

An Examination of Institutional Dividend Clienteles: Evidence from Australian Institutional Portfolio Holdings

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Abstract

Shareholdings for a sample of forty-nine Australian institutional equity funds show that dividend policy affects institutional holdings. Institutions tend to hold stocks that pay dividends, but among dividend-paying stocks there is no simple preference for stocks with either the highest or lowest dividend yields or dividend payout ratios. We also investigate whether dividend franking status affects institutional ownership. Institutions tend to have a higher ownership in stocks which carry full imputation tax credits compared to stocks which have partial, or zero imputation tax credits.

Keywords: dividend clienteles, institutions, portfolio holdings, imputation tax credits

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I. Introduction

Do dividend clienteles exist? In their seminal study, Miller and Modigliani (1961) demonstrate that dividend policy is irrelevant to firm value under perfect capital markets. However, allowing market imperfections, they suggested that investor tax characteristics, and the differential taxation of dividends and capital gains can lead to tax-induced dividend clienteles. This clientele hypothesis suggests a relationship between firms' dividend payout policies and investor characteristics. For example, firms that pay lower dividends attract investors with higher marginal tax rates, whereas firms with higher dividends are favoured by tax-advantaged institutional investors and retail investors with lower marginal tax rates.

The existence of tax-induced dividend clienteles has important implications for corporate financial policies, as investors' tax characteristics may influence optimal financial decisions (Hamada and Scholes (1985)). For example, Pérez-González (2003) argues that a change in the dominant shareholder's income tax rate has a significant effect on dividend payout policies. Similarly, Desai and Jin (2005) find that firms alter payout policy in response to the tax preferences of their institutional investors.

In this study we examine dividend clienteles for Australian institutional investors. To date, most of the empirical work on institutional dividend clienteles has been conducted in the U.S.A. Investigating institutional dividend clienteles in an Australian context is particularly interesting as Australia operates a full imputation system. Under the imputation system, franked dividends, which are dividends paid from

profits subject to Australian company tax, carry imputation tax credits. The Australian recipients of franked dividends are then able to reduce their tax paid on dividends by the amount of imputation tax credits. Such tax credits pass through mutual funds to the funds' investors and are particularly attractive to pension funds that effectively face a negative tax rate on dividends. This negative tax rate arises because the imputation credit generally exceeds by a substantial margin the pension funds' tax on dividends. The study therefore examines whether firms' dividend franking status affects institutional portfolio holdings.

Institutions are likely to be attracted to dividends for two primary reasons. First, institutions as fiduciaries have an incentive to hold stocks that pay higher dividends under common institutional charter and prudent-man rule restrictions (Brav and Heaton (1998)). Second, institutions prefer dividends because of the relative tax advantage on dividends (Allen, Bernardo and Welch (2000)). The implication from these theories is that institutions will prefer dividend paying stocks to non-dividend paying stocks and also prefer higher dividends.

Using monthly portfolio holdings of a sample of 49 Australian institutional equity funds from 2000 to 2001, we provide direct empirical evidence on the effect of dividends on institutional ownership. First, we find that institutional ownership is higher for dividend paying firms than for non-dividend paying firms. This result holds even after accounting for firm characteristics such as size, risk (beta) and past period abnormal returns. Second, we examine whether institutions are attracted to firms that pay higher dividends. We find little evidence of such behaviour and show that

dividend yields or dividend payout ratios do not appear to play a major role in explaining institutional ownership. We note however, that there is some evidence of an inverted U shape relationship between dividend yield (and dividend payout ratio) and institutional holdings, and that such a relationship is not likely to be detected in the linear multivariate modelling that we use. Lastly, we examine whether dividend franking status influences institutional ownership. Consistent with the tax-induced dividend clienteles, we find that institutional ownership is higher for firms that pay fully franked dividends. It appears that the availability of imputation tax credits attracts greater institutional ownership.

The rest of the paper is organised as follows. Section II presents an overview of the literature on dividend clienteles. Section III provides a description of the data and our sample. In Section IV, we study institutional portfolio holdings to test our hypotheses. Section V summarises and concludes the study.

II. Literature

A. Indirect evidence on Dividend Clienteles

The first strand of dividend clientele literature examines stock price movements around the ex-dividend day. Elton and Gruber (1970) find that the stock price drops by less than the dividend. They suggest that the observed ex-dividend price decline reflects the preferential treatment of capital gains over dividends and also reveals the marginal investor's tax rate. Consistent with their tax-clientele hypothesis, they find that the stocks with higher dividend yields have higher price drop-offs. They interpret this as implying that investor tax rates decrease with dividend yields.¹ Later studies

¹ Numerous papers such as Eades, Hess and Kim (1984), Michaely and Vila (1995), and Graham, Michaely and Roberts (2003) examine ex-dividend price behaviour and provide evidence consistent

show, however, that the ex-dividend price movement can also be affected by factors relating to short-term trading. It is suggested that factors such as transaction costs (Kalay (1982), Karpoff and Walkling (1988, 1990)), and risks of dividend capture (Grammatikos (1989), Fedina and Grammatikos (1993)) can depress the price drop and induce a positive correlation between dividend yield and the price drop.²

The second strand of studies, such as Bajaj and Vijh (1990), Denis, Denis and Sarin (1994), examines the association between dividend yields and stock price reaction around dividend change announcements. The dividend clientele hypothesis predicts that if high dividend yield stocks are held by investors with a preference for dividends, the price reactions to dividend changes should be greater for higher dividend yield stocks. These studies find evidence consistent with this view. Denis *et al.* (1994) note, however, that such price reactions to dividend change announcement are also consistent with the dividend signalling hypothesis.

The previous studies provide mixed evidence for the presence of dividend clienteles. The ex-dividend literature supports both the tax clientele and short term trading hypotheses while the dividend announcement literature is consistent with both the tax clientele and signalling hypotheses. The difficulties of inference in the indirect studies might be overcome if the characteristics of the investors were known. Recently, as

with tax clienteles. In the estimation of after tax version of CAPM, Litzenberger and Ramaswamy (1979) also find evidence of clientele effect.

