

# Factors in Dividend Payments Around Corporate Acquisitions

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The paper empirically examines the extent to which publicly traded U.S. acquirers in the years immediately surrounding major acquisitions follow a dividend policy based on a level per-share dividend as opposed to preserving a payout ratio, finding that much more weight is placed on the former. Additionally, the pre-merger dividend per share of the purchased firm is significantly related to the post-merger dividend of the merged firm, though the relation is weaker and in certain subsamples is insignificant. The paper also explores the role of other characteristics of the acquirer and target, including firm age, remoteness of headquarters, and number of shareholders, some of which appear to interact with the target firm's pre-merger dividend policy in their relation with post-merger dividend payments. These results provide insight into acquiring-firm decision making and may be useful for investors who emphasize dividends in their portfolio decisions.

*JEL classification:* G34; G35

*Keywords:* Dividend Policy, Acquisitions

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## 1. Introduction

Corporate mergers can bring many changes. Depending on the size and type of the acquisition, any aspect of the purchasing firm's operations may be transformed. This paper investigates the determinants of changes in dividend payments following major acquisitions involving publicly traded firms. It studies the extent to which dividend payout after the merger is related to dividends paid before the merger by both merging parties as well as to other factors that the literature previously has identified as being relevant to payout policy.

In order to make these assessments, I decompose dividend payout ratio on a portfolio of the pre-merger firms into several terms: the dividend per share of the acquiring firm, a weighted average of acquirer and target dividend per share, a term associated with earnings of the acquirer, and a term associated with earnings of both the acquirer and target. A cross-sectional regression using these four components as independent variables distinguishes between different models for dividend policy; that is, it shows whether the merged firm's payout is at all related to the payout of its target and whether the firm's payout policy more closely reflects stability in dividend per share or in dividend payout ratio. Consistent with existing survey evidence on managers' choices of dividend objectives, an acquirer's pre-merger dividend per share is highly predictive of the same quantity after a merger, while the dividend per share of the acquisition has a weaker but significant

connection to the post-merger dividend. The acquirer's earnings are likewise a lesser factor in its dividend, while the target's earnings play a still smaller incremental role. The relation between the post-merger payout and the target's pre-merger payout is weakened when total payout (dividends plus repurchases) is the measure of cash distribution.

When the main regression is augmented with other explanatory variables, the results reveal that other factors identified in previous work as relevant for payout, in particular firm age, number of shareholders, and geographic location of headquarters, have predictive power for post-merger dividends. In some cases, those relations become insignificant when the regressions control for the dividends of acquirer and target before the purchase. The closer the acquired firm is to a major city, however, the stronger the relation between with that target firm's dividend payout ratio and the payout ratio of the post-merger entity.

This paper extends existing work modeling the variation of individual-firm dividend payments over time to a setting in which a major shock—the acquisition—occurs. While it is not surprising that the targeting of dividend per share found in the existing literature still holds to a degree across the time span of acquisitions, the influence of acquired firms was largely unstudied in the past. The relations identified here may be of interest to current and potential shareholders of acquiring companies who invest according to dividend-based rules. The results conceivably could also matter to acquirers' competitors, who may prepare to respond to financial actions such as payout changes. More broadly, the paper provides a step toward greater understanding of financial adjustments firms make around major acquisitions and can serve as a foundation for continuing research in that area.

## 2. Literature

The body of work on corporate payouts is extensive and growing. Notable among many recent surveys are Farre-Mensa, Michaely, and Schmalz (2014); DeAngelo, DeAngelo, and Skinner (2009); and a self-styled "survey of surveys" by Baker and Weigand (2015). These papers discuss various ways in which theorists have relaxed the many assumptions Modigliani and Miller (1961) implicitly or explicitly employed in their demonstration that given an investment policy, the level of payout and its allocation between dividend and repurchase does not impact firm value. Farre-Mensa *et al.* present the list of assumptions as "No taxes," "Symmetric information among all market participants," "Complete contracting possibilities," "No transaction or issuance costs," "Competitive product and financial markets," and "Rational investors and managers." Different assumptions imply predictions for cross-sectional differences in level and type of payout and may explain time-series variation in cash distributions of a given firm. This literature review will not comprehensively address these conditions. The first three have likely generated the most attention, and this paper's tests draw most heavily on violations of the second and third assumptions.

Investors do not observe all information to which corporate managers have access (though the asymmetry in some contexts may be the reverse), and they may for various reasons be unable to write perfect contracts with managers. Such concerns are behind the large number of papers that view dividends and sometimes repurchases as the outcome of signaling games or agency problems. Firms may signal expectations about the expected value or perhaps the volatility of future cash flows through dividend payments that entail various possible sources of value destruction (e.g., Bhattacharya, 1979; Miller and Rock, 1985; Dionne and Ouederni, 2011), or costless signaling – cheap talk – may be feasible (Bhattacharya and Ditmar, 2001). Some recent papers, including Kale, Kini, and Payne (2012), have found empirical support for signaling with dividends, and some work indicates that dividend initiations and increases reveal some favorable information about the level of future earnings (Guay and Harford, 2000; Joos and Plesko, 2004), an implication common to most signaling models. Tests in a recent working paper by Banerjee, Hung, and Ji (2017), however, suggest the opposite: managers overreact to past earnings increases, such that dividend increases following EPS increases tend to be followed by EPS decreases. Furthermore, managers surveyed or interviewed by Brav, Graham, Harvey, and Michaely (2005) reject the notion that they use dividends as costly signals.

Research on the role of dividends in addressing agency problems often are motivated by Jensen's (1986) discussion of firms that squander their free cash flow (though Jensen notes that a promise to pay ongoing dividends is weak relative to the commitment established by debt issuance) and Rozeff's (1982) point (expanded on by Easterbrook, 1984) that payment of dividends increases the likelihood that a firm will need to face the scrutiny of the capital markets in order to fund current operations and growth opportunities. Researchers have employed various methods to test agency models, including comparing dividend levels of firms for which agency problems are likely to be more or less severe (e.g., Hu and Kumar, 2004, who define firms prone to agency conflicts as those with executives who have low incentive pay or who have had a lengthy tenure in their position), using measures of governance quality to predict the share-price response to dividend initiations (Officer, 2011), and evaluating changes in firm characteristics following initiation of dividends or repurchases. (Grullon and Michaely, 2004, find declines in capital expenditures, R&D, and systematic risk following repurchases, consistent with the repurchases addressing an increasing concern about free cash flow for firms with declining opportunities.) Also in the first category of test method is a paper by John, Knyazeva, and Knyazeva (2011) showing that companies headquartered outside population centers pay higher dividends, especially if the firms lack favorable growth opportunities. Free cash flow problems evidently are more severe when isolation poses monitoring challenges. Dividends likewise are correlated with distance from major cities. These results inform the consideration of geographic variables in the present paper.

Geographic isolation may encourage dividends to resolve agency problems; long-lived firms may have a similar motivation if age is inversely correlated with growth prospects and therefore positively correlated with free cash flow problems. Alternatively, established firms may pay dividends because other problems have been resolved. Asymmetric information and stock risk likely decline with corporate age (Fink, Fink, Grullon, and Weston, 2010, connect an increase in idiosyncratic risk during the internet boom to a drop in firm maturity), and both of those variables have been identified as negatively related to dividend payments; see Li and Zhao<sup>1</sup> (2008) and Hoberg and Prabhala (2009), respectively. Studies including Dhaliwal, Li, and Trezevant (2003) and Loderer and Waelchli (2010) report a positive relation between dividend payment and age (with Amihud and Li (2006) finding a consistent result regarding information content), and I use age as a factor in this paper.

