

Full Length Research Paper

Tax refund for unused franking credits and shareholder pattern change: Australian evidence

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This paper examines the impact of the July 2000 tax change which provided full income rebates for unused franking credits on the shareholder pattern of dividend paying listed companies on the Australian Securities Exchange. This paper is motivated by the unique institutional setting of the Australian equity market under the dividend imputation tax system. The analysis conducted using the Australian company data from the period of 1995 to 2009 provides evidence that domestic investors prefer firms offering franking credits. The logistic regression analysis indicates that the firm's decision to distribute franking credits is significantly motivated by its ownership characteristics. The results also suggest that franking credit firms as compared to non-franking credit firms have (i) higher dividend pay-out ratio and lower foreign shareholder ownership, and (ii) higher profitability and greater liquidity.

Key words: Dividend policy, imputation, franking credits, taxes, tax credit rebate.

INTRODUCTION

Under the Australian dividend tax imputation system, shareholders receive a gross dividend, which is the cash dividend plus a franking credit, where the franking credit has the value of tax already paid on that income at the firm level. Investor preferences for retained equity were reduced with the July 2000 tax credit refund reforms that enabled Australian resident individuals, superannuation and pension funds to redeem surplus franking credits from the Australian Tax Office. Previously, when an individual investor or superannuation fund received franking credits above their payable tax, they were not entitled to any benefit from unusable franking credits. While it is likely that individual investors would have been using their available franking credits, many superannuation and pension funds did not pay tax because they had excess franking credits. The July 2000 tax change created real value in previously unused franking credits, providing an incentive for this large class of investors to actively seek franking credits.

This paper focuses on the impact of the July 2000 tax credit refund reform on the shareholder pattern of firms that offer franking credits. Additionally, it also examines whether an Australian company's decision to distribute franking credits is motivated by firm characteristics such

as dividend pay-out ratio, leverage, profitability and liquidity. Unlike the study by Pattenden and Twite (2008) that covers the period between 1982 and 1997, the sample period between 1995 and 2009 in this study spans through the introduction of the July 2000 tax reform. Thus, the study provides further evidence on the impact of taxation on dividend policy for Australian firms subsequent to this significant tax change on equity income. Despite the evidence of an increase in the number of companies offering franking credits in the Australian equity market, there has been a lack of research that focuses on the specific impact of the July 2000 tax credit refund reform on the shareholder pattern change of Australian firms. This paper seeks to extend the scope of the existing body of literature by analysing the tax credit refund impact on the shareholder pattern of Australian firms that offer franking credits.

The remainder of this paper is structured as follows. Subsequently, an overview of the Australian tax regime is provided, after which a survey of the relevant literature was given. This was followed by development of various hypotheses that are subsequently explored. Then the data and sample period of this study were outlined, before the methodology employed in the empirical tests

was discussed. Finally, the summary statistics and empirical results were presented, before the study was concluded.

AUSTRALIAN TAX REFORMS

Australia made significant changes to the taxation of equity income between 1985 and 2000. The main tax changes were: (i) the introduction of a capital gain tax in 1985, (ii) the introduction of the dividend tax imputation system in 1987, (iii) the imposition of a 15% tax on superannuation fund's investment income in 1988, (iv) the introduction of the related payment rule, the 45-day holding period rule and the 30% delta rule in 1997, (v) the cessation of indexation for capital gains in 1999, and (vi) the introduction of the refund of excess imputation credits in July 2000. These taxation changes had the following implications.

Firstly, from September 1985 to November 1999, realized capital gains were subject to normal income tax rates. Under these new provisions, the indexation of capital gains was frozen in 1999. The indexation was replaced by the provision that 50% of nominal gains for individual taxpayers and 33.3% for superannuation funds were deducted from the nominal gains and the remainder was taxable at the appropriate marginal rate of taxation. Companies did not receive such concessions and all of their nominal capital gains were taxable at the statutory corporate tax rate. If a firm retained funds for internal use instead of paying franked dividends and the retained earnings translated into share prices, then Australian tax resident shareholders were taxed on the resultant capital gains when they were realized (assuming the shares were purchased after 19 September 1985).

Secondly, the introduction in 1987 of the Australian imputation regime enabled the payment of cash dividends to shareholders with attached imputation credits (The details of the imputation system can be found in Hamson and Zeigler (1990), Howard and Brown (1992), Officer (1994), Twite (2001) and Pattenden and Twite (2008)). Australian tax-resident shareholders are liable to tax at their marginal personal tax rate on the cash dividend plus attached franking credits. Franking credits are limited to the minimum of the actual corporate tax paid by the firm or the ratio of $t_c / (1-t_c) \times$ cash dividend paid, where t_c is the statutory corporate tax rate. The attached franking credits are then available for offset against the personal tax liability of the shareholder. Thus, the imputation system removed the "double taxation of dividends" for tax resident shareholders and superannuation funds.

Thirdly, effective 1 July, 1988, superannuation funds were only taxable at the rate of 15% on dividend income. Also pension funds, which were previously tax-exempt, were subject to the same 15% tax rate. Franking credits were not able to be carried forward to future income years.

Fourthly, in 1997, the Australian Government announced three sets of measures: (i) the Related Payment Rule, (ii) the 45-Day Holding Period Rule and (iii) the 30% Delta Rule. The Related Payment Rule prevented franking credit trading by foreign firms and tax exempt investors. The 45-Day Holding Period Rule required that traders hold a share for 45 days around the ex-dividend date in order to gain entitlement to the franking credit. The 45-day rule stopped investors from trading around the ex-dividend date in order to gain entitlement to the franking credits. An additional measure, which is the 30% Delta Rule also introduced in 1997, stipulated that investors seeking to claim franking credits had to remain at least 30% exposed to movements in the value of underlying stock. Legislation supporting these rules was retrospective law and was not enacted until two years after the announcement in 1997. These rules reduced the capacity of important classes of investors to use franking credits (for example, foreign investors that made up around half of the investor base for the combined value of Australian equities and bonds).

Fifthly, under the capital gains tax laws introduced in 1999, (i) capital assets purchased before 30 September 1999 and held for one year remained subject to indexation discounting, (ii) capital assets purchased after 30 September 1999 and held for one year became subject to the new discounting method, and (iii) the new discounting introduced the provision that 50% of nominal gains for individual tax payers and 33.3% for superannuation funds were to be deducted from nominal gains and the remainder was taxable at the appropriate marginal rate of taxation.

Sixthly, the July 2000 tax reform introduced a cash refund for unused imputation tax credits. This enabled individuals, superannuation and pension funds to become entitled to a tax refund for their excess or unused franking credits. Previously, when an individual, superannuation or pension fund received franking credits in excess of their payable tax, they were not entitled to any benefit from unusable credits. The July 2000 tax changes were perceived as being particularly valuable to many Australian resident superannuation and pension funds that had excess franking credits, if their tax rate on dividend income was less than the statutory corporate tax rate.

