alpha_0 + \alpha_1 CFO_{i,t} + \alpha_2 ACCRUALS_{i,t} + \alpha_3 NEG_{i,t} + \alpha_4 NEG_{i,t} * CFO_{i,t} + \alpha_5 NEG_{i,t} * ACCRUALS_{i,t} + \alpha_6 REV_{i,t} + \alpha_7 \Delta REV_{i,t} + \alpha_8 CAPEX_{i,t} + \alpha_9 \Delta CAPEX_{i,t} + \alpha_{10} CFO_{i,t-1} + \alpha_{11} ACCRUALS_{i,t-1} + \sum \alpha_k SIZE + \varepsilon_{i,t} \quad (8)$$

4. RESULTS

(i) Descriptive statistics

The majority of our sample does not pay a dividend in any given year. This is consistent with the large number of loss observations in our sample. Approximately 52 percent of the sample observations are losses (measured as operating profits after tax). Of the observations that report positive operating profits, just over 70% distribute dividends in the profit-making year. In Table 2 we report the descriptive statistics for our sample partitioned on whether or not the firm distributes a dividend.

Firms that distribute dividends have higher earnings and cash flows than firms that do not pay dividends.[13] They are also substantially larger in terms of total assets. Firms that distribute dividends pay more tax than non-dividend distributers. Dividend payers have larger dollar amounts of cash on hand (unreported) although non-dividend payers have a significantly higher proportion of their total assets in the form of cash. The market-adjusted

[13] The differences referred to in this paragraph are all significant at better than the 1% level using *t*-tests (Wilcoxon Z-tests) for testing differences in means (medians).

twelve-month buy and hold stock return is not statistically different between dividend and non-dividend paying firms. Consistent with DeAngelo et al. (2006), firms that distribute dividends fund a larger proportion of their assets with retained earnings than firms that do not pay dividends. On average non-dividend paying firms have significant accumulated losses. We view these differences as being broadly consistent with the life-cycle theory of dividends.

[Insert Table 2 here]

(ii) Earnings persistence of dividend paying firms

Results of our earnings persistence tests are reported in Table 3. The first column shows that profitable dividend distributing firms have more persistent earnings than profitable non-dividend paying firms (the coefficient on profitable dividend paying firms (DIV*EARN) is 0.326 and significant at better than the 1% level). For firms that distribute dividends while reporting a loss, the losses are significantly less persistent (i.e., are likely to reverse) than loss-making firms that do not distribute a dividend (the coefficient on NEG*DIV*EARN is negative (−0.786) and significant at the 1% level). Overall we find strong support for hypothesis 1.

The earnings persistence coefficients are much lower than the overall slope coefficient of around 0.8 reported in Skinner and Soltes (2011, Table 4), which they note is similar to prior U.S. research. This suggests that while the overall earnings persistence for Australian firms is much lower than for U.S. firms, the incremental earnings persistence associated with dividend payment is much larger. The adjusted R-squared in our model is 0.36 which is

lower than the corresponding R-squared in Skinner and Soltes (2011) of 0.79 for the 1994-2005 period. However Skinner and Soltes do not partition their sample on profitability so the R-squared values are not directly comparable.

[Insert Table 3 here]

(iii) Franking credits

Firms that pay dividends are not a homogenous group. The level of franking credits attached to dividends provides additional information about the life cycle of the firm. Our second set of results in Table 3 shows the results of estimating equation (2) on an "eligible sample" of dividend-paying firms that excludes overseas firms and listed trusts. Including separate slope and intercept coefficients for firms reporting losses again illustrates that firms have asymmetric earnings persistence. There is strong evidence that profit-making firms that distribute franked dividends have more persistent profits than profit-making firms distributing unfranked dividends (the coefficient on FRANK*EARN is 0.238 and significant at the 1% level). Similarly, losses are likely to reverse (FRANK*NEG*EARN is -0.318 and significant at the 1% level). We therefore find initial support for hypothesis 2.

We next examine firms that pay fully franked dividends. In our final set of results in Table 3 we report the results of estimating equation (3). Profit-making firms that pay franked dividends (i.e., both partially and fully franked dividends) have persistent earnings (the coefficient on EARN is 0.483 and significant at the 1% level). Firms that pay fully franked dividends do not have significantly more persistent earnings than other profitable dividend-paying firms (the coefficient on FFRANK*EARN is 0.088 but not reliably different from

zero). Loss making firms paying a fully franked dividend have earnings that are more likely to reverse (the coefficient on FFRANK*NEG*EARN is -0.369 and significant at the 5% level).