Another variable shown to influence dividend practice (and again a factor with more than one potential channel of impact) is a firm's number of shareholders. Bodnaruk and Ostberg (2013) show that a lower number of shareholders, or smaller *shareholder base*, is associated with lower cash payouts and higher cash reserves, noting that this is consistent with an inverse correlation between cost of external finance and the shareholder base<sup>2</sup>. They cite Merton's (1987) point that a higher number of shareholders implies better market recognition and greater sources of potential future financing; they also mention the fact that asymmetric information may decline with increases in the number of shareholders due to liquidity trading supporting speculators' price discovery and to concomitant increases in dedicated analysts. Bodnaruk and Ostberg's results hold even while controlling for an alternative channel of impact, the potential greater severity of agency problems faced by more diffusely held firms encouraging resolution through dividends as noted earlier by Rozeff, 1982. (Deshmukh, 2003, on the other hand, fails to detect a statistically significant impact of a firm's shareholder base on its hazard rate of dividend initiation.) The shareholder base will enter the present model in a way to be discussed later.

In addition to the questions of what types of firms are more likely to pay dividends and which pay out larger fractions of earnings, the matter of how individual firms' cash payouts vary over time has been a topic of study for decades. Lintner (1956) provided interview evidence that a majority among a representative group of companies explicitly followed policies whereby dividends were gradually adjusted toward a target fraction of earnings. Moreover, a partial adjustment model Lintner estimated using a larger sample of firms dominated several alternative

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<sup>1</sup> Li and Zhao (2008) note that their results conflict with implications of signaling models, in which dividends resolve information asymmetry.

<sup>2</sup> They also find firms with smaller shareholder bases are less likely to select repurchases as their mode of payout.

models in out-of-sample performance. Subsequent papers have found support for partial adjustment of dividends in later sample periods, but Leary and Michaely (2011) report that the speed of adjustment toward target payout ratios declined monotonically by decade from 1938 through 2007. In other words, dividend smoothing has increased, with only part of the increase associated with the recent use of repurchases to distribute cash in response to transitory earnings increases. (See, e.g., Lee and Rui, 2007.) Consistent with the idea that dividends reflect permanent earnings, which are in turn captured by market prices, Chan, Powell, Shi, and Smith (2018) show that a model predicting dividend changes with lagged changes in dividends and share prices performs well compared to alternatives. Brav et al. (2005) find that many managers indeed view permanence of an earnings increase as more relevant to dividends than repurchases, but they also find that more managers target dividend per share than target a payout ratio, with smaller numbers having a dividend yield target or no target at all. Furthermore, Andres and Hofbauer (2017) find that dividend changes are not quarterly. In recent CRSP data, a firm raising its dividend has a 48% chance of raising it again exactly four quarters later (with no change in between), and this sort of annual increase cycle accounts for 60% of all dividend increases. My study lacks the data necessary to test sophisticated time series models, but I compare the importance of dividend per share with payout ratio in explaining merged firm payout.

Several recent papers incorporate exogenous shocks into models of dividend policy over time. These include Moortgat, Annaert, and Deloof (2017), who find that Belgian firms follow dividend policies that are quite stable over the long term in the face of changes in tax rates and investor protection. Hail, Tahoun, and Wang (2014) examine reactions to introduction of IFRS requirements and new insider trading laws, while Hauser (2013) and Floyd, Li, and Skinner (2015) address the 2007-08 financial crisis.

Moving to the topic of this paper, researchers recently have begun to generate work connecting mergers and dividend policy. The present study complements the existing efforts. Some of the papers view dividend policy as an independent variable, while others seek to explain dividend payment.

Dereeper and Turki (2013) find that merging firms (whether purchaser or acquirer) are more likely to be dividend payers prior to the merger if those firms have high total assets, high return on assets, and high cash relative to assets, relations that hold outside of a merger context as well. Banchit (2013) studies various aspects of agency problems in ASEAN 5 M&A. Acquirers tend to increase dividends payout in the second year following acquisitions, especially when there is large ownership by a single individual, a change that in the context of Southeast Asia is interpreted as an increase in expropriation between shareholders. In the paper most closely related to mine, Dereeper and Turki (2016) use US mergers to study the relation between a target's dividend policy and that of the acquirer after the merger. They find non-paying acquirers are more likely to initiate dividends

after a merger if the target was a dividend payer, even controlling for certain other factors related to dividend payment. And among dividend paying acquirers, the post-merger payout ratio increases with the pre-merger payout ratio of the target, a relation that is stronger for stock mergers. The payout ratio test, however, does not control for the pre-merger dividend payout of the acquirer; my paper does. Consistent with Dereeper and Turki's (2016) result, Ben Letaifa (2016) finds in an analysis of the CVS-Caremark merger that the acquirer, CVS, adjusted its payout toward that of the target.

The present research is also weakly related to several papers that examined payouts—specifically, repurchases—as a means of takeover deterrence and to the study of Dickerson, Gibson, and Tsakalotos (1997) connecting higher dividend payments among UK firms with lower probability of takeover. Lastly, this paper and those noted in the previous paper complement a group of studies of capital-structure adjustments at the time of mergers (Harford, Klasa, Walcott, 2009; Yang, 2009; and Ghosh and Jain, 2000).

### 3. Model Development

#### 3.1 Individual or Joint Objectives of Payout Ratio and Dividend per Share

If firms aim to maintain desired payout ratios and a merged firm behaves essentially as the sum of its parts, one might expect to see the following relation between ratios after and before a merger:

$$\frac{D_M}{E_M} = \frac{D_A + D_B}{E_A + E_B} \quad (1)$$

where the subscripts  $M$ ,  $A$ , and  $B$  denote the merged firm, the pre-merger acquirer, and the target firm, respectively.  $D$  and  $E$  are total dollars paid in dividends and dollar earnings in a given post-merger year for firm  $M$  and in a given pre-merger year for  $A$  and  $B$ .<sup>3</sup> Equation (1) can be rewritten as

$$D_M = E_M \left[ \frac{D_A + D_B}{E_A + E_B} \right] \quad (2)$$

If the merged firm's behavior were instead independent of the target's previous dividend policy (and the business characteristics that motivated that policy) but still reflected an intended payout ratio, then observations would adhere to

$$\frac{D_M}{E_M} = \frac{D_A}{E_A} \quad (3)$$

which can also be written as

$$D_M = D_A + \left[ \frac{E_M - E_A}{E_A} \right] D_A \quad (4)$$

Compare (4) with an expression equivalent to (2) in which the right-hand side is divided in three components:

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<sup>3</sup> The discussed relationships could hold at quarterly intervals, but dividend rigidity relative to seasonal earnings variation, distinctions between dividends declared and paid within quarters, and the burden of collecting data motivated the use of annual data. Ultimately, data from single pre-and post-merger dates were employed in the tabulated tests, as discussed further in section 5.

$$D_M = D_A + \left[ \frac{E_M - E_A}{E_A} \right] D_A + \left[ \frac{E_M}{E_A + E_B} \right] \left[ D_B - D_A \left( \frac{E_B}{E_A} \right) \right] \quad (5)$$

Only the last term differs from (4). Then a regression of the form

$$D_{M,i} = \alpha + \beta_1 D_{A,i} + \beta_2 \left[ \frac{E_{M,i} - E_{A,i}}{E_{A,i}} \right] D_{A,i} + \beta_3 \left[ \frac{E_{M,i}}{E_{A,i} + E_{B,i}} \right] \left[ D_{B,i} - D_{A,i} \left( \frac{E_{B,i}}{E_{A,i}} \right) \right] + \varepsilon_i \quad (6)$$

should result in estimates  $\alpha=0$  and  $\beta_1=\beta_2=\beta_3=1$  if firms pay out fixed fractions of earnings and pool their merged elements as in (1), while  $\beta_3$  should be insignificant if dividend policy is not affected by acquisitions and, in particular, by the dividend history of target firms.<sup>4</sup> However, inserting a zero alpha in (6) highlights a problematic feature of this specification: if both firms have zero dividends prior to the merger, the equation suggests a dividend by the merged firm will be distributed around an expected value of zero when dividends in fact cannot be negative. Some iterations of the estimation, therefore, will exclude pairs of non-dividend paying merging firms.<sup>5</sup> Another challenge with (6) is that the second and third terms potentially can be very large if the denominators are small, resulting in an outside impact on estimated coefficients.

