Founding Family Ownership and Dividend Smoothing

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Abstract

This paper examines the relation between ownership structure and dividend smoothing by comparing the degree of dividend smoothing engaged in by family and non-family firms. We expect family firms to exhibit less dividend smoothing behaviour than non-family firms due to lower agency conflicts and less information asymmetry experienced by family firms. Based on a sample of S&P 500 firms from 1997 to 2007, we find that the degree of dividend smoothing engaged in by the family firms is much less than the non-family firms. Further we find that the source of the difference arises from the family firms' willingness to increase their dividends, rather than their willingness to cut dividends in response to significant earnings changes. Overall our results indicate a strong interaction between ownership structure and dividend smoothing.

1. Introduction

This paper investigates the difference between family and non-family firms in their tendency to smooth dividend payouts. This study contributes to an understanding of the interaction between ownership structure and firms' dividend policy. The literature studying family firms has long argued that family firms face different degrees of agency and information asymmetry problem compared with non-family firms (Anderson & Reeb, 2003a; Villalonga & Amit, 2006; Ali et al., 2007). Viewing dividend policy as a solution to agency and information asymmetry problems, Hu et al (2007) provide evidence suggesting that the dividend payout policy of family firms on average is different from non-family firms. In this paper, we extend Hu et al (2007) to examine the difference in another aspect of firms' dividend policy: differences in engagement in dividend smoothing, between family and non-family firms.

Lintner (1956) examines the speed at which firms adjust their dividend towards the target payout ratio. He observes a gradual adjustment process and refers this as dividend smoothing. Following Lintner (1956), the prior literature has consistently observed the dividend smoothing phenomenon throughout the past 50 years (Fama & Babiak, 1968; Brav et al., 2005). While the presence of dividend smoothing is well documented in the literature, there are however relatively few studies exploring the cross-sectional variation in firms' dividend smoothing policy and their associated firm characteristics. This paper considers ownership structure as a fundamental firm characteristic affecting not only firm performance (Anderson & Reeb, 2003a; Villalonga & Amit, 2006) but also the relationships between various stakeholders (Anderson et al., 2003; Anderson & Reeb,

2003b; Wang, 2006; Ali et al., 2007). This paper provides evidence on the association between ownership structure and dividend smoothing policy in a cross-sectional setting. Specifically, we focus on the difference in dividend smoothing policy between family and non-family firms.

Dividend smoothing is theoretically viewed as a solution to both agency conflicts and information asymmetry (Aivazian et al., 2006). Cross-sectional variation in firms' dividend smoothing policy can potentially be explained by the variation in the degree of agency and information asymmetry problem facing different firms (Leary & Michaely, 2008). It has long been argued that family firms face different agency and information asymmetry problems from non-family firms (Villalonga & Amit, 2006; Ali et al., 2007). The major source of conflict in a non-family firm arises from the managers and the shareholders as described in Jensen and Meckling (1976). For a family firm this typical agency conflict and information asymmetry between management and shareholders is mitigated due to close monitoring by the family shareholders. However the family shareholders may use their dominant position to exploit the interest of the minority shareholders. As a result, a second type of conflict may gain more prominence (Villalonga & Amit, 2006). The empirical evidence to date appears to suggest that the aggregate agency cost incurred by family firms is less than non-family firms (Wang, 2006; Ali et al., 2007; Hu et al., 2007).

This paper argues that if the agency and information asymmetry conflicts faced by family firms are lower than non-family firms, it is expected that family firms will engage in less

dividend smoothing activities than non-family firms. Based on a sample of S&P 500 firms from 1997-2007, our results are consistent to this prediction. The results show that on average a non-family firm takes approximately 10 years to adjust its dividend to its target payout ratio whereas a family firm only takes 3 years to do so. The results are both economically and statistically significant.

We undertake analysis to investigate whether the source of the different degree of dividend smoothing arises from family firms' willingness to increase or cut their dividends aggressively. We find that family firms are twice as likely to significantly increase its dividend when experiencing positive earnings shock compared to non-family firms, however family firms are just as reluctant as non-family firms when it comes to cutting dividends. Furthermore, given the importance of share repurchases in modern corporate payout policy, we also investigate the degree of total smoothing engaged by the firms. We find that after including the share repurchases the degree of total payout smoothing engaged by family firms remains as significantly less than non-family firms. Overall our results indicate a strong interaction between ownership structure and dividend smoothing.

The paper is structured as follow. Section 2 reviews the development of theory in relation to dividend smoothing and presents the arguments of differences between the family and the non-family firms. Section 3 describes our data and presents descriptive statistics of our sample. Section 4 discusses the empirical results and Section 5 concludes the paper.

