International Evidence on Corporate Payout Policy: Dividends vs. Share Repurchases

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Abstract

In this study, we investigate the patterns and determinants of corporate payout policy using firm-level data from seven major countries -- Australia, Canada, France, Germany, Japan, the U.K., and the U.S. -- over the period 2000-2005. We find that outside the U.S., share repurchases are not as commonly or widely used as in the U.S. The frequency and amount of share repurchases are relatively low outside the U.S. Firms outside the U.S. initiate cash payout generally through dividends. While the extent of the use of share repurchases may vary across countries, a common set of principles emerges in corporate payout policy. First, share repurchases appear to be used because of their flexibility, while dividends are used to pay permanent income. Second, firms that use share repurchases as their only payout method have distinctive characteristics: They tend to be small, less profitable, and to experience high stock return volatility compared to firms that use dividends either solely or along with share repurchases. Third, the majority of firms that repurchase shares increase dividends in the same year. This suggests that firms generally do not finance share repurchases by reducing dividends.

JEL Classification: G35, G15

Keywords: share repurchase, dividends, international evidence, corporate payout policy

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Abstract
In this study, we investigate the patterns and determinants of corporate payout policy using firm-level data from seven major countries -- Australia, Canada, France, Germany, Japan, the U.K., and the U.S. -- over the period 2000-2005. We find that outside the U.S., share repurchases are not as commonly or widely used as in the U.S. The frequency and amount of share repurchases are relatively low outside the U.S. Firms outside the U.S. initiate cash payout generally through dividends. While the extent of the use of share repurchases may vary across countries, a common set of principles emerges in corporate payout policy. First, share repurchases appear to be used because of their flexibility, while dividends are used to pay permanent income. Second, firms that use share repurchases as their only payout method have distinctive characteristics: They tend to be small, less profitable, and to experience high stock return volatility compared to firms that use dividends either solely or along with share repurchases. Third, the majority of firms that repurchase shares increase dividends in the same year. This suggests that firms generally do not finance share repurchases by reducing dividends.

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1. Introduction

Both the financial press and academic studies report that share repurchases have replaced dividends as the most important payout policy in the U.S. Prior research documents that U.S. firms use share repurchases to distribute temporary income, whereas they use dividends to distribute permanent income [Jagannathan, Stephens and Weisbach (2000), Guay and Harford (2000), and Lee and Rui (2007)]. In contrast, our knowledge is very limited with respect to the extent and motives of share repurchases by firms outside the U.S. Systematic academic studies of share repurchases by firms outside the U.S. have been rare. We only have some anecdotes suggesting that share repurchases may not be used widely among firms outside the U.S.\(^1\) Even though share repurchases are used to pay temporary income in the U.S., it is not clear that the same pattern will hold outside the U.S.

In this paper, we attempt to fill this research vacuum and expand our knowledge of corporate payout policies around the world. Specifically, using international data, we examine the extent of the use of share repurchases across countries and attempt to uncover underlying forces behind firms’ choices of payout policy. Our dataset is comprised of firms from seven major countries -- Australia, Canada, France, Germany, Japan, the U.K. and the U.S. -- over the period 2000-2005. Our empirical analysis begins by documenting and comparing the relative use of share repurchases among firms across countries. We then examine the stability of payout policy after dividing payout policy into four types: a policy that makes no distributions, a policy that uses only dividends, a policy that uses only share repurchases, and a policy that mixes dividends and share repurchases. We also analyze factors that affect firms’ choices of payout policy by examining firm characteristics associated with each of the four payout policy types. Finally, we examine the question of whether firms in major countries use share repurchases as a substitute for dividends.

Our key findings can be summarized as follows. First, in countries outside the U.S., share repurchases are not as widely used as in the U.S. Among the firms that distribute cash to shareholders, the percentage of firms that use share repurchases either as their sole payout policy or along with dividends is much lower in countries outside the

\(^1\) For example, there is evidence that some countries prohibit share repurchases or at least fail to encourage them [“All cashier up,” The Economist Aug 15, 1998].
U.S. In addition, the amount of cash distributed through share repurchases is substantially lower than the amount of cash distributed through dividends. Furthermore, when firms outside the U.S. initiate cash distribution, they are more likely to do so through dividends than through share repurchases.

Second, in all countries including the U.S., a policy that pays dividends exhibits strong stability compared to a policy that repurchases shares. In other words, the likelihood that a dividend-paying firm pays dividends in the subsequent year is high, while the likelihood that a share-repurchasing firm makes share repurchases in the subsequent year is very low. This observation is consistent with the conventional wisdom that dividends are sticky and paid out of permanent income, while share repurchases are used because of their flexibility.

Third, firms using share repurchases as their sole payout policy have distinctive characteristics compared to firms using only dividends or those using both dividends and share repurchases. In almost all countries, firms using only share repurchases tend to be small and operationally unprofitable but to have large cash holdings with uncertain cash flows. These observations suggest that researchers need to distinguish between repurchasing firms that do not pay dividends from repurchasing firms that pay dividends.² Further, while firms using only dividends and those using both dividends and share repurchases are relatively similar, firms using both payout policies tend to be relatively large in size and have large cash holdings, compared to firms using only dividends.

Fourth, in all countries including the U.S., the majority of share repurchases coincide with dividend increases. This means that when firms repurchase shares, they tend to increase dividends in the same year by increasing their total distributions. This suggests that, in general, share repurchases are not used as a substitute for dividends in the sense that firms do not finance share repurchases by reducing dividends. This is consistent with prior U.S. studies such as Dittmar (2000), Jagannathan et al. (2000), and Lee and Rui (2007). On the other hand, we find that in all countries, repurchasing firms are less likely to increase dividends than non-repurchasing firms. This observation is

² Some prior studies tend to treat repurchasing firms equally, regardless of whether they pay dividends. [e.g., Dittmar (2000) and Jagannathan et al. (2000)]. In particular, Jagannathan et al. (2000) indicate that repurchasing firms have more uncertain cash flows than firms increasing dividends. According to our results, this evidence of Jagannathan et al. may arise mainly from the characteristics of firms that use only repurchases, rather than the characteristics of firms that use both dividends and repurchases.
consistent with Grullon and Michaely (2002) because it indicates that firms repurchase shares using the funds that might have been used to increase dividends [see also Lee and Rui (2007)].