Given that required capital calls are not a feature of modern common stock, firms with potentially negative earnings cannot adopt a perfectly constant payout ratio. Evidence previously cited, starting with Lintner (1956), indicates that the typical firm's dividend policy does not even approximate that approach. As an alternative to a constant payout ratio, I will consider a constant dividend per share, though for some firms constant annual growth may be more precise. Then the question arises, what is the best interpretation of a constant dividend per share when two firms with previously different dividends become one? This paper will adopt the assumption that a merger or consolidation with equal strategic attention given to both merging partners (comparable to the approach reflected in equation (1) rather than (2)) has a default dividend in dollars per share equal to the weighted average of their previous dividends per share<sup>6</sup>:

$$\frac{D_M}{N_M} = \left( \frac{D_A}{N_A} \right) (w_A) + \left( \frac{D_B}{N_B} \right) (1 - w_A) \\ w_A = \left( \frac{V_A}{V_A + \text{closing offer price}} \right) \quad (7)$$

$N$  is the number of shares outstanding.  $V_A$  is a market capitalization calculated using the share price of the acquirer the day before the merger announcement,

<sup>4</sup> If the data incorrectly identifies the true "acquirer" (say, with regard to the initiation of the deal or which executives emerge with control) in some stock mergers or if there are a few pairs of firms that do act as merging equals, then  $\beta_3$  might be significant even though most firms ignore their acquisitions' dividend history.

<sup>5</sup> Even for current dividend payers the non-negativity of dividends suggests that a thorough model of the dividend decision would include both the decision to continue paying and the decision of how much to pay (Kim & Maddala, 1992). I will not pursue that angle.

<sup>6</sup> For all-stock mergers, another plausible default-dividend using both firms would be to divide the sum of the pre-merger dividends paid by the two firms by the post-merger number of shares; the payout in a cash or partial-stock acquisition could be adjusted downward. I do not report the results, but a specification of that sort fit nearly as well as the one emphasized in the paper.

while closing offer is the dollar amount paid for the target company's equity (in particular, the figure reported by Mergerstat) whether that payment consisted of cash, stock, or a mix of the two. One likely favorable implication of this specification is that if both firms pay the same dividend per share prior to the merger, the implied post-merger dividend per share would match that amount.

If instead the target firm is essentially ignored, a reasonable default dividend per share following cash or stock mergers would be the acquirer's pre-merger dividend per share.

$$\frac{D_M}{N_M} = \frac{D_A}{N_A}$$

One could argue that an exception would arise in the case of a statutory consolidation—a setting in which focusing on one acquirer seems suspect in any event—that changes the number of shares possessed by acquiring shareholders. Only one such consolidation appears in this paper's regressions, with the acquiring Bank of New York's shareholders receiving .93 shares in the newly formed Bank of New York Mellon for each of their old shares. Apart from change-of-control transactions, a stock split raises the same issue. Surely a firm that has been paying \$1 per share dividends and then conducts a 4-for-1 split cannot be expected to continue paying \$1 per share. That the firm may not reduce the dividend all the way to \$.25 is likely at least partly attributable to the fact that stock splits tend to follow, and probably also predict (Kalay & Kronlund, 2014), improving operating performance. My data is adjusted for share splits.

Now I can rewrite the hypothesized equation (1) in a form that incorporates these default dividends:

$$\begin{aligned} \frac{D_M}{N_M} = & \left[ \frac{D_A}{N_A} \right] + \left[ \left( \frac{D_A}{N_A} \right) (w_A) + \left( \frac{D_B}{N_B} \right) (1 - w_A) \right] + \left[ \frac{E_M D_A}{E_A N_M} - \frac{D_A}{N_A} \right] \\ & + \frac{D_B E_A E_M N_A N_B - [w_A D_A N_B + (1 - w_A) D_B N_A] E_A (E_A + E_B) N_M - D_A E_B E_M N_A N_B}{E_A (E_A + E_B) N_M N_A N_B} \end{aligned} \quad (9)$$

The first two terms are dividend-per-share objectives. The first part of the third term represents a dividend that grows proportionally with merged-firm earnings (with the second part of that term just netting out the first term), while the fourth subtracts the first three terms from a quantity tied to the pre-merger payout ratio of acquirer and target. The four terms of (9) now can be multiplied by regression coefficients in a fashion analogous to (6). Unreported simulations support the notion that all four coefficients will be estimated as 1 if all acquirers adhere to equation (1),  $\beta_1 = \beta_3 = 1$  and  $\beta_2 = \beta_4 = 0$  if (3) is correct,  $\beta_2 = 1$  and  $\beta_1 = \beta_3 = \beta_4 = 0$  under (7), and  $\beta_1 = 1$  with  $\beta_2 = \beta_3 = \beta_4 = 0$  under (8).

Equation (9) could raise the reasonable suspicion that a regression expressed in terms of dividend per share will generate results overstating the importance of per-share dividends relative to payout ratio. For that reason, I will briefly consider results from a nearly symmetric formulation in terms of payout ratio:



$$\frac{D_M}{E_M} = \left[ \frac{D_A}{E_A} \right] + \left[ \frac{D_A + D_B}{E_A + E_B} \right] + \left[ \frac{D_A N_M}{N_A E_M} - \frac{D_A}{E_A} \right] + \left[ \left( \left( \frac{D_A}{N_A} \right) (w_A) + \left( \frac{D_B}{N_B} \right) (1 - w_A) \right) \left( \frac{N_M}{E_M} \right) - \frac{(D_A + D_B) N_A E_M + (E_A + E_B) N_M D_A}{N_A E_M (E_A + E_B)} \right] \quad (10)$$

for which a coefficient of 1 on each of the four terms would be valid if each acquirer's post-merger dividend per share equaled the weighted average dividend introduced in equation (7).

The preceding material could be modified further to incorporate more than one period of pre-merger data. A firm that has left dividends flat while earnings have risen is perhaps due for a payout increase more than is one that has recently increased dividends or that has seen earnings declines. However, in the long run some firms make adjustments more frequently than others; the consistency Andres and Hofbaur (2017) detected in many firms suggests that a longer wait since the last adjustment is at most a tenuous indicator that a payout change is forthcoming. In this paper, I will focus on one year each of pre- and post-merger data.

### 3.2. Other Determinants

The theoretical and empirical literature suggests various firm-specific features impact (or at least are correlated with) dividend payout, so that in a merger context one might expect such characteristics of both acquirer and target to play roles, if not necessarily equal ones, in the dividend policy of the merged entity. This paper is not an exhaustive examination of potential factors but considers variables including the number of shareholders, headquarters location, and age. The positive relation Bodnaruk and Ostberg (2013) found between number of shareholders and dividend payments suggests that if a company is purchased with stock, the acquirer may be more inclined to pay dividends if the target brings a sizeable addition to the acquirer's shareholder base. A purely cash purchase, however, should not directly change the shareholder base, and in fact might tend to increase the extent and complexity of a firm's operations relative to the size of that base, perhaps suggesting an increase in asymmetric information.<sup>7</sup> I test whether the ratio of the numbers of the two firms' shareholders (the target's divided by the acquirer's) is related to the merged firm's dividend payout, given the dividend policy of the target, with the expectation that any result will be stronger for mergers paid for with stock.

The logic of John *et al.* (2011) on geography and dividends offers multiple possible extensions to a merger setting. While operations of some targets may transfer entirely to the headquarters of acquirers, preservation of high-level activity at a target's locale is also possible, so I investigate the explanatory power for

<sup>7</sup> Within the Taiwanese electronic industry, however, Hua, Yao, Lee, and Chin (2006) find no change in asymmetric information following mergers. Also, the total number of analysts following an acquiring firm could rise after a merger, as some analysts of the target may remain; see Tehranian, Zhao, and Zhu (2012).

merged firm dividend policy of headquarters remoteness both for target and acquirer. My primary measure is among those employed by John *et al.*, distance from a top-10 metropolitan statistical area. I also consider the distance between the two headquarters, which could be related to merger implementation challenges or greater differences in shareholder perspective and information.

