April 2010

Not paying dividends? A decomposition of the decline in dividend payers

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J Econ Finan (2012) 36:443–462
DOI 10.1007/s12197-010-9132-0

Not paying dividends? A decomposition of the decline in dividend payers

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Published online: 20 April 2010

Abstract Current payout policy literature contends that firms' propensity to pay dividends declined between 1978 and 1998. Using the Oaxaca decomposition methodology, we measure changes in the propensity to pay dividends between 1978 and 1998. Results suggest that firms today have only a slightly lower propensity to pay dividends. Furthermore, when we also categorize firms that use stock repurchases as dividend payers, we find that 100% of the decline in the proportion of dividend payers can be explained by changes in firm characteristics only. The difference is that firms that firms are now repurchasing stock instead of paying dividends.

Keywords Dividends · Payout Policy · Propensity to Pay · Taxes

JEL Classification G35 · G32 · M41

1 Introduction

Fama and French (2001) document a decrease in the proportion of dividend payers from 68% in 1978 to 21% in 1998. They argue that because changes in firm characteristics cannot fully explain the decrease, managers today must have a lower propensity to pay dividends. Other studies have examined additional firm characteristic determinants that could explain the decrease in the proportion of dividend payers. For example, Baker and Wurgler (2004b) use dividend premium,

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Banerjee et al. (2007) use liquidity, and DeAngelo et al. (2006) use the lifecycle theory to explain the decrease. These studies compare the predicted proportion of dividend payers using logit regressions to the actual proportion of dividend payers to determine whether there is a lower propensity to pay dividends. They then conclude that there is a lower propensity to pay dividends because the predicted proportion of dividend payers is higher than the actual proportion of dividend payers. Unfortunately, this methodology does not tell us whether the decrease in the proportion of dividend payers is due to changes in firm characteristics, changes in managers' attitudes toward paying dividends, or the combination of the two. Using a decomposition methodology commonly used in discrimination studies, we are able to quantify that about 76% of the decline in the proportion of dividend payers between 1978 and 1998 can be explained by changes in firm characteristics.

An alternative hypothesis also suggests that firms have replaced dividend payouts with stock repurchases (Dittmar and Dittmar (2008) and Brockman et al. (2008)). In addition, Brockman et al. (2008) also indicate that changes in liquidity may impact dividend policy. Surprisingly, when we categorize firms that use stock repurchases as dividend payers, we find that 100% of the decline in the proportion of dividend payers can be explained by changes in firm characteristics alone. In other words, our results show that there is not a lower propensity to pay dividends.

In addition to firm characteristics, we also consider factors that could affect firms' payout policies, such as tax rate differentials and dividend premium. Historically, dividends have been taxed at a higher rate than capital gains, suggesting that fewer firms should pay dividends when the tax rate on dividends is higher than the tax rate on capital gains. To measure the impact that taxes have on dividend policy, the literature often analyzes specific periods when firms are indifferent between paying and not paying dividends. Previous studies such as Eades et al. (1994) and Michaely (1991) find that taxes do not significantly affect the decision to pay dividends. More recently, Chetty and Saez (2005) found that a large number of firms started paying dividends following the Bush tax cut of 2001. By looking at the difference between the maximum tax rate on dividends and the maximum tax rate on capital gains, we find results supporting the conclusion that taxes has insignificant impact on dividend policy.

More recently, Baker and Wurgler (2004a, b) show that the dividend premium affects dividend policy. In essence, they suggest that firms are more willing to pay dividends when the stock market places higher valuation on dividend paying firms than on non-dividend paying firms. Thus, firms should be more likely to pay dividends if the market-to-book ratio of dividend paying firms is higher than that of non-dividend paying firms. They find that firms are more (less) likely to pay dividends when the dividend premium is high (low). However, our results suggest that the dividend premium is insignificant in explaining the decrease in the proportion of dividend payers.

Our study contributes to the literature in a couple of ways. First and foremost, this is the first study, to our knowledge, that quantitatively measures how much recent changes in dividend policy can be explained by changes in firm characteristics and by changes in managerial attitudes towards dividend policy. Ours is also the first to explore the effect of stock repurchases on the change in dividend policy between 1978 and 1998. Our study strongly suggests that there is not a lower propensity to pay dividends in that period.

2 Data and sample selection

We use the traditional determinants of dividend policy (such as size, profitability, and growth opportunities) and more recently used determinants (such as age of the firm, dividend premium, leverage, the earned/contributed capital mix, and liquidity). For example, Lintner (1956), Fama and French (2001), and many others suggest that size, profitability, and growth opportunities help explain dividend policy. Faulkender et al. (2006), along with Fama and French (2002), find that there is a negative relation between leverage and dividend policy. Banerjee et al. (2007) show that firms with liquid shares are less likely to pay dividends than firms with illiquid shares. This is because when shareholders of liquid shares need cash, they can sell shares more easily than shareholders of illiquid shares. Since markets have become more liquid over time, it makes sense to include this factor as a possible determinant of the decline in the proportion of dividend payers between 1978 and 1998.

Another hypothesis that has gained much attention has to do with the firm lifecycle. Grullon et al. (2002) show that firms are more likely to pay dividends as they mature because firm age is correlated with other dividend policy determinants that are difficult to measure (such as growth opportunities and excess cash holdings). Previous studies define maturity as age of the firms since their listings in CRSP (Center for Research in Security Prices) database. This measure, CRSP maturity, underestimates the contribution firm maturity has on the likelihood that a firm pays dividends because firms are now listing their stock on an exchange earlier in their lifecycle. We propose that age of the firms since their years of incorporation (i.e. incorporation maturity) is a better measure of firm maturity. Fink et al. (2004) find that, "the age of the typical firm at its IPO date has fallen dramatically from nearly 40 years old in the early 1960s to less than 5 years old by the late 1990s". Combining this fact with evidence that older firms typically have fewer growth opportunities, it follows that firms may have become less likely to pay dividends in the 1990s than in 1960s simply because firms in 1990s, on average, are younger. Using the retained earnings to total equity ratio of DeAngelo et al. (2006), we confirm that this factor indeed explains a large portion of the decline in the proportion of dividends in the 1978–1998 period.

The last hypothesis we test in this paper has to do with catering to investor demand for dividends. Specifically, Baker and Wurgler (2004a, b) show that the dividend premium is a dividend policy determinant. They suggest that firms are more likely to pay dividends when the stock market shows higher valuation for dividend paying firms. Their results show that firms are more (less) likely to pay dividends when the dividend premium is high (low). The dividend premium is calculated as the log difference between the market/book ratios of dividend payers and non-dividend payers.