To our knowledge, our current investigation offers the first comprehensive international evidence with respect to corporate choice of payout policy. Especially, our study indicates that while the use of share repurchases may vary in its extent across countries, a common set of principles emerges from their payout policies. Across countries, many of our results are consistent with the conventional wisdom that share repurchases are flexible and dividends are sticky, given that share repurchases are much more likely to be discontinued in the subsequent year than dividends. Furthermore, firms that use share repurchases as their sole payout policy have low operational profitability and relatively uncertain cash flows but have large cash holdings. This evidence makes plain that firms that have temporarily large cash holdings but are unable to maintain high profit levels in the future will distribute cash through share repurchases.

The organization of the paper is as follows. In the next section, we briefly review prior studies. In Section 3, we present research design and introduce hypotheses. In Section 4, we describe data and variables. In Section 5, we conduct empirical analysis and discuss the results. We conclude in Section 6.

2. Prior U.S. Studies

In the U.S., share repurchases have become very popular and have replaced dividends as the dominant corporate payout policy. Fama and French (2001) document that the percentage of firms paying dividends has significantly decreased. Grullon and Michaely (2002) report that for the first time in 1998, the total value of share repurchases exceeded the value of dividends.

Prior studies report that corporate managers may want to distribute cash flows through share repurchases rather than dividends for several reasons. For example, compared to dividends, share repurchases provide shareholders with tax benefits [Black (1976), Barclay and Smith (1988), and Stephens (2001)]. Share repurchases provide corporate managers with more flexibility than dividends in terms of the timing and the amounts of cash payouts so that share repurchases are used to pay out temporary cash flows, while dividends are used to pay permanent cash flows [Jagannathan et al. (2000),
Firms with stock option programs prefer share repurchases over dividends [Jolls (1998) and Weisbenner (1998)]. Firms sometimes use share repurchases as a means for takeover defense [Denis (1990)]. Some studies find that firms use share repurchases to signal that their stock is currently undervalued. For example, Dann (1981), Vermaelen (1981), Comment and Jarrell (1991), and Chan, Ikenberry and Lee (2004) report that firms experience positive excess returns around the announcement of share repurchases. Dittmar (2000) reports evidence that firms tend to conduct share repurchases when stock is undervalued.

In a strand of share repurchase literature, researchers examine whether share repurchases are used as a substitute for dividends. Dittmar (2000) argues that share repurchases and dividends are not substitutes for each other because firms do not repurchase shares using the funds obtained by decreasing dividends. Jagannathan et al. (2000) find that share repurchases seem to serve the complementary role of paying out short-term cash flows and do not appear to be replacing dividends. Using the aggregate time-series data of share repurchases and dividends, Lee and Rui (2007) provide evidence that share repurchases and dividends are imperfect substitutes. On the other hand, Grullon and Michaely (2002) find that firms may make share repurchases using the funds that might have been used to increase dividends. Thus, even if share repurchases are not financed by dividend reductions, there seems to be a trade-off between share repurchases and dividend increases.

3. Research Design

In this international study of corporate payout policy, we attempt to answer several important questions concerning corporate choice of payout policies. First, we examine the extent to which share repurchases are used as payout policy by firms outside the U.S. To address this, we compare the frequency and amount of share repurchases across the seven major countries in our sample.

We then explore the nature of share repurchases. Prior U.S. studies report that share repurchases are used to pay temporary income, while dividends are sticky and used to pay permanent income. We examine whether the same principle holds outside the U.S. We divide payout policy into four types. They include: (A) a policy that makes no distributions; (B) a policy that pays dividends but does not repurchase shares; (C) a
policy that repurchases shares but does not pay dividends; and (D) a policy that does both, that is, pays dividends and repurchases shares at the same time. After this categorization, we compare the stability of a policy that makes share repurchases and a policy that pays dividends. Specifically, we analyze the probability for a firm to maintain the existing payout policy or to switch from one payout policy to another.

We then examine firm characteristics associated with each of the four payout policy types, using both univariate and multivariate statistical analyses. Our univariate analysis is conducted based on the median and mean values of a range of firm characteristics across these payout policy types.

Our multivariate analysis employs the multinomial logit regression model. To elaborate, according to the logit model, the probability that variable Y assumes value j is defined as follows:

$$\Pr(Y = j) = \frac{\exp(\beta_j'x_i)}{1 + \sum_j \exp(\beta_j'x_i)} \quad \text{for} \quad j = A, B, C, \text{and} \ D.$$  

In our study, Y represents payout policy, and j represents types of payout policy. j can take a value from A through D, where the four types of payout policies are explained above. $x_i$ is a vector of explanatory variables for firm i, and $\beta_j$ is a coefficient vector to be estimated using the maximum likelihood method.

Using the coefficient vector, the odd ratio between two given payout policy types, say, A and B, can be expressed as follows.

$$\ln \frac{P_A}{P_B} = x_i' (\beta_A - \beta_B).$$

This means that the probability that a firm chooses policy A over policy B is obtained on the basis of the difference in the coefficient vectors $\beta_j$ estimated using the multivariate logit regression. It is important in this multivariate analysis to determine the statistical significance of the difference between the $\beta_j$ vectors. This allows us to evaluate the importance of each explanatory variable in firms’ choices of payout policy.

4. Data and Variables

We use the Worldscope database in constructing our dataset. A key data item in
our study is the amount of share repurchases -- that is, the amount of cash that firms expend to reduce common shares in circulation for either keeping them as treasury shares or canceling them. Our approach to obtaining share repurchase data is comparable to that of Grullon and Michaely (2002), who use the Compustat database to obtain the actual amount of cash distributed to shareholders through share repurchases over a given fiscal year. In doing so, they subtract Compustat #56 (reduction in the value of the net number of preferred stock outstanding) from Compustat #115 (total expenditure on the purchase of common and preferred stocks).