As previously noted, researchers have found that older firms are more likely than younger firms to pay dividends. I will not attempt to discriminate among the alternative reasons (a further factor in an age-dividend link may simply be reluctance to cease dividend payments once initiated, given the typical negative market reaction, but a merger would seemingly provide a convenient way to halt a target's cash payouts), but I will study whether age of target and age of acquirer are related to merged firm dividends.

The explanatory variables also will include the combined cash balance of target and acquirer, following work outside a merger context by Li and Lie (2006) and Farinha (2002) on changes in dividends and payout ratio, respectively. However, whereas those papers normalized cash by total assets, this paper will express the cash holdings on a per-share (of the post-merger firm) basis to align with the left-hand side of equation (9). And though equation (9) presents a contest between dividend per share and dividend payout as the key variables pursued by acquirers, I will in addition assess whether the pre-merger dividend per share multiplied by asset growth (the ratio of year 1 assets to year -2 assets) provides any additional predictive value. Dividends normalized by total assets was the exclusive measure of dividend policy in works by Booth and Zhou (2015) and Pinkowitz, Stulz, and Williamson (2006), while it acted as a robustness check in several other papers on dividend policy.

I will investigate the stability of the relations across different modes of merger payment, recognizing that the profile of firms entering stock mergers differs meaningfully from those engaged in cash transactions. Some of the factors that theoretically and empirically appear relevant to payment choice, including growth opportunities and symmetric information about either the acquirer or target's value, may be relevant to dividend policy as well. And dedicating cash to an acquisition may reduce its availability for distribution through dividends, though financially unconstrained firms could be freer both to pay dividends and use cash in acquisitions. Further, Jeon, Ligon, and Soranakom (2010) find that acquirers are more likely to use stock as a merger payment if the acquirer's dividend policy is similar to that of the target. The logic driving their test is that target shareholders receiving stock are less likely to sell the shares (a problematic response in the face of downward sloping demand) they receive if they view those shares as an investment similar to the one they had chosen. Consistent with that story, they find the abnormal returns associated with stock mergers, but not with cash mergers, to be negatively correlated with the difference in dividend payment of acquirer and target.

The determinants of post-merger dividend policy also may vary by the similarity of the acquirer's industry to that of the target. Horizontal mergers can have implications for market power, internal capital markets, and managerial entrenchment different from those of conglomerate or vertical mergers. Booth and Zhou (2015) find various measures of market power to be positively related to the level of dividend payment, with the main channel apparently risk reduction. Holder, Langrehr, and Hexter (1998), on the other hand, find that more focused firms have lower dividend payments, which they claim to be consistent with higher net organizational capital, obligations to non-financial stakeholders. These results do not have obvious implications for how the relation between acquirer and target payout policy should vary by similarity of operations, but the matter is worthy of inquiry. I will break the sample into mergers of firms with matching 3-digit SIC codes and those without. Though it is not synonymous with industry matching, I will also investigate whether a shared listing exchange correlates with dividend policy. Lastly, I will allow for the possibility that the year of acquisition completion influences dividends. In particular, because S&P 500 dividends dropped significantly in 2009 and stayed low in 2010, a dummy for 2009 merger completion may be a useful control variable.

As one other check of the robustness of the observed relations, I will repeat the main regression replacing dividend per share with total payout (dividend plus repurchases) per share. Given that dividends and repurchases can serve some similar purposes but surely are not equivalent with respect to, for example, impact on executive option values (see, e.g., Hu and Kumar, 2004) or degree of commitment to continued payout, there is no expectation that every coefficient will have the same sign or strength.

I will be cautious about claiming that any of the factors under study *cause* a particular change in dividends. Shareholder base and even headquarters locations are to some degree endogenous. Firm age is predetermined, but an acquirer's choice of target by age or other variable conceivably could be influenced by its intended change in payout. The decision to merge or not merge could be driven by or at least jointly determined with changing dividend policy, and certainly the choice of merger payment is influenced by factors that also drive dividend payment. The available data do not appear to permit natural experiments, so any relations can at most tentatively be viewed as causal, though the existence in certain cases of theoretical rationales for causality make empirical arguments more plausible.

#### **4. Data**

The set of mergers came from the Mergerstat data set on LexisNexis Academic. I considered mergers involving two publicly traded U.S. firms for which the closing offer price was at least \$500 million and the effective date was between January 1, 1996, and January 1, 2012. Acquisitions designated leveraged buyouts were excluded, as were deals that resulted in less than 100% ownership by the acquirer. This initial screen generated 1,323 mergers. From that group, I eliminated

mergers for which the ratio of the acquirer's revenue to the target's revenue for the most recent available year prior to the merger was less than .1 or more than 10, such mergers being unlikely to influence acquirer policy and likely to introduce estimation noise. I also removed mergers that closed less than two years before the announcement of or less than two years after the completion of another merger by the same acquirer with closing offer price at least 25% as large as the candidate merger's closing offer.<sup>8</sup> Confounding transactions would hinder attempts to isolate effects of any single acquisition. In light of legal requirements for dividend payment by REITs, mergers with a REIT acquirer or target were removed. Banks and other financial firms are not excluded, though I check the results without such firms. A few events were deleted because a party had within the past two years emerged from Chapter 11 bankruptcy or an IPO or was a subsidiary of a private company, because the transaction involved three or more firms, or because other necessary data on a merging firm was unavailable. 279 mergers were preserved in this process, 176 (110) of which included dividend payments by at least one (both) of the merging parties in the fiscal year two years prior to deal completion.

Mergent Online "as reported" data is the primary source of financial statement information, with 10-K filings as backup in the case of missing or questionable data. I assigned data year 0 to the first financial year end following the close of the merger. Year -1 was the year immediately prior to the close.<sup>9</sup> Mergent reports split-adjusted financial statement data, and I left the data in that form except when actual shares outstanding were necessary to compute market capitalization. SIC code and headquarters location at the time of merger were determined based on 10-Ks, and tjeiffer.com was used to estimate as-the-crow-flies distances. Population data was based on 2000 census figures for mergers closing before April 1, 2005, with the 2010 census the source for later mergers. For date of founding I used the Field-Ritter founding date dataset of Field and Karpoff (2002) and Loughran and Ritter (2004), augmenting it with various internet sources. When the firm had changed names in the past, I generally used an early founding date based on the original company. Offer price and pre-merger share price data primarily comes from Mergerstat.

Table 1 Panel A presents summary statistics for several key variables, generally expressed in a form that applies in the subsequent regressions. Consistent with the regression results to be reported next, the data are from year -2 and +1. Year +1 is the first year for which all quarterly dividends are necessarily paid by the post-merger firm rather than the separate acquirer and target. The fit for individual

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<sup>8</sup> Hence, the results of the paper may not speak to serial acquirers, though sixteen firms appear as acquirers twice and one firm (Pfizer) appears three times, separated by several years.

<sup>9</sup> Several acquirers and targets changed fiscal year ends within two years of a merger. In such cases, I generally allowed more than one year to pass between recorded data years rather than including a year of data for one firm that was separated by less than a year from another batch of the same firm's figures.

