INSTITUTIONAL OWNERSHIP AND FIRM'S DIVIDEND POLICY

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Abstract

This paper examines the linkage between dividend policy and institutional ownership within the context of the dividend model of Allen, Bernardo and Welch (2000). Specifically, it provides an empirical test of Allen, Bernardo and Welch (2000)'s novel implication that a tax differential between institutions and retail investors effects dividend policies. Using merge data of US industrial firms from 1980-2002, our results indicate that the dividend paying decision is positively related with institutional ownership. That is, firms with higher institutional ownership are more likely to be dividend payers. Further, we find that the deferred tax or tax credits that the institutional investors own significantly contribute to the dividend initiation decision as well as the level of dividend payments.

Keywords: Institutional ownership, dividend policy

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1. Introduction

Miller and Modigliani (1961) suggested that in a frictionless world without taxes or transaction costs, dividends and share repurchases are equivalent policies. Thus a company's dividend policy is irrelevant to the value of the firm. When dividends are taxed more heavily than stock subject to capital gains rates, which had been the case under the IRS tax code until the 2003 tax reform act, then share repurchases would appear to be superior to dividends. We would therefore anticipate more share repurchases than dividends due to the tax differential. The actual data indicate, however, that there is a significant proportion of dividend payers and a larger percentage of dividend paying firms than firms making share repurchases. This is called the dividend puzzle.

There is a growing body of literature attempting to explain the dividend puzzle. One explanation relates to the 1974 Employee Retirement Income Security Act (ERISA). ERISA subjected private pension fund managers to the prudent man rule. The application of the prudent man rule led to investment policy and institutional charter restrictions that require institutions to favor dividend paying stocks, especially those with high dividend yields. Brav and Heaton (1998) documented that many institutional investors abandoned dividend-omitting firms after the prudent man rule was required. And when firms reinitiated dividends, the effect reversed.

Tax-exempt institutions also favor higher dividend yields because of their higher pretax expected returns. Shleifer and Vishny (1986) recognized that dividends can be a mechanism to compensate institutional investors. Michaely, Thaler, and Womack (1995) examined volume changes around dividend changes as indicators of clientele rearrangements.[25] Dhaliwal, Erickson, and Trezevant (1998) found that the initiation of dividend payments led to an increase in institutional ownership. Specifically, they found that tax-exempt/tax-deferred and corporate investors increased their ownership in firms that initiated cash dividends as these investors purchased shares sold by individual investors for whom dividends were tax-disadvantaged. These studies provided evidence that institutional ownership and firm dividend policy are related and led to increased interest in further examining the direct linkage between dividend policy and institutional ownership.

More recently, Allen, Bernardo and Welch (2000) examined how a tax differential between individual investors and institutional investors would impact a firm's dividend policy. They predicted that when institutional investors are relatively less taxed than individual investors, dividends induce "ownership clientele" effects. Their prediction is

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[25] For a rather comprehensive review of some earlier work regarding dividend policy and institutional ownership, please refer to Allen and Michaely (1995).

based on two assumptions. First, investors are taxed differently and invest rationally, so dividends can induce specific clientele changes. Second, the presence of institutional clientele can increase the value of the firm. Consequently, firms paying dividends attract relatively more institutions, and institutions have a relative advantage in detecting high quality firms and in ensuring that firms are well managed. The Allen, Bernardo and Welch (2000) model found that by titling their portfolios in favor of dividend-paying stocks, tax-exempt institutions gain higher rates of return even though they may incur a loss of some diversification benefits and an increase in monitoring costs.

Short, Zhang and Keasey (2002) examined the role of institutional ownership in relation to dividend payout ratios within the context of the dividend models of Lintner (1956), Waud (1966), and Fama and Babiak (1968) using a United Kingdom (UK) panel data set. Using dummy variables for ownership data, they found positive association between a dividend payout policy and institutional ownership. Tax effects, however, were not directly tested and the institutional framework and ownership structures in UK are quite different from those of the US.

Baker and Wurgler (2003) proposed a catering theory of dividends. They argued that the decision to pay dividends is driven by prevailing investor demand for dividend payers. Their theory implies a close link between fluctuations in the propensity to pay dividends and catering incentives. Relying on regressions of future excess returns of dividend-payers and non-dividend-payers on the changes in the propensity to pay dividends, their empirical work explained the post-1977 disappearance of dividends as well as earlier appearances and disappearances. Baker and Wurgler (2003), however, did not specify for whom the firms are catering.