A problem that we encounter in using Worldscope is that the database does not provide an item that corresponds to Compustat #56, while it has an item that corresponds to Compustat #115. The Worldscope item corresponding to Compustat #115 is ‘common/preferred, retired, converted, etc. (#04751)’, a cash-flow statement item. According to the Worldscope data guide, this item is the amount of funds used to reduce outstanding shares of common or preferred shares. Since we are not able to identify the amount of cash used to reduce preferred shares, we drop firms if they have preferred stock on the balance sheet, even if they might have repurchased common shares during a given year.3

Our dataset includes firm-year observations from seven developed countries -- Australia, Canada, France, Germany, Japan, the U.K., and the U.S. -- over the period 2000-2005.4 We drop financial services firms from our sample. Our data construction process requires that a firm-year observation have records of both dividend payments and share repurchases. In other words, if a firm-year observation does not have the amount of dividend payments and share repurchases, it is removed.

We use two payout variables, DIVR and REPR, which are the amount of dividends and share repurchases during a given year, scaled by the previous year-end total assets, respectively. In dealing with outliers, we opt to remove observations if the relative amount of dividends (DIVR) is greater than one, and the relative amount of share repurchases (REPR) is less than zero or greater than one.

To analyze whether a given payout policy is explained by a certain set of firm

3 While the use of preferred shares varies somewhat in its extent across countries, we lose only a small fraction of firms by this removal of firms with preferred shares. There is no reason to believe that excluding firms with preferred shares will bias our analysis.

4 Our sample period is relatively short because in many countries outside the U.S., share repurchases were not legal or were difficult to implement due to many regulations until the early or late 1990s [Kim, Schremper and Varaiya (2005)].
characteristics, we construct a dataset of firm characteristic variables for our sample firms. The dataset includes 10 variables that represent a range of firm characteristics. They include firm size (TA), the market-to-book ratio (MBR), cash holdings (CASH), operating profitability (ROA), the debt-to-equity ratio (LEVER), stock returns (SRET), non-operating profit (NOPER), the ratio of retained income and total equity (RE/TE), stock return volatility (SRVOL), and operating profitability volatility (ROAVOL). Among these variables, MBR is used as a proxy for growth option. RE/TE is a proxy for the financial life cycle stage of a firm. Both SRVOL and ROAVOL are used as proxies for the level of cash flow uncertainty faced by a firm. Firms with unstable cash flows are expected to experience high fluctuations in stock prices and operating profitability.

To deal with outlier problems, we winsorize each of these 10 variables at the bottom and top one percent of their respective distributions each year. For MBR and RE/TE, we treat observations with negative book value as missing values. Table 1 provides descriptions of two payout variables and 10 firm-characteristic variables.

5. Empirical Evidence

5.1 Relative Importance of Dividends and Share Repurchases in Major Countries

We begin by comparing the relative use of dividends and share repurchases across seven major countries. We first analyze the number and percentage of firms that adopt each of the four types of payout policy: (A) a policy with DIVR=0 and REPR=0, (B) a policy with DIVR>0 and REPR=0, (C) a policy with DIVR=0 and REPR>0, and (D) a policy with DIVR>0 and REPR>0, respectively.

For each country, Table 2 presents the number and percentage of firms that belong to each of the four types of payout policy over the sample period. Consistent with prior U.S. studies, the number and percentage of firms that use share repurchases are very high in the U.S. For example, in year 2005, the number of firms using share repurchases solely or along with dividends is 1,247 (=647+607), which is more than twice the number of firms that use only dividends, 502. Among the firms that distribute cash to shareholders, the proportion of firms using share repurchases solely or along with

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5 DeAngelo, DeAngelo and Stulz (2006) document that RE/TE predicts the probability of firms paying dividends or not, which suggests that payout policy is associated with financial life cycle.
dividends is as high as 71.4% (=36.8% + 34.6%) in year 2005. What is also remarkable about the wide adoption of share repurchases by U.S. firms is that throughout the sample period, the number of firms that use share repurchases as their sole payout policy is greater than the number of firms that use only dividends or those that mix dividends and share repurchases. These observations confirm that share repurchases have replaced dividends as the dominant form of payout in the U.S. in recent years.

In contrast, the table shows that share repurchases are not as widely adopted in countries outside the U.S. With the exception of Japan, firms in countries outside the U.S. use dividends as their primary payout policy. For example, in year 2005, 81.3% of Australian firms distribute cash using only dividends, while only 18.7% (=2.7%+16.0%) use share repurchases solely or along with dividends. Similarly, during the same year in Germany, the percentage of firms that distribute cash using only dividends is as high as 81.7%. Further, the proportion of firms that use only share repurchases among the firms that distribute cash is also small in countries outside the U.S. In Australia, this proportion is only 2.7% in year 2005. While the proportion of these firms is a bit high in Canada (13.8% in year 2005), this proportion is generally under 10% in the countries outside the U.S. Thus, the data show that the use of share repurchases as the sole payout policy, or along with dividends, is not common among firms outside the U.S. Especially, compared to U.S. firms, the proportion of firms that use only share repurchases is very small outside the U.S.

On the other hand, there is some evidence that the use of share repurchases is on the rise in some countries. For example, in France, the percentage of firms that use share repurchases along with dividends is on a steady increase over the sample period (from 11.3% in 2000 to 33.2% in 2005). This pattern, likewise, applies to Japan.

Next, we compare the relative amount of cash distributed through dividends and share repurchases in our sample countries. Table 3 reports the amount of cash distributed through dividends and share repurchases by three groups of firms for seven major countries over the sample period. As expected, there is a tendency for U.S. firms to distribute more cash through share repurchases than through dividends. For firms that use both dividends and share repurchases (group (D)), both the mean and median share repurchases-to-total assets ratios (REPR) -- 3.974% and 1.630%, respectively -- are higher than the mean and median dividends-to-total assets ratios (DIVR) -- 2.383% and 1.600%, respectively. Thus, as documented in prior U.S. studies, share repurchases have
replaced dividends as the dominant form of payout in the U.S., not just in terms of the frequency of their use but in terms of the relative amount of cash distributed through them.

In contrast, our data show that firms outside the U.S. generally distribute less cash through share repurchases than through dividends. For example, when firms outside the U.S. use both dividends and share repurchases, they tend to distribute more through dividends than through share repurchases. For Australian firms that use both share repurchases and dividends, the median DIVR, 4.060%, is much higher than the median REPR, 1.774%. The same pattern is found for other countries outside the U.S. as well. For example, for the Canadian firms that use both dividends and share repurchases, the median DIVR is 1.029%, which is a lot higher than their median RERP, 0.715%. Thus, it seems that outside the U.S., dividends remain the principal method of payout even when firms repurchase shares along with dividends.