² Market microstructure effect further complicates interpretation of the ex-day prices, such as the bid-ask bounce effect in Frank and Jagannathan (1998) and the tick size effect in Bali and Hite (1998). However recent research casts some doubt on the impact on ex-dividend price drop-off of such effects (Graham *et al.* (2003), Jakob and Ma (2004)).

more detailed share ownership data has become available, researchers have been able to test for different types of dividend clienteles directly.

B. Direct evidence on Dividend Clienteles

B.1. Retail Investors

Using data on the portfolios of retail investors, Scholz (1992) finds that investors with higher marginal tax rates hold a portfolio of lower yield stocks. Graham and Kumar (2005) show that older and low-income investors prefer high yield stocks.³ They also find that older and low-income retail investors buy small stocks before the ex-dividend date. Similarly, Pérez-González (2003) concludes that when a firm's large shareholders are individuals, the firm's dividend payout policy is influenced by the tax preferences of those shareholders. Overall, the evidence on dividend clienteles for retail investors is supportive of the presence of tax clienteles.

B.2. Institutional Investors

B.2.1. Theories and Hypotheses

Why do firms want to attract institutional investors? It has been suggested that institutions' monitoring roles (Shleifer and Vishny (1986), Gillan and Starks (2000)) and their information gathering abilities (Michaely and Shaw (1994)) can increase the value of the firm. A further question can therefore be asked: how do firms attract institutional investors? According to Shleifer and Vishny (1986), firms can increase their profiles and signal to the market by altering their dividend payout policies. Allen *et al.* (2000) predict that firms will pay dividends to attract institutions. They

³ They find that retail investors in general prefer non-dividend paying stocks to dividend paying stocks. However, for retail investors who hold dividend paying stocks, their preference is for larger dividends. An aversion to dividend paying stocks is inconsistent with the survey results in Brav, Graham, Harvey and Michaely (2005) who report that financial executives believe that retail investors prefer firms that pay dividends.

argue that dividends attract institutions for two reasons; taxes and regulation. First, institutions are relatively tax advantaged in relation to dividend income (Tax-advantage hypothesis). Second, institutions as fiduciaries are expected to invest according to “prudent-man rules” and firms that pay higher dividends are generally considered as more prudent (Prudent-man rule hypothesis).⁴ Allen *et al.* (2000) argue that an institutional preference for dividend paying stocks, or high dividend yielding stocks, can directly be justified by the prudent-man rule hypothesis, which should hold even in the absence of any tax advantages. Based on these theories of institutional dividend clienteles, we suggest two hypotheses that relate dividends to Australian institutional holdings.

H1: Institutional holdings will be higher in dividend paying stocks.

H2: Institutional holdings will be higher in stocks that pay higher dividends.

B.2.2. Empirical evidence

The empirical evidence on institutional dividend clienteles has provided mixed results. Del Guercio (1996) examines the impact of the prudent-man rule on institutional holdings. After controlling for several proxy variables for stock quality such as liquidity, firm size, risk and S&P ranking, Del Guercio finds that dividend yield plays no significant role in explaining the level of ownership by banks, and negatively affects mutual fund ownership. The Del Guercio study, however, provides no clear measure of the proportion of taxable/tax-exempt investors. Taking into account the tax heterogeneity within institutional investors, Strickland (1996) finds that taxable institutional investors prefer low dividend yield stocks while tax-exempt investors do

⁴ In examining the effect of the prudent-man rule on institutional ownerships, Del Guercio (1996) includes dividend yield as one of the prudence indicators.

not show any preference for either high or low yield stocks. Grinstein and Michaely (2005) show that institutions prefer dividend-paying stocks to non-dividend paying stocks. However, institutions, regardless of their types, do not exhibit any preference for high yield stocks.⁵ Further, Grinstein and Michaely find no evidence that institutional holdings affect dividend payout policies. On the other hand, Desai and Jin (2005) show that the tax preferences of institutional investors influence dividend payout policies. They find that firms with higher tax-exempt institutional ownership pay higher dividends.

Studies that examine the behaviour of institutional ownership around dividend events also provide conflicting results. Dhaliwal, Erickson and Trezevant (1999) find that dividend initiations result in higher institutional ownership. Michaely, Thaler and Womack (1995), however, find no significant drop in institutional ownership following dividend omissions. Binay (2001) examines both dividend initiations and omissions. He finds that dividend initiations lead to an increase in institutional ownership while dividend omissions result in a drop in institutional ownership.⁶

C. Evidence on Dividend Imputation Tax Credits

Under the Australian imputation tax system, Australian shareholders are able to reduce their tax paid on dividends by a franking credit equal to the Australian

⁵Grinstein and Michaely (2005) allow for investor heterogeneity among institutions to some extent. In addition to institutional holdings at aggregate level, they also examine two separate institutional holdings; holdings by bank trusts and pension funds, and holdings by mutual funds, investment advisors and insurance companies. They did not find any evidence of dividend effect even at sub-group levels.

⁶Several studies examine whether corporate investors affect firms' dividend policies and find no evidence of such influence (Poterba (2004), Barclay, Holderness and Sheehan (2005)). Desai and Jin (2005) suggest that dividend policy is at best a second order consideration for corporate investors as these investors tend to invest for strategic reasons.

corporate tax paid on the dividend received. Evidence on the market value of dividends and franking credits is mixed. Walker and Partington (1999) use data on the trading of Australian stocks on the Australian Stock Exchange cum-dividend during the ex-dividend period which allowed the simultaneous observation of cum-dividend and ex-dividend prices. Chu and Partington (2003) estimate the value of Australian dividends as the price difference between the existing shares and the new shares issued under a rights issue, in which the new share issue does not entitle the shareholder to the next dividend. Both studies show that one dollar of Australian dividends is worth significantly more than one dollar under the full imputation tax system. In contrast, Cannavan, Finn and Gray (2004) suggest that the value of imputation tax credit has been reduced to zero since the trading of imputation tax credits was prevented by a 45-day holding rule introduced in 1997.