2. Theoretical Background and Hypotheses

2.1. Ownership Structure of Family Firms

Recent empirical evidence (Anderson & Reeb, 2003a; Villalonga & Amit, 2006) shows that a third of the largest U.S. listed corporations can be classified as family firms. Family firms differ from non-family firms in their ownership structure. Controls are normally in the hands of the founding family in family firms. These families have the interests to not only monitor but also influence management decisions. Indeed, many family firms are also managed by members of the controlling family (Anderson & Reeb, 2003a; Barontini & Caprio, 2006; Andres, 2008).

Because of the strong ties between the controlling family and management, family firms exhibit different characteristics from non-family firms. Prior literature focuses largely on the difference in agency conflict and information asymmetry experienced by family and non-family firms (Villalonga & Amit, 2006; Ali et al., 2007). Given the extensive monitoring and close relation with management, the family shareholders are argued to be able to better align the interests between management and shareholders (Villalonga & Amit, 2006; Wang, 2006). The family shareholders are also more likely to get access to inside information and better understand the nature of the business, hence reducing the information asymmetry between management and shareholders (Ali et al., 2007).

The downside of close alignment between the controlling family and the management is that the interests of other shareholders can be easily exploited by the controlling family (Villalonga & Amit, 2006). The increasing conflict between the family shareholder and

other shareholders could induce a greater monitoring role by other shareholders. However, given the dominance of the controlling family, other shareholders might only exert limited impacts on the managerial decisions such as dividend policy.

Viewing dividend payout policy as a solution to both agency conflict and information asymmetry, Hu et al (2007) examine the difference in the dividend payout policy of family and non-family firm. They find that family firms on average have lower dividend payout than non-family firms, in support of lower agency conflict experienced by family firms[1]. Other prior studies show that family firms on average are more profitable (Anderson & Reeb, 2003a; Barontini & Caprio, 2006; Ehrhardt et al., 2006; Favero et al., 2006; Sraer & Thesmar, 2006; Villalonga & Amit, 2006; Martinez et al., 2007; Andres, 2008); have lower cost of debt (Anderson et al., 2003); less diversification (Anderson & Reeb, 2003b); better earnings quality (Wang, 2006; Prencipe et al., 2008) and better financial disclosure (Ali et al., 2007).

Based on the existing empirical evidence, we expect family firms to exhibit less agency conflict and information asymmetry than non-family firms. In the next two sections, we explain the implication of this difference between family and non-family firms on firms' policy to smooth dividend payout.

[1] Hu et al (2007) is based on US data. The comparison of dividend policy between family and non-family firms is also investigated based on other settings. Based on German data, Schmid et al (2010) find that family firms exhibit a higher propensity and level of dividend payout compared to non-family firms, the authors attribute the results to a higher "taste for dividend payments" as a result of common action problems and conflicts among a multitude of family members. Based on Australia data, Setia-Atmaja et al (2009) also find that family firms pay higher level of dividends than non-family firms, the authors argue that family firms are more likely to use dividends as a substitute for independent directors as governance mechanism.

2.2 Agency Conflict and Dividend Smoothing

Easterbrook (1984) argues that dividend payments help to reduce agency costs by constantly pressuring managers to raise new capital and debts to fund new investment. Managers are therefore subjected to greater external monitoring, thereby reducing the agency conflicts between managers and shareholders. Jensen (1986) supports this argument, when he states that dividend payments reduce the amount of free cash flow under managers' control, which prevents them from investing in projects below the cost of capital.

If dividend policy is partially driven by agency conflicts between shareholders and management, the association between dividend payment and earnings should be weakened (Easterbrook 1984). Firms with greater agency conflict are less likely to be able to maintain the optimal payout ratio, as they are less willing to change their dividend payment. This argument can potentially explain the observation of dividend smoothing behaviour. It is therefore expected that firms with more severe agency problem may be more likely to smooth their dividends (Dewenter & Warther, 1998; Chemmanur et al., 2007; Roberts & Michaely, 2007).

The impact of agency conflict on dividend smoothing has been empirically tested in the prior literature. Dewenter and Warther (1998) find that compared with U.S. firms, Japanese firms, especially keiretsu-members firms, are more likely to omit and cut dividends. They argue that that keiretsu-members firms face less agency conflicts because the shareholders have close ties to management and have longer investment

horizons. Similarly, Chemmanur et al (2007) find that Hong Kong firms are less likely to smooth dividends compared to US firms. They attribute this result to Hong Kong firms' high degree of ownership concentration, which moderates agency conflicts. This paper argues that family firms engage in less dividend smoothing activities than non-family firms because family firms generally experience lower agency conflicts between shareholders and management than non-family firms.