Overall, we find evidence that firms distributing franked dividends have increased earnings persistence. In particular, franking credit information appears particularly informative about the behaviour of losses. The presence of franking credits suggests that it is more likely that profits will persist and losses will reverse. Given that we argue that dividends and high franking credits proxy for firm maturity we interpret these results as consistent with earnings persistence being a function of the firm life cycle.

(iv) Impact of firm size

One explanation for our results is that dividend policy and franking credits are a proxy for firm size and that larger firms are less risky and therefore have higher earnings persistence (Skinner and Soltes, 2011 address similar concerns). To investigate, Table 4 presents our earnings persistence regressions with our samples partitioned on firm size. We do this by forming quintiles based on start of year total assets. Panel A reports results of estimating equation (1) on our five size quintiles. Consistent with our earlier results, dividend paying firms have more persistent profits than non-dividend paying firms that report profits (the coefficient on DIV*EARN is positive for each size quintile, and significant at the 5% level or better for all but the smallest size quintile). Similarly, for our loss observations, results match those of our earlier tests showing that losses accompanied by dividend payments are more likely to reverse than other loss-making observations (the coefficient on

NEG*DIV*EARN is negative for all size portfolios, and significant for all but the smallest size portfolio).

Panel B of Table 4 reports the results of estimating equation (2) on our 'eligible sample' of dividend-paying firms partitioned into size-based portfolios. The evidence suggests that our prior results are not attributable to failing to control for firm size. Paying a franked dividend is associated with more persistent profits and less persistent losses, with coefficients on the dividend interaction terms (FRANK*EARN and NEG*FRANK*EARN) significant for all quintiles except the loss-making observations in the smallest size quintile. Estimating equation (3) on size portfolios provides evidence consistent with that in Table 3. Profit-making firms paying franked dividends have relatively high earnings persistence, but there is little incremental persistence for firms paying fully franked dividends.

Overall, the results in Table 4 suggest that firm size does not appear to be driving our earnings persistence results. Further support for this conclusion is found by the re-estimation of equations (1) through (3) with the inclusion of a size quintile indicator as an additional explanatory variable. When we undertake this analysis the coefficient on size is positive (that is, larger firms have more persistent earnings) but our dividend and franking credit variables of interest retain their sign and significance.[14]

[Insert Table 4 here]

(v) Market pricing tests

[14] Results are untabulated but available upon request.

Our final hypothesis suggests that dividends and franking credits convey information to investors to help them refine their estimate of earnings persistence. We initially assess the market's estimate of earnings persistence for our full sample, before partitioning on our four categories of dividend payers. As shown in the first column of Table 5, investors underweight earnings. The coefficient on *EARN* is 0.123 (t=5.33), consistent with positive earnings in year t being followed by positive returns in year $t+1$.

The remaining columns in Panel A of Table 5 display the results of our pricing tests for firms partitioned by category of dividend payment. Results for non-dividend paying firms are similar to the full sample results with evidence that investors underweight earnings (the coefficient of 0.119, t=5.48). Tests on our samples of unfranked and partially franked dividend-payers do not allow us to reject the hypothesis that the market correctly prices the persistence information in earnings as the coefficients on EARN are not statistically significant. The incremental information in dividends and franking credits appears to reduce the degree of mispricing. However, for our sample of fully franked dividend paying firms, there is still some evidence that investors underweight current earnings, as the coefficient on EARN (0.140) is significantly different from zero (t=1.72).

Results from tests of the pricing of earnings components (accruals and cash flows) reported in Panels B & C give additional insight into the mispricing reported in Panel A of Table 5. Investors underweight cash flows for the full sample, non-dividend paying observations, and also fully franked dividend observations (the coefficient on CFO is positive and significant at 1% or better). For firm-years with unfranked or partially franked dividends, we cannot reject the hypothesis of efficient pricing of cash flows. The market also underweights accruals for

non-dividend payers for the overall sample and for non-dividend paying firm-years (i.e., the coefficients on ACCRUALS are positive and significant at 1% or better).