An interesting pattern to note is the relative amount of payout through dividends and share repurchases for Japanese firms. As we saw in Table 2, the number or proportion of firms that use share repurchases is fairly high in Japan, giving the impression that share repurchases are widely adopted there. However, as Table 3 shows, the amount of cash distributed through share repurchases is relatively small in Japan. For example, when Japanese firms use both dividends and share repurchases, they distribute much more through dividends than through share repurchases. The median DIVR for firms in group (D) is 0.687%, a lot higher than their median REPR, 0.075%. Further, when Japanese firms distribute cash only through share repurchases, their amount of payout is rather tiny. The median REPR for group (C) firms in Japan is only 0.007%. Thus, in terms of the relative amount of cash distribution, dividends remain the principal payout policy even in Japan.

To summarize, we find that share repurchases in payout policy are less important outside the U.S. In terms of relative frequency and amount, U.S. firms are the largest user of share repurchases. Especially, in the U.S., more than half the firms that distribute cash use share repurchases either as their sole payout policy or alongside dividends. Overall, the use of share repurchases is not very common among non-U.S. firms. The proportion of firms that distribute cash through share repurchases -- either as their sole payout policy or along with dividends -- is relatively small among non-U.S. firms. In particular, the percentage of firms that distribute cash solely through share repurchases is
very small in countries outside the U.S. Further, firms outside the U.S. tend to distribute more cash through dividends than through share repurchases. These observations collectively suggest that outside the U.S., dividends remain the principal payout policy, and share repurchases may be used mostly to supplement dividends.

5.2 Stability of Payout Policy

In this section, we analyze the stability of payout policy using transition matrices. After dividing firms into four groups according to the type of payout policy, we examine the frequency and probability of firms keeping the existing payout policy or switching to other payout policies. This analysis of stability of payout policy helps us to delve into the nature of dividends and share repurchases as payout policies around the world.

Table 4 presents transition matrices for firms in seven major countries over the period 2000-2005. First, the table shows that in the U.S., when firms making no distributions (i.e., group (A) firms) initiate cash distribution, they are more likely to do so using share repurchases (1,090 firms) than using dividends (136 firms). This reflects the popularity of share repurchases among U.S. firms. In other countries, however, firms are more likely to choose dividends than share repurchases when they initiate cash distribution, with the exception of Canada. For example, when firms in Australia initiate cash distribution, 79 firms choose dividends, while only 21 firms choose share repurchases. Even in Japan, where share repurchases are relatively popular, more firms choose dividends (124 firms) than share repurchases (69 firms) when they initiate dividends.

Second, across countries, firms that use only dividends (i.e., group (B) firms) display a high tendency to maintain their dividend-paying policy in the following year. For example, in Australia, the probability that a firm that pays dividends but does not repurchase shares implements the same payout policy in the following year is as high as 86.7%. Across countries, the probability that a firm using only dividends maintains the same policy in the following year ranges from 68.1% to 88.6%. This high level of stability in dividend-paying policy is consistent with the well-known behavioral pattern of managers. Managers avoid dividend reductions or omissions for fear of a big loss in stock prices by doing so [Linter (1956), and Brav, Graham, Harvey and Michaely (2005)]. Additionally, the table shows that it is very rare across countries that firms with the
dividend-only policy switch to the share repurchase-only policy in the following year. Even in the U.S., where share repurchases are widely used, only 0.2% of firms with the dividend-only policy switch to the share repurchase-only policy in the following year.

In contrast, across countries, firms that repurchase shares but do not pay dividends (i.e., group (C) firms) display much weaker stability in their payout policy. In Australia, for example, only 34.0% of firms using only share repurchases maintain the same payout policy in the following year. Another important and related observation is that relatively many firms using only share repurchases make no distributions in the following year. For example, in the U.S., where share repurchases are most popular, as many as 32.6% of firms using only share repurchases distribute no cash in the following year. This is in contrast to firms using only dividends. It is rare that firms that pay dividends become non-payers in the following year. This observation is consistent with the prediction that dividends are paid out of permanent income, while share repurchases are paid out of temporary income. The probability that repurchasing firms distribute nothing in the following year is high probably because their share repurchases are funded by temporary income.

We observe another interesting pattern from the transition matrices by looking at the stability of the payout policy that mixes dividends and share repurchases (i.e., group (D) firms). The table shows that many firms that pay dividends and repurchase shares simultaneously pay dividends but do not repurchase shares in the following year (46.4% in Australia, for example). On the other hand, only a very small percentage of them switch to the policy that repurchases shares but does not pay dividends (only 2.9% in Australia, for example). Thus, the data show that while it is rare for firms using both dividends and share repurchases to drop dividends and rely only on share repurchases, it is quite common for them to continue to pay dividends in the following year. This is consistent with the conventional wisdom that dividends are sticky, while share repurchases are a flexible means of distributing cash.

Another interesting pattern to note in the table is that the probability of firms switching from the dividend-only policy to the share repurchase-only policy or vice versa is very low. In all countries, the probability that firms using the dividend-only policy switch to the share repurchase-only policy in the following year is less than 1%. The probability that firms using only share repurchases switch to a policy using only dividends is also low, ranging from 1.0% to 15.1%. So it is very uncommon for firms to
completely give up dividends to adopt share repurchases or vice versa. This may indicate that firms do not use dividends and share repurchases as substitutes for each other. This may be because dividends are sticky and paid out of permanent income, while share repurchases are flexible and paid out of temporary income.

Overall, we find in this subsection that firms’ decisions to maintain the existing payout policy or to switch from one policy to another are consistent with the conventional wisdom that dividends are sticky and share repurchases flexible. Grullon and Michaely (2002) report similar patterns using transition matrices for U.S. firms. Our study shows that the same conventional wisdom holds outside the U.S.