To date, there appears to have been no research which investigates whether dividend franking status influences institutional holdings under the imputation tax system. Some institutions in Australia, such as pension funds, should have a particularly strong preference for fully franked dividends as pension funds are taxed on income at a flat rate of 15 percent, while franking credits are based on corporate rates of 30 percent or more. Therefore, pension funds can enjoy surplus credits which they can use to offset taxes on interest income and capital gains or reclaim in cash.⁷

Based on the tax advantage hypothesis, we suggest a third hypothesis in relation to the effect of franking status on institutional ownership.

⁷ Prior to 30 June 2002, the franking credit was wasted when shareholders had no tax payable on other income. From 30 June 2002, with the introduction of simplified imputation system, any portion of the tax credit not used by shareholders became refundable for cash.

H3: Institutional holdings will be higher in stocks paying franked dividends.

III. Data and Sample Description

The primary data for this study consist of the monthly portfolio holdings of a sample of Australian institutional equity managers for the period 2000 to 2001. The data is obtained from the *Portfolio Analytic database*.⁸ Table I reports the characteristics of the sample data that we use in this study. The sample contains a total of 49 funds where the value of total funds under management is almost \$30 billion in 2001. In 2000, an average fund holds a portfolio of 76 stocks and the number of stocks under management ranges from 22 to 271 stocks. The average semi-annual portfolio dividend yield in 2001 declined slightly to 1.64 percent from 1.75 percent in 2000 while the average portfolio dividend franking percentage increased from 65 percent to 76 percent.⁹ In addition, the institutions in our sample own on average 3.5 percent of the stock and a maximum of 23.15 percent in 2000. A similar pattern is observed in 2001.

[Insert Table I]

To compare dividend preference across institutional portfolios to that of benchmark market portfolio, we also obtain end-of-month composition of S&P/ASX 200 Index from the Securities Industry Research Centre of Asia Pacific (SIRCA). For each stock

⁸ A detailed description of the database is available in Gallagher and Looi (2005).

⁹ At the end of month t , we compute the dividend yield of the portfolio i , PDY_{it} as

$$PDY_{it} = \sum_{k=1}^{N_{it}} w_{ikt} DY_{ikt},$$

where DY_{ikt} is the semi-annual dividend yield of stock k in portfolio i from the most recent ex-dividend month prior to month t . The semi-annual dividend yield of stock k is calculated as the dividend amount divided by the closing price on the cum-dividend day. Within portfolio i , DY for stock k is weighted by w_{ikt} , which is the weight of stock k in portfolio i at the end of month t . The weighted dividend yields are then summed across the stocks (N_{it} is the number of stocks in portfolio i) to obtain PDY_{it} at the end of month t . Computing an average of PDY over time, we obtain the average portfolio dividend yield for portfolio i . The portfolio dividend franking percentage is computed in a similar manner.

in our sample, we collect daily closing prices, the semi-annual dividend amount, the level of franking, the ex-dividend date, monthly shares outstanding, and book-to-market ratio from ASX SEATS data (provided by SIRCA). Dividend payout ratios are collected from *Aspect Fin Analysis*.¹⁰ Beta information is obtained from *Reuters*. A total of 549 ASX listed stocks paid dividends during the sample period. Among these dividend-paying stocks, 241 stocks are contained in the portfolio holdings in our sample.

IV. Existence of Institutional Dividend Clienteles

A. Examination of Institutional Portfolio Holdings

A.1. Preference for Dividend Paying Stocks

We begin by examining the monthly portfolio holdings of institutional investors to determine whether dividend paying stocks are overweighted relative to an index benchmark. Following Graham and Kumar (2005), we compute the excess portfolio weight in dividend paying stocks (EW^{div}) as a measure of dividend preference. This is computed as the difference between the actual weight in dividend paying stocks and the expected weight in dividend paying stocks. To measure the actual weight in dividend paying stocks, we construct the aggregate institutional portfolio (Ip) at the end of each month t by combining the portfolios of all funds in our sample at time t . Each month, we compute the weight of dividend paying stocks in the aggregate portfolio ($w_{Ip,t}^{div}$). Similarly, the expected weight is calculated as the weights of dividend paying stocks in the S&P/ASX 200 Index ($w_{Mp,t}^{div}$). In month t , a dividend

¹⁰ *Aspect Fin Analysis* is the Australian financial database which provides a 12-year history of detailed accounting and financial information for all companies listed on ASX.

paying stock is defined as the stock that makes a dividend payment in the previous year. The excess weight in dividend paying stocks in the aggregate portfolio in month t is therefore,

$$EW_{lp,t}^{div} = w_{lp,t}^{div} - w_{Mp,t}^{div}.$$

We next compute an average of EW^{div} over time T .

$$EW_{lp}^{div} = \frac{1}{T} \sum_{t=1}^T EW_{lp,t}^{div}.$$

The results are presented in Figure 1. Then, we test whether these excess weights are significantly different from zero. In Panel A of Figure 1, we show that the actual weight in dividend paying stocks (92.10%) is higher than the expected weight (88.00%). Using both the t-test and the Wilcoxon rank test, we find that this difference ($EW_{lp}^{Div} = 4.10\%$) is significantly different from zero ($t=2.07, p<0.05, z=2.48, p<0.05$). The evidence suggests that the aggregate Australian institutional investors prefer dividend paying stocks. We also examine whether the aggregate institutional preference for dividend paying stocks varies across firm size. We form size quintiles at the beginning of each year using the market capitalisation at the end of the previous December. Each month t , we compute the EW^{Div} in the five size quintile portfolios ($EW_{SQi,t}^{Div}, i=1, \dots, 5$). Panel B in Figure 1 shows the average actual and expected weight in dividend paying stocks for each size quintile. Panel B shows that the actual weight in dividend paying stocks is higher than the expected weight with small-sized firms exhibiting the greatest difference.