PRIOR LITERATURE

Tax incentives to distribute franking credits

The introduction of the dividend imputation tax system in Australia in 1987 was a major change in the taxation of Australian dividends as it essentially removed double taxation of these dividends for Australian resident shareholders (Heaney, 2010) (Prior to this change earnings were taxed once at the corporate level at the corporate tax rate and then at the individual investor level

tax rate when dividends were paid out. This change to the Australian tax system creates an integrated tax system for Australian resident shareholders with dividend income being taxed at the investor's marginal income tax rate). The impact of a dividend imputation tax regime was to reduce the tax advantage of debt and encourage greater distribution of dividends with attached imputation credits. In the context of the Australian tax imputation system, Nicol (1992) argued that a listed company should pay franked dividends to the limit of its franking account while still maintaining its investment activity.

Bellamy (1994) studied the development of shareholder clienteles in the Australian capital market during the 1985-1992 periods and found that companies paying franked dividends have significantly increased dividend payments relative to companies paying dividends with little or no franking credits.

Beggs and Skeels (2006) studied the impact of dividend imputation including the 2000 tax credit refund reform (for the 1986-2004 period) and suggested that the reforms, which allowed a tax rebate on unused franking credits, significantly increased the value of franking credits to the marginal investor. Twite (2001) also argued that the dividend imputation tax system establishes a tax-preferred dividend distribution policy. With the taxing of pension funds, domestic investors have a tax preference for the distribution of franked dividends and the retention of unfranked dividends.¹ A later study by Pattenden and Twite (2008) for the 1982-1997 period showed that after the introduction of the imputation regime, Australian firms with a high proportion of income available as franked dividends increased their gross dividend payouts in order to satisfy investor demand for franking credits.

Value of imputation tax credits

An important parameter under an imputation system is the value or utilization rate of an imputation credit. For eligible shareholders under the Australian dividend tax imputation system, imputation tax credits represent a benefit from the investment in addition to any cash dividend or capital gains received. The impact of imputation on the value of the firm can be modelled from the perspective of either a reduction of corporate taxes or personal taxes on dividends. Depending on the tax status and domicile, imputation or franking credits are used by investors to reduce their personal taxes.

The evidence on the value of imputation credits in the Australian market is mixed. Handley and Maheswaran (2008) examined Australian taxation statistics in order to

estimate the extent to which franking credits have ex-post reduced the personal taxes of various classes of resident and non-resident equity investors in Australian firms. Their study covered the seventeen year period from 1988 to 2004. By comparing the (estimated) aggregate dollar amount of credits received by investors to the (estimated) aggregate dollar amount of credits utilized by investors (to reduce personal taxes), Handley and Maheswaran (2008) reported an average utilization rate across all investors of around 70 to 80%. The estimate of 70% is based on pre-2001 data and does not include an allowance for cash refunds of excess franking credits. The estimate of 80% assumed that the cash refund provisions introduced in July 2000 would have taken full effect in 2001.

Beggs and Skeels (2006) analysed the ex-dividend behaviour of share prices in the Australian market from 1986 to 2004. They argued that the year 2000 tax change that allowed for a tax rebate of unused franking credits increased the value of franking credits to the marginal investor, and raised the estimated gross drop-off ratio. They concluded that the utilization rate of imputation credits in the Australian market was 0.57. However, the results of Beggs and Skeels analysis for the most recent period of 2001 to 2004 showed that franking credits were valued at 58 cents in the dollar.

A further study by Hathaway and Officer (2004), using the dividend drop-off method, concluded that the average access factor across Australia for the period of 1988 to 2000 was 78 and 72% for the period of 1988 to 2001. They also estimated the value of imputation credits at about 42% of their face value.

The Strategic Finance Group (SFG)² also undertook a dividend drop-off study using data on dividend paying events and examined the average ex-dividend price change associated with the dividend and imputation credits paid. The SFG study (2011) used data from DAT Analysis from 1 July 2000 to 30 September 2010. The SFG concluded that the utilization rate of imputation credits was 0.35.

Cannavan et al. (2004) estimated the value of imputation credits in Australia by inferring the value of cash dividends and tax credits from the relative prices of share futures and the individual shares on which those futures were written. The study determined the value of dividend imputation credits from two types of derivative securities: individual share futures (ISFs) and low exercise price options (LEPOs). They found that prior to the 45-day rule imputation, credits were valued at up to 50% of the face value for high-yielding firms. However, after the 45-day rule³, imputation credits were effectively worthless to the

¹Howard and Brown (1992) state that, under imputation, the optimal dividend policy for most Australian companies is to pay the maximum possible franked dividends. Brown and Clarke (1993) maintain that changes to the Australian taxation laws have substantially affected the attractiveness of dividends relative to capital gains and by 1990 shareholders typically obtained 80% of the benefit of the imputed tax credit, which favours dividends over capital gains.

²SFG, *Dividend drop-off estimate of theta – Final report*, Re: Application by ENERGEX Limited, March 2011.

³The holding period rule requires that traders hold a share for 45 days around the ex-dividend date in order to gain entitlement to the franking credit. The rule was made effective from July 1997 but was not enacted until 1999.

marginal investors of ISFs and LEPOs. The implied value of dividend imputation credits from this study was between 0 and 0.5.⁴

HYPOTHESIS DEVELOPMENT

Here, this study's hypotheses were developed to examine the impact of tax credit refund reform on the shareholder pattern of dividend paying listed companies on the Australian Securities Exchange. Hypotheses that may explain reasons why firms distribute franking credits and why the tax-paying domestic investors prefer such firms in the Australian equity market were also postulated. Theories that may explain the reasons are broadly classified into (i) taxes, (ii) profitability and liquidity, and (iii) free-cash flow and leverage.

Taxes

The impact of the July 2000 tax credit refund reform is to reduce the tax advantage of debt and encourage greater distribution of franked dividends. The reasons are as follows. First, the payment of cash dividends, with attached franking credits, is subject to an effective lower personal tax rate compared to tax payable under a classical tax system. Secondly, post the July 2000 tax reforms many superannuation and pension funds are likely to be able to redeem for cash the value surplus franking credits from the Australian Tax Office. Thirdly, payment of dividends will reduce the firm's share price and lower any capital gains tax payable on disposal of the shares. Brown and Clarke (1993) argued that changes to the Australian capital gains tax regime increased the attractiveness of dividends relative to capital gains.

Under the Australian imputation regime, foreign shareholders and Australian tax-exempt investors who are unable to fully utilize the value of the franking credits may not seek stocks with franking credits. The anti-streaming provisions also mean that the sale or transfer of franking credits to Australian resident investors is costly and difficult to implement.

⁴The jurisdictional regulators in Australia often separate estimates of the 'imputation credit payout ratio' (F) and the utilization rate (θ or theta). They have consistently adopted a value of gamma of around 0.5 (with a range of 0.3 to 0.5 in their most recent decisions (AER, 2009). Despite the consistency in the final value of gamma adopted by the jurisdictional regulators in past decisions, there have been widely divergent views among jurisdictional regulators on the three key variables: the payout ratio (ranging from 0.71 to 1.00), the utilization rate (ranging from 0.50 to 1.00) and the range adopted for gamma, from which a point estimate is determined (lower and upper bounds of 0.30 and 1.00). The most recent estimates of the payout ratio (F) quoted by Australian energy regulators have ranged between 0.39 and 1.00 (AER, 2009). However, in a recent regulatory decision, the Australian Energy Regulator ("AER") concluded that the value of an imputation credit in the Australian market was between 0.67 and 0.81 for the post-2000 tax refund reform period. These estimates were taken from the study by Handly and Maheswaran (2008) as an upper bound estimate.