Additionally, our observations from the transition matrices can provide clues as to firm characteristics associated with payout policies. For example, the table shows that across countries, there is a relatively high occurrence of firms switching from the policy using only dividends (i.e., (B)) to the policy using both dividends and share repurchases (i.e., (D)) or vice versa. This high occurrence of switches between the two policies implies that firms using only dividends and those using dividends along with share repurchases may have similar firm characteristics. On the other hand, we have seen that the switch from the policy using only dividends (and the policy using dividends along with share repurchases) to the policy using only share repurchases (i.e., (D)) or vice versa is rare across countries. This implies that firms using only share repurchases may have distinctive firm characteristics compared to firms using only dividends or firms using dividends along with share repurchases. In the next section, we analyze firm characteristics associated with each payout policy type to examine whether these conjectures are supported by the data.

5.3 Firm Characteristics by Payout Policy

Our next analysis is to identify firm characteristics associated with each payout policy type. We choose 10 variables that represent a variety of firm characteristics. They are firm size (TA), the market-to-book ratio (MBR), cash holdings (CASH), operating profitability (ROA), the debt-to-equity ratio (LEVER), stock returns (SRET), non-operating profit (NOPER), the ratio of retained income and total equity (RE/TE), stock return volatility (SRVOL), and operating profitability volatility (ROAVOL).

This analysis can be viewed as an international extension of Grullon and
Michaely (2002), who examine firm characteristics associated with payout policies for U.S. firms. They report that firms using only dividends and firms using both dividends and share repurchases have similar firm characteristics. On the other hand, they report that firms using only share repurchases have distinctive characteristics that separate them from firms using only dividends and firms that use both dividends and share repurchases.

For each of the seven major countries, Table 5 reports the mean and median values of the 10 firm-characteristic variables for four groups of firms classified by payout policy. The first question we examine is whether firms using only dividends and firms using both dividends and share repurchases have similar firm characteristics. The table suggests that these two groups have differences at least in two firm characteristics: firm size (TA) and cash holdings (CASH). In all seven sample countries, firms that use both dividends and share repurchases are larger than firms that use only dividends in terms of both mean and median firm size. For instance, in Australia, the mean and median size (TA) of firms that use both dividends and share repurchases are US$19.49 million and US$19.14 million, respectively, while the mean and median size of firms that use only dividends are US$18.70 million and US$18.46 million, respectively.

And, in almost all countries, firms using both dividends and share repurchases tend to have larger cash holdings than firms using only dividends in terms of both mean and median cash holdings. For instance, in Canada, the mean and median cash holdings for firms using both dividends and share repurchases are 6.01% and 1.99%, respectively, both of which are greater than the corresponding numbers for firms using only dividends: 5.76% and 1.25%, respectively. The only exception to this pattern is the U.K., where the mean cash holdings of firms using both dividends and share repurchases (10.17%) is smaller than the corresponding number of firms that use only dividends (10.92%).

Thus, across countries, we find that firms using both dividends and share repurchases tend to be large and have large cash holdings, compared to firms using only dividends. Contrary to Grullon and Michael (2002), who argue that these two groups are similar in firm characteristics, our international data show that they have differences in two key firm characteristics.

The next question we examine is whether firms using only share repurchases have distinctive firm characteristics. Table 5 shows that firms using only share repurchases have many firm characteristics that separate them from other firms using dividends solely or along with share repurchases. First, in terms of the firm size, firms
that use only share repurchases are small. For example, in France, the mean and median values for the firm size of those that use only share repurchases are US$18.32 million and US$17.90 million, both of which are smaller than the corresponding mean and median values for those that use only dividends (US$19.92 million and US$19.64 million, respectively) and for those that mix dividends and share repurchases (US$21.09 million and US$21.19 million, respectively). This pattern holds for all the other countries as well.

Second, firms using only share repurchases tend to have large cash holdings (CASH). In almost all countries -- with the only exception of Japan -- the median and mean values for cash holdings of firms using only share repurchases are greater than the corresponding values of firms using dividends solely or along with dividends. For Canada, for example, the mean and median cash holdings of firms using only share repurchases are 20.23% and 7.83%, respectively, while the corresponding values of firms using only dividends are 5.76% and 1.25%, respectively, and those of firms using both dividends and share repurchases are 6.01% and 1.99%, respectively.

Third, in all countries, firms that use only share repurchases have low operating profitability. For example, for Germany, the mean and median operational profitability (ROA) for firms that use only share repurchases (-0.05 and 0.01, respectively) are lower than those for firms that use only dividends (0.08 and 0.07, respectively) and those for firms that use both dividends and share repurchases (0.12 and 0.09, respectively).

Fourth, in all countries, firms that use only share repurchases are distinguished in that they have low earned-to-contributed equity ratio. For example, in the U.S., while the mean and median RE/TE ratios for firms with a share repurchase-only policy are only −0.58 and 0.22, respectively, the corresponding RE/TE ratios for firms using only dividends (0.50 and 0.65, respectively) and those for firms using both dividends and share repurchases (0.68 and 0.80, respectively) are greater. This finding implies that firms that use only share repurchases are usually at the early stage in their financial life cycle.

Fifth, invariably across countries, firms using only share repurchases tend to experience high volatilities in stock return and profitability (SRVOL and ROAVOL) compared to firms using only dividends and those using both dividends and share repurchases. In the U.K., for example, the mean and median values for stock return volatility (SRVOL) are 12.09% and 10.66%, respectively, both of which are greater than
the corresponding values for firms using only dividends (11.04% and 9.76%, respectively) and those for firms using both dividends and share repurchases (8.21% and 7.35%, respectively). Similarly, in the same country, the mean and median values for operating profitability volatility (ROAVOL) for firms using only share repurchases (16.63% and 3.94%, respectively) are greater than those for firms using only dividends (6.22% and 3.59%, respectively) and those for firms using both dividends and share repurchases (3.79% and 1.66%, respectively).

The above results collectively indicate that firms that use only share repurchases are different from firms using only dividends and firms using both dividends and share repurchases. Firms using only share repurchases tend to be small, not very profitable, and at a relatively early stage in their financial life cycle but to have large cash holdings and to experience high volatilities in stock returns and profitability compared to firms using dividends or firms using both dividends and share repurchases.