[Insert Figure 1]

Using a two-way ANOVA, we find that the EW^{Div} in each quintile is significantly positive. EW^{Div} is significantly different from zero at the 1 percent level for Q1, Q2 and Q4 ($EW_{SQ1}^{Div}=19.07\%$, $EW_{SQ2}^{Div}=19.36\%$, and $EW_{SQ4}^{Div}=5.27\%$) and at the 5 percent level for Q3 and Q5 ($EW_{SQ3}^{Div}=3.65\%$, $EW_{SQ5}^{Div}=4.04\%$). The evidence clearly suggests that institutional investors are attracted to dividend paying stocks, particularly in the lowest two size quintiles.

A.2. *Preference for High or Low Dividends*

Given the evidence of an institutional preference for dividend paying stocks, do Australian institutions have a particular preference for stocks paying low or high dividends? To examine this issue, we first restrict the stocks contained in the portfolio holdings to those that pay dividends. We use two variables to proxy for the magnitude of dividends; dividend yield (DY) and dividend payout ratio (DPR). First, we form dividend yield quintiles at the beginning of each year, where DY is computed as total dividend per share (DPS) in the previous year divided by stock price at the end of previous December. Similarly, DPR quintiles are formed based on the ratio of the dividend per share (DPS) to the earnings per share (EPS) in the previous year.¹¹ Then, at the end of each month t , we compute the actual portfolio weight in the five DY quintile and DPR quintile portfolios. The weight in each quintile is standardised by the total value weight in dividend paying stocks in month t ($w_{lp,t}^{div}$). Using the market portfolio, the expected weights in the five quintiles are computed in an analogous manner. Panels A and B in Figure 2 provide portfolio weight in DY quintiles and

¹¹ We exclude special dividends in computing DY and DPR because the focus of this study is on the effect of regular dividend payments. The mean DYs in quintiles 1 to 5 are: Q1=0.016, Q2=0.032, Q3=0.046, Q4=0.06 and Q5=0.088. The mean DPRs in quintiles 1 to 5 are: Q1=0.30, Q2=0.52, Q3=0.65, Q4=0.79 and Q5=1.4.

DPR quintiles respectively. We first observe that using both DY and DPR measures, institutional and market portfolio holdings are concentrated in the quintiles 1 to 3. A two-way ANOVA confirms that the actual and expected weights vary significantly over the DY quintiles and the DPR quintiles. Comparing the actual weight to the expected weight in each quintile, we find that the excess weights in the lowest DY and DPR quintiles ($EW_{lp}^{DYQ1} = -8.03\%$, $EW_{lp}^{DPRQ1} = -12.42\%$) are significantly negative. The excess weight in the second lowest DPR quintile ($EW_{lp}^{DPRQ2} = -10.17\%$) is also significantly negative but insignificantly so in the corresponding DY quintile ($EW_{lp}^{DYQ2} = -1.47\%$). On the other hand, the excess weights in the third DY and DPR quintiles ($EW_{lp}^{DYQ3} = 10.62\%$, $EW_{lp}^{DPRQ3} = 20.03\%$) are significantly positive. The results are significant at the 1 percent level.¹² Using the dividend yield and the dividend payout ratio as indicators of dividend size, the results suggest that Australian institutions tend to have higher than expected of holdings in the middle quintile and less than expected holdings in the lower yielding stocks. The distribution of holdings also reveals that the holdings for both the index and institutions are much lower in quintiles 4 and 5.¹³ The pattern observed suggests that there may be non-linear (inverted U) relation between institutional holdings and preference for the magnitude of dividends, but this requires further investigation.

[Insert Figure 2]

A.3. *Preference for Franking Status*

¹² Using both measures, DY and DPR, the two-way ANOVA confirms that the excess weights in quintiles 4 and 5 are not significantly different from zero ($EW_{lp}^{DYQ4} = 1.21\%$, $EW_{lp}^{DYQ5} = -2.33\%$, $EW_{lp}^{DPRQ4} = -0.60\%$ and $EW_{lp}^{DPRQ5} = 2.16\%$).

¹³ We note that the *DYQ4* and *DYQ5* have high dividend yields in the sense that they are greater than or equal to government bond yields. In the case of *DYQ5*, the dividend yields are of the order of 9 percent, which does not seem to be a sustainable level of yield by historical standards.

We next examine whether dividend franking status affects institutional holdings. At the beginning of each year, we determine franking percentage for each dividend paying stock using the interim and final franking information in the previous year.

The franking percentage (*FRK%*) for stock *k* at the beginning of year *t* is computed as

$$FRK\%_{k,t} = \frac{InterimFRK\%_{k,t-1} + FinalFRK\%_{k,t-1}}{2}.$$

Then firms are partitioned into three franking classes: fully franked (FF), partially franked (PF) and unfranked (UF).¹⁴ At the end of each month, we then sort firms into each of the three franking groups. The actual weights (from the institutional portfolio) and expected weights (from the index portfolio) for each group are computed each month and standardised by the total value weight in dividend paying stocks in that month. In Figure 3, we show the averages of the monthly weights for each franking group. Using a two-way ANOVA, we find that the excess weight in the FF group ($EW_{ip}^{FF} = 10.40\%$) is significantly positive and the excess weight in the UF group ($EW_{ip}^{UF} = -10.30\%$) is significantly negative.¹⁵ The results are significant at 1 percent level. The result indicates that Australian institutional investors hold significantly more in stocks paying fully franked dividends than they are expected and less in stocks paying unfranked dividends.

[Insert Figure 3]

To summarise the results so far, the examination of monthly portfolio holdings suggest that relative to the index benchmark, institutions have a preference for stocks paying fully franked dividends, but not if the dividend yield is small.

¹⁴ We note that these are not equal groups. Among 241 dividend paying stocks contained in the sample of institutional portfolio holdings, the proportions of stocks that pay FF, PF and UF dividends are 66%, 17% and 17% respectively.