**Table 1 Panel A: Summary Statistics of Merging Firms**

	Acquirer Pre-Merger			Target Pre-Merger			Merged Firm		
	mean	median	std. dev.	mea n	media n	std. dev.	mea n	media n	std. dev.
Dividend Per Share	0.49	0.08	0.77	0.43	0.00	0.66	0.58	0.12	0.93
Dividend Payout Ratio	0.15	0.03	1.27	1.94	0.00	29.34	-0.02	0.00	3.72
Dividend Payout Ratio if Non-Negative	0.24	0.05	0.33	2.12	0.00	30.10	0.34	0.05	0.68
Total Payout per Share	1.66	0.45	9.72	0.98	0.27	1.88	2.01	0.68	13.45
Cash per Merged Firm Share	4.68	0.61	53.18	2.14	0.39	15.21	13.24	1.15	175.58
Closing Offer Price (\$millions)				7,310	2,186	15,600			
Pre-Offer Market Capitalization (\$millions)	15,500	4,209	36,800	---	---	---	---	---	---
Registered Stockholders ('000s)	40,792	5,700	135,278	24,622	3,433	88,640	---	---	---
Age in Years	59.9	48.6	46.6	35.8	21.3	34.2	---	---	---
Miles from Top-10 City	171	98	213	158	35	222	---	---	---

Notes: Pre-merger data is drawn from the acquirer or target's fiscal year end one year prior to the last year-end before the merger completion date. Merged firm data is from the fiscal year one year after the year-end immediately following the completion date. Dividend Per Share is total cash dividends to common stock divided by split-adjusted number of shares of common stock. Dividend Payout Ratio equals cash dividends divided by net income. Dividend Payout Ratio if Non-Negative excludes any firms for which Dividend Payout Ratio is negative (which happens only if net income is negative). Total Payout per Share divides the sum of dividend and repurchase cash payments by split-adjusted shares outstanding. Cash per Merged Firm Share divides the applicable firm's balance of Cash and Cash Equivalents by the number of shares of the merged firm at year +1. Closing Offer Price is the merger payment. Pre-Offer Market Capitalization is based on the acquirer's share price one day prior to the acquisition announcement date. Age is date from founding of the business

**Table 1 Panel B: Mergers by Date of Completion**

Year of Closing	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of Mergers	7	27	22	31	28	23	8	5	9	26	18	33	11	4	13	16

years other than -2 and +1 or for an average of years is somewhat worse (and for that matter, the correct method to compute average values of pre- and post-merger years in the equation (9) variables is not obvious), though coefficient signs are mostly the same. Moreover, year -1 data is not available for many targets, normally in the instance that the acquisition announcement precedes the date the applicable 10-K would be filed; even if the year -1 data were universally available, moreover, dividend policy might already have been modified in anticipation of the acquisition if the announcement had already occurred. The relations between figures for acquirers and targets prior to acquisitions are unsurprising; the market value distribution for acquirers is roughly double that of targets, acquirers are older, acquirers have more shareholders, and they are more likely to pay dividends. With 54% of acquirers being dividend payers and 48% of targets, the probability difference is statistically significant, while the distribution of payout ratios does not significantly vary between acquirers and targets. Similarly, the greater distance of acquirers from population centers is not significant under a signed rank test.

Panel B of Table 1 portrays the distribution of the sample across time. Merger closings are concentrated in the years 1997 through 2001 and 2005 through 2007, with 74% of the sample falling in those periods. This clustering largely coincides with periods designated the fifth and sixth merger waves in the U.S.

## 5. Results

### 5.1. Dividend Per-Share vs. Dividend Payout Ratio

An estimation of equation (9) ideally reveals whether acquirers are influenced by the payout policy (or the more primitive drivers reflected therein) and whether the payout ratio is more stable than dividend per share. In order to avoid undue influence from unusual cases, all of my regressions that involve equation (9) exclude mergers for which any right-hand side variable exceeds \$20/share in absolute value; this eliminates seven acquirers<sup>10</sup>. Column (I) of Table 2 presents equation (9) regression coefficients for the remaining 272 observations. The four right-hand side terms appear in sequence. Every coefficient is significantly positive, but only the first, the acquirer's pre-merger dividend per share, is close to 1.0. Note that with negative pre-merger earnings and positive dividends, an earnings-based regression implies that a switch to positive earnings would induce negative dividends, a problematic implication. Column (III) presents, therefore, results after eliminating any mergers for which earnings were negative either for the merged firm in year 1 or for either merging partner in year -2. The r-squared value rises modestly from .897 to .911, and coefficients on all variables rise compared to the larger sample results. Within this group, the coefficient on term 1

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<sup>10</sup> Among the excluded mergers was Berkshire Hathaway's acquisition of General Re; the dividends paid by General Re were quite large relative to the number of shares of the merged firm. Similarly, an acquisition by McClatchy Co. included large dividends using the split-adjusted Mergent data because of a subsequent one-for-ten reverse split. And Verizon's takeover of NYNEX was out of bounds because adding Verizon's \$1.858 billion of earnings to NYNEX's -\$1.850 billion leads to a comparatively tiny denominator in the last term of equation (9).

is statistically indistinguishable from 1, while the other three terms are less than half as large. Using the regression coefficients, columns (II) and (IV) provide the estimated impact of changing any right-hand-side variable by one standard deviation (measuring standard deviation with the sample employed for each regression). This measure of economic significance delivers the same basic message: ignoring the correlation among the independent variables, pre-merger acquirer dividend per share amounts are responsible for about twice as much variation in post-merger dividends (with standard impact nearly 40 cents per share under the more restrictive sample) as are the weighted average dividends. Of course, those weighted average dividends tend to place more than 50% weight on acquirers, such that the two coefficients together imply an impact of over 50 cents from a one standard deviation change in acquirer dividend per share. The acquirer's payout ratio (in term 3) and the average payout ratio (in term 4) are each responsible for less impact than either dividend per share measure.

**Table 2: Basic Regressions for Post-Merger Dividend per Share and Dividend Payout Ratio**

Dependent Variables	(I) Div/Sh	(II)	(III) Div/Sh (income>0)	(IV)	(V) Div Payout Ratio (income>0)	(VI)
	Coefficient	Standard Impact	Coefficient	Standard Impact	Coefficient	Standard Impact
Div. Per Share <sub>A,-2</sub>	0.816***	\$0.295	0.984***	\$0.393		
Weighted Avg.Div <sub>-2</sub>	0.372***	\$0.133	0.447***	\$0.180		
Earn.-Based Div Change <sub>A</sub>	0.052***	\$0.025	0.299***	\$0.065		
Eq. (9) Term 4	0.057***	\$0.033	0.266***	\$0.108		
Payout Ratio <sub>A,-2</sub>					0.977***	0.152
Avg. Payout Ratio <sub>-2</sub>					0.176*	0.023
Share-Based Increase					0.988***	0.310
Eq. (10) Term 4					0.148**	0.029
Constant	0.021		0.014		0.034*	
Observations	272		165		165	
R-squared	0.897		0.911		0.951	

Notes: Table provides OLS regressions of post-merger dividend per share and post-merger payout ratio. The first four regressors are the right-hand side terms of equation (9) in the paper; the second four are the terms of equation (10). Two-sided significance levels are indicated as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard impact for a given independent variable equals the regression coefficient on that variable multiplied by the variable's standard deviation in the given sample.

Columns (V) and (VI) of Table 2 present results from equation (10), using the same reduced sample of 165 firms. The r-squared for this regression of post-merger payout

ratio is higher than it is for the dividend-per-share regression (9). The conclusion about relative importance changes only somewhat, however. The coefficient on per-merger payout ratio now is approximately 1, but the largest impact again is the one associated with the acquirer's pre-merger dividend per share, term 3 in equation (10). (Note that the impacts in column (F) are not in dollars, as the independent variable now is a ratio.) The acquirer's pre-merger payout ratio appears to be roughly half as consequential in this formulation. In exploring other factors relevant to merged firm dividend per share, the remainder of the paper will emphasize the framework of equation (9).

array of explanatory variables<sup>11</sup>; insignificant factors will be culled in remaining iterations. The set of firms in columns I and II is all those available for which the equation (9) terms are less than \$20 in absolute value. The magnitudes of the four coefficients for equation (9) are somewhat reduced relative to Table 2, but each remains statistically significant. Likewise, the impact of acquirer age is much reduced by controlling for past dividends, but its p-value is nevertheless 1.1%. No measures of shareholder base are significant, though the term interacting the target's shareholders with the weighted-average dividend is significant within some smaller groups of variables. Firm B's distance from a top-10 city interacts negatively with the weighted-average dividend, with a t-statistic of -3.47 on the variable *LnDistanceB\*Default*; that is, merged firms' dividends evidently are less likely to be impacted by a target's pre-merger dividend payment, the more remote the target. If the agency model referenced by John et al. is behind this result, the implication is that targets with more severe agency problems exert less influence on their acquirers' policies.