This paper provides an empirical test of Allen, Bernardo and Welch (2000)'s implication that a tax differential between institutions and retail investors effects dividend policies. When institutional investors' deferred taxes & investment tax credits increase, we anticipate that they have increased demand for dividend payments because deferred taxes and investment credits can offset dividend payments for tax purposes. Hence we predict that institutional investors' deferred taxes & investment tax credits are positively correlated with the probability of a firm being a dividend payer as well as the level of dividend payment. Using dividend data from the CRSP/COMPUSTAT merged database and institutional ownership data from the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings from 1980-2002, excluding financial and utility firms, we first examine the linkage between dividend policy and institutional ownership using a logit regression, then examine the relationship between the level of dividend payment and institutional ownership deferred tax or investment tax

credit using cross-section time series data. Our results are consistent with our hypotheses.

Our paper contributes to the literature by empirically testing how institutional ownership and institutional deferred taxes and investment tax credits effect firm dividend policies. While Dhaliwal, Erickson, and Trezevant (1998) provided evidence that the effects of tax clienteles for dividend policies are strong enough to influence the decisions of investors, our paper provides evidence from a different perspective – that is, higher institutional ownership and larger institutional deferred taxes and tax credits induce higher dividend payments. Our paper also sheds light on the question - for whom are firms catering their dividends. This question was left an unanswered in Baker and Wurgler (2003). The theory provided by Allen, Bernardo and Welch (2000) behind our empirical work further allows us to improve on Short, Zhang and Keasey (2002) by using actual ownership data instead of dummy variables to examine the direct linkage between the change of dividend payment and institutional ownership. The use of ownership dummy variables in Short, Zhang and Keasey (2002) made it difficult to characterize different dividend payments across firms with institutional ownership.

The rest of the paper is organized as follows. Section 2 describes the sample and variables. Section 3 presents the hypotheses and methodology. Section 4 reports the results. Section 5 summarizes the paper.

2. Sample, Variables and Time Trends
2.1 Sample and variables

Data are from two sources - the CRSP/COMPUSTAT merged database and the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings. Sample period is 1980-2002. From the CRSP/COMPUSTAT merged data, we extract dividends per share (Item DATA26 in the database), stock price per share (DATA199), common shares outstanding (DATA25), Deferred Tax & Invest Tax Credit (DATA35), Deferred Taxes at income account (DATA50), Investment Tax Credit at income account (DATA51) and Deferred Taxes at balance sheet (DATA74). We further extract equity in the Balance Sheet and use it as a proxy for book value per share to calculate the book value / market value (BV/MV) ratio for subsequent regression analysis. Following Fama and French (2000), a firm must have market equity data at year t to be in the sample for the year. Both utility firms (SIC codes 4900-4949) and financial firms (SIC codes 6000-6999) are excluded. These industries may have regulatory requirements for high dividend payouts which are independent of any benefits of attracting institutions.

From the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings database we extract the number of shares held by managers at the end of each of quarter (variable SHARES at 13f database). Since 13f data are aggregated to a manager level, we then

calculate institutional holdings by totaling all manager level holdings based on manager number (MGRNO) for each quarter. Given that the CRSP/COMPUSTAT data are annual data while the 13f are quarterly data, we retain number of shares as of the last quarter as institutional holding in a particular year. We also further extract industry code (Industry) for subsequent regression analysis. The variables from the two datasets are then merged through an 8 digit CUSIP of the stock and YEAR in consideration. After the data are merged, we calculate institutional ownership in percentage terms (INST) by dividing institutional holdings by the total common shares outstanding. If a ratio is outside of the range of 0-1, the observation is treated as an outlier and is deleted.

Similar to Fama and French (2000), we then classify sample firms into two categories – those who pay dividends (Payer) and those who do not pay dividend (Non-payer). In the Payer group, those newly listed firms that are dividend payers are further recognized as Newpayer. The Non-payers are also further separated into 1) those having never paid (Neverpaid); and 2) those formerly paying but then having stopped paying (Formerpayer). Following Fama and French (2001), these are the "firms that do not pay in year *t* but did pay in a previous year".