Our pricing tests include controls for firm size to address the concern that our partition on dividend and franking credit status is effectively partitioning on size. However, the inclusion or exclusion of an indicator variable based on forming quintiles on start of year total assets does not affect our conclusions about the extent to which the market is correctly pricing earnings and its components, and the extent to which dividend and franking credit signals are used by the market in pricing persistence.

[Insert Table 5 about here]

Mispricing could also be a result of difficulties specific to valuing loss making firms. It appears the market often underestimates the persistence of losses, particularly among unfranked and non-dividend paying firms. We present the results of estimating and pricing the persistence of accruals and cash flow after controlling for loss observations in panel C of Table 5. Again our tests include controls for firm size. Results in the first column of panel C suggest that, for profit making firms, there is no evidence that the market misprices the accrual or cash flow components of earnings, a result which also holds for firms which do not pay dividends (second column). In both cases investors appear to underestimate the implications of accruals for future returns when the firm reports a loss (i.e., the coefficient on NEG*ACCRUALS is positive and significant). For firms which pay unfranked dividends (column 3) we find that, for profit making firms, investors overweight (rather than underweight) the implications of accruals and cash flows for future returns, although this is

not the case for loss making firms (i.e., the coefficients on CFO and ACCRUALS are both negative and significant). For firms paying partially franked dividends (column 4), there is some evidence of investors underweighting the implication of CFO for future returns, but not for accruals (i.e., the coefficient on CFO is positive and significant). Finally, in the last column of Panel C we find that for firms paying fully franked dividends there is no evidence of mispricing of accruals or cash flows for profit or loss making firms. In general, we characterize our results as suggesting that the market more efficiently prices accruals and cash flows once we distinguish between profit making and loss making firms.

To address concerns about the implications of omitted variables in our tests of the market pricing of cash flows and accruals (Kraft et al. 1997), we redo the analysis in Table 5 by adding additional explanatory variables to our pricing equation. Results of this analysis are reported in Table 6. Results in panel A agree with the corresponding results from Table 5 (panel B), with one exception. For the full sample, evidence remains that investors underweight both cash flows and accruals (coefficients on CFO and ACCRUALS are 0.143 (t=5.76) and 0.060 (t=2.56) respectively). Investors also underweight cash flows and accruals for the non-dividend paying observations (positive coefficients on CFO and ACCRUALS), and underweight cash flows for the sample of firms paying fully franked dividends. The primary difference between results in panel A of Table 6 and panel B of Table 5 is that in our expanded model (Table 6), there is evidence that investors underweight cash flows for the firms paying unfranked dividends (the coefficient on CFO is 0.310 (t=1.81)).

[Insert Table 6 here]

Panel B of Table 6 reports results of estimating our expanded model while including controls for loss-making firms. Results in the first column of panel B suggest there is far less evidence that the market misprices the accrual or cash flow component of earnings for the full sample when we control for loss-making. The coefficients on CFO, ACCRUALS, and NEG*CFO are not statistically different from zero, while the coefficient on NEG*ACCRUALS is significant only at the 10% level. The remaining columns in panel B of table 6 show that the persistence of accruals and cash flows for all dividend classifications are correctly priced (using significance cut-offs of 5%, the coefficients on ACCRUALS, CFO, NEG*ACCRUALS and NEG*CFO are not statistically different from zero).

5. SENSITIVITY TESTS

We perform a number of sensitivity tests. First, we control for firm age in the basic earnings persistence models by including the log of years listed as an additional control variable (AGE) and then also including the effect of firm age on the extent to which firms paying franked dividends have more persistent earnings (i.e., FRANK*EARN*AGE). None of our conclusions are affected. In untabulated results all dividend payers have more persistent earnings than non-dividend payers, although non-dividend payers have more persistent earnings as they age. There is no incremental effect of firm age on the earnings persistence of firms paying franked dividends (i.e., FRANK*ERAN*AGE is not significant).