2.3 Information Asymmetry and Dividend Smoothing

Prior literature also argues that dividend policy can be used to address the problem of information asymmetry between management and shareholders. In an environment where management has access to information that shareholders do not have, dividend payments provide information to shareholders about the future prospect of the firm (Bhattacharya, 1979; Miller & Rock, 1985). It follows that with information asymmetry, stock price is sensitive to dividend payments. Lintner (1956) argues that information asymmetry helps explain the behaviour of dividend smoothing. This is because changes in dividend payment attract price reaction. Managers are reluctant to cut dividend because of its negative impact on stock price. They are also reluctant to increase dividend to prevent possible future cutting (Dewenter & Warther, 1998).

Roberts and Michaely (2007) argue that there is an asymmetric reaction to dividend increases and decreases: investors tend to react more strongly to dividend decreases than increases. This point is confirmed by the survey evidence of Brav et al (2005). Using three measures of information asymmetry (idiosyncratic risk, analyst forecast error and

dispersion of analyst forecasts, Booth and Xu (2007) find that firms with a higher degree of information asymmetry are more likely to smooth dividends.

Information asymmetry can also explain the relation between ownership structure and dividend smoothing. When ownership concentration increases, the degree of information asymmetry between managers and shareholders become lower. As a result, managers are less likely to use dividends to convey information and hence engage in less dividend smoothing activities. Therefore the empirical evidence documented by Dewenter and Warther (1998) and Chemmanur et al (2007) can also be attributable to information asymmetry. Following this line of research, this paper argues that family firms engage in less dividend smoothing activities than non-family firms because family firms generally experience lower information asymmetry between shareholders and management than non-family firms.

As a result of lower agency conflicts and information asymmetry between shareholders and management in family firms compared to non-family firms, we expect:

H1: Family firms are expected to exhibit less dividend smoothing behaviour than non-family firms.

3. Research Design and Variable Definitions

3.1 Modelling Dividend Smoothing

Lintner (1956) observes that managers in general prefer to increase dividends gradually and are reluctant to cut dividends. Based on this observation, Lintner developed a partial

adjustment model to explain dividend changes. The Lintner model expresses current dividend (Dt) in the following manner:

$$D_{i,t} = D_{i,t-1} + c(bE_{i,t} - D_{i,t-1}) \quad \textbf{(1)}$$

Where Di,t is firm i's dividend payment at time t, Ei,t are earnings at time t for firm i. In this model, current period dividend is last period's dividend payment plus a adjustment towards the target payout. b is the target payout ratio and c is the speed of adjustment (SOA). The higher the SOA, the faster the adjustment towards the target. Dividend smoothing implies that c is less than one.

Empirically, model (1) is estimated by running the following regression:

$$D_{i,t} = \alpha + \beta_1 D_{i,t-1} + \beta_2 E_{i,t} + \varepsilon_{i,t} \quad \textbf{(2)}$$

The SOA is captured by the coefficient on lag dividend (β1). Note that β1 is equivalent to (1-c) in model one. Hence, higher β1 indicates lower adjustment speed and higher degree of dividend smoothing.

This paper predicts that family firms engage in less dividend smoothing than non-family firms. To test this prediction, we augment equation (2) with an indicative variable (Fam), which captures the classification of family and non-family firm. We interact the lagged dividend variable with Fam independent with Fam to arrive at the following regression:

$$D_{i,t} = \alpha_1 + \beta_1 D_{i,t-1} + \beta_2 E_{i,t} + \alpha_2 Fam_{i,t} + \gamma_1 Fam * D_{i,t-1} + \varepsilon_{i,t} \quad \textbf{(3)}$$

where Fam equals 1 if firm i is classified as family firm in time t, otherwise 0. We expect that a significantly negative value of γ1 supports our expectation. Following Aivazian et al (2006) and Skinner (2008), we run both equation (2) and (3) with a pooled cross-

sectional and time-series regression model[2]. We correct the results with industry and year fixed effect.

3.2 Variable Definition.

Our classification of family and non-family firm is based on the family firms list published in the November 10, 2003 issue of BusinessWeek. According to that list, a company is classified as family firm if the founders or descendants continue to hold positions in top management, on the board, or among the company's largest stockholders. This definition is originally adopted by Anderson and Reeb (2003a) and widely used in family business studies (see for example: (Wang, 2006; Ali et al., 2007; Hu et al., 2007).