In summary, the introduction of the tax credit refund reform and the changes to the taxation of capital gains in 1985 will have shifted shareholders' preferences in favour of franked dividends rather than higher market prices for shares. The July 2000 tax credit refund reform also creates an incentive for superannuation and pension funds to actively seek franking credits. However, some recipients of dividends who are non-resident investors or not liable for Australian taxation may not seek franking credits.

Thus, this study posits the likelihood of firms distributing franking credits to increase with the introduction of the July 2000 tax credit refund reform and, *ceteris paribus*, firms offering franking credits to have higher dividend payout ratios, higher domestic shareholder ownership and lower foreign shareholder ownership than dividend paying firms with no franking credits. It is also posited that more firms will offer franking credits in the post-tax credit refund rule period (2001-2009) than in the pre-tax credit refund rule period (1995-2000). Thus, this study hypothesizes that:

H₁: Firms offering franking credits have higher dividend payout ratios than firms offering no franking credits.

H₂: Firms offering franking credits have higher domestic shareholder ownership than firms offering no franking credits.

H₃: Firms offering franking credits have lower foreign shareholder ownership than firms offering no franking credits.

H₄: More firms offer franking credits in the post-tax credit refund rule period (2001-2009) than in the pre-tax credit refund rule period (1995-2000).

Profitability and liquidity hypothesis

A positive relationship between profitability and dividend payouts has been proposed in previous studies. Myers and Majluf (1984) argued that higher profitability results in higher dividends because greater profitability implies a greater availability of internal funds for dividend payments. Amidu and Abor (2006), Jensen et al. (1992) and Pruitt and Gitman (1991) found a significant positive relationship between profitability and dividends.

Firm liquidity is also hypothesized to positively impact dividend payouts. Poor liquidity implies a cash shortage and thus fewer or no dividends, whereas good liquidity means adequate cash for large dividends. Under the July 2000 tax credit refund reform, firms with higher profitability and liquidity are more likely to distribute franking credits than firms with lower profitability and liquidity.

This study predicts, *ceteris paribus*, that firms with higher profitability and liquidity are more likely to offer franking credits than firms with lower profitability and liquidity. As such, it hypothesizes:

H₅: Firms with high profitability are more likely to offer

franking credits compared to firms with low profitability.

H₆: Firms with high liquidity are more likely to offer franking credits compared to firms with low liquidity.

Free-cash flow and leverage hypothesis

Wang et al. (1993) suggested that if managers have excess cash flow under their control, they will have the incentive to raise their compensation by enlarging the firm size beyond the optimal level. In terms of agency costs, the dividend payments may reduce cash flows under management control, and thus help mitigate the agency problems (Frankfurter and Wood, 2002). Any increase in dividend payouts with attached franking credits implies an increase in franking credit distribution. Higher leverage reduces the free cash flow available to managers; restricting managers' capacity to engage in firm value decreasing activities. Stulz (1990) also argued that debt has a disciplinary effect forcing managers to disgorge cash flows. Thus, it is predicted that firms with higher relative debt levels, *ceteris paribus*, are more likely to distribute franking credits than firms with lower debt levels. This study hypothesizes:

H₇: Firms with high debt levels are more likely to offer franking credits compared to firms with low debt levels.

DATA

The sample consists of dividend paying firms drawn from the population of all listed firms on the ASX (Australian Securities Exchange) over the period between 1995 and 2009. This period spans through the introduction of the July 2000 tax credit refund rule that enables domestic investors to claim a cash refund for unused tax credits from the Australian Taxation Office. Financial data (sourced from the firm's balance sheet, profit and loss account and cash flow statements), equity and dividend data were obtained from the DAT Analysis and Fin Analysis databases. Where necessary the extracted information was cross checked with ASX's share market event files and company annual reports. Firms with incomplete data were removed from the sample. Firm observations were grouped into dividend paying stocks with and without a franking credit. The final sample comprised cross-sectional time-series data, with 4783 observations of firms with a franking credit and 1447 observations of firms without a franking credit (Table 2). Of the total dividend paying firm observations of 6230, there are 3443 firm observations with a franking credit and 1022 firm observations without a franking credit in the post-tax credit refund period (1995-2000). This is higher than the number of firm observations with and without a franking credit in the pre-tax credit refund period (1995-2000) of 1340 and 425. The sample of observations was drawn from a range of industry groups.

The firm characteristic variables, which were used to

test this study's hypotheses and that may impact on the decision to distribute franking credit, were computed using the data from the firm's financial statements and the firm's dividend history.

METHODOLOGY

To identify the factors distinguishing firms with a franking credit and dividend-paying firms without a franking credit, first this study undertook univariate analysis and compared the independent variables for both the franking credit and non-franking credit sample. In multivariate analysis, a logistic regression model was used. The dependent variable is a dummy, with 1 representing firms with a franking credit and 0 for firms without a franking credit.

This study's logistic regression model, used to identify the factors distinguishing franking credit firms from dividend paying non-franking credit firms is:

$$\text{Franking Credit Dummy}_{i,t} = \beta_0 + \beta_1 \text{Dividend Payout Ratio}_{i,t} + \beta_2 \text{Domestic Ownership}_{i,t} + \beta_3 \text{Foreign Ownership}_{i,t} + \beta_4 \text{Period Dummy} + \beta_5 \text{Debt/Total Assets} + \beta_6 \text{Return on Assets (EBIT / Total Assets)}_{i,t} + \beta_7 \text{Current Ratio}_{i,t} + \beta_8 \text{Tobin's Q}_{i,t} + \beta_9 \text{Natural log of Total Assets}_{i,t} + \beta_{10} \text{Natural log of Market Capitalization}_{i,t} + \beta_{11} \text{Operating Cash Flow / Total Assets}_{i,t} + \text{Error.} \quad (1)$$

The variables are expressed for the i^{th} firm in the t^{th} period. Table 1 shows the definition of explanatory and control variables used in Equation 1. This study predicts that firms with a high dividend payout ratio are more likely to distribute franking credits than firms with a low dividend payout ratio (H₁). Domestic ownership, a proxy for the percentage of domestic shareholders in the total company ownership, is expected to have a positive coefficient (H₂). It is expected that a negative coefficient for foreign ownership (H₃) would represent the percentage of foreign (non-resident) shareholders in the total company ownership. The Period Dummy variable is tested for the impact of the July 2000 tax credit refund reform effect (H₄). This study expects a positive coefficient on Period Dummy. Profitability defined as return on assets (EBIT/Total Assets) and liquidity defined as current ratio (Total Current Assets/ Total Current Liabilities) are expected to have a positive coefficient under the profitability and liquidity hypotheses (H₅ and H₆). This study predicts a positive coefficient on Debt/Total Assets under the free-cash-flow and leverage hypothesis (H₇).

Tobin's Q, a proxy for growth, and size (natural logarithms of total assets and market capitalization) are used to control for growth and firm size respectively. As such, this study expects a positive coefficient on Tobin's Q and firm size. The reason is firms with larger size and higher growth have the ability to distribute and maintain a

Table 1. Definition of explanatory and control variables.