In the next analysis, we conduct multivariate logit regression analysis to examine firm characteristics associated with payout policies. This regression analysis allows us to evaluate the importance of a given firm characteristic while controlling for the influence of other firm characteristics.6

Table 6 reports the results of multinomial logit regressions for which firms that repurchase shares but do not pay dividends (i.e., firms in group (C)) are the reference firms. In all or almost all countries, three variables are consistently significant when the comparison firms are those using only dividends (i.e., firms in group (B)) and those using both dividends and share repurchases (i.e., firms in group (D)). First, the coefficient for firm size (log(TA)) is positive and significant in all countries against these two groups of comparison firms. This means that firms using only share repurchases are small, compared to other firms that distribute cash to shareholders. Second, the coefficient for profitability (ROA) is positive and significant across almost all seven countries when the comparison firms are those using only dividends and those using both dividends and share repurchases. The only exception is the U.S., when the comparison firms are those using only dividends. Thus, firms using only share repurchases are not operationally profitable compared to firms using dividends solely or along with share repurchases.

6 We avoid using ROAVOL and SRVOL in the same regression model because they essentially measure the same firm characteristic. In the regressions reported in the table, we use ROAVOL as a proxy for cash-flow uncertainty. However, using SRVOL in place of ROAVOL yields the same qualitative results.
Third, the coefficient for operating profitability volatility (ROAVOL) is negative and significant across almost all seven countries when firms using only dividends and those using both dividends and share repurchases are the comparison firms. There is only one exception—Australia, when the comparison firms are those using both dividends and share repurchases. Even in this case, the coefficient is negative. This implies that firms using only share repurchases face high levels of cash-flow uncertainty. Overall, our results suggest that firms using only share repurchases are small and unprofitable and face high uncertainties about future profitability, compared to firms using dividends solely or along with share repurchases.

One more interesting observation to note in Table 6 is the sign and significance of the coefficient for cash holdings (CASH) when firms using only dividends are the comparison firms. In all seven countries, the CASH coefficient is negative and also significant when firms using only dividends are the comparison firms. On the other hand, this coefficient does not display a consistent sign across countries when firms using both dividends and share repurchases are the comparison firms. Thus, compared to firms using only dividends, firms using only share repurchases tend to carry large cash holdings.

Next, Table 7 reports the multinomial logit regression results for which firms using both dividends and share repurchases (i.e., firms in group (D)) are the reference group. Especially, the results in the table help us to evaluate differences between firms using only dividends and firms using both dividends and share repurchases.

The table shows that the coefficients for two variables, firm size (log(TA)) and cash holdings (CASH), display consistent and significant signs in all or almost all seven countries. First, the coefficient for firm size (log(TA)) is negative and significant across the sample countries without an exception. This indicates that firms using both dividends and share repurchases are large, compared to firms using only dividends. Second, the coefficient for cash holdings (CASH) is negative for all sample countries. This coefficient is also significant with two exceptions: France and the U.S. Thus, firms using both dividends and share repurchases tend to be large, and their cash holdings are also large, compared to firms using only dividends.

To summarize, our multinomial logit regressions confirm some of the results in the preceding univariate analysis. Firms using share repurchases as their only payout policy have distinctive firm characteristics. Compared to firms using dividends either
solely or along with share repurchases, they are small, not profitable, and face high uncertainties about future profitability. Compared to firms using only dividends, they have large cash holdings. And there are a couple of differences in firm characteristics between firms using only dividends and firms using both dividends and share repurchases. Compared to firms using only dividends, firms using both dividends and share repurchases tend to be large in firm size and have large cash holdings.

5.4 Share Repurchases and Dividend Increases

An important question in the share repurchase literature is whether firms use share repurchases as a substitute for dividends, or stated differently, whether firms make share repurchases using funds obtained by reducing dividends. Among prior studies, Guay and Harford (2000), Dittmar (2002), and Lee and Rui (2007) find that share repurchases are not used as a substitute for dividends in the U.S. We test this question for seven major countries by examining the relationship between share repurchases and changes in dividends. Specifically, we examine whether share repurchases tend to coincide with dividend decreases in the same year. The idea is that if share repurchases are used as a substitute for dividends, share repurchases will tend to coincide with dividend decreases in the same year.

In this investigation, we construct a sample by combining two groups of firms (or firm-years, to be exact) over the sample period: (i) dividend-paying firms that do not repurchase shares in the same year and (ii) dividend-paying firms that repurchase shares in the same year. However, we do not include repurchasing firms that do not pay dividends in this analysis because, as our earlier results suggest, it is rare for these firms to have paid dividends in the previous year or pay dividends in the subsequent year. The question of whether share repurchases are funded through dividend reduction is irrelevant to those firms.

Once the sample is constructed, we divide sample firms according to whether they repurchase shares as well as whether their dividends are increased, decreased or are left unchanged compared to dividends in the previous year. We then tabulate the frequencies and proportions of firms whose dividends are increased, decreased or remain

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7 Another version of this substitution hypothesis in the repurchase literature is that of Grullon and Michaely (2002). Their substitution hypothesis is whether repurchases are financed by funds that would have been used to increase dividends.
unchanged, conditional on whether they repurchase shares or not.

For each of the seven countries, Table 8 reports the frequencies and proportions of firms that increase, decrease, and leave dividends unchanged for non-repurchasing and repurchasing firms. The numbers in the panel indicate that across countries, when firms repurchase shares, they tend to increase dividends in the same year. For example, in Australia, among the 191 firms that repurchase shares, as many as 140 firms (or 73% of them) increase dividends. In the U.S., where share repurchases are most popular, 75% of repurchasing firms increase dividends in the same year. In all countries in our sample, more than half the firms that repurchase shares increase dividends in the same year, though the proportion of such firms in Japan is relatively low, 54%. Thus, our data show that when firms repurchase shares, the majority of them increase dividends in the same year.

In sum, we find strong evidence that share repurchases are generally accompanied by dividend increases (rather than dividend decreases) in the same year. Across countries, most firms do not make share repurchases using funds obtained by decreasing dividends. This is also true for U.S. firms for which share repurchases have become the dominant payout policy. So our results from international data are consistent with Guay and Harford (2000) and Dittmar (2002) on U.S. firms.