We extract dividend and earnings data from the Compustat database. Dividend is defined as dividend per share adjusted for share split. It is calculated as Common dividends (#21) divided by total share outstanding (#25). We use the cumulative adjustment factor (#27) to adjust for share split. Earnings is earnings per share (#58) adjusted for share split (#27). Leary and Michaely (2008) argue that stock split would cause a simultaneous sharp drop on both DPS and EPS, which distorts the true picture of the degree of dividend smoothing engaged by the firms.

In addition, we use the following variables to control for some firm characteristics. We use logarithm of sales (#12) to control for firm size. We use market to book ratio to control for firms' growth opportunities, and we calculate the ratio as market equity

[2] We also estimate the model based on GMM approach. However the parameters estimated by this approach are unrealistic, a similar outcome is also documented in Roberts & Michaely (2007). As a result we revert to using pooled cross-sectional and time-series regression model.

(#199*#24) divided by book equity (#216). We control for leverage, which is calculated as short term debt plus long term debt (#34+#142) divided by book value of assets (#6). We control for the tangibility of assets, which is calculated as property, plant and equipment (#6) divided by book value of assets. We also use SIC and year indicator to control for industry and year fixed effect.

4. Sample and descriptive statistics

4.1 Sample Selection

BusinessWeek identified 177 family companies in the S&P 500 as of July, 2003. Our initial sample is composed of 177 family firms and we use Compustat to identify non-family firms from the S&P 500 as of July 2003. We then extend the sample period from 1997 to 2007. We follow the prior literature to exclude all financial firms (SIC 6000-6999), and our final sample is composed of 4,315 firm-year observations. Our sample is comparatively smaller than other dividend smoothing studies (Aivazian et al., 2006; Leary & Michaely, 2008) as the samples used in those studies are based on all firms in the Compustat. However, our sample is slightly larger than other family business studies (Wang, 2006; Ali et al., 2007; Hu et al., 2007).

Table 1 reports the yearly sample distribution of family and non-family firms in the S&P 500 for the period of 1997 to 2007. The percentage of family firms is ranged from 32.5% to 36.8% with an average of 35.9% across the 11 years of the sample period. The percentage of family firms in our sample is similar to those reported in other family

business studies (Anderson & Reeb, 2003a; Wang, 2006; Ali et al., 2007; Hu et al., 2007).

Insert table 1 here

4.2 Descriptive Statistics

Table 2 reports the descriptive statistics of our sample. All financial data used in this study are retrieved from the Compustat database. In addition to total assets and sales, we also compute a number of dividends, earnings and other control variables that are commonly used in the dividends literature. For dividends and earnings per share, we follow Leary and Michaely (2008) to adjust both measures for stock split. They argue that stock split would cause simultaneous sharp drop on both DPS and EPS, which distorts the true picture of the degree of dividend smoothing engaged by the firms. We follow Hu, Wang and Zhang (2007) to use book value of assets as a deflator to compute the dividend payout ratio. They argue that the benefit of using book value of assets is that the measure is relatively stable, and thus the dividend payout ratio is able to capture the changes in dividends. We also compute the market to book ratio, leverage, return on assets and tangibility of assets as the control variables.

Insert table 2 here

Table 3 reports the differences in means and median of firm characteristics between family and non-family firms. The results indicate that there are systematic differences between family and non-family firms in this sample. Family firms on average are smaller

based on total assets and sales; pay less dividends based on dividends per share adjusted for share split and dividend payout ratio; have higher growth potential based on market to book ratio; are less risky based on a lower leverage ratio; have higher proportion of intangible assets; and are more profitable based on a higher earnings per share and a slightly higher but statistically insignificant return on assets. Given the systematic differences between the two types of firms, it is important to control for those factors when estimating the degree of dividends smoothing engaged by them.

Insert table 3 here

5. Empirical Results

5.1 Dividend Smoothing

We follow Aivazian, Booth and Cleary (2006) and Skinner (2008) to use a pooled cross-sectional time-series regression model to estimate the Lintner's model. Table 4 reports the empirical results of using the Lintner's model. For each regression, we use the dividend per share adjusted for share split at time t (DPSA) regressed against the lagged dividend (DPSP) and earnings per share adjusted for share split (EPSA). We also estimate the model with all firm observations including zero dividend observation as well as with positive dividend observation only.

In the first model, both the lagged dividend and earnings per share are highly significant. The test statistic of the lagged dividend is much higher than the test statistic of the

earnings per share, which reflects the former as a stronger predictor of current dividend per share. The speed of adjustment based on all firm observations is 9.25% (1-0.90754), which indicates that on average the firms require almost 11 years to adjust their dividend to their target payout ratio. The regression with positive dividend observations only shows a slightly higher speed of adjustment (15.5%), but overall the results indicate that on average the firms within the sample engage in high degree of dividend smoothing.