¹⁵ The excess weight in the PF group is not significantly different from zero ($EW_{ip}^{PF} = -0.10\%$).

B. Examination of institutional share ownership

B.1. Preference for Dividend Paying Stocks

Given that institutions hold both dividend paying and non-dividend paying stocks, the question that naturally arises is whether they take a large share of ownership in the dividend paying firms. For any stock k contained in the portfolio holding at the end of year t , institutional ownership for stock k is calculated as the aggregate number of shares of stock k owned by all funds at year t divided by total outstanding shares of stock k at that time. In each year t , we sort firms based on their end-of-year market capitalisation and group them into annual size quintiles. The annual size quintiles are then combined to form size quintiles for the whole period. For instance, the smallest quintiles for 2000 and 2001 are combined to form the smallest quintile for the full period, and so on. For each quintile, firms then are divided into the two groups: dividend paying and non-dividend paying groups. A firm is classified as a dividend paying stock if it makes a dividend payment during year t . Panel A in Table II reports means and medians of institutional ownership in each group for every size quintile. We first observe that non-dividend paying stocks tend to be smaller-sized and dividend paying stocks are concentrated in large firms. The institutional ownership also tends to be higher for large firms.¹⁶ Next, comparing the ownership between dividend paying and non-dividend-paying firms, we find that the dividend paying group has significantly higher institutional ownership than the non-dividend-paying group. The differences in the mean and median ownerships between the groups are statistically significant and this result holds for every size quintile (except for the t-test in the highest quintile).

¹⁶ The evidence of institutional preference for large stocks can be found in Del Guercio (1996), Gompers and Metrick (2001), Pinnuck (2004), and Grinstein and Michaely (2005).

[Insert Table II]

B.2. Preference for Dividend size

We next examine whether the magnitude of dividends affects institutional ownership after controlling for size. In Table II, for each size quintile, we further sort dividend paying firms into three equal groups: low, medium and high DY stocks (in Panel B) and low, medium and high dividend payout stocks (in Panel C). DY for stock k in year t is calculated as total dividend payment made during year t divided by stock price as of December 31 of year t while dividend payout ratio is computed as DPS divided by EPS reported during year t .¹⁷ Panel B of Table II provides mean and median institutional ownerships for three DY groups. A test of differences in institutional ownership is conducted between low and high DY groups. First, using all observations, we find that the median ownership in low DY stocks (3.11%) is significantly higher than that of high DY stocks (1.38%). However, after controlling for size, this pattern disappears in most of the quintiles. Most of the differences in the mean and median ownerships between low and high DY groups are not significantly different from zero. The exception is the median difference in Q3, where we find that the ownership is higher in the low DY group.

A comparison of institutional ownership between the three dividend payout groups is presented in Panel C. Unlike the result from the DY groups, it shows no significant difference in ownership between low and high payout groups in the full sample. This result holds for most of the size quintiles except in Q3 where the mean ownership is greater for the high payout group.

¹⁷ We had three observations with negative dividend payout ratios. We report the results from the sample which excluded those observations. The results from the sample including those observations are very similar to those reported.

Overall, we find little evidence that institutions have higher ownership in stocks that have high payout ratios. This result does not support the hypothesis that higher dividends attract institutions.

In summary, the results on institutional ownership suggest that institutions take a larger proportion of the equity in dividend paying firms relative to non-dividend paying firms, but no clear pattern of ownership is evident in relation to dividend yield or dividend payout ratio.

The evidence of Section IV thus far is consistent with hypotheses 1, and 3, but provides little support for hypothesis 2. However, the analysis thus far only controls for size and does not account for other firm characteristics that might affect institutional ownerships. We add additional control variables in the section that follows.

C. The Effect of Dividends on Institutional Ownership: Regression Analysis

To investigate whether the relationship between dividends and institutional ownership is robust to other determinant of institutional ownership, we run the following panel regression.

$$\begin{aligned} \text{Institutional ownership}_t = & \alpha + \beta_0 \text{Log}(\text{Market-Cap}_t) + \beta_1 \text{Beta} + \beta_2 \text{BtoM}_t + \beta_3 \text{AbRET}_t \\ & + \beta_4 \text{DUMMY}_{\text{IfPAYING}_t} + \beta_5 \text{DY}_t \text{ (or DPR}_t) + \beta_6 \text{DUMMY}_{\text{IfFF}_t} \end{aligned}$$

In addition to dividend variables, the regression includes variables to control for stock characteristics which affect institutional ownership. The control variables include: firm size (as measured by the log of market capitalisation), beta, book-to-market ratio

($BtoM_t$), and annual abnormal return ($AbRET_t$).¹⁸ We use the beta of the stock to adjust for risk, and book-to-market ratio to account for growth opportunities. The dividend related variables include: a dummy variable, $DUMMY_{IfPAYINGt}$, which takes a value of one if a stock pays dividends during year t and zero otherwise, dividend yield (DY_t), and a dummy variable, $DUMMY_{IfFFt}$, which is set to one if a stock pays fully franked (FF) dividends during year t and zero otherwise.¹⁹ We also repeat the regression analysis using dividend payout ratio (DPR_t) instead of dividend yield.²⁰ The regression results are reported in Table III.

[Insert Table III]

Firm characteristics that are found to affect significantly institutional ownership are size and beta. The result suggests that institutional ownership is higher for larger firms and firms with more market risk. Holding these and other characteristics constant, the coefficient on $DUMMY_{IfPAYINGt}$ is significantly positive suggesting that dividend paying stocks have a significantly higher institutional ownership. Thus hypothesis 1 is supported. The dividend yield has a negative coefficient but is not statistically significant. Thus hypothesis 2 is not supported. While the evidence is inconsistent with the prediction of the dividend clientele theories, it is consistent with a part of the prior empirical evidence (Del Guercio (1996), Grinstein and Michaely (2005)).

¹⁸ The annual abnormal return for stock k is computed as the annual stock return minus the expected return given by the CAPM.