Variable	Definition	Type of variable	Rationale of use
Franking credit dummy	Takes a value of 1 for franking credit firm observations and 0 otherwise	Dependent-Dichotomous	Decision to distribute franking credits
Dividend payout ratio	DPS /Unadjusted EPS from profit &loss account.	Explanatory	Test of taxation hypothesis
Domestic ownership	% of shareholdings by domestic (resident) investors	Explanatory	Test of taxation hypothesis
Foreign ownership	% of shareholdings by foreign (non-resident) investors	Explanatory	Test of taxation hypothesis
Period dummy	Takes a value of 1 for firm observations in the post-tax credit refund period (2001-2009) and 0 for firm observations in the pre-tax credit refund period (1995-2000)	Dichotomous-Explanatory	Test of tax credit refund reform impact.
Profitability (Accounting profitability)	Return on assets = EBIT /Total assets.	Explanatory	Test of profitability hypothesis.
Liquidity	Current ratio = Total current assets /Total current liabilities.	Explanatory	Test of liquidity hypothesis.
Debt	Debt / TAS = [Short term debt + long term debt – Cash at the end of period] / [Total Assets].	Explanatory	Test of free-cash-flow and debt (leverage) hypothesis.
Growth	Tobin's Q = [Market capitalization + (Short term debt + Long term debt)] / [Total equity + (Short term debt + Long term debt)].	Control	Control for growth
Size	Natural logarithms of total assets and market capitalization	Control	Control for firm size.
Operating cash flow profitability	Operating cash flow /Total assets = Cash flow profitability	Control	Control for operating cash flow profitability.

higher level of franking credits than firms with smaller size and lower growth. Operating Cash Flow / Total Assets is used to control for operating cash flow profitability and a positive coefficient is predicted in turn. Firms with higher cash flow profitability are more likely to distribute dividends with attached franking credits than firms with lower cash flow profitability.

EMPIRICAL RESULTS

Summary statistics

Table 2 shows the number of observations for firms with a franking credit and firms not offering a franking credit over the sample period between 1995 and 2009. There

are (1340) franking credit firm observations in the pre-tax credit refund rule period between 1995 and 2000. The number of non-franking credit firm observations in the same period is 425. The post-tax credit refund rule period between 2001 and 2009 has a greater number of franking credit firm observations (3443) and non-franking credit firm observations (1022) than the pre-tax credit refund rule period. The results in Table 2 show that the percentage of firm observations with a franking credit in the post-tax credit refund period (77.11) is greater than the percentage of firm observations with a franking credit (75.92) in the pre-tax credit refund period. The evidence is consistent with H₄ which stipulates that the number of firms offering franking credits is more in the post-tax credit refund rule period than in the pre-tax credit refund

Table 2. Sample characteristics. **Panel A:** Sample characteristics by year.

Year	No. of franking credit firm observations	No. of non-franking credit firm observations	Total	% of franking credit firm observations	% of non-franking credit firm observations
1995	181	50	231	78.35	21.65
1996	203	55	258	78.68	21.32
1997	216	66	282	76.60	23.40
1998	230	77	307	74.92	25.08
1999	247	84	331	74.62	25.38
2000	263	93	356	73.88	26.12
2001	311	87	398	78.14	21.86
2002	310	86	396	78.28	21.72
2003	321	89	410	78.29	21.71
2004	377	97	474	79.54	20.46
2005	414	108	522	79.31	20.69
2006	432	133	565	76.46	23.54
2007	457	146	603	75.79	24.21
2008	451	144	595	75.80	24.20
2009	370	132	502	73.71	26.29

Table 2. Continued. **Panel B:** Sample characteristics by period.

Period with a franking credit	No. of firm observations with a franking credit	% of firm observations without a franking credit	No. of firm observations without a franking credit	% of firm observations	Total
Pre-tax credit refund rule period	1340	75.92	425	24.08	1765
Post-tax credit refund rule period	3443	77.11	1022	22.89	4465
Total	4783	76.77	1447	23.23	6230

Pre-tax credit refund rule period (1995-2000) refers to the period prior to the introduction of the July 2000 tax credit refund reform. Post-tax credit refund rule period (2001-2009) is the period post the July 2000 tax credit refund reform.

rule period.

Univariate results

Table 3 reports the univariate results for the variables used in the empirical analysis. Panel A of Table 3 presents the results for the combined pre and post-tax credit refund period between 1995 and 2009. The mean (median) dividend payout ratio for the franking credit firms is 0.655 (0.664). This is lower (higher) than the mean (median) dividend payout ratio for the non-franking credit firms of 0.642 (0.697). The results do not fully support H₁ that franking credit firms have higher dividend payout ratios than non-franking credit firms. The mean (median) value of domestic ownership for the franking credit firms is 0.985 (0.994). This is higher than the mean

(median) value of domestic ownership for non-franking credit firms of 0.971 (0.993), with the mean difference significant at 0.01 level under the *T*-test. The evidence strongly supports H₂ that franking credit firms are more likely to have higher domestic ownership than non-franking credit firms. The results in Panel A of Table 3 also suggest that franking credit firms have lower foreign (non-resident) ownership as compared to non-franking credit firms (supporting H₃). The evidence provides weak support for H₅ that franking credit firms have larger accounting profitability compared to non-franking credit firms. There is strong support for the liquidity hypothesis (H₆) that franking credit firms have higher liquidity than non-franking credit firms, with the mean difference significant at the 0.01 level. The mean (median) Debt/Total Assets for the firms with a franking credit is

Table 3. Univariate analysis (Firms offering franking credit and firms not offering franking credits). **Panel A:** Pre and post-tax credit refund periods (1995-2009).

Variable	Expected sign of T-Test	N	Mean	Median	SD	Q1	Q3	N	Mean	Median	SD	Q1	Q3	T- test
Dividend payout ratio	Positive	4783	0.655	0.664	0.271	0.472	0.909	1447	0.642	0.697	0.354	0.326	1.000	1.455 (0.146)
Domestic ownership	Positive	4783	0.985	0.994	0.043	0.988	0.997	1447	0.971	0.993	0.081	0.982	0.997	7.574 (0.000)***
Foreign ownership	Negative	4783	0.013	0.004	0.043	0.002	0.010	1447	0.026	0.005	0.080	0.002	0.015	-7.061 (0.000)***
Return on assets (EBIT/Total assets)	Positive	4783	0.102	0.084	0.343	0.000	0.134	1447	0.080	0.029	0.555	0.000	0.090	1.861 (0.063)*
Current ratio	Positive	4783	4.415	1.480	2.002	1.090	2.240	1447	2.438	1.276	2.499	0.720	2.110	2.967 (0.003)***
Debt/Total Assets	Positive	4783	0.056	0.054	0.238	-0.058	0.229	1447	0.078	0.004	0.214	-0.033	0.208	-3.128 (0.002)***
Tobin's Q	Positive	4783	0.307	0.268	0.301	0.012	0.439	1447	0.560	0.490	0.405	0.209	1.000	-25.665 (0.000)***
Natural log of total assets	Positive	4783	19.394	19.042	2.124	17.819	20.639	1447	19.211	19.849	3.922	18.370	21.130	2.290 (0.022)**
Natural log of market capitalization	Positive	4783	5.400	5.183	2.040	3.887	6.771	1447	5.345	5.443	2.255	3.866	6.907	0.866 (0.387)
Operating cash flow/ Total assets	Positive	4783	0.098	0.076	0.391	0.029	0.133	1447	0.085	0.056	0.576	0.028	0.105	0.926 (0.355)

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**) and 0.10 (*) levels.