Like Fama and French (2001), we "exclude firms with book equity below $250,000 or assets below $500,000." In regards to assets, we calculate growth of assets before discarding firms whose assets are less than $500,000. We exclude firms not in the CRSP database at its fiscal year-end. Because of their unique characteristics, we exclude utilities (SIC codes 4900-4949) and financial firms (SIC codes 6000-6999). Consistent with Fama and French (2001), we measure firm size in a given year as the percentage of firms with equal or lower market capitalization in the NYSE.

We use two measures of maturity. The first measure is the age of the firm since it first appeared in the CRSP database. Second, we obtain the age of the firm since its incorporation from Jovanovic and Rousseau (2001) and by hand-collecting any missing gaps using various issues of the Mergent's industrial manual, bank & finance manual, and OTC manual, all published by Moody's Investors Service. We present the descriptive statistics in Table 1.

We contrast the two measures of maturity in Table 2. CRSP maturity ranges from 8 years to 16 years between 1966 and 2001 with a slight increase between 2002 and 2007. Incorporation maturity ranges from 24 years to 36 years with a decreasing trend between 1978 and 1997 and an increasing trend between 1998 and 2007. The percentage difference between the CRSP maturity and the incorporation maturity decreases with time, providing evidence that firms are now listing their stock earlier in their lifecycles. Thus, CRSP maturity may be a biased measure of firm maturity, especially in the early part of our sample.

In addition to firm characteristics, we also look at the factors that affect all firms equally such as the tax rate differential (i.e. the difference between the maximum ordinary and maximum capital gains tax rates) and the dividend premium (i.e. the log difference between the market-to-book ratios of dividend payers and those of non-dividend payers). Since dividends are normally taxed at a higher rate than capital gains, the differential is normally positive, however, as we can see from Table 3, this differential can be zero following the Tax Reform Act (TRA) of 1986 and the Bush tax cut of 2001.

3 Decomposition methodology

Fama and French (2001) document a dramatic decrease in the proportion of dividend payers from 1978 to 1998. Firms in 1978 were more likely to pay dividends than

Table 1 Descriptive statistics

	Observations	Mean	25th percentile	Median	75th percentile	Std. Dev.
Size	114616	23.510	1.625	9.521	36.232	27.299
E/A	138133	0.005	0.018	0.069	0.103	0.225
dA/A	141237	0.156	−0.019	0.085	0.231	0.342
V/A	144676	1.763	0.952	1.232	1.874	1.726
Maturity	90520	30.131	11	22	44	25.810
LEV	143696	0.261	0.083	0.231	0.384	0.259
LIQ	137698	17.317	14.391	16.581	18.829	3.228
RE/TE	133006	0.142	0.021	0.435	0.702	1.297
Div. Premium	144676	−23.4	−26.442	−20.597	−14.526	11.014

This table presents summary statistics for all variables used in this study. The variables include relative size of the firm compared to the average NYSE firm (*Size*), profitability (*E/A*), asset growth (*dA/A*), market-to-book ratio (*V/A*), age of the firm since incorporation (*Maturity*), book value leverage (*LEV*), number of shares traded during the year divided by shares outstanding (LIQ), earned/contributed capital mix (RE/TE), and the dividend premium described in Baker and Wurgler (2004b)

Table 2 Comparison of different maturity measures

Years	Incorporation maturity	CRSP maturity	Difference	Percentage difference
1966–1967	36.73	11.285	25.45	226%
1968–1969	36.365	11.12	25.245	227%
1970–1971	36.1	11.41	24.685	217%
1972–1973	33.355	8.31	25.045	301%
1974–1975	33.575	9.395	24.175	258%
1976–1977	34.66	10.8	23.855	221%
1978–1979	34.55	12.065	22.48	187%
1980–1981	34.42	12.92	21.5	167%
1982–1983	32.875	12.985	19.895	153%
1984–1985	31.185	12.89	18.295	142%
1986–1987	29.585	12.615	16.97	135%
1988–1989	29.545	13.21	16.325	124%
1990–1991	29.495	13.71	15.775	115%
1992–1993	27.695	12.96	14.735	114%
1994–1995	26.26	12.345	13.915	113%
1996–1997	24.86	11.745	13.115	112%
1998–1999	25.56	12.44	13.12	106%
2000–2001	26.33	13.315	13.14	98%
2002–2003	29.066	15.445	13.585	88%
2004–2005	31.88	16.245	13.89	96%
2006–2007	33.21	15.77	13.01	111%

This table summarizes the difference between the two measures of maturity. Incorporation maturity is age of the firm since it was incorporated. CRSP maturity is the number of years since the firm first appeared on the CRSP files. The numbers represent the average across all firms for a given year. The difference column is the difference between the two maturity measures. The percentage is the percentage difference between the two measures

those in 1998. The 1998 firms were smaller, less profitable, younger, and had more growth opportunities than firms in 1978. However, no attempt was made to quantify how much of these changes in firm characteristics can explain the decrease in the likelihood to pay dividends. Fama and French (2001) propose looking at changes in firm characteristics directly to try to determine whether they could explain the decline in the proportion of dividend payers between 1978 (firms in 1978 could be interpreted as group A) and 1998 (firms in 1998 could be interpreted as group B). However, instead of analytically determining how much of the decline in the proportion of dividend payers is explained by these changes, they propose their alternative solution (used in subsequent studies of the propensity to pay dividends), which compares the actual proportion of dividend payers to the predicted proportion of dividend payers. This alternative methodology does not directly looks at how much of the decline is due to changes in firm characteristics and how much is due to changes in managers' attitudes to dividends.