¹⁹ This coding means that both partially franked, unfranked, and non-dividend paying stocks, are coded as zero. To exclude the effect of non-dividend paying stocks, we re-ran the regression using only dividend paying stocks and deleting the $DUMMY_{IfPAYINGt}$ variable. The coefficient on dividend yield (or dividend payout ratio) remained insignificant and the coefficient on the franking dummy remained positive and significant.

²⁰ In dealing with three observations with negative dividend payout ratios, we first ran the regression with an additional dummy variable which coded those observations as one. Alternatively, we also ran the regression after excluding them in the sample. The results are essentially the same and we report the results from the regression which excluded those observations.

Examining the effect of franking status, the coefficient on the franking dummy, $DUMMY_{IFFt}$, is positive and significant. This implies that institutional ownership is significantly higher for firms that pay fully franked dividends. Consistent with hypothesis 3, it appears that the availability of imputation tax credits plays a role in attracting institutional investors. The alternative specification using dividend payout ratio does not alter any of our conclusions. The coefficient on DPR is negative and insignificant and the coefficients on $DUMMY_{IFPAYINGt}$ and $DUMMY_{IFFt}$ remain significantly positive.

V. Summary and Conclusion

We study the portfolio holdings of a sample of 49 Australian institutional equity funds to examine whether dividends affect Australian institutional portfolio holdings.

The dividend clientele theories predict that institutions are attracted to dividends due to the benefit of tax concessions on dividends and the “prudent-man rule” restriction. Consistent with this prediction, we find that Australian institutions are attracted to firms that pay dividends. But within dividend paying firms, institutions as a whole have no particular preference for the highest dividends. This result is generally consistent with the U.S. empirical evidence (Grinstein and Michaely (2005), Del Guercio (1996)). We note however, that the relationship between institutional holdings and dividend yield (or dividend payout ratio) may be non-linear and this is worthy of further investigation.

We also examine whether dividend franking status influences institutional holdings. This provides indirect evidence on whether imputation tax credits are positively

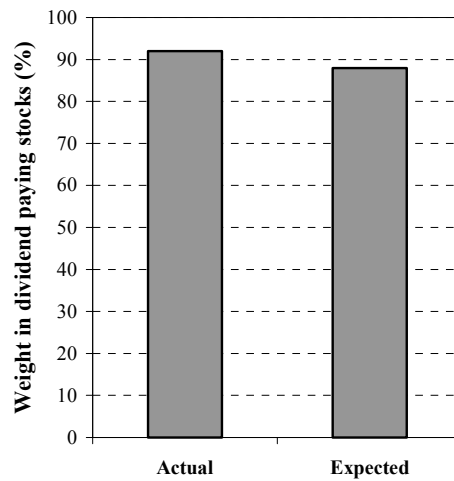
valued by Australian institutional investors. The presence of imputation tax credits can be particularly attractive to pension funds, whose tax rate on dividend income is less than the corporate tax rate. These types of institutions can therefore utilise surplus credits to offset their tax on other income. We provide evidence consistent with the tax-based hypothesis. Our result shows an institutional preference toward firms paying fully franked dividends. Institutions have a higher ownership in stocks that carry imputation tax credits than in stocks with no such tax credits available. Overall, our evidence is consistent with the existence of institutional dividend clienteles in the Australian market.

Figure 1

**Institutional preference for dividend paying stocks:
*Actual vs Expected weight***

This figure shows the aggregate preference of institutional investors for dividend paying stocks. Panel A shows the actual and expected weight in dividend paying stocks. The actual weight is measured from the sample of aggregate institutional portfolio holdings obtained from *Portfolio Analytic Database* while the expected weight is computed using the market portfolio (S&P/ASX200). In Panel B, the actual and expected weights in dividend paying stocks are shown for each of the five size quintiles where the quintiles are formed at the beginning of each year based on the market capitalisation at the end of the previous December.

Panel A: Portfolio weight in dividend paying stocks



Panel B: Portfolio weight in dividend paying stocks, *Sorted by size*

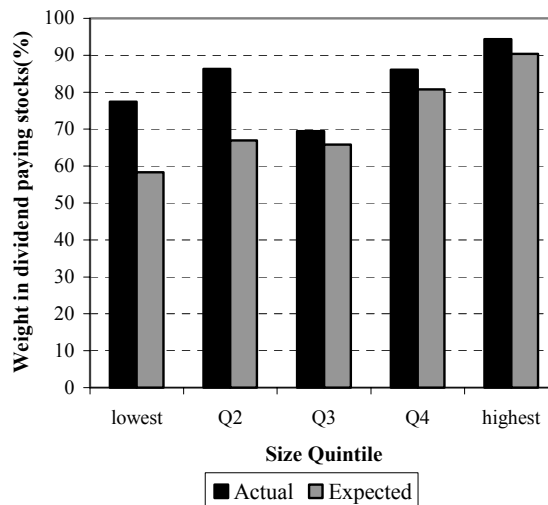
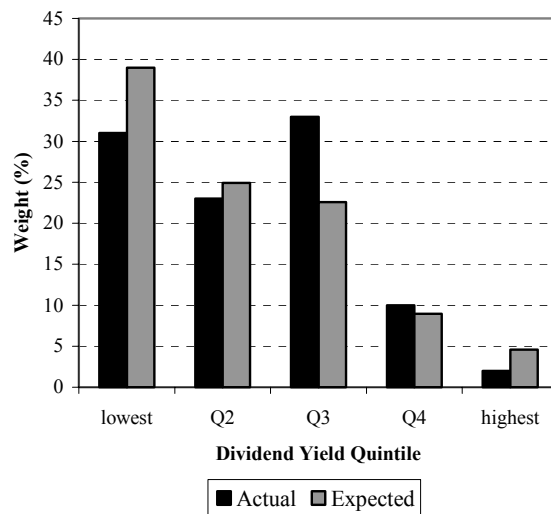


Figure 2
Institutional preference for Dividend size
Actual vs Expected weight

This figure shows the portfolio weights of dividend yield (DY) quintiles (in Panel A) and dividend payout ratio (DPR) quintiles (in Panel B) in the aggregate institutional portfolio. Within dividend paying stocks, at the end of year each, the DY quintiles are formed based on total dividend payments in the previous year and stock prices at the end of previous December. The DPR quintiles are based on the previous year's DPS and EPS. The portfolio weight allocated to stocks in each quintile is computed at the end of each month and this weight is standardised by the total weight in dividend paying stocks in that month. The averages of these monthly weights are reported. The expected weights in the quintiles in the market portfolio are computed and reported in a similar manner.