In the second model, we include both industry and time indicator variables in the regression. Consistent with the results reported in Aivazian, Booth and Cleary (2006), the addition of these dummy variables have minimal changes on the empirical results.

In the third model, we include an interaction term in the regression in order to distinguish the family firms from the non-family firms within the sample. Using the interaction variable is equivalent to estimating two separate regressions with one of them estimating the speed of adjustment of the family firms and the other one estimating the speed of adjustment of the non-family firms. We argue that the degree of dividend smoothing engaged in by the family firms is much less than the non-family firms, therefore if empirical results support our hypothesis, we should observe a significant negative coefficient on the interaction term, which implies a higher speed of adjustment. The results from the third model support our argument with a highly significant negative coefficient on the interaction term. Based on the regression with all firm observations, the speed of adjustment of the non-family firms is 5.35% (1-0.94649), on the other hand, the speed of adjustment of the family firms is 23.5% (1-(0.94649-0.18149)). In other words,

it takes on average close to 19 years for the non-family firms to adjust their dividends to the target payout. On the other hand it only takes on average slightly over 4 years for the family firms to do so. The regression with positive dividend observations report a similar discrepancy with the non-family firms taking 10 years to adjust their dividend whereas the family firms only require 3 years.

In the fourth model we again include both the industry and time indicator variables and there are no material changes to the results. In the fifth model, we include log of sales, leverage, market to book ratio and tangibility of assets as control variables, because we want to ensure that the results are not driven by the systematic differences in firm characteristics reported in Table 3. The results from the fifth model show that the interaction term remains highly significant and there are no material changes to the coefficients. Overall the results indicate both statistically and economically significant differences between the two types of firms, which supports our argument that the degree of dividend smoothing engaged in by the family firms is much less than the non-family firms.

Insert table 4 here

5.2 Smoothing Asymmetry

Our results indicate that the degree of dividend smoothing engaged by the family firms is much less than the non-family firms. These results could be driven by the willingness of

family firms to increase more dividends when earnings increase or to cut more dividends when earnings decrease. Alternatively the results could be driven by the combination of both directions of dividend changes. Leary and Michaely (2008) argue that prior literature in regard to dividend smoothing do not distinguish the response of firms to positive earnings shocks from that to negative earnings shocks. However, the recent survey evidence (Brav et al., 2005) shows that executives in general are more reluctant to cut dividends because of the perceived big market penalty than to increase dividends. Leary and Michaely (2008) define this asymmetrical response of dividend changes to earnings shock as smoothing asymmetry. Their empirical evidence is consistent with the survey evidence that firms on average take approximately 8 years to increase their dividends to respond fully to an earnings increase, but on the opposite they take almost 23 years to fully respond to an earnings decrease.

We apply the notion of smoothing asymmetry to this context by comparing the dividend changes of the family and non-family firms in response to positive and negative earnings shocks. The analysis aims to investigate the underlying causes of the different degree of dividend smoothing engaged in by the two types of firms. We first isolate the sample with positive dividend observations only, we then further split the sample into two sub-samples, with one that includes firms that experience significant earnings increase and the other that includes firms which experience significant earnings decrease. We focus on significant earnings changes only because the prior literature (Brav et al., 2005; Booth & Xu, 2007; Leary & Michaely, 2008) indicate that firms are likely to alter their payout policy when they experience earnings shocks. We define significant earnings changes as

at least 25% increase or decrease in earnings per share adjusted for share split compared to the prior year. For each of the significant earnings changes sub-samples, we use the logistic regression to regress significant dividends changes, which we define as either at least 25% or 10% of changes in dividends, against the family firm indicator variable and the control variables.

Table 5 reports the results of smoothing asymmetry. Model 1 shows that out of the 1,472 firm observations that experience significant earnings increase, there are 124 firm observations (8.4%) that increase their dividends by 25%. The question of interest is the family firm indicator variable, and the results show that on average the family firms are more likely to increase its dividends by 25% when experiencing earnings changes compared to the non-family firms, with a positive and highly significant coefficient. The positive coefficient of 0.65 means that the family firms on average are close to twice as likely to increase dividends by at least 25% when experiencing significant earnings increase. Model 2 repeats the same analysis but with a dependent variable of at least 10% dividends increase. There are 402 out of 1,472 firm observations (27.3%) that increase at least 10% of dividends in response to the significant earnings decrease. Once again the coefficient of the family firms indicator variable is positive and highly significant, the positive coefficient of 0.46 means that the family firms on average are approximately 1.6 times more likely to increase dividends by at least 10% when experiencing significant earnings increase. The results indicate that the family firms in this sample are more willing to significantly increase their dividends when experiencing positive earnings shock.