This problem is very similar to the income inequality problem. Suppose that group A earns more money than group B and that group A has more education and

Table 3 Tax and dividend premium data

Years	Ordinary	Capital gains	Tax differential	Dividend premium
1967–1968	73%	26%	47%	−17.535
1969–1970	70%	30%	41%	0.535
1971–1972	70%	35%	35%	8.745
1973–1974	70%	37%	34%	3.385
1975–1976	70%	38%	32%	−0.025
1977–1978	70%	40%	30%	−13.885
1979–1980	70%	28%	42%	−45.665
1981–1982	50%	20%	30%	−45.395
1983–1984	50%	20%	30%	−39.565
1985–1986	50%	20%	30%	−36.675
1987–1988	28%	28%	0%	−32.25
1989–1990	28%	28%	0%	−25.93
1991–1992	33%	29%	4%	−40.99
1993–1994	40%	29%	10%	−31.78
1995–1996	40%	29%	10%	−42.54
1997–1998	40%	29%	10%	−20.565
1999–2000	40%	29%	10%	−52.745
2001–2002	29%	20%	10%	−14.96
2003–2004	20%	20%	0%	−22.615
2005–2006	20%	20%	0%	−14.365
2007–2007	20%	20%	0%	−14.07

The tax numbers represent maximum marginal tax rates in year *t*. Dividends are normally taxed at the ordinary tax rate while gains on holding shares of stock are taxed at the capital gains tax rate. The dividend premium is calculated based on Baker and Wurgler (2004b). It is defined as the difference between the natural logarithms of the dividend payers and non-payers' market-to-book ratios (times 100)

experience than group B. How much of the earnings gap is explained by differences in their characteristics (such as education and experience) and how much of the gap is explained by discrimination. This question is of incredible importance. Oaxaca (1973) proposed a clean solution to the problem and the solution is now commonly found in basic econometrics textbooks (e.g., Greene 2007). The explained portion of the gap (that is due to the differences between the two groups) is simply the differences in characteristics between the two groups multiplied by a vector of fixed sensitivities of characteristics to earnings. The unexplained portion of the gap (which could be due to discrimination) is the differences between the sensitivities of characteristics to earnings between the two groups multiplied by fixed characteristics. The original Oaxaca decomposition was developed for linear regression models (such as OLS). Because the dependent variable in our study is a binary variable (i.e. a dummy variable that is equal to 1 when a firm pays dividends and 0 otherwise), we use the modified version of the Oaxaca decomposition that allows for binary dependent variables derived in Even and MacPherson (1990). Specifically, we compare changes in firm characteristics and changes in betas directly and

analytically to determine how much of the decline can be explained by changes in firm characteristics and how much can be explained by changes in the managers' attitudes towards paying dividends.

The following helps explain why the model used to predict dividend payers is of critical importance to this study: Suppose we were trying to explain why group A earns more money than group B. Assume group A has more education than group B. If we did not control for this effect, results from the Oaxaca decomposition would lead us to conclude that discrimination is larger than it really is.

The first step in the decomposition analysis involves estimation of the probability that a firm i is a dividend payer at time t given firm characteristics X_{it} using a probit model:

$$\Pr(D_{it} = 1|X_{it}) = \Phi(X_{it}\beta) \tag{1}$$

Where X_{it} is the vector of firm characteristics (e.g. size, investment opportunities, and profitability) describing firm i at time t. D_{it}=1 indicates that the firm is a dividend payer. β is a vector of parameters and Φ is the standard normal cumulative density function.

Given the estimates for β for two time periods (t=1, 2), an unbiased predictor of the fraction of dividend payers in period t is given by:

$$\hat{P}_t = (1/n_t)\sum_{i=1}^{n_t}\Phi\left(X_{it}\hat{\beta}_t\right), \text{ where } n_t \text{ is the sample size in period } t, \tag{2}$$

The decrease in the proportion of dividend payers is now decomposed following the methodologies of Oaxaca (1973) and of Even and MacPherson (1990). First, we divide the change in the proportion of dividend payers into that which can be explained by changes in firm characteristics (EXP^X) and that which cannot be explained by firm characteristics (EXP^β). More specifically, EXP^β is the variation that cannot be explained by changes in firm characteristics corresponds to changes in the β coefficients. The breakdown of the change in the proportion of dividend payers can be expressed by:

$$\hat{P}_1 - \hat{P}_2 = EXP^X + EXP^\beta \tag{3}$$

The portion explained by changes in the firm characteristics (EXP^X) is the change in the proportion of dividend payers that would occur if the coefficients on the determinants of dividend policy (βs) are fixed in period one, while allowing for firm characteristics (Xs) to change from period one to period two. For example, we calculate the change in the proportion of dividend payers in 1978 versus in 2000. Suppose coefficients on the firm characteristics (βs) do not change between the two periods. Then the change in the proportion of dividend payers will be solely due to changes in firm characteristics (Xs). We compute EXP^X as:

$$EXP^X = \left[(1/n_1)\sum_{i=1}^{n_1}\Phi\left(X_{i1}\hat{\beta}_1\right)\right] - \left[(1/n_2)\sum_{i=1}^{n_2}\Phi\left(X_{i2}\hat{\beta}_1\right)\right] \tag{4}$$

The portion explained by changes in the coefficients on the firm characteristics (EXP^β) is the change in the proportion of dividend payers that would occur if firm

characteristics (Xs) are fixed in period two, while allowing for coefficients on firm characteristics (βs) to change from period one to period two. For example, we calculate the change in the proportion of dividend payers in 1978 vs. in 2000. Suppose firm characteristics (Xs) do not change between the two periods. Then the change in the proportion of dividend payers will be solely due to changes in coefficients on firm characteristics (βs). We compute EXP^{β} as:

$$EXP^{\beta} = \left[(1/n_2)\sum_{i=1}^{n_2}\Phi\left(X_{i2}\hat{\beta}_1\right)\right] - \left[(1/n_2)\sum_{i=1}^{n_2}\Phi\left(X_{i2}\hat{\beta}_2\right)\right] \tag{5}$$

By construction, the sum of EXP^{X} and EXP^{β} will add up to the change in the predicted proportions of dividend payers between periods one and two. The proportion explained by changes in the firm characteristics can be further decomposed to measure the contribution of each of the relevant firm characteristics. The fraction of EXP^{X} due to changes in the j^{th} explanatory variable is defined as:

$$EXP_j^X = EXP^X\left[(\overline{X}_{j2} - \overline{X}_{j1})\hat{\beta}_{j1}\right] \Big/ \left[(\overline{X}_2 - \overline{X}_1)\hat{\beta}_1\right] \tag{6}$$

Whereas EXP^{X} is defined above, $\overline{X}_{j2}$ is the mean of the j^{th} firm characteristic for the firms in the second period, and $\overline{X}_2$ is a vector of the mean characteristics for the firms in period two.

By construction, $\sum_j EXP_j^X = EXP^X$ as it should. That is, the sum of the contributions of each of the firm characteristics adds up to the portion explained by changes in firm characteristics. In addition, the amount explained by the j^{th} explanatory variable is related to the change in the mean value of X_j, and its impact on the probability of paying dividends (β_j).