A related question is whether funds used to repurchase shares might have been used to increase dividends. This question is similar to the one tested by Grullon and Michaely (2002). Their evidence from the study of U.S. firms shows that share repurchases are negatively correlated with the dividend forecast error, which indicates that funds used to repurchase shares might have been used to increase dividends. Though we do not have sufficient time-series observations to replicate the Grullon and Michaely test for our international data, we can assess this question on the basis of synchronicity of share repurchases and dividend changes.

To assess this question, it helps to notice an important pattern that emerges from

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8 Japan presents an interesting case. The data suggest that dividend decreases are not uncommon in Japan. Even among the firms that do not repurchase shares, the proportion of firms that decrease dividends is relatively high in Japan (35%).

9 We have also examined whether repurchasing firms increase dividends substantially in the same year. Following Guay and Harford (2000), a substantial dividend increase is defined as an increase that is not preceded by a dividend increase in the previous year or that is greater than the dividend increase in the previous year. We find that in almost all countries, more than half the firms that make repurchases increase dividends substantially in the same year. The only exception is Japan, where the percentage of repurchasing firms that increase dividends substantially in the same year is 47%.
Table 8: Repurchasing firms are less likely to increase dividends than non-repurchasing firms. For example, in Australia, as reported in the first panel of Table 8, the percentage of firms that increase dividends is 85% among non-repurchasing firms, while the corresponding percentage is 73% among repurchasing firms. In all countries including the U.S., the probability of repurchasing firms increasing dividends is lower than the probability of non-repurchasing firms doing the same. This pattern can be interpreted as evidence that repurchasing firms may finance share repurchases using funds that might have been used to increase dividends. The flip side of this pattern is that repurchasing firms are more likely to decrease dividends than are non-repurchasing firms. For example, in the U.K., the percentage of repurchasing firms that decrease dividends (35%) is more than twice the percentage of non-repurchasing firms that decrease dividends (16%). Across countries, the probability of repurchasing firms decreasing dividends is higher than the probability of non-repurchasing firms decreasing dividends. Overall, these patterns from the table suggest that while the majority of firms do not fund share repurchases by decreasing dividends, firms seem to repurchase shares using funds that would otherwise have been paid as dividends.

To summarize, we find that the majority of repurchasing firms in each country increase dividends when they make share repurchases, and thus the majority of firms increase the amount of total distributions when they make share repurchases. This indicates that firms in general do not finance share repurchases by reducing dividends. In this sense, across countries, share repurchases are not used as a substitute for dividends. On the other hand, we find some evidence that firms may repurchase shares using funds that would otherwise have been used to increase dividends. This indicates that there exists a trade-off between share repurchases and dividend increases.

5.5 A Discussion on the Lack of Share Repurchases outside the U.S.

One question arising from our empirical results is why share repurchases are not widely used as an alternative payout policy outside the U.S. We discuss several potential

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10 We find, however, that across countries, slightly more than half the repurchasing firms that decrease dividends in the same year raise the amount of total distributions (which is the sum of dividends and repurchases) relative to the previous year. In other words, there are many repurchasing firms that increase the amount of total distributions even if they reduce dividends. This indicates that there are relatively few occurrences in which repurchases are financed purely through dividend reduction.
First, this relative lack of share repurchases outside the U.S. is partly due to the fact that share repurchases became legal only recently or were difficult to implement until recently outside the U.S. As Kim, Schremper and Varaiya (2005) report, for example, share repurchases were illegal until 1998 in Germany and France. In Australia, share repurchases became legal relatively early in 1989 but were difficult to implement until 1995 when the legal regulation of share repurchases was simplified [Ramsay and Lamda (2000)]. In some countries, there exist a few restrictions that make the implementation of share repurchases difficult, even after share repurchases became legal. In France, Germany and the U.K., firms need to get approval at the shareholder meeting before implementing share repurchases, whereas board approval is sufficient in the U.S. In Canada, there is a 5% ceiling on the proportion of shares firms can repurchase.

Second, there is a question of whether the U.S. tax system favors share repurchases over dividends relative to the tax systems of other countries. In the U.S., the tax rate for individuals for long-term capital gains is generally lower than the taxes on dividend income. Capital gains are taxed at lower rates than dividend income in several other countries, as well. For example, in Germany, long-term capital gains are tax-exempt. In Canada, only 50% of a capital gain is taxed at an ordinary rate. In Japan, capital gains are taxed at as low as 10%. Given that share repurchases are not as widely used in these countries as in the U.S., the structure of tax rates is unlikely to be a dominant explanation for the relatively low adoption of share repurchases outside the U.S.

Third, a potentially important factor that might explain the relative lack of share repurchases outside the U.S. is the use of stock options as compensation tools. Many prior studies conjecture that the recent rise in the popularity of share repurchases among U.S. firms is related to the increasing use of stock options [Jolls (1998) and Weisbenner (1998)]. While, to our knowledge, there is no systematic cross-country comparative study of the use of stock options, it is plausible that U.S. firms have been the heaviest users of stock options around the world. In Japan, for example, the use of stock options was permitted by law only in the late 1990s [Kato, Lemmon, Luo and Schallheim (2005)]. Therefore, the lack of share repurchases outside the U.S. can be partly due to the

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11 The source of these tax rates is the worldwide tax summaries of PricewaterhouseCooper (www.pwc.com).
lack of adoption of stock options in those countries.

6. Concluding Remarks

In this investigation of corporate payout policy across seven major countries -- Australia, Canada, France, Germany, Japan, the U.K., and the U.S. -- we document many interesting patterns concerning the use of share repurchases and dividends. Our major contribution to the corporate payout policy literature is that we provide the first comprehensive international study of the use and nature of share repurchases. We find that outside the U.S., share repurchases are not as commonly or widely used as in the U.S. The frequency and amount of share repurchases are relatively low outside the U.S. Firms outside the U.S. initiate cash payout generally through dividends.