Table 1 gives the summary statistics of the key variables. It shows that 47% of the observations in the sample are Payers (3% of which are Newpayers) and 53% are Non-payers (8% Former-payers and 45% Neverpaids). Note the summation of Payer and Non-payer equals one. Table 1 also shows that the mean dividend per share in our sample is $0.35 on an annual basis with a standard deviation of 0.89 and the mean annual institutional ownership is 27% with a standard deviation of 0.24. Mean market capital of the sample firms is about $1,576 million and mean book to market value ratio is 0.51. The table further reports the means and standard deviations of the deferred tax and investment tax credit measures. Mean institutional Deferred Tax and Investment Tax Credit and Deferred Taxes at Balance Sheet are $62.41 and $62.95 respectively, with standard deviations of 412.09 and 411.09. The means of Deferred Tax at Income Account and Investment Tax Credit at Income Account are $1.47 and $1.52 respectively and the standard deviations are 88.93 and 15.45. Note the numbers of Deferred Tax & Invest Tax Credit and Deferred Taxes at Balance Sheet are similar, because both measures represent the accumulated tax deferrals due to timing differences between the reporting of revenues and expenses for financial statements and tax purposes with small differences in the items being excluded in the calculations[26]. Similarly, Deferred Tax at Income Account and Investment Tax Credit at Income Account both represent the amortized portion of tax savings that reduces the current year's tax liability.

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[26] Please refer to CRSP manual for details of how the items are defined.

Table 1 about here

2.2 Time trend in dividends and institutional ownership

Figure 1A shows the percentage of dividend paying firms vs. non-dividend paying firms over time. The proportion of Payers declines consistently throughout sample period from about 60% in 1980 to just slightly over 30% in 2002. This observation is consistent with the patterns documented in Fama and French (2001). Conversely, the proportion of non-dividend paying firms has been increasing concavely from about 40% in 1980 to close to 70% in 2002.

Figure 1B shows the percentage of newly listed firms that are dividend payers from 1980-2002. In 1980, the percentage of newly listed firms that are dividend payers was as high as 60%. Over the years, the percentage declined significantly to as low as under 10% from 1995-1997 before increasing to over 40% in 2001. In 2002, the percentage declined to under 30%. Figure 1C shows the percentage of firms that having never paid dividends vs. those former dividend payers. Among the non-dividend paying firms, the percentages of Formerpayers are much lower than those of the Neverpaids over the years. In fact, the percentage of former payers shows a declining trend. The percentage declined from slightly under 30% in the early 80s to below 10% in 2002, indicating a trend of fewer firms terminating dividend payments over time.

Figure 1A, 1B, and 1C about here

Figure 2 illustrates the amounts of dividends being paid on a yearly basis compared with mean annual level of institutional ownerships throughout the sample period. Institutional ownership has increased steadily from slightly less than 20% to just below 35% from 1980 to 2002. Consistent with the literature, average annual dividends also demonstrate a steadily increasing pattern. It increased from under $0.15 per share in 1980 to over $0.35 per share in 2002. While we observe that average annual dividend amount are increasing, recall that Figure 1A shows the percentage of firms that are dividend payers is declining. A possible explanation for these observed patterns is even though the number of firms paying dividends has been decreasing, dividend paying firms increase the dividend amounts as institutional ownership increases.

Figure 2 about here

3. Hypotheses, Methodology, and Results
3.1   Hypotheses

Our testable hypotheses are based on Allen, Bernardo and Welch (2000) that institutional ownership affects the firm's dividend policy. We expect that:

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(1). Dividend Payers are more likely to associate with institutional investors than Non-payers. Assuming investors are taxed differently and invest rationally, Allen, Bernardo and Welch (2000) predicted that there is an "ownership clientele" effect. Consequently, firms paying dividends attract relatively more institutional investors.

(2). Dividend Payers with institutional ownership are more likely continue to be future payers than Non-payers. This hypothesis is based on the smoothing effect discussed in Allen, Bernardo, and Welch (2000). Firms that pay dividends try not to reduce the amount of the dividend, because their clientele (institutions) are precisely the kind of investors that will punish them for it. Thus dividend paying firms will try to keep dividends relatively smooth.