4 Multivariate statistics

There is an advantage of running year-by-year cross-sectional regressions as in Fama and French (2001). Year-by-year cross-sectional regressions allow us to see whether firms change the way they determine dividend policy over time. However, year-by-year cross-sectional regressions require macroeconomic factors to be excluded. Since it is at least plausible that changes in macroeconomic factors (such as tax rate differential and the dividend premium) explain part of the lower propensity to pay dividends, we must also analyze the impact of macroeconomic factors on dividend policy by using pooled regressions. However, the problem with pooled regressions is that regression coefficients are forced to be constant over time. Changing coefficients indicate that decision makers think differently about the effect of firm characteristics on the likelihood to pay dividends from year to year. The direction of the change reflects the propensity to pay dividends in a given year. In this section we present results using both pooled and year-by-year cross-sectional regressions.

One concern with the tax differential is that it seems to be highly negatively correlated with time. As we can see in Table 3, tax differential (column four) is highly negatively correlated with time (column one). Thus, any regression in which

the tax differential is an independent variable may result in spurious significant results unless time is also included.[1]

4.1 Pooled regressions

We first run pooled probit regressions in order to measure the effect of macroeconomic factors on the likelihood that a firm will pay dividends. As explained above, pooled regressions do not allow coefficients to change across time. In Table 4, we present regression results in which we include all factors we test in this paper, year dummies, and interaction terms between the firm characteristic variables and the year dummies. That is, we run the following regression:

$$\begin{aligned}\Pr(D_{it}=1|X_{it}) \\ =\Phi[\alpha+\beta(X_{it})+\gamma(\text{Div. Premium})+\delta(\text{Tax Differential})+\varepsilon(\text{Yr. Dummies})+\zeta(X_{it}\cdot \text{Yr}\cdot\text{Dummies})]\end{aligned} \tag{7}$$

To save space, we present results for average coefficients on the interaction terms with their corresponding t-statistics. This practice is similar to that of Fama and Macbeth (1973). First, all coefficients, except leverage, have the predicted sign. All coefficients are statistically significant at 10% level. Notice that most interaction terms are significantly different from zero, indicating that the coefficients on firm characteristics are varying with time. Still, it is impossible to determine whether there was a lower propensity to pay dividends just by looking at the interaction terms.

4.2 Year-by-year cross-sectional regressions

In Table 5 we present results from year by year cross-sectional probit regressions on the likelihood that a firm pays dividends for each year between 1967 and 2002. To conserve space, we present only five-year average coefficients. We can see the signs of the coefficients of the regressions are consistent with the findings of Fama and French (2001).

The firm size variable has a significantly positive coefficient for all years. This is because bigger firms normally have less cash flow volatility and therefore are more confident in being able to continue paying dividends in the future. An increase in investment opportunities (indicated by higher V/A or higher dA/A) reduces the probability that the firm will pay dividends since the firm can invest the money elsewhere. The sporadic lack of significance of the coefficient on asset growth may be due to the collinearity with V/A. The relation between profitability and dividends is as expected. As profitability increases, the probability of paying dividends also increases (as evidenced by a positive E/A coefficient). However, the importance of profitability for the average firm decreases over time. Age of firm turns out to be a significant variable in explaining the dividend payout and it is consistently significant over years. The earned/contributed capital mix variable that is introduced by DeAngelo et al. (2006) also explains dividend policy very well and like firm age,

[1] The correlation between the tax differential and time was so strong that our statistical analysis program automatically dropped it.

Table 4 Likelihood of paying dividends: Do coefficients on firm characteristics change across time?

	$\Pr(D_{it} = 1 \mid X_{it})$		
	Coefficient	T-statistic	p-value
E/A	0.5501	4.550	(<0.001)
dA/A	−0.0610	−3.060	(0.002)
SIZE	0.0071	1.750	(0.081)
V/A	−0.0620	−16.920	(<0.001)
MAT	0.0037	41.700	(<0.001)
RE/TE	0.0485	2.730	(0.006)
LEV	0.0889	3.320	(0.001)
LIQ	−0.0333	−22.740	(<0.001)
E/A interaction	0.4269	3.368	(<0.001)
dA/A interaction	−0.0335	−3.348	(0.008)
SIZE interaction	0.0026	8.533	(<0.001)
V/A interaction	−0.0051	−1.131	(<0.001)
MAT interaction	0.0033	7.184	(<0.001)
RE/TE interaction	0.1936	7.321	(<0.001)
LEV interaction	−0.1309	−10.386	(<0.001)
LIQ interaction	−0.0084	−3.721	(0.147)
Dividend premium	1.4631	6.810	(<0.001)
Observations	62,887		

We test whether the coefficients on firm characteristics change over time and present the results of the test on this table. The dependent variable is equal to one if a firm pays dividends in year t and zero otherwise. The explanatory variables are relative size of the firm compared to the average size of NYSE firm (*SIZE*), market-to-book ratio (*V/A*), asset growth (*dA/A*), profitability (*E/A*), age of the firm since incorporation (*MAT*), earned/contributed capital mix (*RE/TE*), book value leverage (*LEV*) and the ratio of shares traded during the year to shares outstanding (*LIQ*). We also include time dummy variables and interaction terms between the firm characteristics variables and the year dummies. In other words, we run $\Pr(D_{it} = 1 \mid X_{it}) = \Phi(\alpha + \beta(X_{it}) + \gamma(\text{Dividend Premium}) + \delta(\text{Tax Differential}) + \varepsilon(\text{Year Dummies}) + \zeta(X_{it} \cdot \text{Year Dummies}))$. For the interaction terms, we present average coefficients and the corresponding t-statistics in a similar fashion to Fama and Macbeth (1973). The tax differential variable was dropped automatically by the statistical analysis program because of collinearity with the year dummy variables. The year t regressions are estimated for firms with available data items on Compustat (see Table 1 for more details).

this variable is consistently significant over years. Although leverage has the correct sign, it is sporadically significant and it becomes less significant over time. Finally, our year by year cross-sectional probit regression results support the conclusion of Banerjee et al. (2007) that liquidity is negatively related to the likelihood that a firm pays dividends.