Combined cash balance of the pre-merger firms per share of the post-merger firm (which for the regressions was capped at \$20, approximately the 99<sup>th</sup> percentile) is not significantly related to dividend payments. Proportional increases in assets of the acquirer, scaled by pre-merger dividends, provide significant explanatory power. Regarding predictive implications, however, the asset-based variable is similar to the equation (9) variables in the respect that it is known with precision only after the fiscal year end for which dividends are being estimated. Age of the target firm appears to be inconsequential. The small sample of four acquirers completing deals in 2009 had much lower (\$0.48) per-share dividends at year 1, other things equal. Dummies for other years of merger completion were excluded from the regression but in an untabulated run were individually insignificant and only marginally significant jointly.

## 5.2 Other Factors

Before returning to equation (9), I will examine whether dividend per share for the pre- and post-merger firms is related to age, distance from top-10 U.S. cities as well

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<sup>11</sup> One variable that was deleted even before the creation of this table is the interaction of the default dividend with a dummy for matching listing exchanges. That term had a negative coefficient, and the weighted average dividend on its own had a significantly higher coefficient with the interaction variable included, but the great degree of collinearity between the two pushed their variance inflation factors above 30.



as between acquirer and target, and number of shareholders, with the latter two factors in log form.

**Table 3: Factors Related to Dividend per Share**

	(I)	(II)	(III)
	Div/Sh <sub>M,1</sub>	Div/Sh <sub>A,-2</sub>	Div/Sh <sub>B,-2</sub>
AgeA	0.00560***	0.00364***	0.00231***
AgeB	-0.00010	0.00103	0.00238**
LnDistanceA	0.03780**	0.04380***	0.01320
LnDistanceB	0.00696	0.00916	0.00481
LnDistBetween	-0.00786	-0.00718	-0.01090
LnHoldersA	0.02410	0.03940	0.05130**
LnHoldersB	0.10800***	0.10000***	0.09270***
Constant	-0.92100***	-1.02500***	-0.97000***
Observations	269	269	269
R-squared	0.247	0.295	0.324

Notes: Dependent variables are dividend per share of merged firm (I), pre-merger acquirer (II), and pre-merger target (III). Firm A is pre-merger acquirer; B is target. Significance levels are represented as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 3 presents results, with columns I and II addressing the acquirer and target prior to the merger. Coefficients, where significant, are of the expected sign—higher dividend payments tend to be associated with firms that are older, are more remote, and have more shareholders. A surprising element is the presence of pre-merger cross-relations. The number of shareholders of the target is strongly predictive for the pre-merger dividends of the acquirer (with a coefficient and a t-statistic that are nearly unchanged if target assets are included), while age of the acquirer and shareholders of the acquirer are significant determinants for the target's dividends. These results draw upon year -2 data, and the end of year -2 precedes the announcement of approximately 97% of these mergers (with most quarterly dividends determined well in advance of year's end). So it appears implausible that the shareholder base of the target would drive the acquirer's dividend policy or, reversing the causality, that the target's number of shareholders would increase because of an acquisition by a firm paying large dividends. Apart from the possibility that the coefficient on the target's shareholders represents an extreme type-1 error, perhaps some factor associated with strong dividend payments—potentially agency costs—induces an acquirer to seek a target that has a large number of shareholders or another feature that correlates with that figure. Likewise, old firms may conceivably seek out targets that pay out high dividends, a circumstance that would explain the significantly (at the 1% level) positive coefficient of acquirer age on target payments. These possibilities again raise the point that relations to be studied between a post-merger firm's dividends and the pre-merger parties are likely not entirely causal, even though they may still serve a predictive purpose given stability of whatever underlying causal factors drive the observed results.

Beyond questions of causality, the fact that an acquiring company's age or a target's shareholder base is correlated with the post-merger dividend does not demonstrate that those variables provide any information incremental to that of the merging firms' dividend pre-merger dividend payments. That is the next matter to be addressed, alongside the possibility that target firm characteristics are relevant not only on their own but in the extent to which the target's dividend policy is later reflected in that of the merged firm. I attempt to capture such interaction by multiplying some independent variables by the weighted-average dividend per share, the second explanatory term from equation (9). That weighted-average dividend is labeled "Default" in interaction terms with other variables.

**Table 4: Determinants of Post-Merger Dividend per Share: Complete Set of Regressors**

	Unrestricted		Non-Dividend Paying Target and Acquirer
	(I) Coefficient	(III) VIF	(IV) Coefficient
Dividend per Share <sub>A,-2</sub>	0.6160***	9.66	----
Weighted Avg.Div <sub>-2</sub> ="Default"	0.2780***	6.36	----
Earn.-Based Div Change <sub>A</sub>	0.0428**	1.28	----
Eq. (9) Term 4	0.0444***	1.60	----
Age <sub>A</sub>	0.0010**	1.57	0.00114**
Age <sub>B</sub>	-0.00043	1.32	0.00230***
Age <sub>B</sub> * Default	-0.00120	1.24	----
Cash per Share	0.00258	1.24	0.000311
HoldersRatio	-0.00216	3.08	-0.008820
HoldersRatio * Default	0.00178	1.40	----
LnHolders <sub>A</sub>	-0.01570	4.43	-0.000839
LnHolders <sub>B</sub>	0.00112	3.76	0.012300
Asset-Adjust Div/Sh	0.22000***	6.66	----
LnDistance <sub>A</sub>	-0.00560	1.22	-0.007780
LnDistance <sub>B</sub>	-0.00335	1.27	0.000680
LnDistanceBetween	-0.00178	1.15	-6.8e-4
LnDistance <sub>B</sub> * Default	-0.02800***	1.47	----
Same Exch	-0.04540	1.28	0.036900
Closed in 2009	-0.45400	1.10	----
Constant	0.17600		-0.124000
Observations	248		
R-squared	0.93000		

Notes: The first four terms are the right-hand side variables of equation (9). VIF is the variance inflation factor. ---- indicates that a variable was omitted due to collinearity. 2-sided significance levels are as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.

**Table 5: Equation (9) and Other Key Factors in Dividend or Total Payout per Share**

	(I)	(II)	(III)	(IV)	(V)
Dependent Variables	Dividend/Share <sub>M,1</sub>				
<b>Sample</b>	<b>All</b>	<b>Div<sub>A,-2</sub>&gt;0</b>	<b>Earn&gt;0</b>	<b>Stock</b>	<b>Cash</b>
Dividend per Share <sub>A,-2</sub>	0.5990***	0.63300***	0.766***	0.604***	0.843***
Weighted Avg.Div <sub>-2</sub>	0.2560***	0.25900***	0.29600***	0.24400***	-0.12200
Earn.-Based Div Change <sub>A</sub>	0.0427***	0.04000*	0.14200**	0.06870***	0.03030
Eq. (9) Term 4	0.0420***	0.06880**	0.14200	0.02810	0.01440
Age <sub>A</sub>	0.0007**	0.00065	0.00078*	0.00063	-0.00013
HolderRatio * Default	0.00475	0.00333	0.00603	0.01540	0.02790**
Asset-Adjust Div/Sh	0.22600**	0.21700***	0.15400***	0.28300***	0.19300***
LnDistance <sub>A</sub>	-0.00586	0.00142	-0.00179	-0.01160*	-0.0215**
LnDistance <sub>B</sub> * Default	-0.03430***	-0.04740***	-0.04350***	-0.04710***	-0.00720
Closed 2009	-0.4830***	-0.48700***	-0.80300***	-0.08760	-0.55400***
Constant	0.0032	-0.02510	-0.01310	0.02820	0.14100**
Observations	263	144	161	129	50
R-squared	0.92700	0.90700	0.93600	0.96500	0.96200
	(VI)	(VII)	(VIII)	(IX)	(X)
<b>Sample</b>	<b>Not Fin.</b>	<b>SIC Match</b>	<b>Not Match</b>	<b>All</b>	<b>Stock</b>
Dividend per Share <sub>A,-2</sub>	0.830***	0.851***	0.445***	0.721***	1.051***
Weighted Avg.Div <sub>-2</sub>	0.0294	-0.0376	0.297***	0.171	0.166
Earn.-Based Div Change <sub>A</sub>	0.0338**	-0.0372	0.0963***	0.173***	0.111**
Eq. (9) Term 4	0.0345**	0.00719	0.00152	-0.0411***	-0.00258
Age <sub>A</sub>	0.000784**	0.00122***	0.000238	0.00121	0.00267
HolderRatio * Default	0.0195**	0.0137	0.00339	-0.0148	-0.0575*
Asset-Adjust Div/Sh	0.158***	0.175***	0.304***	-0.0333	-0.186
LnDistance <sub>A</sub>	-0.00415	-0.00740	0.00108	-0.0319	-0.0212
LnDistance <sub>B</sub> * Default	-0.00604	-0.0248**	-0.0306**	-0.0516**	-0.121***
Closed 2009	-0.407***	-0.505***	----	-1.157	-0.0324
Constant	0.00381	-0.0155	0.0207	0.272	0.267
Observations	192	148	115	265	130
R-squared	0.942	0.939	0.931	0.571	0.795