Table 3. Continued. **Panel B:** Pre-tax credit refund period (1995-2000).

Variable	Expected sign of T-Test	N	Mean	Median	SD	Q1	Q3	N	Mean	Median	SD	Q1	Q3	T -Test
Dividend payout ratio	Positive	1340	0.646	0.655	0.265	0.481	0.873	425	0.593	0.609	0.351	0.312	1.000	3.276 (0.001)***
Domestic ownership	Positive	1340	0.991	0.996	0.019	0.992	0.999	425	0.981	0.995	0.046	0.989	0.997	5.085 (0.000)***
Foreign ownership	Negative	1340	0.007	0.002	0.018	0.001	0.006	425	0.015	0.003	0.045	0.002	0.008	-4.520 (0.000)***
Return on assets (EBIT/Total assets)	Positive	1340	0.107	0.084	0.616	0.021	0.123	425	0.136	0.048	1.009	0.000	0.096	-0.717 (0.473)
Current ratio	Positive	1340	1.844	1.387	2.893	1.050	1.950	425	1.694	1.210	2.865	0.765	1.910	0.935 (0.350)
Debt/Total assets	Positive	1340	0.095	0.096	0.196	-0.018	0.248	425	0.093	1.312	0.193	-0.026	0.245	0.105 (0.917)

Table 3. Continued. Panel B:

Tobin's Q	Positive	1340	0.306	0.286	0.283	0.044	0.428	425	0.507	0.433	0.375	0.192	1.000	-11.710 (0.000)***
Natural log of total assets	Positive	1340	19.218	18.807	2.156	17.693	20.517	425	18.444	19.315	2.400	17.544	20.530	4.850 (0.000)***
Natural log of market capitalization	Positive	1340	5.070	4.821	2.065	3.479	6.463	425	4.663	4.832	2.381	2.951	6.412	3.363 (0.001)***
Operating cash flow/Total assets	Positive	1340	0.077	0.069	0.108	0.026	0.114	425	0.077	0.064	0.101	0.035	0.109	-0.143 (0.886)

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**) and 0.10 (*) levels.

Table 3. Continued. Panel C: Post-tax credit refund periods (1995-2000).

Variable	Expected sign of T-test	N	Mean	Median	SD	Q1	Q3	N	Mean	Median	SD	Q1	Q3	T-test
Dividend payout ratio	Positive	3443	0.658	0.667	0.273	0.466	0.926	1022	0.662	0.773	0.353	0.329	1.000	-0.387 (0.699)
Domestic ownership	Positive	3443	0.983	0.993	0.049	0.986	0.997	1022	0.968	0.993	0.089	0.981	0.997	6.478 (0.000)***
Foreign ownership	Negative	3443	0.015	0.005	0.048	0.002	0.011	1022	0.029	0.006	0.088	0.002	0.017	-6.115 (0.000)***
Return on assets (EBIT/Total assets)	Positive	3443	0.100	0.084	0.126	0.000	0.140	1022	0.056	0.008	0.107	0.000	0.086	10.119 (0.000)***
Current ratio	Positive	3443	5.415	1.540	2.353	1.110	2.440	1022	2.748	1.320	2.712	0.696	2.323	2.868 (0.004)***
Debt/Total assets	Positive	3443	0.041	0.035	0.251	-0.078	0.221	1022	0.071	0.005	0.222	-0.038	0.188	-3.461 (0.001)***
Tobin's Q	Positive	3443	0.308	0.262	0.308	0.007	0.443	1022	0.582	0.549	0.415	0.215	1.000	-22.965 (0.000)***
Natural log of total assets	Positive	3443	19.462	19.131	2.108	17.878	20.729	1022	19.532	20.109	2.658	18.693	21.333	-0.766 (0.444)
Natural log of market capitalization	Positive	3443	5.526	5.288	2.016	4.067	6.908	1022	5.627	5.633	2.139	4.237	7.108	-1.384 (0.167)
Operating cash flow/Total assets	Positive	3443	0.106	0.079	0.456	0.030	0.141	1022	0.089	0.053	0.683	0.026	0.102	0.932 (0.352)

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**) and 0.10 (*) levels.

0.056 (0.054). This is lower (higher) than the mean (median) debt for the firms without a franking credit of 0.078 (0.004.). The mean difference is significant at the 0.01 level. The evidence does not support H_7 that firms with a franking credit are more leveraged than firms without a franking credit.

The results in Panel A of Table 3 also suggest that franking credit firms have lower growth compared to non-franking credit firms. The mean (median) natural logarithm of Total Assets for the franking credit firms and non-franking credit firms is 19.394 (19.042) and 19.211(19.849) respectively. The mean (median) natural logarithm of Market Capitalization for franking credit firms is 5.400 (5.183). This is higher (lower) than the mean (median) natural logarithm of Market Capitalization of 5.345 (5.443). The results do not provide strong support for this study's prediction that franking credit firms are larger in size than non-franking credit firms. The mean (median) operating cash flow for firms with a franking credit of 0.098 (0.076) is greater than the mean (median) operating cash flow of firms without a franking credit of 0.085 (0.056).

In Panel B of Table 3, the results show that franking credit firms have significantly higher dividend payout ratio (supporting H_1), significantly higher domestic ownership (supporting H_2), and lower foreign ownership (supporting H_3) than non-franking credit firms in the pre-tax credit refund period (1995-2009). The results also suggest that franking credit firms have greater liquidity (supporting H_6) than non-franking credit firms. However, the mean (median) return on assets (EBIT/Total assets) of firms with a franking credit of 0.107 (0.084) is lower (higher) than the mean (median) return on assets of non-franking credit firms of 0.136 (0.048). The evidence does not suggest any support for H_7 that franking credit firms have a higher leverage than non-franking credit firms.

Similar to the results in Panel A, the evidence in Panel B also suggests that franking credit firms have lower growth than non-franking credit firms. The mean difference for the size variable is positive and (natural logarithms of Total Assets and Market Capitalization) significant at the 0.01 level. However, the medians of natural logarithms of Total Assets and Market Capitalization are higher for non-franking credit firms than franking credit firms. The mean (median) operating cash flow of franking credit firms is 0.077 (0.069). This is same (higher) than the mean (median) operating cash flow of non-franking credit firms of 0.077 (0.064).

Panel C of Table 3 reports the results of the post-tax-credit refund period (2001-2009). The mean (median) value of domestic ownership of franking credit firms of 0.983 (0.993) is significantly higher (same) than the mean (median) value of domestic ownership of non-franking credit firms of 0.968 (0.993), with the mean difference significant at the 0.01 level under the T -test. The evidence from Panel C results suggests that franking credit firms have a lower dividend payout ratio (not

supporting H_1), a lower foreign ownership (supporting H_3), a significantly larger accounting profit (supporting H_5) and a significantly higher liquidity/current ratio (supporting H_6) than non-franking credit firms. The mean (median) Debt /Total Assets ratio for the franking credit firms of 0.041 (0.035) is higher (lower) than the mean (median) Debt/ Total Assets ratio for the non-franking credit firms of 0.071 (0 .005). There is no strong evidence to support H_7 that firms with a franking credit are more leveraged than firms without a franking credit. The evidence in Panel C of Table 3 also suggests that firms with a franking credit have lower growth opportunities, smaller firm size and a higher operating cash flow than firms without a franking credit.