Coefficients on profitability, growth opportunities, firm size, liquidity, leverage, earned/contributed capital mix, and liquidity coefficients in 1967–1972 are very different from those in the 1998–2002 period. For example, the profitability coefficient changes from 2.164 (in 1967–1972) to 0.289 (in 1998–2002). This suggests that the same profitable firm that pays dividends between 1967 and 1972 is less likely to pay dividends between 1998 and 2002. This phenomenon is part of the

Table 5 Summary of probit regressions

	Coefficients (p-value)							
	$SIZE_t$	V/A_t	dA/A_t	E/A_t	MAT_t	RE/TE_t	LEV_t	LIQ_t
1967–1972	0.010	−0.071	−0.192	2.164	0.004	0.303	−0.234	−0.080
	(0.000)	(0.000)	(0.010)	(0.001)	(0.000)	(0.003)	(0.002)	(0.000)
1973–1977	0.013	−0.100	−0.091	1.206	0.004	0.536	−0.118	−0.074
	(0.000)	(0.006)	(0.205)	(0.007)	(0.000)	(0.000)	(0.020)	(0.000)
1978–1982	0.010	−0.114	−0.105	1.164	0.005	0.499	−0.159	−0.017
	(0.000)	(0.003)	(0.073)	(0.000)	(0.000)	(0.000)	(0.012)	(0.023)
1983–1987	0.012	−0.060	−0.175	0.719	0.006	0.341	−0.062	−0.038
	(0.000)	(0.011)	(0.000)	(0.000)	(0.000)	(0.000)	(0.365)	(0.000)
1988–1992	0.011	−0.047	−0.163	0.718	0.005	0.164	−0.061	−0.037
	(0.000)	(0.002)	(0.011)	(0.000)	(0.000)	(0.005)	(0.168)	(0.000)
1993–1997	0.007	−0.033	−0.131	0.376	0.003	0.089	−0.039	−0.031
	(0.001)	(0.000)	(0.003)	(0.001)	(0.000)	(0.003)	(0.164)	(0.000)
1998–2002	0.004	−0.026	−0.098	0.289	0.002	0.040	0.004	−0.019
	(0.003)	(0.007)	(0.002)	(0.006)	(0.001)	(0.016)	(0.851)	(0.008)

We run probit regressions on the likelihood that a firm pays dividends for each year between 1967 and 2002. To conserve space, we present only five-year average coefficients and p-values (in parentheses) in this table (the full probit regression results are available upon request). The dependent variable in each regression is a dummy variable that is equal to 1 if firm *i* pays dividends in year *t* and zero otherwise. The explanatory variables are relative size of the firm, compared to the average NYSE firm (*SIZE*), market-to-book ratio (*V/A*), asset growth (*dA/A*), profitability (*E/A*), earned/contributed capital mix (*RE/TE*), book value leverage (*LEV*), shares traded during the year divided by the number of shares outstanding (*LIQ*), and age of the firm since incorporation (*MAT*). The year *t* regressions are estimated for firms with available data items on Compustat (see Table 1 for more details)

reason many have said that there is now a lower propensity to pay dividends. On the other hand, the coefficients on firm maturity are relatively stable over time (0.004 for the 1967–1972 period compared to 0.002 for the 1998–2002 period). An alternative explanation that we also consider in this study is that macroeconomic forces have had an increasing effect on the likelihood that a firm will pay dividends. However, we cannot be sure based on year-by-year cross-sectional regressions because macroeconomic forces cannot enter these regressions. Either way, the apparent changes in coefficients alone do not allow us to determine whether there is in fact a lower propensity to pay dividends. We need the Oaxaca decomposition to help us measure the aggregate effects of changing coefficients compared to the aggregate effects of changing firm characteristics.

5 Decomposition results

As discussed earlier, the Oaxaca decomposition allows us to quantitatively determine how much firm characteristics or managerial attitudes explain the decline in the proportion of dividend payers between 1978 and 1998. One characteristic of the

Oaxaca decomposition is that it is used to explain differences between two groups. Thus, we focus primarily on comparing 1978 to 1998 because 1978 is the year in which the highest proportion of firms paid dividends in the Compustat sample and 1998 is the year in which the lowest proportion of firms paid dividends in the Compustat sample. Thus, the largest change in the proportion of dividend payers happens between these 2 years. However, to check whether choice of year matters in the analysis, we compare 1978 vs. 1998, 1977 vs. 1998, 1979 vs. 1998, 1978 vs. 1997, and 1978 vs. 1999. We find the choice of year does not seem to affect the main conclusions. We present multiple specifications to correspond to the different variables that could explain the trend in dividend policy. First, we use the specification in Fama and French (2001) and we refer to it as the FF specification hereafter. We then use FF specification and add firm maturity and earned/contributed capital mix to the specification. Finally, we use the FF specification and more recently used dividend policy determinants.

5.1 FF specification

Table 6 shows results of the Oaxaca decomposition with the FF specification. Specifically, the FF specification assumes that firm size, growth opportunities, and profitability are the most important factors that affect the likelihood that a firm pays dividends. The difference between the predicted proportion of dividend payers in the early year and the later year is about 46.03% (69.38–23.35%). Furthermore, more than 55% of the decline in the proportion of dividend payers is due to changes in firm characteristics (25.41% divided by 46.03% implying that about 55% of the decline in the proportion of dividend payers is explained by changes in firm characteristics). Changes in growth opportunities (V/A) and profitability (E/A) are essentially the only *firm characteristics* explaining the decline in the proportion of firms that pay dividends between 1978 and 1998. Changes in profitability explain about 32% of the decline (14.81% divided by 46.03%) whereas changes in growth opportunities explain about 23% of the decline (10.75% divided by 46.03%).

To further analyze the effect that macroeconomic forces have on the likelihood that firms pay dividends, we regress the change in the proportion that cannot be explained by firm characteristics (EXP^{β}) on the dividend premium of Baker and Wurgler (2004b) and the tax differential between the maximum capital gains and the maximum ordinary tax rates. We do this because changes in EXP^{β} may be associated with changes in macroeconomic forces. In other words, macroeconomic forces may alter managers' attitudes towards firm characteristics in determining dividend policy. The EXP^{β} vector is constructed by comparing 1978 to every year between 1967 and 2007.[2] We examine whether changes in EXP^{β} are related to

[2] The analysis of macroeconomic factors and dividend policy is done as a second stage after running the Oaxaca decomposition. Specifically, we are studying the relationship between the unexplained portion in the Oaxaca decomposition and macroeconomic factors. Because both the unexplained proportion and macroeconomic factors are the same across all firms, we only have one observation per year. Conclusions from these results should therefore be made with caution. We run this analysis for robustness but the power in the analysis is small because of the low number of observations.