We still find that a common set of principles guides the use of share repurchases in these countries as it does in the U.S. For example, it is common that firms paying dividends continue to pay dividends in the subsequent year, while the likelihood is very low that firms repurchasing shares continue to do so in the subsequent year. Across countries, firms that repurchase shares but do not pay dividends have distinctive firm characteristics that separate them from firms that pay dividends. Repurchasing firms tend to be small, less profitable and to have large cash holdings with uncertain cash flows. All of this evidence confirms the conventional wisdom that dividends are sticky and used to distribute permanent income, while share repurchases are flexible and used to distribute temporary income. Finally, firms do not seem to finance share repurchases by reducing dividends, while the funds used for share repurchases might have been used to increase dividends.
References


Table 1: Description of Key Variables

<table>
<thead>
<tr>
<th>Payout variables</th>
<th>Explanatory Variables</th>
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<tbody>
<tr>
<td>Share repurchase ratio (REPR)</td>
<td>Cash holdings (CASH)</td>
</tr>
<tr>
<td>Share repurchases during the year / last year’s year-end total assets</td>
<td>Last year’s year-end cash and short-term investments/last year’s year-end total assets</td>
</tr>
<tr>
<td>Dividend ratio (DIVR)</td>
<td>Operating profitability (ROA)</td>
</tr>
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<td>Cash dividends during the year / last year’s year-end total assets</td>
<td>Earning’s before interest and taxes/last year’s year-end total assets</td>
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<tr>
<td>Total payout ratio (TOTALR)</td>
<td>Market-to-book ratio (MBR)</td>
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<td>Cash dividends plus share repurchases during the year / last year’s year-end total assets</td>
<td>Last year’s market value of equity / Last year’s year-end book value of equity</td>
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<td>Firm Size (SIZE)</td>
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<td>Last year’s year-end total assets</td>
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<td>Leverage (LEVER)</td>
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<td>(Last year’s year-end debt /last year’s year-end book value of equity) * 100</td>
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<td>Stock returns (SRET)</td>
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<td>Annual stock return during the last year</td>
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<td>Retained-earnings-to-total equity ratio (RE/TE)</td>
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<td>Last year’s year-end retained earnings/last year’s year-end total shareholder equity * 100</td>
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<td>Stock return volatility (SRVOL)</td>
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<td>The standard deviation of monthly stock returns over the most recent two years including the current fiscal year</td>
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<td>Operating (ROAVOL)</td>
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<td>The standard deviation of operating rate of return (i.e., operating income/total assets) over the most recent four years including the current fiscal year</td>
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<td>Non-operating income (NOPER)</td>
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<td>Last year’s other income /last year’s total assets</td>
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Table 2: Frequency of Payout Policies by County and Year

This table reports the number of firms that adopt each payout policy for seven major countries over the period 2000-2005. In each year, firms in each country are divided into four categories according to their payout policy: (A) a policy that distributes nothing; (B) a policy that distributes cash only through dividends; (C) a policy that distributes cash only through share repurchases; and (D) a policy that uses both dividends and share repurchases. The numbers under column ‘freq’ are the numbers of firms in a given category for each respective year. The numbers under column ‘percent’, the numbers in parentheses, are the percentages of firms in a given category among those firms that distribute cash either through dividends or through share repurchases or through both.

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Table 3: Amount of Cash Distributed through Dividends and Share Repurchases

For seven developed countries, this table reports the amount of cash distributed through dividends and share repurchases by three groups of firms: (B) firms that distribute cash only through dividends; (C) firms that distribute cash only through share repurchases; and (D) firms that use both dividends and share repurchases. The sample period covers a six-year period, 2000-2005. DIVDR, REPR, and TOTALR are the amount of cash dividends, the amount of share repurchases, and the sum of cash dividends and share repurchases, respectively. All three variables are scaled by total assets.

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Table 4: Transition Probabilities

This table reports the frequency and conditional probabilities of firms switching from one payout policy to another for seven major countries over the period 2000-2005. In each year, firms in each country are divided into four categories according to their payout policy: (A) a policy that distributes nothing; (B) a policy that distributes cash only through dividends; (C) a policy that distributes cash only through share repurchases; and (D) a policy that uses both dividends and share repurchases. Column T=0 is the payout policy during the current year and column T=1 is the payout policy the following year. The numbers in parenthesis are conditional probabilities.

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Table 5: Firm Characteristics by Payout Policy

This table reports the mean and median values for key firm variables for our sample of firm-year observations for seven major countries over the period 2000-2005. In each year, firms in each country are divided into four categories according to their payout policy: (A) a policy that distributes nothing (DIVR=0, REPR=0); (B) a policy that distributes cash only through dividends (DIVR>0, REPR=0); (C) a policy that distributes cash only through share repurchases (DIVR=0, REPR>0); and (D) a policy that uses both dividends and share repurchases (DIVR>0, REPR>0).

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<td>16.14 11.60 799</td>
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<td>17.58 18.70 12611</td>
<td>17.58 18.70 12611</td>
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Table 6: Multinomial Logit Regression for Firms Using only Share Repurchases as the Reference Group

This table reports the results of multinomial logit regression using firms using only share repurchases as the reference group. Our sample is comprised of firm-year observations for seven major countries over the period 2000-2005. In each year, firms in each country are divided into four categories according to their payout policy: (A) a policy that distributes nothing (DIVR=0, REPR=0); (B) a policy that distributes cash only through dividends (DIVR>0, REPR=0); (C) a policy that distributes cash only through share repurchases (DIVR=0, REPR>0); and (D) a policy that uses both dividends and share repurchases (DIVR>0, REPR>0).

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Table 7: Multinomial Logit Regression for Firms Using Both Share Repurchases and Dividends as the Reference Group

This table reports the results of multinomial logit regression using firms using both share repurchases and dividends as the reference group. Our sample is comprised of firm-year observations for seven major countries over the period 2000-2005. In each year, firms in each country are divided into four categories according to their payout policy: (A) a policy that distributes nothing (DIVR=0,REPR=0); (B) a policy that distributes cash only through dividends (DIVR>0, REPR=0); (C) a policy that distributes cash only through share repurchases (DIVR=0, REPR>0); and (D) a policy that uses both dividends and share repurchases (DIVR>0, REPR>0).

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Table 8: Share Repurchases and Dividend Increases

This table reports the frequency of dividend increases, decreases or no change by the firms that repurchase shares and the firms that do not repurchase shares. Our sample is comprised of firm-years from seven major countries over the period 2000-2005. The sample includes firm-years that distribute cash only through dividends (group B) and firm-years that use both dividends and share repurchase (group D).

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