(3). Dividend Payers are more likely to associate with large deferred taxes and investment credits than Non-payers. When institutional investors have deferred taxes & investment tax credits, they favor dividends because dividends can offset the deferred taxes and investment credits for tax purposes. Hence we see dividend Payers are more likely to associate with deferred taxes and investment credits than Non-payers.

(4). Dividend amount is positively related with institutional ownership. Due to institutional investors' demand for dividend payments, we expect to see that firms with higher institutional ownership are related to higher dividend payouts.

(5). Dividend amount is positively correlated with the level of institutional investors' deferred taxes & investment tax credits. Given dividends can induce clientele changes, Allen, Bernardo and Welch (2000) predict that tax differences between institutions and retail investors are significant determinants of dividend payments. Hence we predict that higher institutional investors' deferred taxes & investment tax credits are associated with higher dividend amounts.

Logit and time-series cross sectional regressions are applied to test the hypotheses. Model specifications and regressions results are presented in the following subsections.

3.2 Methodology
3.2.1 Logit regression models
Before we begin our regression analysis, we examine the correlations between the independent variables and future regression dependent variable Dividend per Share. The numbers are reported in Table 2 showing positive correlations. Further, note that the correlations among the different tax credit measures, such as Deferred tax and Investment Tax Credit and Deferred Taxes at Balance Sheet, are high (0.9967), we hence use one tax credit measure at a time in the subsequent regression analyses.

Table 2 about here

To test Hypothesis (1), we first adopt the following logit models

$$Prob\,(Payer_{i,t}=1) = \alpha + \beta\,Inst_{i,t} + \delta\,Size_{i,t} + \gamma(BV/MV)_{i,t} + \phi Industry_{i,t} + \sum_{1981}^{2002}\theta_t Year_t + \varepsilon_{i,t}$$

(Model 1)

$$Prob\,(Newpayer_{i,t}=1) = \alpha + \beta\,Inst_{i,t} + \delta\,Size_{i,t} + \gamma(BV/MV)_{i,t} + \phi Industry_{i,t} + \sum_{1981}^{2002}\theta_t Year_t + \varepsilon_{i,t}$$

(Model 2)

$Payer_{i,t}$ equals to 1 if firm$_i$'s dividend per share at Year$_t$ is positive; 0 otherwise. $Inst_{i,t}$ is the percentage of firm$_i$'s stock owned by institutional investors at Year$_t$. Factors related to the probability being dividend payer, i.e., size, which is measured by market capital, BV/MV ratio, and industry classification are used as control variables.

Based on the hypothesis, the coefficients for $Inst_{i,t}$ is expected to be positive signaling a positive relationship between institutional ownership and a firm being a dividend payer.

To test Hypothesis (2), we examine the determinants of former dividend payers and firms having never paid dividend as follows.

$$Prob\,(Formerpayer_{i,t}=1) = \alpha + \beta\,Inst_{i,t} + \delta\,Size_{i,t} + \gamma(BV/MV)_{i,t} + \phi Industry_{i,t} + \sum_{1981}^{2002}\theta_t Year_t + \varepsilon_{i,t}$$

(Model 3)

$$Prob\,(Neverpaid_{i,t}=1) = \alpha + \beta\,Inst_{i,t} + \delta\,Size_{i,t} + \gamma(BV/MV)_{i,t} + \phi Industry_{i,t} + \sum_{1981}^{2002}\theta_t Year_t + \varepsilon_{i,t}$$

(Model 4)

Based on the hypothesis, we expect to see the coefficients for $Inst_{i,t}$ to be negative for Neverpaid and Formerpayers confirming it is less likely these firms would stop paying dividends or having never paid dividends when institutional ownership is high.

To test deferred tax or tax credit and the probability of a firm being a dividend payer as in Hypothesis (3), we first adopt the following models:

$$Prob\,(Payer_{i,t}=1) = \alpha + \chi\,Deftax_{i,t} + \delta\,Size_{i,t} + \gamma(BV/MV)_{i,t} + \phi Industry_{i,t} + \sum_{1981}^{2002}\theta_t Year_t + \varepsilon_{i,t}$$

(Models 5-8)

Where $Deftax_{i,t}$ is deferred tax or tax credit, which is Deferred Tax & Investment Tax Credit, Deferred Taxes at income account, Investment Tax Credit at income account or Deferred Taxes at balance sheet, one tax measure at a time, in models 5-8. Based on our hypotheses, the coefficients for $Deftax_{i,t}$ are expected to be positive signaling a positive relationship between a firm being a dividend payer and institutional tax benefits.