Table 6 Decomposition of dividend payers: FF specification

Panel A: Firm specific factors

Year A (# obs.)	Year B (# obs.)	Pr (A)	Pr (B)	Pr (A)−Pr (B)	EXP ^{X}	EXP $^{\beta}$	EXP (SIZE)	EXP (V/A)	EXP (dA/A)	EXP (E/A)
1978 (2973)	1998 (4501)	69.38%	23.35%	46.03%	25.41%	20.62%	−0.15%	10.75%	−0.00%	14.81%
1977 (2852)	1998 (4501)	71.34%	23.35%	47.99%	22.19%	25.80%	0.21%	9.63%	−0.01%	12.36%
1979 (3117)	1998 (4501)	64.94%	23.35%	41.59%	16.23%	25.36%	−0.67%	6.03%	0.00%	10.87%
1978 (2973)	1997 (4752)	69.38%	23.15%	46.23%	28.39%	17.84%	0.37%	12.89%	0.09%	15.04%
1978 (2973)	1999 (4082)	69.38%	24.00%	45.38%	23.12%	22.26%	−1.01%	12.55%	−0.05%	11.63%

Panel B: Macroeconomic factors (Dependent variable=Exp$^{\beta}$)

	Tax differential	Dividend premium	Year	Intercept	N	R^2
Predicted sign	+	–				
Model I	−0.513[a]			0.207[a]	41	0.7169
	(−9.94)			(15.79)		
Model II		−0.002[c]		0.069[a]	41	0.0869
		(−1.93)		(2.87)		
Model III	−0.265[a]	−0.001	0.004[a]	−7.383[b]	41	0.7748
	(−2.73)	(−0.38)	(2.78)	(−2.71)		

The table summarizes the decomposition by year. In Panel A, the decomposition compares the predicted values in year A to those of year B. It fixes the coefficients to determine the variation that can be explained by firm characteristics. It then fixes the firm characteristics to measure the variation explained by exogenous factors. Columns 3 and 4 summarize the predicted values by the probit regressions. EXP^{X} represents the change that can be attributed to firm characteristics. EXP$^{\beta}$ represents the change that cannot be explained by firm characteristics. EXP^{X} then can be decomposed into different firm characteristics. The corresponding contributions of these factors are in columns 8 through 11. The factors include relative size of the firm, compared to the average NYSE firm (SIZE), market-to-book ratio (V/A), asset growth (dA/A), and profitability (E/A). Panel B presents results when EXP$^{\beta}$ is regressed against exogenous factors such as the difference between dividend taxes and capital gains taxes (Tax Differential), the dividend premium of Baker and Wurgler (2004b), and a time trend variable (Year)

[a], [b], and [c] denote significance at the 1%, 5%, and 10% respectively

macroeconomic factors. If tax differential affects the likelihood that a firm pays dividends, an increase in the tax differential, ceteris paribus, will lead to fewer dividend-paying firms. Thus, if the tax differential affects the likelihood that a firm pays dividends, we should see a positive relation between tax differential and EXP^{β}. On the other hand, if the dividend premium affects the likelihood that a firm pays dividends, an increase in the dividend premium, ceteris paribus, will lead to more dividend-paying firms. Thus, if the dividend premium affects the likelihood that a firm pays dividends, we should see a negative relation between the dividend premium and EXP^{β}.

As we can see in panel B of Table 6, the only consistent and significant coefficient is that of the dividend premium and only when the dividend premium is the only independent variable in the regression. After including the tax differential, the dividend premium, and a time control variable, the coefficients of interest are either insignificant, or have an incorrect sign. Therefore, we conclude that macroeconomic factors have *not* caused managers to be less likely to pay dividends in 1998 compared to 1978.

5.2 The lifecycle hypothesis and the decline in the proportion of dividend payers between 1978 and 1998

Grullon et al. (2002) show that growth opportunities fade with time, making it more likely that a firm will begin paying dividends as it gets older. Along the same lines, firms mature at different rates. DeAngelo et al. (2006) tests the lifecycle theory with earned/contributed capital mix and find that it is likely that changes in average firm maturity between 1978 and 1998 seem to explain a large portion of the decline in the proportion of dividend payers during that same period. To control for the lifecycle hypothesis, we add age of a firm since its incorporation and earned/contributed capital mix to the FF specification. We present the decomposition results with these new variables in Table 7.

As before, the choice of comparison years does not seem to dramatically affect results. About 68% (32.23% divided by 47.06%) of the decline in the proportion of dividend payers between 1978 and 1998 can be explained by changes in firm characteristics. Specifically, changes in earned/contributed capital (RE/TE) turn out to explain most of the decline in the proportion of dividend payers. Changes in RE/TE explain about 51% of the decrease in the proportion of dividend payers (23.87% divided by 47.06%). Changes in profitability (E/A) explain about 10% of the decline, changes in growth opportunities (V/A) can explain about 7% of the decline, and changes in maturity can explain a modest 2% of the decline.[3]

As before, we examine whether macroeconomic factors have an effect on the lower propensity to pay dividends by regressing EXP^{β} on the tax differential and the dividend premium. As before, we find that the signs of the coefficients incorrect or that the coefficients insignificant.

[3] Considering that it is possible that the effect of maturity is non-linear (in other words, it is possible that the effect of maturity on the likelihood that a firm pays dividends levels off at some point), we rerun the decomposition analysis and include the square of maturity as an independent variable in the regressions. In unreported results, we find that there is no material impact on results when we add the square of maturity.

Table 7 Decomposition of dividend payers: FF specification plus maturity and earned/contributed capital mix

Panel A: Firm specific factors

Year A (# obs.)	Year B (# obs.)	Pr (A)	Pr (B)	Pr (A)−Pr (B)	EXP ^{X}	EXP $^{\beta}$	EXP (SIZE)	EXP (V/A)	EXP (dA/A)	EXP (E/A)	EXP (MAT)	EXP (RE/TE)
1978 (2089)	1998 (3440)	72.52%	25.46%	47.06%	32.23%	14.83%	−0.33%	3.15%	0.00%	4.59%	0.95%	23.87%
1977 (2047)	1998 (3440)	74.08%	25.46%	48.62%	26.04%	22.58%	−0.30%	1.33%	−0.11%	1.89%	1.14%	22.09%
1979 (2129)	1998 (3440)	69.46%	25.46%	44.00%	27.03%	16.97%	−0.38%	0.84%	0.01%	2.15%	1.04%	23.37%
1978 (2089)	1997 (3440)	72.52%	26.23%	46.29%	33.28%	13.01%	−0.19%	3.85%	0.00%	4.38%	0.98%	24.26%
1978 (2089)	1999 (3210)	72.52%	25.79%	46.73%	31.00%	15.73%	−0.58%	3.58%	0.00%	3.66%	0.78%	23.56%