Notes: ---- indicates that a variable was omitted due to collinearity. 2-sided significance levels are as follows: \*\*\* p<0.01, \*\* p<0.05, \* p<0.

For all interaction terms, the two individual variables are centered before being multiplied. Table 4 introduces the results of a regression with a large Variance inflation factors are provided in Column (III) of Table 4. The first two terms of equation (9) obviously have some collinearity, given that the acquirer's dividend per share appears in each, but the VIF for the acquirer's dividend per share is 9.68, still below a common threshold of 10 for serious skepticism. Most of the VIFs are under 2.

One might ask whether some of the variables are relevant to the decision to initiate dividends and whether the statistical significance of impacts in column I are in fact concentrated in the initiation decision. Columns IV and V start to address that issue. All four terms from equation (9) as well as the interaction variables have zero value if neither merging party paid dividends in year -2, so those terms have no entry. Now the ages of both acquirer and target are significantly positive factors, but no other variables are significant. Very similar (undisplayed) results hold if only the acquirer is required to be a non-payer at year -2.

As a basis for comparison with various subsamples and with the combined dividend and repurchase payout, the first column of Table 5 repeats the Table 4 regression with fewer explanatory variables, having eliminated clearly insignificant regressors. Column II continues the topic of the previous paragraph, showing that if the acquirer (firm A) has already paid dividends, the significance of its age disappears. In column III, only mergers with positive earnings for both pre-merger firms and the merged company (as in some of the Table 2 regressions) are considered. The statistical significance of several terms drops, but the results are otherwise similar, with raw coefficients equation (9) variables actually rising. All-stock mergers and all-cash mergers are represented by columns IV and V, respectively. Results for stock mergers are not dramatically different from the full set, though the earnings of the target appear to be less relevant, with the coefficient on equation (9) term 4 dropping and losing its significance. For all-cash acquisitions, neither equation (9) term involving the target is significant, and the coefficient on the weighted average dividend is even slightly negative. The target's remoteness no longer interacts with its dividend ( $\ln DistanceB * Default$  is insignificant), a fact that one might suppose to be related to the absence and lack of impact of the former target's shareholders. However, the interaction between the shareholders ratio term and the weighted-average dividend is a statistically significant factor for cash mergers ( $p=2.6\%$ ) and not for stock mergers, a result that is the opposite of expectations. Nevertheless, the coefficient is small enough that it could outweigh the negative coefficient on the weighted-average dividend term itself only for very large shareholder ratios.

Column VI restricts the sample to non-financial acquisitions, combinations in which neither merging party had an SIC code between 6000 and 7999. The weighted average dividend term now is statistically insignificant, while the  $HoldersRatio * Default$  term is significant as it was with cash mergers. The sample is

divided into those for which 3-digit SIC codes match and do not match in columns VII and VIII, respectively. Several regression coefficients differ sharply between these two groups. For the related mergers, neither the weighted-average default dividend nor either earnings figure is a significant determinant. On the other hand, the acquirer's age becomes insignificant for the diversifying acquisitions.

The last two columns of Table V replace dividend payments in the dependent variable and any applicable regressors with the combined cash distributed through dividend and repurchase. Column IX excludes only mergers for which terms in equation (9) exceed \$60 per share in magnitude, while column X restricts the sample further to all-stock purchases. The r-squared values for these regressions are lower than for the corresponding dividend-based regressions in columns I and IV; fluctuation in total payout per share may raise less alarm in the market than would fluctuation in dividends per share. The weighted-average total cash distribution is not quite a significant factor for the entire sample, and, unlike in the pure dividend case, stock mergers have a slightly lower coefficient on that term than does the full sample (in an untabulated result, cash mergers actually have a coefficient of 1.78 on the weighted-average total payout with an insignificant negative coefficient on the acquirer's individual total payout.) Additionally, term 4 of equation (9) for the total payout case has either a significantly negative coefficient or, for the stock mergers, is insignificant. Why the target's earnings are irrelevant or even are negatively related to merged-firm payout is unclear. Asset growth, moreover, is uninformative for total cash payout per share.

## **6. Conclusion**

This research suggests that acquirers' dividend payments around mergers adhere fairly closely to a policy of maintaining a dividend per share. Dividend per share of the pre-merger target firm also plays a role, at least across the full sample, as do changes in the earnings of the acquirer (especially) and the target. Growth in acquirer assets also provides incremental explanatory power. These results are largely consistent with previous survey and empirical evidence. More primitive factors previously identified in the literature, including firm age, headquarters remoteness, and shareholder base, appear to drive dividend payments to a degree, but the importance of most of the factors is limited, once one also knows the pre-merger dividend payments. Nevertheless, the weighted average of target and acquirer dividends appears to interact with target remoteness in determining post-merger dividend policy. Explanatory power of past dividend policy and even an incomplete set of firm characteristics is rather high, a point potentially of interest to dividend-focused investors considering portfolio rebalancing in the wake of merger announcements.

In addition to examining larger or different samples, future research could attempt to disentangle causal effects from other relations, especially in light of puzzling links observed between a merging party's pre-merger characteristics and its merger partner's dividend payments. Relating changes in equity risk and

announcement returns to dividend changes may also be of interest. Further, one might ask whether mergers have played a role in driving aggregate dividend payments in the market. Even if acquiring firms tend to share common dividend policy characteristics relative to non-acquirers (a matter not settled here), however, the preliminary and restricted-sample evidence advanced in this paper is that targets' dividend history and characteristics play a sufficient role in merged firm dividend policy to limit any aggregate shift.