In regard to the firms' response to negative earnings shock, Model 3 shows that out of the 752 firm observations that experience significant earnings decrease, there are 44 firm observations (5.9%) that cut their dividends by at least 25%. The percentage of dividends cut is less than the percentage of dividends increase, which is consistent with the prior literature that executives in general are more reluctant to cut dividends than to increase dividends. The results from model 3 show that the coefficient of the family firm indicator variable is again positive but statistically insignificant, which means that there is no significant difference between the family and non-family firms in regard to significantly cutting dividends in response to significant earnings decrease. Model 4 reports a similar result, with a sample of 87 out of 752 firm observations (11.6%) that cut at least 10% of dividends. Once again the coefficient of the family firm indicator variable is positive but statistically insignificant. The results indicate that the family firms in this sample are equally as reluctant as the non-family firms in regard to cutting dividends.

Brav et al (2005) show that executives in general are reluctant to cut dividends because of the severe market penalty. Our analysis indicates that the family firms are no exception to this expected behaviour. Moreover our results show that the significantly different degree of dividends smoothing between the family and non-family firms documented in Table 4 is primarily driven by the family firms' willingness to increase their dividends, rather than their willingness to cut its dividends, in response to the earnings shock.

Insert table 5 here

5.3 Total Payout Smoothing

The empirical analysis documented in Tables 4 and 5 is based on cash dividends only. The original Lintner's model (1956) and the subsequent empirical evidence (Fama & Babiak, 1968) only include cash dividends because in the past dividends were the only form of corporate payout. However in recent years share repurchases became a common form of corporate payout in addition to cash dividends. Grullon and Michaely (2002) find that firms have gradually substituted share repurchases for dividends. Skinner (2008) documents that the total amount of share repurchases surpassed the total in cash dividends in the U.S. financial market in 1998. Although the total amount of cash dividends remains substantial, there is evidence to suggest that share repurchases have became the dominant form of corporate payout, in particular for younger firms without a past dividends history. Leary and Michaely (2008) and Skinner (2008) provide empirical evidence on total payout smoothing, which includes both cash dividends and share repurchases. Both studies find that total payout is significantly less smoothed than dividends, which means that changes in total payout are more responsive to changes in earnings. The empirical evidence is consistent with the survey evidence (Brav et al., 2005) that executives in general consider share repurchases as a more flexible payout approach and they consider it as a preferred payout to absorb temporary earnings changes.

Given the importance of share repurchases in the modern corporate payout policy, we replicate the analysis reported in Table 4 to use total payout in place of dividends. We

follow Skinner (2008) to measure net share repurchases as stock purchases (#115) – minus stock issuances (#108) and total payout equal to common dividends plus net share repurchases. We compare the degree of total payout smoothing between the family and the non-family firms. Table 6 reports the total payout smoothing based on the Lintner's model. The results show that there are a number of differences between dividend and total payout smoothing. First, the adjusted R-squares of total payout smoothing regressions are significantly lower than those reported in dividend smoothing regressions. The lower adjusted R-square means that Lintner's model is less successful in explaining the variation of total payout compared to dividends only. Leary and Michaely (2008) explain that this could be driven by the fact that changes in repurchases are motivated by different factors compared to dividends. As the Lintner's model only includes the lagged dividends and current earnings as the explanatory variables, it is possible that there are other factors that might affect the total payout amount, which results in a lower adjusted R-square. Second, the speed of adjustments estimated from the total payout smoothing regressions is much higher than those estimated from the dividend smoothing regressions. For instance, in the first model the estimated speed of adjustment is 0.8 (1-0.1934) compared to the speed of adjustment of 0.1 estimated in the same dividend smoothing regression. The results are consistent with the findings of prior literature that the changes in total payout are more responsive to the changes in earnings.

The question of interest is the comparison of the degree of total payout smoothing between the family and the non-family firms. Consistent with the results reported in Table 4 in relation to dividend smoothing, the results reported in Table 4 show that the

degree of total payout smoothing of the family firms is significantly less than the non-family firms in this sample, with a statistically significant negative coefficient on the interaction term. In particular the regression models that include only positive total payout observations reveal some interesting results. For instance, in the fifth model the results show that the speed of adjustment of the non-family firms is 0.54 (1-0.56), the coefficient of the interaction term is -0.54, which means that the speed of adjustment of the family firms is only 0.02. In other words, on average the family firms within this sample with a positive payout record almost fully adjust their total payout in response to the earnings change.