Panel B: Macroeconomic factors (Dependent variable=Exp$^{\beta}$)

	Tax differential	Dividend premium	Year	Intercept	N	R^2
Predicted Sign	+	–				
Model I	−0.317[a]			0.1401[a]	41	0.669
	(−8.898)			(−15.503)		
Model II		0.00329		0.0838[a]	41	0.003
		(0.3576)		(4.202)		
Model III	−0.048	0.00911[c]	0.004[a]	−8.0566[a]	41	0.891
	(−2.46)	(−0.21)	(4.02)	(2.90)		

The table summarizes the decomposition by year. In Panel A, the decomposition compares the predicted values in year A to those of year B. It fixes the coefficients to determine the variation that can be explained by firm characteristics. It then fixes the firm characteristics to measure the variation explained by exogenous factors. Columns 3 and 4 summarize the predicted values by the probit regressions. EXP^{X} represents the change that can be attributed to firm characteristics. EXP $^{\beta}$ represents the change that cannot be explained by firm characteristics. EXP^{X} can then be decomposed into different firm characteristics. The corresponding contributions of these factors are in columns 8 through 13. The factors include relative size of the firm, compared to the average NYSE firm (SIZE), market-to-book ratio (V/A), asset growth (dA/A), profitability (E/A), age of the firm since incorporation (MAT), and earned/contributed capital mix (RE/TE). Panel B presents results when EXP $^{\beta}$ is regressed against exogenous factors such as the difference between dividend taxes and capital gains taxes (Tax Differential), the dividend premium of Baker and Wurgler (2004b), and a time trend variable (Year)

[a], [b], and [c] denote significance at the 1%, 5%, and 10% respectively

5.3 Leverage, liquidity, and the decline in the proportion of dividend payers between 1978 and 1998

It is possible that changes in liquidity could have caused a decline in the proportion of firms that pay dividends. Recent work by Banerjee et al. (2007) suggests that the dramatic rise in liquidity that took place in the last 40 years may explain a significant part of the decline in the proportion of dividends. The reason is simple. Investors with regular liquidity needs can receive cash from dividends or by selling shares. The problem is that selling shares costs money. The cost of selling shares is inversely related to liquidity. As liquidity increases, preference for dividends falls. Probably the most important liquidity event for this study is the deregulation of brokerage commissions that took place in May of 1975. Before this date, all brokerage houses charged the same commission for buying and selling of stock. While it took some time, commissions for buying and selling of stock fell dramatically after the act. We use the Oaxaca decomposition technique to measure the effect of increasing liquidity on the decline in the proportion of dividend payers. We also control for leverage in this model because extant literature has found that capital structure and dividends are interrelated.

Following Banerjee et al. (2007), we use the number of shares traded during the year divided by the total shares outstanding for the firm as our measure of liquidity. We add leverage and liquidity to the previous decomposition specification (whose results are presented in Table 7). The new results are presented in Table 8. The first surprising result here is that changes in firm characteristics now explain about 76% of the decline in the proportion of dividend payers between 1978 and 1998 (36.27% divided by 47.82%). As in Table 6, earned/contributed capital mix still dominates other determinants. This time, the choice of years is critical, especially with the LIQ variable. While brokerage commission deregulation happened in May of 1975, it seems that liquidity increased dramatically between 1977 and 1979. Thus, results from the decomposition are very different if we look at the 1977 vs. 1998 period compared to the 1978 vs. 1998 and the 1979 vs. 1998 periods. The effect of liquidity falls dramatically if we use 1978 as a point of reference instead of 1977 (the contribution of liquidity drops from 27% to 7% just because of the choice of reference year).

As before, we also explore whether EXP^{β} is correlated to macroeconomic factors. Results in this part of the analysis are consistent with earlier results that macroeconomic factors have not caused the decline in the proportion of dividend payers between 1978 and 1998 since the coefficients on the dividend premium and tax differential are either insignificant or have incorrect signs.

6 Stock repurchases

Another question that arises is whether the recent increase in share repurchases has an effect on the likelihood that firms pay dividends. To test this possibility, we re-run the decomposition, except that we now identify a firm as a dividend payer if they paid dividends in year t or if they repurchased stock in year t. This time, we cannot look at the effects of macroeconomic factors we explored earlier because those factors are related strictly to firms that pay cash dividends. Results of this analysis are presented in Table 9.

Table 8 Decomposition of dividend payers: FF specification and more recently used dividend policy determinants

Panel A: Firm specific factors

Year A (# obs.)	Year B (# obs.)	Pr (A)	Pr (B)	Pr (A)− Pr (B)	EXP^{X}	EXP^{β}	EXP (SIZE)	EXP (V/A)	EXP (dA/A)	EXP (E/A)	EXP (MAT)	EXP (RE/TE)	EXP (LIQ)	EXP (LEV)
1978 (2054)	1998 (3433)	73.31%	25.49%	47.82%	36.27%	11.55%	−0.33%	3.32%	0.00%	4.99%	1.02%	24.69%	2.63%	−0.05%
1977 (2012)	1998 (3433)	74.56%	25.49%	49.07%	38.67%	10.40%	−0.44%	1.31%	−0.16%	2.12%	1.25%	24.08%	10.52%	−0.01%
1979 (2126)	1998 (3433)	69.47%	25.49%	43.98%	26.50%	17.48%	−0.37%	0.87%	0.01%	2.11%	1.03%	23.06%	−0.17%	−0.04%
1978 (2054)	1997 (3434)	73.31%	26.29%	47.02%	37.02%	10.00%	−0.14%	4.01%	−0.01%	4.72%	1.05%	24.96%	2.53%	−0.10%
1978 (2054)	1999 (3199)	73.31%	25.87%	47.44%	35.10%	12.34%	−0.68%	3.79%	0.00%	4.00%	0.84%	24.68%	2.49%	−0.02%

Panel B: Exogenous factors (Dependent variable=Exp^{β})

	Tax differential	Dividend premium	Year	Intercept	N	R^2
Predicted sign	+	–				
Model I	−0.209[a]			0.106[a]	41	0.5203
	(−6.504)			(12.934)		
Model II		0.00677		0.077[a]	41	0.0245
		(0.991)		(5.211)		
Model III	−0.041	0.103[b]	0.002[a]	−4.976[a]	41	0.6164
	(−0.621)	(2.118)	(2.868)	(−2.804)		