In summary, the results strongly support H_2 and H_3 that franking credit firms have larger domestic shareholder ownership and lower foreign shareholder ownership than non-franking credit firms. By and large, the results suggest that franking credit firms have larger profits and have a significantly higher liquidity than non-franking credit firms. However, there is no evidence to suggest that franking credit firms are larger in size and have greater growth opportunities compared to non-franking credit firms. There is some evidence to show that franking credit firms have a higher dividend payout ratio and a larger debt than non-franking credit firms.

Correlations

This study expects correlations among the firm variables used in its analysis (Table 4). For example, dividend payout ratio is correlated with size, market capitalization and domestic ownership. The correlation between dividend payout ratio and size is consistent with prior studies (Holder et al., 1998; Dickens et al., 2003). This is also intuitive because large highly valued firms with a high percentage of domestic shareholder ownership are expected to have high dividend payouts under the tax imputation system. Operating cash flow and return on assets appear to be correlated. This is not surprising given the fact that both represent the profitability of the firm, the former the cash flow profitability and the latter the accounting profitability. Tobin's Q is correlated with market capitalization indicating that growth firms are more highly valued in the market than non-growth firms. Thus, most of the correlations can be explained by intuition, though some of them might be the result of construction using similar inputs from accounting and equity data.

Multivariate logistic results

The results from the logistic regression are presented in Table 5. In Panel A of Table 5, the results for the combined pre and post-tax periods between 1995 and 2009 are presented. In all models (1 to 12), the coefficient on the dividend payout ratio is positive and

Table 4. Correlations of variables used in univariate and multivariate analysis.

	<i>AFR</i>	<i>D.Payout_t</i>	<i>Tobin's Q</i>	<i>lnTOTA_S</i>	<i>lnMarCA_P</i>	<i>OP.CF</i>	<i>ROA</i>	<i>C.Ratio_o</i>	<i>Debt/TAS_S</i>	<i>D.Own</i>	<i>F.Own_n</i>
<i>AFR</i>	1.000										
<i>D.Payout</i>	0.028	1.000									
<i>Tobin's Q</i>	-0.303	0.1268	1.000								
<i>lnTOTA_S</i>	-0.169	0.0614	0.1414	1.000							
<i>lnMarCA_P</i>	-0.098	0.0518	0.0487	0.9086	1.000						
<i>OP.CF</i>	0.0162	-0.004	-0.0161	-0.0780	0.0216	1.000					
<i>ROA</i>	0.0254	-0.0525	-0.0317	-0.0706	-0.0219	0.0361	1.000				
<i>C.Ratio</i>	0.0409	0.0234	-0.0528	-0.05972	-0.05383	0.0211	0.0179	1.000			
<i>Debt/TAS</i>	-0.0327	0.0629	0.2525	0.32525 5	0.214992	0.0771	0.0361	0.0850	1.000		
<i>D.Own</i>	0.0938	0.0503	-0.0057	0.05629 4	0.075356	0.0045	0.0051	0.0055	0.0349	1.000	
<i>F.Own</i>	0.0865	-0.0568	0.0088	-0.06561	-0.08309	0.0041	0.0065	0.0040	-0.0351	0.9864	1.000

AFR = Annual average franking ratio; *DS-Payout* = Dividend payout ratio; *ln TOTA_S* = Natal log of total assets; *ln Mar Cap* = Natural log market capitalization; *OP.CF* = Operating cash flow/ Total assets; *ROA* = Return on assets = EBIT/Total assets; *C.Ratio* = Current ratio; *Debt/TAS* = Debt/Total Assets; *D.Own* = Domestic ownership; *F.Own* = Foreign ownership.

Table 5. Logistic results. Estimated logistic model: $Franching\ Credit\ Dummy_{i,t} = \beta_0 + \beta_1\ Dividend\ Payout\ Ratio_{i,t} + \beta_2\ Domestic\ Ownership_{i,t} + \beta_3\ Foreign\ Ownership_{i,t} + \beta_4\ Period\ Dummy + \beta_5\ Return\ on\ Assets\ (EBIT / Total\ Assets)_{i,t} + \beta_6\ Current\ Ratio_{i,t} + \beta_7\ Debt / Total\ Assets + \beta_8\ Tobin's\ Q_{i,t} + \beta_9\ Natural\ log\ of\ Total\ Assets_{i,t} + \beta_{10}\ Natural\ log\ of\ Market\ Capitalization_{i,t} + \beta_{11}\ Operating\ Cash\ Flow / Total\ Assets_{i,t} + Error.$ **Panel A:** Pre and post-tax credit refund periods (1995-2009).

Variable	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant		4.254 (0.000)***	4.861 (0.000)***	0.891 (0.214)	-1.634 (0.011)***	-1.635 (0.011)***	-1.635 (0.011)***	2.378 (0.000)	2.077 (0.000)***	1.994 (0.000)***	4.085 (0.000)***	4.265 (0.000)***	0.176 (0.808)
Dividend payout ratio	Positive	0.573 (0.000)***	0.453 (0.000)***	0.457 (0.000)***	0.452 (0.000)***	0.452 (0.000)***	0.452 (0.000)***	0.449 (0.000)***	0.581 (0.000)***	0.543 (0.000)***	0.542 (0.000)***	0.574 (0.000)***	0.577 (0.000)***
Domestic ownership	Positive			3.984 (0.000)***	4.030 (0.000)***	4.029 (0.000)***	4.029 (0.000)***						4.106 (0.000)***
Foreign ownership	Negative	-3.780 (0.000)***	-3.677 (0.000)***					-3.690 (0.000)***	-3.705 (0.000)***	-3.900 (0.000)***	-3.935 (0.000)***	-3.782 (0.000)***	
Period dummy	Positive	0.080 (0.363)	0.127 (0.148)	0.129 (0.140)	0.073 (0.404)	0.073 (0.409)	0.073 (0.409)	0.069 (0.432)	0.047 (0.595)	0.054 (0.538)	0.075 (0.395)	0.080 (0.359)	0.084 (0.340)
Return on assets (EBIT/Total assets)	Positive									3.520 (0.000)***	3.109 (0.000)***		
Current ratio	Positive	0.015 (0.008)***	0.011 (0.028)**	0.011 (0.030)**	0.014 (0.011)***	0.014 (0.010)***	0.014 (0.010)***	0.014 (0.010)***	0.016 (0.004)***	0.017 (0.003)***	0.016 (0.005)***	0.014 (0.008)***	0.014 (0.009)***
Debt/Total assets	Positive	0.937 (0.000)***	1.056 (0.000)***	1.048 (0.000)***	0.576 (0.000)***	0.585 (0.000)***	0.585 (0.000)***	0.590 (0.000)***	0.793 (0.000)***	0.464 (0.007)***	0.653 (0.000)***	0.935 (0.000)***	0.929 (0.000)***
Tobin's Q	Positive	-2.166 (0.000)***	-2.780 (0.000)***	-2.778 (0.000)***	-2.256 (0.000)***	-2.255 (0.000)***	-2.255 (0.000)***	-2.251 (0.000)***	-2.193 (0.000)***	-1.914 (0.000)***	-1.918 (0.000)***	-2.166 (0.000)***	-2.170 (0.000)***
Natural log of total assets	Positive										-0.129 (0.000)***	-0.132 (0.000)***	-0.133 (0.000)***

Table 5. Panel A: Contd.