**References**

- Amihud, Y., and Li, K., 2006. The declining information content of dividend announcements and the effects of institutional holdings. *Journal of Financial and Quantitative Analysis*, 41, 637-660.
- Andres, C., and Hofbauer, U., 2017. Do what you did four quarters ago: Trends and implications of quarterly dividends. *Journal of Corporate Finance*, 43, 139-158.
- Baker, H. K., and Weigand, R., 2015. Corporate dividend policy revisited. *Managerial Finance*, 41, 126-144.
- Banchit, A., 2013. Principal-principal conflicts in ASEAN 5 mergers and acquisitions. *PhD thesis*. University of Waikato, Hamilton, New Zealand. Retrieved from <http://hdl.handle.net/10289/7840>.
- Banerjee, A., Hung, C-H. D., and Ji, X., 2017. Managerial overreaction and dividend policy. *University of Glasgow working paper*.
- Ben Letaifa, W., 2016. Study of dividend policies in periods pre- and post-merger. *Corporate Ownership & Control*, 13, 613-616.
- Bhattacharya, S., 1979. Imperfect information, dividend policy, and "the bird in the hand" fallacy. *The Bell Journal of Economics*, 10, 259-270.
- Bhattacharya, U., and Dittmar, A., 2003. Costless versus costly signaling: theory and evidence from share repurchases. *Indiana University working paper*.
- Black, F., 1976. The dividend puzzle. *Journal of Portfolio Management*, 2, 5-8.
- Bodnaruk, A., and Ostberg, P., 2013. The shareholder base and payout policy. *Journal of Financial and Quantitative Analysis*, 48, 729-760.
- Booth, L., and Zhou, J., 2015. Market power and dividend policy. *Managerial Finance*, 41, 145-163.
- Brav, A., Graham, J. R., Harvey, C., and Michaely, R., 2005. Payout policy in the 21<sup>st</sup> century. *Journal of Financial Economics*, 77, 483-527
- Chan, K. F., Powell, J. G., Jing, S., and Smith, T., 2018. Dividend persistence and dividend behavior. *Accounting & Finance*, 58, 127-147.
- DeAngelo, H., DeAngelo, L., and Skinner, D. J., 2009. Corporate payout policy. *Foundations and Trends in Finance*, 3, 95-287.
- Dereeper, S., and Turki, A., 2013. Dividend-paying merging firms and M&A deal completion. *SSRN working paper*.
- Dereeper, S., and Turki, A., 2016. Dividend policy following mergers and acquisitions: US evidence. *Managerial Finance*, 42, 1073-1090.
- Deshmukh, S., 2003. Dividend initiations and asymmetric information: a hazard model. *The Financial Review*, 38, 351-368.
- Dhaliwal, D., Li, O.Z., and Trezevant, R., 2003. Tests of the influence of a firm's post-IPO age on the decision to initiate a cash dividend. *Journal of Economics and Literature* 20, 55-87
- Dickerson, A. Gibson, H., and Tsakalotos, E., 1997. The impact of acquisitions on company performance: evidence from a large panel of UK firms. *Oxford Economic Papers*, 49, 344-61.

- Dionne, G., and Ouederni, K., 2011. Corporate risk management and dividend signaling theory. *Finance Research Letters*, 8, 188-195.
- Easterbrook, F. H., 1984. Two agency-cost explanations of dividends. *American Economic Review*, 76, 650-659.
- Farinha, J., 2003. Dividend policy, corporate governance and the managerial entrenchment hypothesis: an empirical analysis. *Journal of Business Finance & Accounting*, 30, 1173-1209.
- Farre-Mensa, J., Michaely, R., and Schmalz, M., 2014. Payout policy. *Annual Review of Financial Economics*, 6, 75-134.
- Field, L. C., and Karpoff, J. M., 2002. Takeover defenses of IPO firms. *Journal of Finance*, 57, 1857-1889.
- Fink, J., Fink, K. E., Grullon, G., and Weston, J. P., 2010. What drove the increase in idiosyncratic volatility during the internet boom? *Journal of Financial and Quantitative Analysis*, 45, 1253-1278.
- Floyd, E., Li, N., and Skinner, D. J., 2015. Payout policy through the financial crisis: the growth of repurchases and the resilience of dividends. *Journal of Financial Economics*, 118, 299-316.
- Ghosh, A., and Jain, P. C., 2000. Financial leverage changes associated with corporate mergers. *Journal of Corporate Finance*, 6, 377-402.
- Grullon, G., and Michaely, R., 2004. The information content of share repurchases. *Journal of Finance*, 59, 651-680.
- Guay, W., and Harford, J., 2000. The cash flow permanence and information content of dividend increases vs. repurchases. *Journal of Financial Economics*, 57, 385-415.
- Harford, J., Klasa, S., and Walcott, N., 2009. Do firms have leverage targets? Evidence from acquisitions. *Journal of Financial Economics*, 93, 1-14.
- Hauser, R., 2013. Did dividend policy change during the financial crisis? *Managerial Finance*, 39, 584-606.
- Hail, L., Tahoun, A., and Wang, C., 2014. Dividend payouts and information shocks. *Journal of Accounting Research*, 52, 403-456.
- Hoberg, G., and Prabhala, N. R., 2009. Disappearing dividends, catering, and risk. *The Review of Financial Studies*, 22, 79-116.
- Holder, M. E., Langrehr, F. W., and Hexter, J. L., 1998. Dividend policy determinants: An Investigation of the influences of stakeholder theory. *Financial Management*, 27, 73-82.
- Hu, A., and Kumar, P., 2004. Managerial entrenchment and payout policy. *Journal of Financial and Quantitative Analysis*, 39, 759-790.
- Hua, C.-Y., Yao, M.-L., Lee, W.-C., and Chin, W.-M., 2006. Information asymmetry at merge and acquisition—an investigation on firms in the electric industry. *JCIS-2006 Proceedings*. Atlantis Press: Amsterdam.
- Jensen, M., 1986. Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76, 323-329.



- Jeon, J. Q., Ligon, J. A., and Soranakom, C., 2010. Dividend policy and the method of payment in mergers and acquisitions. *Proceedings of Midwest Finance Association Annual Meeting*.
- John, K., Knyazeva, A., and Knyazeva, D., 2011. Does geography matter? Firm location and corporate payout policy. *Journal of Financial Economics*, 101, 533-551.
- Joos, P. R., and Plesko, G. A., 2004. Costly dividend signaling: the case of loss firms with negative cash flows. *MIT Sloan Working Paper 4474-04*.
- Kalay, A., and Kronlund, M., 2014. The market reaction to stock split announcements: earnings information after all. *Columbia University working paper*.
- Kale, J. R., Kini, O., and Payne, J. D., 2012. The dividend initiation decision of newly public firms: some evidence on signaling with dividends. *Journal of Financial and Quantitative Analysis*, 47, 365-396.
- Kim, B. S., and Maddala, G. S., 1992. Estimation and specification analysis of models of dividend behavior based on censored panel data. *Empirical Economics*, 17, 111-124.
- Leary, M. T., and Michaely, R., 2011. Determinants of dividend smoothing: empirical evidence. *The Review of Financial Studies*, 24, 3197-3249.
- Lee, B.-S., and Rui, O. M., 2007. Time-series behavior of share repurchases and dividends. *Journal of Financial and Quantitative Analysis*, 42, 119-142.
- Li, W., and Lie, E., 2006. Dividend changes and catering incentives. *Journal of Financial Economics*, 80, 293-308.
- Li, K., and Zhao, L. X., 2008. Asymmetric information and dividend policy. *Financial Management*, 37, 673-694.
- Lintner, J., 1956. Distribution of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review*, 46, 97-113.
- Loderer, C., and Waelchli, 2010. Firm age and performance. *University of Bern working paper*.
- Loughran, T., and Ritter, J., 2004. Why has underpricing changed over time? *Financial Management*, 33, 5-37.
- Merton, R. C., 1987. A simple model of capital market equilibrium with incomplete information. *Journal of Finance*, 42, 483-510.
- Miller, M. H., and Modigliani, F., 1961. Dividend policy, growth, and the valuation of shares. *Journal of Business*, 34, 411-433.
- Miller, M. H., and Rock, K., 1985. Dividend policy under asymmetric information. *Journal of Finance*, 40, 1031-1053.
- Moortgat, L., Annaert, J., and Deloof, M., 2017. Investor protection, taxation and dividend policy: long-run evidence, 1838-2012. *Journal of Banking and Finance*, 85, 113-131.
- Officer, M. S., 2011. Overinvestment, corporate governance, and dividend initiations. *Journal of Corporate Finance*, 17, 710-724.

- Pinkowitz, L., Stulz, R., and Williamson, R., 2006. Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A cross-country analysis. *Journal of Finance*, 61, 2725-2751.
- Rozeff, M., 1982. Growth, beta, and agency costs as determinants of dividend payout ratios. *Journal of Financial Research*, 5, 249-259.
- Tehrani, H., Zhao, M., & Zhu, J., 2014. Can analysts analyze mergers? *Management Science*, 60, 959-979.
- Yang, T.-H., 2009. The adjustment of capital structure in mergers and acquisitions: the optimal capital structure. *National Chung Hsing University working paper*.