The fast adjustment rate of total payout to earnings of the family firms is consistent with the empirical evidence provided by Hu, Wang and Zhang (2007) that family firms prefer repurchase to dividends, which means that family firms may be more willing to change their share repurchases in response to earnings change. Compared to the empirical evidence presented in Leary and Michaely (2008), they find that institutional ownership (a measure of agency cost) is negatively related to the degree of dividend smoothing, however they document an opposite relation in their results of total payout smoothing. In contrast we provide consistent empirical results in both dividend and total payout smoothing that the degree of payout smoothing engaged by the family firms is significantly less than the non-family firms. Theoretically this means that the degree of payout smoothing engaged by firms with lower agency cost (family firms) is less than firms with higher agency cost (non-family firms).

Insert table 6 here

6. Conclusion

We document a strong interaction between ownership structure and dividend smoothing. Based on agency and signalling theories of dividends, we predicted that the degree of dividend smoothing engaged by family firms is less than non-family firms. Our empirical evidence supports that prediction. In addition to being more profitable, with lower cost of debt, less diversification, better earning quality, financial disclosure and pay less dividends as documented in the prior literature, we find that family firms are also less likely to smooth its dividends. Further analysis shows that family firms, like other firms, are also reluctant to cut their dividends but comparatively they are twice as likely to increase dividends significantly in response to positive earnings shock. We also find that family firms are also less likely to smooth total payout, with some evidence suggesting that family firms on average fully adjust its payout to the earnings changes.

The main limitation of our study is the sample. We limit our sample to S&P 500 with an investigation period of 11 years. Compared to the other dividend smoothing studies that draw their samples from the entire stock exchanges combined with a longer investigation period, our sample is relatively small. Consequently, our results may not be applicable to the other listed companies outside the S&P 500. Nevertheless, our sample is comparable to the other published family business studies based on U.S. data.

Table 1
Number of Family and Non-Family Firms in the S&P 500 from 1997 to 2007

Year	Number of Family Firms	Number of Non-Family Firms	Total Number of Firms	Percentage of Family Firms
1997	147	252	399	36.8
1998	149	257	406	36.7
1999	149	258	407	36.6
2000	148	258	406	36.5
2001	148	258	406	36.5
2002	148	259	407	36.4
2003	147	259	406	36.2
2004	146	257	403	36.2
2005	140	251	391	35.8
2006	134	245	379	35.4
2007	99	206	305	32.5

Family firms are identified based on the November 10, 2003 issue of BusinessWeek. A company is classified as family firm if the founders or descendants hold positions in top management, on the board, or among the company's largest stockholders. Financial firms (SIC 6000-6999) are excluded from the sample.

Table 2
Descriptive Statistics

Variables	Mean	Median	Standard Deviation	25th Percentile	75th Percentile
TA	16 784	6 736	41 724	2 780	17 116
Sales	12 887	5 750	25 538	2 320	13 037
DPSA	0.929	0.622	1.197	0.000	1.479
DivRatio	0.017	0.012	0.027	0.000	0.024
EPSA	4.921	3.68	6.721	1.561	6.79
MTB	4.614	3.031	16.713	1.879	5.084
Lever	0.246	0.240	0.163	0.131	0.348
TanA	0.317	0.259	0.217	0.142	0.479
ROA	0.112	0.104	0.105	0.063	0.156

All data are based on the Compustat database. TA is book value of assets (Data6). Sales is total sales revenue (Data12). DPSA is dividends per share adjusted for share split, dividends per share is calculated as Common dividends (Data 21) divided by Total shares outstanding (Data 25), the cumulative adjustment factor is used to adjust for share split (Data 27). DivRatio is dividend payout ratio, which is calculated as Common dividends (Data 21) divided by Total Assets (Data 6). EPSA is earnings per share (Data 58) adjusted for share split (Data 27). MTB is market to book ratio, which is calculated as Market Equity (Data 199*Data25) divided by Book Equity (Data 216). Lever is leverage, which is calculated as Short term debt plus long term debt divided by book value of assets (Data 34 + Data 142)/Data 6. TanA is tangibility of assets, which is calculated as property, plant and equipment divided by book value of assets (Data8/Data6). ROA is return on assets, which is calculated as EBIT divided by book value of assets.

Table 3
Difference between Family and Non-Family Firms

Variables	Family Firm			Non-Family Firm			Diff. in Mean
	N	Mean	Median	N	Mean	Median	
TA	1 555	11 913	4 604	2 752	19 537	8 709	-7 624***
Sales	1 555	11 117	4 331	2 751	13 887	6 661	-2 770***
DPSA	1 551	0.6076	0.3025	2 747	1.1042	0.8793	-0.4966***
DivRatio	1 553	0.0136	0.0055	2 718	0.0194	0.0136	-0.0058***
EPSA	1 553	6.696	4.85	2 719	3.907	3.03	2.789***
MTB	1 555	5.384	3.681	2 743	4.178	2.737	1.207***
Lever	1 555	0.2072	0.1898	2 752	0.2687	0.2627	-0.0615***
TanA	1 555	0.2726	0.216	2 752	0.3425	0.2827	-0.0699***
ROA	1 555	0.116	0.1167	2 744	0.1102	0.0983	0.0058

The differences in means and median of firm characteristics between family and non-family firms are reported. All variables are defined in Table 2. The test of differences in means is based on the two sample t-test. ***, ** and * denote significance at the 1, 5 and 10 per cent levels, respectively.