Natural log of market capitalization	Positive				-0.072 (0.000)***	-0.072 (0.000)***	-0.072 (0.000)***	-0.072 (0.000)***	-0.081 (0.000)***	-0.083 (0.000)***			
Operating cash flow/Total assets	Positive					0.044 (0.510)	0.044 (0.510)	0.044 (0.504)	0.007 (0.902)	-0.002 (0.971)	-0.035 (0.565)	-0.025 (0.679)	-0.025 (0.672)
-2Loglikelihood		4661.950	4668.100	4661.843	4705.745	4705.266	4705.266	4712.220	4668.963	4642.735	4636.935	4661.782	4655.107
Chi-square		650.423 (0.000)***	644.726 (0.000)***	650.983 (0.000)***	584.345 (0.000)***	584.824 (0.000)***	584.824 (0.000)***	577.869 (0.000)***	621.127 (0.000)***	647.355 (0.000)***	675.891 (0.000)***	650.591 (0.000)***	657.266 (0.000)***
Total number		6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230	6230

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Table 5. Continued. Panel B: Pre-tax credit refund period (1995-2000).

Variable	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant		-6.127 (0.026)**	-5.792 (0.034)**	-6.810 (0.011)***	-7.614 (0.005)***	-7.030 (0.010)	1.305 (0.000)***	1.013 (0.001)***	1.305 (0.108)	0.501 (0.561)	0.598 (0.078)	-7.750 (0.005)***	-7.074 (0.010)***
Dividend payout ratio	Positive	1.492 (0.000)***	1.440 (0.000)***	1.359 (0.000)***	1.442 (0.000)***	1.454 (0.000)	1.449 (0.000)***	1.436 (0.000)***	1.353 (0.000)	1.406 (0.000)***	1.496 (0.000)***	1.501 (0.000)***	1.426 (0.000)***
Domestic ownership	Positive	7.856 (0.004)***	8.386 (0.002)***	8.161 (0.002)***	8.670 (0.002)***	8.383 (0.002)						8.398 (0.003)***	8.399 (0.002)***
Foreign ownership	Negative						-6.510 (0.018)**	-6.929 (0.011)***	-6.710 (0.013)***	-6.400 (0.019)**	-6.638 (0.016)**		
Return on assets (EBIT/Total assets)	Positive			9.165 (0.000)***	10.052 (0.000)***			10.044 (0.000)***	9.180 (0.000)***	9.546 (0.000)***	10.248 (0.000)***	10.250 (0.000)***	
Current ratio	Positive	0.127 (0.032)**								0.137 (0.016)	0.140 (0.015)**	0.138 (0.016)**	0.134 (0.030)**
Debt/Total assets	Positive	0.363 (0.356)	0.123 (0.749)	-0.682 (0.111)	-0.761 (0.073)*	0.130 (0.736)	0.132 (0.732)	-0.760 (0.073)*	-0.683 (0.109)	-0.516 (0.235)	-0.550 (0.205)	-0.556 (0.202)	0.191 (0.622)
Tobin's Q	Positive	-2.072 (0.000)***	-2.120 (0.000)***	-1.606 (0.000)***	-1.582 (0.000)***	-2.135 (0.000)	-2.140 (0.000)***	-1.585 (0.000)***	-1.609 (0.000)***	-1.608 (0.000)***	-1.597 (0.000)***	-1.594 (0.000)***	-2.113 (0.000)***
Natural log of total assets	Positive	-0.037 (0.342)	-0.062 (0.113)	-0.013 (0.743)					-0.012 (0.761)	0.013 (0.749)			
Natural log of market capitalization	Positive				-0.001 (0.974)	-0.018 (0.642)	-0.015 (0.688)	0.001 (0.983)			0.020 (0.606)	0.018 (0.647)	-0.004 (0.926)
Operating cash flow/Total assets	Positive		-1.631 (0.019)**	-4.389 (0.000)***	-5.174 (0.000)***	-1.866 (0.012)	-1.848 (0.013)***	-5.139 (0.000)***	-4.376 (0.000)***	-4.281 (0.000)***	-5.032 (0.000)	-5.069 (0.000)***	-0.821 (0.190)
-2Loglikelihood		1122.668	1123.674	1088.453	1063.503	1104.589	1109.030	1067.935	1092.197a	1083.513	1059.017	1054.820a	1109.989a
Chi-square		126.717 (0.000)***	125.711 (0.000)***	160.931 (0.000)***	165.859 (0.000)***	124.773 (0.000)***	120.333 (0.000)***	161.428 (0.000)***	157.187 (0.000)***	165.871 (0.000)***	170.346 (0.000)***	174.542 (0.000)***	119.374 (0.000)***
Total number		1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765	1765

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

Table 5. Continued. **Panel C:** Post-tax credit refund period (2001-2009).

Variable	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant		1.261 (0.098)	1.254 (0.100)*	1.044 (0.172)	5.084 (0.000)***	5.156 (0.000)***	4.137 (0.000)***	3.767 (0.000)***	3.522 (0.000)***	1.348 (0.000)***	1.348 (0.000)***	4.500 (0.000)***	4.658 (0.000)***
Dividend payout ratio	Positive	0.313 (0.035)**	0.313 (0.036)**	0.279 (0.057)	0.276 (0.060)	0.310 (0.037)**	0.084 (0.557)	0.137 (0.330)	0.153 (0.276)	0.145 (0.303)	0.145 (0.303)	0.302 (0.039)**	
Domestic ownership	Positive	3.911 (0.000)***	3.910 (0.000)***	4.055 (0.000)***									
Foreign ownership	Negative				-3.837 (0.000)***	-3.692 (0.000)***	-3.462 (0.000)***	-3.769 (0.000)***	-3.786 (0.000)***	-3.754 (0.000)***	-3.754 (0.000)***	-3.900 (0.000)***	-3.945 (0.000)***
Return on assets (EBIT/Total assets)	Positive			2.722 (0.000)***	2.714 (0.000)***			5.564 (0.000)***	5.726 (0.000)***	6.245 (0.000)***	6.245 (0.000)***	3.149 (0.000)***	3.056 (0.000)***
Current ratio	Positive	0.013 (0.014)	0.013 (0.014)**	0.013 (0.011)***	0.014 (0.011)***	0.013 (0.013)***	0.018 (0.005)***	0.022 (0.001)***	0.020 (0.001)***	0.024 (0.000)***	0.024 (0.000)***	0.011 (0.026)**	0.010 (0.030)**
Debt/Total assets	Positive	1.133 (0.000)***	1.135 (0.000)***	0.877 (0.000)***	0.884 (0.000)***	1.139 (0.000)***	0.693 (0.000)***	0.407 (0.032)***					
Tobin's Q	Positive	-2.217 (0.000)	-2.217 (0.000)***	-2.000 (0.000)***	-1.995 (0.000)***	-2.212 (0.000)***						-1.940 (0.000)***	-1.922 (0.000)***
Natural log of total assets	Positive	-0.164 (0.000)	-0.163 (0.000)***	-0.163 (0.000)***	-0.163 (0.000)***	-0.164 (0.000)***	-0.157 (0.000)***	-0.148 (0.000)***	-0.135 (0.000)***			-0.134 (0.000)***	-0.132 (0.000)***
Natural log of market capitalization	Positive									-0.097 (0.000)***	-0.097 (0.000)***		
Operating cash flow/Total assets	Positive	-0.015 (0.807)		-0.019 (0.760)	-0.018 (0.767)	-0.015 (0.813)	-0.038 (0.589)						-0.031 (0.606)
-2Loglikelihood		3498.169	3498.227	3486.247	3490.487	3502.293	3892.758	3780.031	3784.601	3807.849	3807.849	3511.367	3515.372a
Chi-square		563.916 (0.000)***	563.857 (0.000)***	576.298 (0.000)***	572.058 (0.000)***	559.792 (0.000)***	169.327 (0.000)***	282.514 (0.000)***	277.943 (0.000)***	251.931 (0.000)***	251.931 (0.000)***	551.178 (0.000)***	547.173 (0.000)***
Total number		4465	4465	4465	4465	4465	4465	4465	4465	4465	4465	4465	4465