Our sample period spans the introduction of IFRS standards in Australia. That is, earnings are subject to different rules from 2005 onwards. We address the potential impact of this in a number of ways. First, we repeat all of our persistence tests but exclude observations where year *t+1* earnings are the first year of IFRS-based financial statements, and year *t* earnings

determined by Australian GAAP. We next estimate the persistence regressions on pre- and post–IFRS samples. Our results are robust to these additional tests; the introduction of IFRS did not change the impact of dividends and franking credit information on the persistence of earnings, and results are consistent for both pre-IFRS and post-IFRS samples.[15]

We also consider whether all forms of payments indicate greater earnings persistence. DeAngelo and DeAngelo (2006) posit that the precise form by which a cash payout occurs does not matter. However, there are different reasons for distributing cash in different forms. Special dividends and off-market buy-backs are more likely to be used by mature firms with excessive franking credits. On-market buy-backs are used by younger firms with excess cash. However, we find no evidence that a measure reflecting all forms of corporate payouts indicates more persistent earnings.[16] Only recurring dividends are a signal of greater earnings persistence.

There is also evidence that a change in the level of franking credits indicates a change in earnings persistence. We therefore include within the earnings persistence model intercept and slope terms for firms that increase (decrease) the level of franking credits. We find that firms that decrease franking credits have significantly less persistent earnings, while firms that increase franking credits while also reporting a loss have less persistent losses. Finally, firms that pay higher dividends (as measured by dividend yield) have highly persistent earnings.

[15] Results of these additional tests are not tabulated to conserve the paper's length, but are available upon request from the authors.
[16] Full details are available from the authors.

To supplement our market pricing tests, we use the Mishkin (1983) methodology (Sloan, 1996; Bradshaw et al., 2001; Xie, 2001; Collins et al., 2003; Hanlon, 2005). The Mishkin test assumes market efficiency, and therefore that only unexpected information in earnings affects future abnormal returns. If markets efficiently price the differential earnings persistence of firms classified by distribution types, then there should be no correlation between future abnormal returns and the expected level of earnings persistence.

If the information in dividends and franking credits is informative about future earnings then we expect there to be little difference between expected and priced earnings persistence for firms that pay franked dividends. Similarly, if there is less information signaled about earnings by firms that distribute no dividends or where dividends distributed are unfranked the market would be less likely to correctly price the earnings persistence. Results and inferences from our Mishkin tests are consistent with those from our OLS regressions.

6. CONCLUSION

Australian firms generally have low earnings persistence. It is therefore important to be able to identify circumstances where investors can identify incrementally more persistent earnings series. We argue that earnings persistence is a function of the profitability life cycle. Firms are expected to have more volatile earnings as they establish profitability. As they enter a steady state of profitability earnings become more persistent. Because dividends and higher franking credits are expected to reflect stages in the life cycle, they are also expected to be informative about earnings persistence.

We find strong evidence that Australian firms that pay dividends are associated with more persistent earnings and less persistent profits. The evidence is consistent with persistence increasing as firms mature. Firms paying unfranked dividends are typically trying to establish profitability. Unfranked dividend payers have more persistent earnings than non-dividend payers but less persistent earnings than more mature, franked dividend payers. Franked dividend payers are expected to be in a more mature, stable phase of the life cycle. Consistent with this reasoning, we find that these firms have more persistent profits. Compared to unfranked dividend payers, franked dividend payers have significantly less persistent losses.

Our market tests provide strong support for the market pricing earnings and its components consistent with our predictions. In particular, there is little evidence of mispricing after including a dummy variable and appropriate interaction terms for losses in our pricing model. The market on average gets it right, and this is most strongly evident when firms pay fully franked dividends. Although there is limited evidence of mispricing even after controlling for the presence of a loss, our overall conclusion is that the market does not appear to fixate on earnings.

While it is widely believed that dividends serve as a 'signal', the existing evidence addressing the information content of dividends yields relatively weak results (Skinner and Soltes, 2011). One explanation is that dividends serve as a signal about earnings attributes (or earnings 'quality'), and this is the interpretation offered by Skinner and Soltes for their evidence that dividend-paying firms have more persistent earnings. However, such evidence still begs the question as to 'why' dividends are informative about earnings persistence. Our evidence using information about earnings and the tax status of the dividend (i.e., franking status)

provides some explanation for this result, namely that dividends serve as a signal of earnings persistence because dividends also reflect firms' life cycle stage, and earnings reflects this too. Our results showing the tax status of dividends has incremental informativeness for earnings persistence reinforces our interpretation of the results.