We subsequently adopt the following multivariate models to jointly test the relationship between a dividend payer and institutional ownership and institutional deferred tax and tax credit.

$$Prob\ (Payer_{i,t} =1) = \alpha + \beta\ Inst_{i,t} + \chi\ Deftax_{i,t} + \delta Size_{i,t} + \gamma (BV/MV)_{i,t} + \phi Industry_{i,t}$$
$$+ \sum_{1981}^{2002} \theta_t Year_t + \varepsilon_{i,t}$$

(Models 9-12)

We expect both coefficients for $Inst_{i,t}$ and $Deftax_{i,t}$ to be positive signaling a positive relationship between the likelihood of dividend payers and institutional tax credits when institutional ownership is controlled for.

3.3.1 Cross sectional time-series regression models

The following linear unbalanced panel data univariate regressions and multivariate regressions are conducted to test the direct relationship between dividend payments and tax difference as well as institutional ownership as in Hypotheses (4) and (5)

$$Dividend_{i,t} = \alpha + \beta\ Inst_{i,t} + \delta Size_{i,t} + \gamma (BV/MV)_{i,t} + \phi\ Industry_{i,t} + \sum_{1981}^{2002} \theta_t Year_t + \varepsilon_{i,t}$$

(Model 13)

$$Dividend_{i,t} = \alpha + \chi\ Deftax_{i,t} + \delta Size_{i,t} + \gamma (BV/MV)_{i,t} + \phi\ Industry_{i,t} + \sum_{1981}^{2002} \theta_t Year_t + \varepsilon_{i,t}$$

(Models 14-17)

$$Dividend_{i,t} = \alpha + \beta\ Inst_{i,t} + \chi\ Deftax_{i,t} + \delta\ Size_{i,t} + \gamma (BV/MV)_{i,t} + \phi\ Industry_{i,t}$$
$$+ \sum_{1981}^{2002} \theta_t Year_t + \varepsilon_{i,t}$$

(Models 18-21)

$Dividend_{i,t}$ is the dividend per share paid by firm i at year t. The other variables have the same definition as before. Similarly, we expect that both coefficients for institutional ownership and tax credits will be positive.

4. Results
4.1 Logit regression results

Table 3 presents the results of the logit regressions. At column (1) where the dependent variable is current payers and the independent variable is $Inst_{i,t}$, the coefficient for $Inst_{i,t}$ is positive (1.263) and statistically significant at the one percent level as expected. This indicates Payers are more likely to associate with institutional ownership. Interestingly, different from what we expected to see at column (2), when the dependent variable is newly listed firms that pay dividends (Newpayers), the coefficient is negative (-1.166) and statistically significant at the 1% level. By examining the data, we find that the average institutional ownership for newly listed firms is much lower than the others. Thus, as Fama and French (2000) suggested, we believe that the dividend payment decision for newly listed firms is more likely to be determined by the characteristics of firms that have never paid dividends. In column (3) when the dependent variable is Formerpayer, the coefficient for $Inst_{i,t}$ is negative (-1.984) and the coefficient is again statistically significant. The negative correlation is consistent with hypothesis (3). It can be interpreted as firms with larger institutional ownership are less likely to stop paying dividends. Similarly, when the

dependent variable is Neverpaid as in column (4), the significant negative estimate (-1.166) implies that firms with higher proportions of institutional investors are less likely to be firms that have never paid dividends. These results support the theory that firms decide to pay dividends to attract relatively more institutions, and institutions have a relative advantage in detecting high firm quality and in ensuring that firms are well managed.

Columns 5-8 in Table 3 provide the estimation results of the deferred tax or tax credit effect on the probability of being a dividend payer. As we can see from the table, the coefficients for all four deferred tax measures are positive (0.005, 0.02, 0.001 and 0.005 respectively) and statistically significant at the one percent level.