The figures in the parentheses are the statistical significance values. The asterisks in the table indicate statistical significance at 0.01 (***), 0.05 (**) and 0.10 (*) levels.

significant at the 0.01 level. The results support (H_1) that franking credit firms have a higher dividend payout ratio than non-franking credit firms. The coefficient on the domestic ownership variable is positive and significant at the 0.01 level in all models presented in Panel A of Table 5. Consistent with the theoretical predictions, the coefficient on foreign ownership is negative and significant at the 0.01 level in all models. The results provide strong evidence that the franking credit firms are more likely to be dominated by taxpaying domestic investors (supporting H_2). The evidence also suggests that the franking credit firms are less likely to be dominated by foreign shareholders (supporting H_3).

The coefficient on Period Dummy is positive, but not significant in all the models (1 to 12) (weakly supporting

H_4). Thus, consistent with the prediction in H_4 on the impact of the July 2000 tax reform, there is only weak evidence to support H_4 that more firms distribute franking credits in the post-tax reform period.

The coefficient on the return on assets variable in models (9) and (10) is positive and significant at the 0.01 level. Tobin's Q is negative and significant at the 0.01 level in all models (1 to 12). The evidence does not support the prediction that growth firms are more likely to offer franking credits than firms with a low growth. The coefficient on current ratio is positive and significant in model (1) and models (3) to (12). The coefficient on the current ratio variable is positive and significant at the 0.05 level in model (2). These results support (H_5) and (H_6) that franking credit firms have greater profitability and

liquidity than non-franking credit firms. With a high dividend payout ratio and a greater level of profitability and liquidity, a franking credit firm provides some assurance that the firm can still maintain adequate funds to distribute higher dividend payouts with attached imputation credits. The coefficient on the proxy for leverage (Debt to Total Assets) is positive and significant in all models presented at the 0.01 level (supporting H7).

The coefficient on Operating Cash Flow /Total Assets is only positive in models (5 to 8), whereas in models (9 to 12) the coefficient is negative. The coefficients on the variables proxying for size are also negative and significant at the 0.01 level in all regression models presented in Panel A of Table 5. The evidence is not consistent with the expectation that large firms are more likely to distribute franking credits than small firms.

Panel B of Table 5 presents the logistic results for the pre-tax credit refund period between 1995 and 2000. The coefficient on the dividend payout ratio is positive and significant at the 0.01 level in all regression models. The results again support tax based arguments of the impact of the July 2000 tax credit refund reform on a firm's dividend policy and the hypothesis (H_1) that franking credit firms have higher dividend payout ratios than non-franking credit firms. Consistent with the results in Panel A of Table 5, firms that distribute franking credits also have significantly larger domestic shareholder ownership, significantly lower foreign shareholder ownership and higher profitability and liquidity than non-franking credit firms. The coefficient on the Debt/Total Assets ratio is positive only in models (1), (2), (5), (6) and (12). In other models, the coefficient on the Debt/Total Assets variable is negative. Consistent with this study's expectation, the coefficient on the Operating Cash Flow/ Total Assets variable is negative and significant in models (2), (3), (4), (6 to 9) and (11). In other models, the coefficient is negative but not significant.

The logistic results for the post-tax credit refund period between 2001 and 2009 are presented in Panel C of Table 5. The results again support the tax based arguments on dividend policy and H_1 that firms distributing franking credits have a higher dividend payout ratio than non-franking credit firms. Similar to the results in Panels A and B of Table 5, the evidence suggests that franking credit firms have a significantly larger domestic shareholder ownership, a significantly lower foreign shareholder ownership, a larger leverage and a higher profitability and liquidity than non-franking credit firms. However, the coefficients on operating cash flow, size and Tobin's Q are negative in all regression models.

In summary, the results in Panels A, B and C suggest that franking credit firms have a higher dividend payout ratio (supporting H_1), a larger domestic shareholder ownership (supporting H_2), a lower foreign ownership (supporting H_3), a higher leverage (supporting H_7) and a greater profitability and liquidity (supporting H_5 and H_6) than non-franking credit firms. The evidence also

supports H_4 that the July 2000 tax credit refund reform has a positive impact on the dividend policy of the firm. However, contrary to the study's expectation, the results suggest that franking credit firms are smaller in size and have a lower growth than non-franking credit firms. The values of the Chi-square in all regressions with significance at 0.01 levels suggest that the model is a good fit.

Conclusion

This paper investigates the impact of the July 2000 tax credit refund reform on the shareholder pattern of firms that offer franking credits. The paper also attempts to explain the determinants of a firm's decision to distribute franking credits under the July 2000 tax credit refund reform in the Australian market. Dividend imputation substantially reduces any tax advantage to debt and encourages firms to distribute franked dividends to Australian tax-resident shareholders. Reforms to Australia's tax system in July 2000 allowed Australian individual, superannuation and pension fund investors to claim back from the Australian Tax Office the value of any surplus franking credits distributed to shareholders. This study's sample period between 1995 and 2009 is subsequent to the introduction of the dividend imputation but spans through the period of significant reforms in July 2000 to corporate and personal taxation of equity income in Australia.

Overall, this paper provides empirical results that support the role of taxation on dividends from equity returns in the determination of a firm's decision to distribute franking credits. Consistent with tax based arguments for Australian firms to have a high dividend payout ratio and distribute the maximum level of allowed franking credits to resident shareholders, evidence was found that firms distributing franking credits had a higher dividend payout ratio than non-franking credit firms. More so, evidence found showed that firms distributing franking credits had a higher percentage of domestic shareholder ownership than non-franking credit firms. Firms were also more likely to distribute franking credits subsequent to the July 2000 tax reforms. Consistent with theoretical predictions, the results of this study also suggest that franking credit firms compared to non-franking credit firms had (i) greater leverage and lower foreign shareholder ownership, and (ii) higher profitability and greater liquidity.

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