Of course, we do not directly test the argument that life cycles are determinants of earnings persistence. Rather, we assume this to be the case, and therefore predict that dividends and their tax status will distinguish more (less) persistent profits (losses). Our results should therefore be seen as evidence in support of one explanation as to **why** dividends are viewed as important signals. The extent to which other explanations exist for signalling properties of dividends is a matter for future research.

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Table 1
Sample Construction

Firm-year observations in Aspect database over 1 January 1993 to 31 December 2010	27,121
Less:	
Missing accounting data (including requirements for lagged and one year ahead variables)	6,880
Missing share price and return data	1,109
Financial firms and Property Trusts	1,832
Less top and bottom 1% of current year earnings and one year ahead earnings	637
Final sample	**16,663**

Table 2
Descriptive Statistics

	Non-dividend paying firm-years (N=10,420)			Dividend paying firm-years (N=6,250)			Mean difference
Variable	Mean	Median	Std Dev	Mean	Median	Std Dev	*t*-values
REV ($m)	$32.82	$0.75	$240.92	$1,341.78	$107.75	$6,381.51	-20.91***
OPAT ($m)	$-4.38	$-1.21	$38.46	$104.89	$8.65	$766.93	-15.51***
CFO ($m)	$1.15	$-0.59	$30.87	$176.12	$11.67	$1,034.25	-17.26***
TA ($m)	$68.84	$10.59	$436.73	$1,972.35	$156.49	$9,155.06	-21.18***
CAPEX ($m)	$6.56	$0.46	$36.05	$106.39	$5.26	$530.73	-19.13***
RETURN	8.38%	-19.99%	137.87%	7.15%	-1.28%	58.28%	0.68
ACCRUALS	-10.96%	-6.52%	41.36%	-2.49%	-2.73%	14.41%	-15.52***
TAX ($m)	$-0.24	$0.00	$3.38	$-29.32	$-2.26	$205.71	-14.42***
NEG	0.79	1.00	0.41	0.10	0.00	0.31	-115.72***
FRANK	0.00	0.00	0.00	0.81	1.00	0.38	-212.35***

Notes:

Sample of 16,670 observations selected from ASPECT and SPPR over 1993-2010 as described in Table 1. Where:

REV ($m) = Sales (Aspect item 7090)
OPAT ($m) = Operating income after tax (Aspect item 100);
CFO ($m) = Cash flow from operating activities (Aspect item 9100);
TA($m) = Total assets at end of financial year (Aspect item 5090);
CAPEX ($m) = Purchase of fixed assets from the cash flow statement (Aspect item 9150);
RETURN = Market-adjusted buy-hold return, measured as raw buy–hold returns inclusive of dividends and subtracting the buy-hold return on a value-weighted portfolio of ASX-listed firms. The 12 month return accumulation period begins three months after the fiscal year-end of the year in which the financial variables are measured;
ACCRUALS = OPAT less CFO, scaled by prior year TA;
NEG = Indicator variable taking the value of "1" if OPAT is negative, and zero otherwise;
FRANK = Indicator variable taking the value of "1" if the firm paid a franked dividend, and zero otherwise;
TAX ($m) = Tax paid our as per cash flow statement (Aspect item 9075)

*, **, *** denote significance at 10%, 5% and 1% respectively for *t*-tests of differences in mean values between non-dividend payers and dividend payers.

Table 3
Regressions of Future Earnings on Current Earnings, Dividends and Franking Credits

Variable	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*
Intercept	-0.043	(-5.67)***	0.024	(-3.57)***	0.019	(2.83)***
EARN	0.115	(2.16)**	0.308	(3.69)***	0.483	(5.15)***
DIV	0.076	(8.82)***				
DIV*EARN	0.326	(5.78)***				
NEG	-0.104	(-8.30)***	-0.030	(-2.86)***	-0.041	(-2.75)***
NEG*EARN	0.402	(6.95)***	-0.026	(-0.14)	-0.277	(-1.24)
NEG*DIV*EARN	-0.786	(-6.01)***				
FRANK			-0.003	(-0.48)		
FRANK*EARN			0.238	(2.60)***		
FRANK*NEG*EARN			-0.318	(-2.79)***		
FFRANK					0.010	(0.04)
FFRANK*EARN					0.088	(0.82)
FFRANK*NEG*EARN					-0.369	(-1.75)*
Observations	16,631		6,170		4,632	
Adjusted R^2	36%		18%		19%	

Notes:
The dependent variable is one year ahead earnings ($EARN_{t+1}$). The *t*-values are based on two-way robust standard errors, clustered by firm and year.