The last four columns (9-12) in Table 3 report multivariate regression results. The coefficients for $Inst_{i,t}$ in the four models are 2.218, 1.931 and 2.364 and 2.197 respectively while the corresponding $Deftax_{i,t}$ coefficients are 0.004, 0.01, 0.00, and 0.004 respectively. These results are consistent with those from the univariate regressions, confirming the implication of the Allen, Bernardo and Welch (2000) theory that tax differences between institutions and retail investors are significant determinants of dividend payments.

Table 3 about here

4.2 Cross sectional time-series regression results

The regression results are reported in Table 4. The first 5 columns report the univariate results and columns 6-9 report the multivariate results. The results from both univariate regressions and the multivariate regressions are consistent hence we only discuss the multivariate results. Consistent with the results in Table 3, coefficients for institutional ownership and tax credits are positive and statistically significant at the one percent level. For example, the coefficient for $Inst_{i,t}$ is 0.272, 0.267, 0.250 and 0.272 respectively when the tax credit measures are Deferred Tax & Investment Tax Credit, Deferred Taxes at income account, Investment Tax Credit at income account and Deferred Taxes at balance sheet respectively. These results are consistent with Hypotheses (3) and (4) suggesting that the dividend amount is positively correlated with institutional ownership and deferred tax and investment tax credits. Note that in the regressions, all year dummies are included but the results are not reported for space efficiency. Further, we also look at the same analysis in a dynamic setting, that is, we look at how changes of institutional ownership and deferred tax and tax credits effect changes in dividend payments. The results are positive as expected, they are, however, not significant. Hence we are not reporting them here.

Table 4 about here

5. Summary

This paper examines the link between dividend policy and institutional ownership within the context of the dividend theory of Allen, Bernardo and Welch (2000). Using dividend data from the CRSP/COMPUSTAT merged database and institutional ownership data from the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings from 1980-2002, excluding all financial and utilities firms, we first examine the linkage between dividend policy and institutional ownership using a logit regression, then examine the relationship between the level of dividend payment and institutional ownership and institutional deferred tax or tax credit using cross-section time series data. The results from our regressions provide support for the hypothesis that dividend payers are more associated with institutional investors than non-payers. That is, the firms with higher institutional ownership are more likely to pay and continue to pay dividends. Further, we find that tax credit or deferred taxes significantly contribute to the initiation of the dividend and the dividend amount. These results support the predictions in Allen, Bernardo and Welch (2000).

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Appendices

Table 1. Summary Statistics

Variable	Obs	Mean	Std. Dev.
Current Dividend Payer (yes=1 no=0)	68,476	0.47	0.50
New Dividend Payer (yes=1 no=0)	68,562	0.03	0.17
Not Current Dividend Payer (yes=1 no=0)	68,476	0.53	0.50
Former Dividend Payer (yes=1 no=0)	68,562	0.08	0.27
Never Paid Dividend (yes=1 no=0)	68,562	0.45	0.50
Dividend Per Share ($)	68,476	0.35	0.89
Total Dividend (million$)	68,476	27.69	175.29
Retained Earnings (million$)	13,270	165.68	852.50
Deferred Tax & Invest Tax Credit (million$)	55,469	62.41	412.09
Deferred Tax (Income Account) (million$)	52,013	1.47	88.93
Deferred Taxes (Balance Sheet) (million$)	53,622	62.95	411.57
Investment Tax Credit (Income Acct) (million$)	33,094	1.52	15.45
Annual Institutional Ownership	68,562	0.27	0.24
Market Cap Value (million$)	68,530	1,576.84	9,775.24
Book to Market Ratio	62,211	0.51	4.76

Data are from two sources - the CRSP/COMPUSTAT merged database and the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings. Sample period is 1980-2002. Table 1 gives the summary statistics of the key variables in the sample.

Table 2. Correlation Table

	Institutional Ownership	Dividend per Share	Deferred Tax & Invest Tax Credit	Deferred Tax (Income Account)	Invest. Tax Credit (Income Acct)	Deferred Taxes (Balance Sheet)	Market Cap Value	Book to Market Ratio
Institutional Ownership	1							
Dividend per Share	0.0802	1						
Deferred Tax & Invest Tax Credit	0.0904	0.185	1					
Deferred Tax (Income Account)	0.0363	0.0432	0.2326	1				
Investment Tax Credit (Income Acct)	0.041	0.174	0.2312	0.0252	1			
Deferred Taxes (Balance Sheet)	0.0914	0.174	0.9967	0.2319	0.1955	1		
Market Cap Value	0.092	0.1029	0.5115	0.1176	0.1089	0.5165	1	
Book to Market Ratio	-0.0381	0.0082	-0.0088	0.0024	0.0054	-0.0093	-0.0228	1

Data are from two sources - the CRSP/COMPUSTAT merged database and the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings. Sample period is 1980-2002. Table 2 reports the correlation between the independent variables and the dependent variable (Dividend) in the subsequent regressions. Notice that the correlations among the different taxes are high, so we use one tax variable at a time in the subsequent regression analysis.