Panel A: Portfolio weight in dividend yield quintiles



Panel B: Portfolio weight in dividend payout ratio quintiles

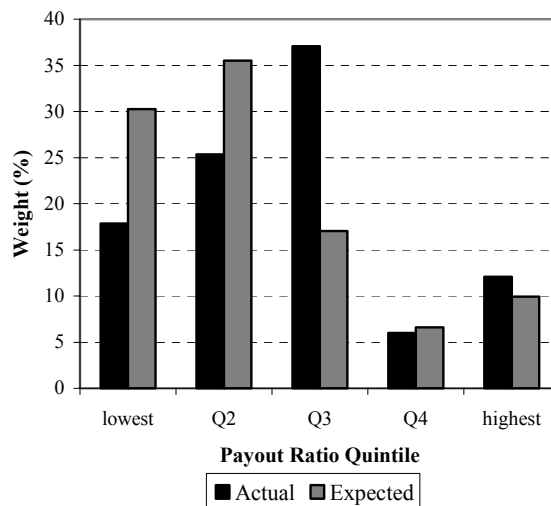


Figure 3
Institutional preference for franking status:
Actual vs Expected weight

This figure shows the portfolio weights of franking groups in the aggregate institutional portfolio. At the beginning of each year, the franking percentage for each dividend paying stock is determined as the average of the previous year's interim and final dividend franking percentages. Firms then are formed into three franking groups: fully franked (FF), partially franked (PF) and unfranked (UF) groups. The actual weights in the three franking groups are computed each month and standardised by the total weight in dividend paying stocks in that month. For each franking group, the averages of these monthly weights are reported. The expected weights in franking groups in the market portfolio are computed and reported in a similar manner.

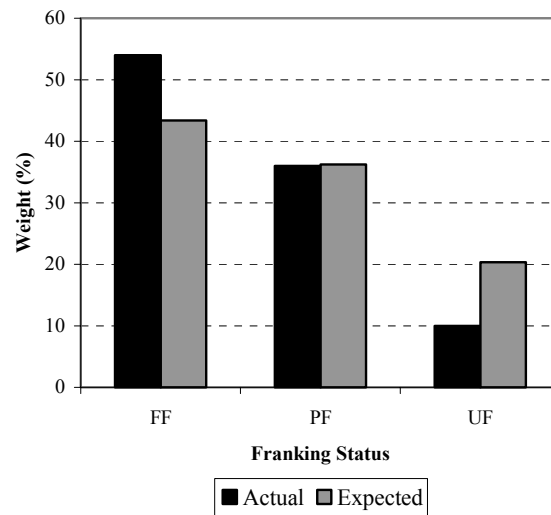


Table I
Sample Characteristics

This table presents the summary statistics for the sample of institutional monthly portfolio holdings which is obtained from *Portfolio Analytics Database* for the period from 2000 to 2001. At aggregate level, we report the total number of funds in the sample and aggregate funds under management (FUM). In addition, we provide the statistics of the following portfolio variables: i) number of stocks in the portfolio, ii) the value of FUM, iii) portfolio dividend yield (DY) and vi) portfolio franking percentage. For each fund, all the four variables are calculated monthly and averaged over the year. For any stock k contained in the portfolio holding at the end of year t , institutional ownership is calculated as the aggregate number of shares of stock k owned by all funds at year t divided by total outstanding shares of stock k at that time.

	<i>Aggregate-level</i>		<i>Fund-level</i>			<i>Stock-level</i>	
	Total No.of funds	Aggregate FUM (\$mil)	No.of Stocks	FUM (\$mil)	Portfolio DY (%)	Portfolio Franking (%)	Institutional Ownership (%)
2000	49	23787.428					
Mean			76	506.115	1.75	64.82	3.50
Median			53	140.016	1.67	64.40	2.17
Minimum			22	10.348	1.36	54.24	0.0004
Maximum			271	2883.476	2.68	75.12	23.15
2001	49	28984.378					
Mean			73	591.518	1.64	75.93	3.37
Median			49	205.403	1.62	75.70	2.28
Minimum			22	16.333	1.29	67.57	0.002
Maximum			265	3331.038	2.10	84.88	25.06

Table II
Institutional Preference for Dividends:
Examination of institutional share ownership

Panel A presents the comparison of institutional ownership between dividend paying stocks and non dividend paying stocks. For each stock k contained in portfolio holding at the end of year t , institutional ownership is computed as the aggregate number of shares of stock k owned by all funds at year t divided by total outstanding shares of stock k at that time. At year t , we sort firms into size quintiles and aggregate all firm-years into each quintile. Firms then are divided into the two groups: those that pay dividends and those that do not pay dividends. Any stock that makes a dividend payment during year t is classified as a dividend paying stock. For each size quintile, means and medians of institutional ownership in each group are reported. Test of difference in institutional ownership between paying and non-paying groups is conducted using the t-test (difference in means) and Wilcoxon Rank test (difference in medians). In Panels B and C, we further divide dividend paying firms into the three equal groups based on their DY (in Panel B) and dividend payout ratios (in Panel C); low, medium and high DY (or payout) groups. DY for stock k is calculated as total dividend payment made during year t divided by stock price as of December 31 of year t while dividend payout ratio is computed as DPS divided by EPS reported during year t . Test of difference in institutional ownership is conducted between high and low DY groups. *,** denote significance at the 5 percent and 1 percent levels, respectively.