EARN = $OPAT_t$ divided by TA_{t-1}
DIV = Indicator variable taking the value of "1" if the firm paid a dividend in year *t* and zero otherwise
FRANK = Indicator variable taking the value of "1" if the firm paid a franked dividend in year *t* and zero otherwise
FFRANK = Indicator variable taking the value of "1" if the firm paid a fully franked dividend in year *t* and zero otherwise
Other variables defined in Table 2.
*, **, *** denote significance at 10%, 5% and 1% respectively

Table 4

Regressions of Future Earnings on Current Earnings, Dividend and Franking Credits

Panel A: Earnings and dividends										
	Firm size									
	1 (small)		2		3		4		5 (large)	
Variable	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*
Intercept	-0.114	(-3.39)***	-0.026	(-2.01)**	-0.024	(-2.04)**	-0.012	(-0.74)	-0.003	(-0.22)
EARN	0.089	(0.83)	0.006	(0.05)	0.217	(2.70)***	0.218	(2.14)**	0.196	(1.47)
DIV	0.118	(2.37)**	0.064	(3.63)***	0.053	(3.45)***	0.032	(2.57)**	0.023	(-1.40)
DIV*EARN	0.307	(1.33)	0.311	(2.22)**	0.235	(2.09)**	0.338	(4.08)***	0.342	(3.88)***
NEG	-0.138	(-3.25)***	-0.141	(-7.33)***	-0.111	(-5.83)***	-0.063	(-4.05)***	-0.038	(-4.30)***
NEG*EARN	0.374	(3.42)***	0.484	(4.06)***	0.176	(1.70)*	0.056	(0.70)	0.077	(0.32)
NEG*DIV*EARN	-0.295	(-0.75)	-1.012	(-3.01)***	-0.733	(-2.33)**	-0.583	(-3.16)***	-0.626	(-3.13)***
Observations	3,332		3,333		3,333		3,333		3,332	
Adjusted R^2	21%		25%		28%		25%		20%	
Panel B: Earnings and franked dividends										
	Firm size									
	1 (small)		2		3		4		5 (large)	
	Estimate	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*
Intercept	-0.104	(-3.21)***	-0.020	(-1.62)	-0.013	(-1.23)	-0.003	(-0.21)	0.015	(2.22)**
EARN	0.078	(0.74)	0.015	(0.16)	0.195	(2.81)***	0.358	(4.30)***	0.284	(2.29)**
FRANK	0.080	(1.61)	0.048	(2.89)***	0.040	(2.53)**	0.024	(2.42)**	0.006	(0.56)
FRANK*EARN	0.396	(1.71)*	0.437	(3.65)***	0.329	(2.85)***	0.199	(3.31)***	0.282	(2.21)**
NEG	-0.148	(-3.58)***	-0.147	(-8.01)***	-0.120	(-6.43)***	-0.070	(-4.36)***	-0.044	(-3.71)***
NEG*EARN	0.386	(3.59)***	0.475	(4.32)***	0.201	(2.07)**	-0.083	(-1.10)	-0.019	(-0.10)
NEG*FRANK*EARN	-0.414	(-1.10)	-1.199	(-3.51)***	-0.928	(-2.73)***	-0.559	(-4.08)***	-0.617	(-3.27)***
Observations	1,234		1,234		1,234		1,234		1,234	
Adjusted R^2	16%		17%		18%		18%		19%	

(continued)

Table 4 (continued)