Table 3. The Effect of Institutional Ownership and Tax Credits on the Probability of Dividend Payment

	Logit Model: The dependant variable equals 1 if the company is the current dividend payer for model 1 and model 5-12, otherwise 0. The dependant variable equals 1 if the company is a former dividend payer in model 2, never paid dividend in model 3 and new dividend payer in model 4, otherwise 0.											
Independent Variables	Current Dividend Payer	New Dividend Payer	Former Dividend Payer	Never Paid Dividend	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer	Current Dividend Payer
Models	1	2	3	4	5	6	7	8	9	10	11	12
Institutional Ownership	1.263	-1.427	-1.984	-1.166					2.218	1.931	2.364	2.197
	(0.038)***	(0.172)***	(0.080)***	(0.037)***					(0.045)***	(0.057)***	(0.046)***	(0.046)***
Deferred Tax & Invest Tax Credit (DATA35)					0.005				0.004			
					(0.000)***				(0.000)***			
Investment Tax Credit (Income Acct, DATA51)						0.020				0.010		
						(0.004)***				(0.003)***		
Deferred Tax (Income Account, DATA50)							0.001				0.000	
							(0.000)***				(0.000)***	
Deferred Taxes (Balance Sheet, DATA74)								0.005				0.004
								(0.000)***				(0.000)***
Market Cap Value	0.000	0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)***	(0.000)*	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Book to Market Ratio	0.257	0.157	-0.003	-0.099	0.109	0.053	0.110	0.116	0.185	0.112	0.193	0.191
	(0.013)***	(0.030)**	(0.002)	(0.011)***	(0.012)**	(0.014)**	(0.013)**	(0.013)**	(0.014)**	(0.017)**	(0.015)**	(0.015)**
Industry Code Number	-0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)***	(0.000)*	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.939	1.067	-1.236	-1.195	1.737	2.073	1.876	1.697	1.399	1.775	1.485	1.362
	(0.069)***	(0.108)*	(0.075)***	(0.069)***	(0.072)***	(0.085)***	(0.075)***	(0.072)***	(0.073)***	(0.086)***	(0.076)***	(0.074)***
Observations	62140	62211	62211	62211	55170	32899	51755	53335	55170	32899	51755	53335

Table 3 continued

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Table 4. Linear Effect of Institutional Ownership and Tax on Dividend Payment

Independent Variables	Current Dividend Payer								
Models	13	14	15	16	17	18	19	20	21
Institutional Ownership	0.214					0.272	0.250	0.267	0.272
	(0.021)***					(0.021)***	(0.024)***	(0.020)***	(0.022)***
Deferred Tax & Invest Tax Credit		0.000				0.000			
		(0.000)***				(0.000)***			
Investment Tax Credit (Income Acct)			0.003				0.003		
			(0.000)***				(0.000)***		
Deferred Tax (Income Account)				0.000				0.000	
				(0.000)**				(0.000)**	
Deferred Taxes (Balance Sheet)					0.000				0.000
					(0.000)***				(0.000)***
Market Cap Value	0.000	-0.000	0.000	0.000	-0.000	0.000	0.000	0.000	-0.000
	(0.000)***	(0.000)	(0.000)***	(0.000)***	(0.000)	(0.000)	(0.000)***	(0.000)***	(0.000)
Book to Market Ratio	0.000	0.000	-0.002	0.000	0.000	0.000	-0.002	0.000	0.000
	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Industry Code Number	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Constant	0.536	0.601	0.688	0.583	0.596	0.574	0.657	0.559	0.569
	(0.026)***	(0.027)***	(0.027)***	(0.025)***	(0.026)***	(0.027)***	(0.027)***	(0.025)***	(0.026)***
Observations	62140	55170	32899	51755	53335	55170	32899	51755	53335

Standard errors in parentheses.* indicates significance at 10%; ** significance at 5%; *** significance at 1%

Data are from two sources - the CRSP/COMPUSTAT merged database and the Thomson Financial CDA/Spectrum S34 13f Institutional Holdings. Sample period is 1980-2002. All year dummies are included but chosen not to report them for space efficiency.