Panel A: Institutional ownership (%) in Dividend Paying and Non-Dividend Paying Firms.

Size Quintile	Average Market Cap(\$M)	No. of Obs	Dividend Paying			Non-Dividend Paying			Test of difference in ownership: <i>Paying vs. Non-Paying</i>	
			Mean Institutional Ownership	Median Institutional Ownership	N	Mean Institutional Ownership	Median Institutional Ownership	N	<i>t</i> -test	Wilcoxon Rank test
Lowest	35	135	2.35	1.50	46	0.79	0.20	89	3.73**	4.77**
2	120	135	3.25	2.00	71	1.04	0.37	64	2.64*	3.32**
3	267	135	2.48	1.18	82	1.29	0.52	53	3.05**	3.45**
4	712	135	3.57	2.40	90	1.67	0.95	45	4.17**	3.86**
Highest	8893	135	4.29	3.64	115	2.90	2.22	20	1.83	2.08*
Total	1995	675	3.36	2.42	404	1.24	0.39	271	8.22**	11.01**

Table II- Continued

Panel B: Institutional ownership (%) within Dividend Paying Firms: Low, Medium and High DY groups

Size Quintile	Low DY			Medium DY			High DY			Test of difference in Ownership: <i>Low vs. High DY Groups</i>	
	Mean Institutional Ownership	Median Institutional Ownership	N	Mean Institutional Ownership	Median Institutional Ownership	N	Mean Institutional Ownership	Median Institutional Ownership	N	<i>t</i> -test	Wilcoxon Rank test
Lowest	2.56	1.68	11	3.02	2.36	11	1.95	0.52	24	-0.63	-1.37
2	2.45	1.13	21	3.68	2.45	17	3.54	2.11	33	1.08	0.43
3	3.19	2.40	19	2.54	1.41	29	2.04	1.01	34	-1.46	-1.99*
4	3.95	2.35	31	3.63	3.48	36	2.97	1.49	23	-0.93	-1.36
Highest	4.48	3.66	52	3.86	3.62	42	4.65	4.66	21	0.21	0.20
Total	3.70	3.11	134	3.43	2.96	135	2.95	1.38	135	-1.80	-3.26**

Panel C: Institutional ownership (%) within Dividend Paying Firms: Low, Medium and High Payout group

Size Quintile	Low Payout			Medium Payout			High Payout			Test of difference in Ownership: <i>Low vs. High Payout Groups</i>	
	Mean Institutional Ownership	Median Institutional Ownership	N	Mean Institutional Ownership	Median Institutional Ownership	N	Mean Institutional Ownership	Median Institutional Ownership	N	<i>t</i> -test	Wilcoxon Rank test
Lowest	2.71	1.60	10	1.44	0.22	12	1.82	1.08	13	-0.95	-1.26
2	2.34	1.92	24	3.86	1.22	29	2.65	2.11	19	0.43	0.15
3	1.38	0.75	27	2.69	1.89	25	2.96	1.38	32	2.54*	1.92
4	3.02	2.30	35	4.39	3.46	24	3.25	2.72	37	0.32	0.63
Highest	3.78	3.58	38	4.62	3.83	44	3.93	3.35	32	0.23	0.05
Total	2.76	2.25	134	3.77	2.83	134	3.12	2.49	133	1.09	0.77

Table III
Regression Analysis
Effect of Dividends on Institutional Ownership

This table reports estimates of the following panel regression.

$$\text{Institutional ownership}_t = \alpha + \beta_0 \text{Log}(\text{Market-Cap}_t) + \beta_1 \text{Beta} + \beta_2 \text{BtoM}_t + \beta_3 \text{AbRET}_t + \beta_4 \text{DUMMY}_{\text{if PAYING}_t} + \beta_5 \text{DY}_t \text{ (or DPR)}_t + \beta_6 \text{DUMMY}_{\text{if FF}_t}$$

The dependent variable of *institutional ownership_t* is institutional share ownership as of December 31 of year *t*, as a percentage of total shares outstanding. The control variables are i) *Log(Market-Cap_t)*, ii) *Beta* obtained from Reuters, iii) Book-to-Market ratio, *BtoM_t*, from SIRCA and iv) Annual abnormal return, *AbRET_t*, calculated as the annual return on the stock in year *t* minus its expected return given by the CAPM. In addition to the control variables, the regression includes; v) a dummy variable, *DUMMY_{if PAYING_t}*, which takes a value of one if a stock pays dividends during year *t* and zero otherwise, vi) dividend yield, *DY_t* (or dividend payout ratio, *DPR_t*), and vii) a dummy variable, *DUMMY_{if FF_t}*, which is set to one if a stock pays fully franked (*FF*) dividends during year *t* and zero otherwise. *,** denote significance at the 5 percent and 1 percent levels, respectively.

	% Institutional Ownership _t	
Intercept	-5.86 (<i>t</i> = 2.25**)	-6.04 (<i>t</i> = -2.70**)
Log (Market-Cap)	0.41 (<i>t</i> = 3.44**)	0.40 (<i>t</i> = 3.39**)
Beta	0.83 (<i>t</i> = 2.06*)	0.98 (<i>t</i> = 2.43*)
Book to Market _t	-0.05 (<i>t</i> = -1.39)	-0.06 (<i>t</i> = -1.59)
Annual abnormal return _t	-0.42 (<i>t</i> = -1.21)	-0.55 (<i>t</i> = -1.57)
Dummy _{if PAYING_t}	1.37 (<i>t</i> = 2.59**)	1.56 (<i>t</i> = 2.95**)
DY _t	-5.29 (<i>t</i> = -0.73)	
DPR _t		-0.08 (<i>t</i> = -0.35)
Dummy _{if FF_t}	1.20 (<i>t</i> = 3.00**)	1.04 (<i>t</i> = 2.62**)
<i>Obs</i>	675	672
<i>R</i> ²	12.33%	12.71%

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