Panel C: Earnings and fully franked dividends

	Firm size									
	1 (small)		2		3		4		5 (large)	
	Estimate	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*	*Estimate*	*t-value*
Intercept	0.029	(1.90)*	0.001	(0.10)	0.017	(1.00)	-0.016	(-1.13)	0.045	(2.67)***
EARN	0.404	(1.93)*	0.631	(5.65)***	0.547	(2.23)**	1.007	(6.91)***	0.014	(0.04)
FFRANK	-0.016	(-0.84)	0.025	(1.53)	0.012	(0.64)	0.016	(1.17)	-0.015	(-1.08)
FFRANK*EARN	0.205	(0.79)	-0.117	(-0.65)	-0.062	(-0.22)	-0.227	(-1.34)	0.460	(1.46)
NEG	-0.057	(-1.84)*	-0.080	(-2.25)**	-0.020	(-0.88)	-0.018	(-0.84)	-0.021	(-1.31)
NEG*EARN	0.309	(0.55)	-0.794	(-5.08)***	-0.456	(-1.86)*	-0.950	(-5.43)***	-0.055	(-0.12)
NEG*FFRANK*EARN	-1.142	(-1.98)**	0.261	(0.75)	0.052	(0.19)	0.075	(0.36)	-0.598	(-1.35)
Observations	926		927		926		927		926	
Adjusted R^2	22%		20%		16%		24%		13%	

Notes:

The dependent variable is one year ahead earnings ($EARN_{t+1}$). The *t*-values are based on two-way robust standard errors, clustered by firm and year. Firm size portfolios are formed by ranking observations on start of year total assets. Variables are defined in Tables 2 and 3.

*, **, *** denote significance at 10%, 5% and 1% respectively.

Table 5

OLS regressions of future returns on earnings, cash flows, and accruals

	All firms		No dividends paid		Unfranked dividends paid		Partially franked dividends paid		Fully franked dividends paid	
Variable	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic
Panel A: Regressions of future returns on earnings										
Intercept	0.065	(1.47)	0.065	(1.40)	0.070	(0.55)	0.108	(0.47)	-0.067	(-0.95)
EARN	0.123	(5.33)***	0.119	(5.48)***	0.156	(1.40)	0.161	(0.75)	0.140	(1.72)*
Adj. R^2	0.5%		0.5%		0.5%		0.4%		0.3%	
Observations	16,321		10,147		1,146		1,113		3,915	
Panel B: Regressions of future returns on cash flows and accruals										
Intercept	0.074	(1.65)*	0.073	(1.56)	0.069	(0.53)	0.115	(0.49)	-0.069	(-0.95)
CFO	0.164	(6.43)***	0.155	(5.84)***	0.194	(1.49)	0.308	(1.25)	0.222	(2.79)***
ACCRUALS	0.075	(2.58)***	0.080	(3.08)***	0.124	(1.10)	0.047	(0.21)	-0.065	(-0.77)
Adj. R^2	0.5%		0.6%		0.6%		2.0%		1.0%	
Observations	16,321		10,147		1,146		1,113		3,915	
Panel C: Regressions of future returns on (positive and negative) cash flows and accruals										
Intercept	0.088	(2.02)**	0.083	(1.68)**	0.145	(1.06)	0.029	(0.12)	-0.058	(-0.71)
CFO	0.093	(1.03)	0.003	(0.03)	-0.156	(-2.08)**	0.678	(2.13)**	0.175	(1.28)
ACCRUALS	-0.070	(-0.81)	-0.108	(-0.93)	-0.258	(-2.73)***	0.492	(1.57)	-0.133	(-0.89)
NEG	-0.011	(-0.39)	0.000	(0.00)	-0.152	(-2.82)***	0.038	(0.58)	-0.012	(-0.27)
NEG*CFO	0.066	(0.65)	0.161	(1.21)	0.319	(0.77)	-0.712	(-1.21)	0.029	(0.14)
NEG*ACCRUALS	0.166	(2.19)**	0.210	(1.93)*	0.287	(0.82)	-0.755	(-1.21)	0.154	(0.77)
Adj. R^2	0.8%		0.6%		2.0%		2.0%		1.0%	
Observations	16,321		10,147		1,146		1,113		3,915	

Notes:

Firms with $RETURN_{t+1}$ of greater than 4 have been excluded. SIZE is an indicator variable based on quintile rankings using beginning-of-year total assets. Parameter estimates for the size indicator variables are not reported in the table to save space (but are available upon request from the authors). The *t*-statistics are based on two-way robust standard errors, clustered by firm and year. Other variables are defined in Tables 2 and 3.

*, **, *** denote significance at 10%, 5% and 1% respectively.