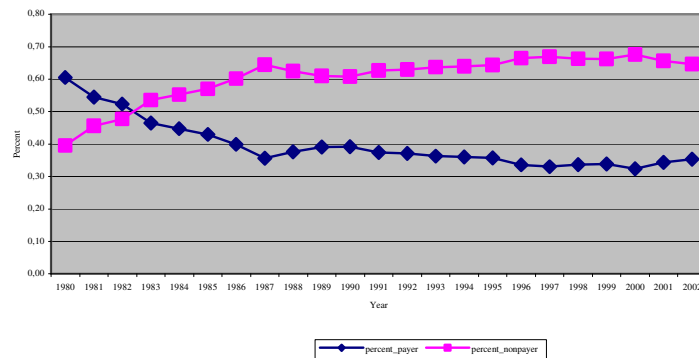Figure 1A. Percentage of Dividend Paying Firms vs. Non-Dividend Paying Firms 1980-2002

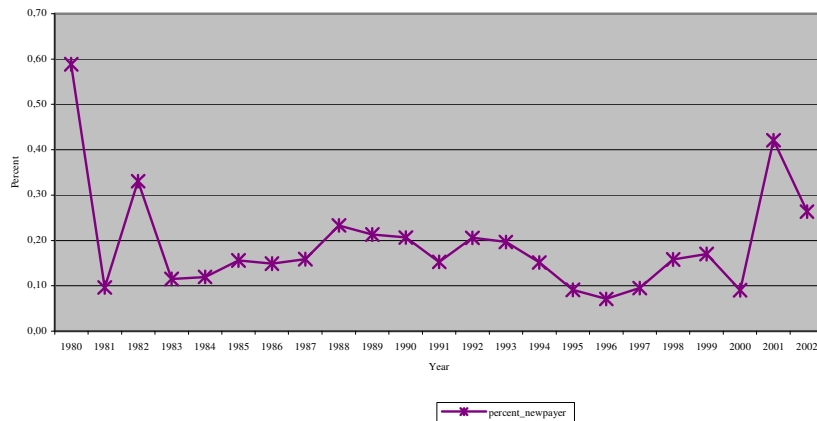Figure 1B. Percentage of Newly Listed Firms That Are Dividend Payers 1980-2002

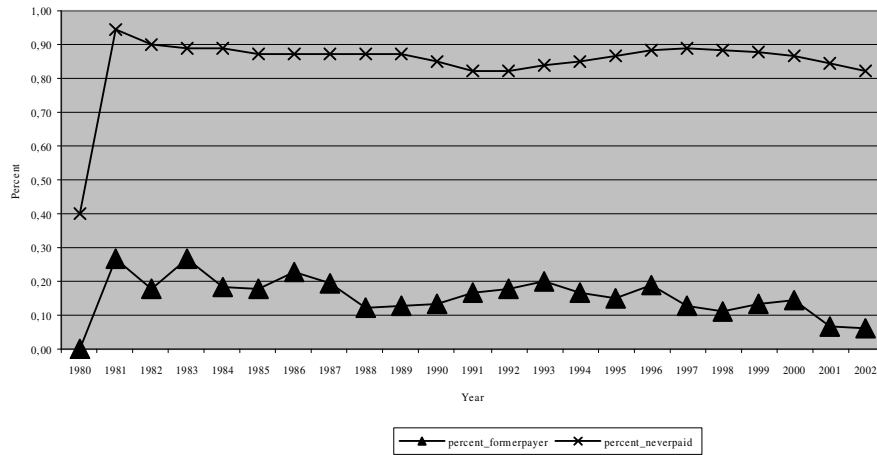Figure 1C. Percentage of Firms of Formerly Having Paid vs. Firms Having Never Paid 1980-2002

Figure 2. Institutional Ownership and Average Annual Dividend Amount 1980-2002