The table summarizes the decomposition by year. In Panel A, the decomposition compares the predicted values in year A to those of year B. It fixes the coefficients to determine the variation that can be explained by firm characteristics. It then fixes the firm characteristics to measure the variation explained by exogenous factors. Columns 3 and 4 summarize the predicted values by the probit regressions. EXP^{X} represents the change that can be attributed to firm characteristics. EXP^{β} represents the change that cannot be explained by firm characteristics. EXP^{X} can then be decomposed into different firm characteristics. The corresponding contributions of these factors are in columns 8 through 15. The factors include relative size of the firm, compared to the average NYSE firm (SIZE), market-to-book ratio (V/A), asset growth (dA/A), profitability (E/A), age of the firm since incorporation (MAT), earned/contributed capital mix (RE/TE), stock liquidity (LIQ), and book value leverage (LEV). Panel B presents results when EXP^{β} is regressed against exogenous factors such as the difference between dividend taxes and capital gains taxes (Tax Differential), the dividend premium of Baker and Wurgler (2004b), and a time trend variable (Year)

[a], [b], and [c] denote significance at the 1%, 5%, and 10% respectively

Table 9 Decomposition of dividend payers and share repurchases

Year A (# obs.)	Year B (# obs.)	Pr (A)	Pr (B)	Pr (A)− Pr (B)	EXP ^{X}	EXP$^{\beta}$	EXP (SIZE)	EXP (V/A)	EXP (dA/A)	EXP (E/A)	EXP (MAT)	EXP (RE/TE)	EXP (LIQ)	EXP (LEV)
1978 (2054)	1998 (3433)	73.31%	38.21%	35.10%	36.26%	−1.16%	−0.33%	3.32%	0.00%	4.99%	1.01%	24.69%	2.63%	−0.05%
1977 (2012)	1998 (3433)	74.56%	38.21%	36.35%	38.67%	−2.32%	−0.44%	1.31%	−0.16%	2.12%	1.25%	24.08%	10.52%	−0.01%
1979 (2126)	1998 (3433)	69.47%	38.21%	31.26%	26.50%	4.76%	−0.37%	0.88%	0.01%	2.11%	1.03%	23.06%	−0.17%	−0.05%
1978 (2054)	1997 (3434)	73.31%	33.50%	39.81%	37.02%	2.79%	−0.14%	4.01%	−0.01%	4.72%	1.05%	24.96%	2.53%	−0.10%
1978 (2054)	1999 (3199)	73.31%	35.40%	37.91%	35.09%	2.82%	−0.68%	3.79%	0.00%	4.00%	0.84%	24.67%	2.49%	−0.02%

The table summarizes the decomposition by year. The decomposition compares the predicted values in year A to those of year B. It fixes the coefficients to determine the variation that can be explained by firm characteristics. It then fixes the firm characteristics to measure the variation explained by exogenous factors. Columns 3 and 4 summarize the predicted values by the probit regressions. EXP^{X} represents the change that can be attributed to firm characteristics. EXP^{β} represents the change that cannot be explained by firm characteristics. EXP^{X} can then be decomposed into different firm characteristics. The corresponding contributions of these factors are in columns 8 through 15. The factors include relative size of the firm, compared to the average NYSE firm (*SIZE*), market-to-book ratio (*V/A*), asset growth (*dA/A*), profitability (*E/A*), age of the firm since incorporation (*MAT*), earned/contributed capital mix (*RE/TE*), stock liquidity (*LIQ*), and book value leverage (*LEV*)

Note that the likelihood a firm pays dividends is the same in 1978 as it was in Table 8. This is because our data indicate that firms start repurchasing in the early 1980s. On the other hand, the predicted proportion of dividend payers in 1998 is higher in Table 9 than in Table 8 (38.21% in Table 9 vs. 25.49% in Table 8) because dividend payers include firms that repurchase stock in Table 9, but not in Table 8. The first dramatic result is that firm characteristics now explain *more* than 100% of the decline in the proportion of dividend payers between 1978 and 1998. In other words, firm characteristics changed so much between 1978 and 1998 that firms should have been even less likely to pay dividends in 1998 than they did.

This result implies that there was actually a *higher* propensity to pay dividends in 1998 than in 1978 after controlling for repurchase activity. Not surprisingly, the most important factor that explains the decline in the proportion of dividend payers is earned/contributed capital mix, followed by profitability, growth opportunities, and then liquidity. Changes in earned/contributed capital mix explain about 68% (24.69% divided by 36.26%) of the decline in the proportion of dividend payers between 1978 and 1998, changes in profitability explain about 14% of the decline (4.99% divided by 36.26%), changes in growth opportunities explain 9% of the decline (3.32% divided by 36.26%), changes in liquidity explain 7% of the decline (2.63% divided by 36.26%), and changes in firm maturity explain about 3% of the decline (1.01% divided by 36.26%).

7 Conclusions

We contribute to the payout policy literature by quantifying how much of the decline in the proportion of dividend payers can be explained by the so called lower propensity to pay dividends. We also measure the impact of more recently used dividend policy determinants on observed payout policy trends. Using the Oaxaca decomposition methodology to determine whether changes in dividend policy between 1978 and 1998 can be explained by changes in firm characteristics, we find that changes in the traditional determinants of dividend policy can explain about 55% of the decline in the proportion of dividend payers that took place between 1978 and 1998. We explore the effects that firm age and earned/contributed capital mix have on the observed dividend policy trend. We find that adding those two new variables cause the propensity to pay dividends to be even less significant (from 45% to 32%). Furthermore, when we add leverage and liquidity to our decomposition analysis, the propensity to pay dividends again drops from 32% to 24%, which indicates that changes in firm characteristics can explain 76% of the decline in the proportion of dividend payers between 1978 and 1998. Finally, we examine the effect of share repurchases on the decline. This time, we find that essentially 100% of the decline in the proportion of dividend payers between 1978 and 1998 can be explained by changes in firm characteristics. In fact, we find a slightly higher propensity to pay dividends in 1998 compared to 1978.

Acknowledgements We are grateful to two anonymous reviewers, the editor (James Payne), Anne Anderson, Timothy Dunne, Louis Ederington, Chitru Fernando, Vladimir Gatchev, Rick Kish, William Megginson, William Moore, Vahap Uysal, Pradeep Yadav, and participants at the 2005 Financial Management Conference for their very helpful comments. We thank Aswath Damodaran and Teresa Lightner for graciously sharing data with us. All errors remain our own.

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