Table 6

OLS regressions of future returns on earnings, cash flows, and accruals and additional explanatory variables

Panel A: Cash flows, accruals and additional controls	All firms		No dividends paid		Unfranked dividends paid		Partially franked dividends paid		Fully franked dividends paid	
Parameter	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic	Estimate	*t*-statistic
Intercept	0.073	(1.51)	0.074	(1.45)	0.113	(0.70)	0.204	(0.58)	-0.095	(-0.90)
CFO	0.143	(5.76)***	0.138	(5.27)***	0.310	(1.81)*	0.184	(0.55)	0.302	(2.48)**
ACCRUALS	0.060	(2.56)**	0.067	(2.97)***	0.120	(0.82)	-0.168	(-0.48)	-0.075	(-0.60)
REV	0.011	(1.28)	0.008	(0.68)	-0.026	(-1.71)*	0.012	(0.83)	0.026	(2.43)**
ΔREV	-0.012	(-1.91)*	-0.011	(-1.37)	0.020	(1.50)	-0.011	(-0.25)	-0.032	(-1.89)*
CAPEX	0.003	(0.14)	0.007	(0.33)	-0.575	(-2.51)**	-0.396	(-1.31)	-0.010	(-0.11)
ΔCAPEX	0.002	(0.21)	0.000	(0.07)	0.372	(1.68)*	0.132	(0.48)	-0.092	(-1.10)
CFO_{t-1}	0.018	(0.62)	0.016	(0.58)	0.210	(0.83)	0.395	(1.44)	-0.186	(-1.35)
$ACCRUALS_{t-1}$	0.008	(1.31)	0.008	(1.42)	0.135	(0.63)	0.024	(0.09)	-0.186	(-2.59)***
Adj. R^2	0.6%		0.6%		2.0%		2.0%		2.0%	
Observations	14426		9,297		995		910		3,224	
Panel B: Positive and negative cash flows, accruals and additional controls										
Intercept	0.078	(1.70)*	0.068	(1.33)	0.181	(1.07)	0.164	(0.47)	-0.089	(-0.76)
CFO	0.091	(0.90)	0.026	(0.20)	-0.016	(-0.15)	0.511	(1.77)*	0.267	(1.34)
ACCRUALS	-0.067	(-0.76)	-0.078	(-0.66)	-0.274	(-1.62)	0.349	(1.31)	-0.141	(-0.66)
NEG	0.002	(0.09)	0.017	(0.61)	-0.151	(-2.44)**	-0.008	(-0.1)	0.000	(0.00)
NEG*CFO	0.052	(0.45)	0.125	(0.85)	0.127	(0.21)	-0.329	(-0.59)	0.004	(0.02)
NEG*ACCRUALS	0.151	(1.78)*	0.168	(1.45)	0.228	(0.44)	-0.781	(-1.12)	0.176	(0.57)
REV	0.011	(1.39)	0.010	(0.89)	-0.024	(-1.57)	0.012	(0.78)	0.025	(2.39)**
ΔREV	-0.012	(-1.83)*	-0.012	(-1.42)	0.022	(1.53)	-0.016	(-0.4)	-0.030	(-1.76)*
CAPEX	0.000	(0.01)	0.006	(0.31)	-0.533	(-2.47)**	-0.359	(-1.11)	-0.013	(-0.14)
ΔCAPEX	0.001	(0.11)	-0.001	(-0.07)	0.327	(1.55)	0.080	(0.28)	-0.090	(-1.07)
CFO_{t-1}	0.020	(0.69)	0.015	(0.52)	0.203	(0.8)	0.302	(1.5)	-0.176	(-1.25)
$ACCRUALS_{t-1}$	0.008	(1.25)	0.008	(1.34)	0.153	(0.71)	-0.057	(-0.24)	-0.180	(-2.58)***
Adj. R^2	0.6%		0.6%		3.0%		3.0%		2.0%	
Observations	14426		9,297		995		910		3,224	

Notes:
Observations where $RETURN_{t+1}$ exceed 4 have been excluded. CFO is cash from operations scaled by start of year total assets. SIZE is an indicator variable based on quintile rankings using beginning-of-year total assets. Parameter estimates for the size indicator variables are not reported in the table to save space (but are available upon request from the authors). The *t*-values are based on two-way robust standard errors, clustered by firm and year.

ΔREV is change in REV from year *t-1* to year *t.*
ΔCAPEX is the change in CAPEX from year *t-1* to year *t.*

Other variables are defined in Tables 2 and 3.

*, **, *** denote significance at 10%, 5% and 1% respectively.