Table 4
Lintner Model Regression Estimates (Dividend Smoothing)

	No.of Obs.	Constant	DPSP	EPSA	DPSP*Fam	Adj. R-square
Total Sample	4 255	0.10546	0.90754	0.004522		65.5
		(6.77)***	(89.85)***	(3.00)***		
	3 076	0.19208	0.84527	0.015667		55.8
		(8.08)***	(61.53)***	(5.76)***		
SIC & Year indicators	4 255	0.8124	0.88978	0.004309		66.0
		(5.56)***	(84.32)***	(2.82)***		
	3 076	0.8843	0.8218	0.015088		56.4
		(5.19)***	(56.95)***	(5.29)***		
DPSP*Fam interaction	4 255	0.07559	0.95996	0.004567	-0.18289	66.1
		(3.98)***	(76.52)***	(2.99)***	(-8.36)***	
	3 076	0.12615	0.91726	0.015982	-0.22946	56.9
		(4.33)***	(52.83)***	(5.85)***	(-7.94)***	
DPSP*Fam interaction with SIC & Year indicators	4 255	0.7225	0.94649	0.003847	-0.18149	66.5
		(4.98)***	(72.32)***	(2.48)**	(-8.24)***	
	3 076	0.76	0.89871	0.014405	-0.22473	57.4
		(4.49)***	(49.52)***	(5.04)***	(-7.74)***	
DPSP*Fam interaction with SIC & Year indicators, and control variables	4 254	0.1678	0.9131	0.0059	-0.17848	66.9
		(0.96)	(65.06)***	(3.63)***	(-8.12)***	
	3 076	0.1639	0.86957	0.017947	-0.22189	57.9
		(0.74)	(45.26)***	(6.11)***	(-7.60)***	

The dividend per share adjusted for share split at time t (DPSA) is regressed against the lagged dividend (DPSP) and earnings per share adjusted for share split (EPSA). SIC and Year are industry and year dummies respectively. DPSP*Fam is an interaction variable constructed as the Family firm indicator variable (Family Firm = 1, Non-Family Firm = 0) times the lagged dividend. The control variables include the log of sales, market to book ratio, leverage and tangibility of assets. For each regression, the first is over all observations including zero dividend observations and the second is over positive dividends observation only. In each case, the first row is the coefficient on the independent variable and the second is the t-statistic. ***, ** and * denote significance at the 1, 5 and 10 per cent levels, respectively.

Table 5
Smoothing Asymmetry

Dependent variables	Significant Earnings Increase		Significant Earnings Decrease	
	DPSAi25	DPSAi10	DPSAd25	DPSAd10
	1	2	3	4
Constant	-3.66116 (-4.24)***	-1.8484 (-3.38)***	0.34788 -0.24	0.7984 -0.74
FamNon	0.650259 (3.27)***	0.45885 (3.54)***	0.02784 -0.08	0.4025 -1.56
Lsales	0.07395 0.39	0.08782 -0.72	-0.77448 (-2.20)**	-0.7006 (-2.66)***
MTB	-0.002123 (-0.50)	-0.001353 (-0.48)	-0.00831 (-0.43)	-0.02471 (-2.23)**
Lever	-0.46299 (-0.64)	-2.0332 (-4.21)***	1.69538 -1.48	2.0937 (2.48)**
TanA	1.1457 (2.64)***	1.0957 (3.85)***	-0.24104 (-0.33)	-0.4589 (-0.82)
ROA	3.4165 (3.28)***	3.7322 (4.76)***	-9.10135 (-3.91)***	-10.497 (-5.33)***
No. of obs	1 472	1 472	752	752
Log-Likelihood Ratio	-412.069	-823.511	-156.738	-244.431
Chi-squared	26.686***	79.092***	21.69***	49.948***

The full sample is split into two sub-samples, with one that includes firms that experience significant earnings increase and the other includes firms that experience significant earnings decrease. Significant Earnings Increase and Decrease are defined as at least 25% of increase or decrease in earnings per share adjusted for share split compared to the prior year. For each sub-sample, logistic regression is used to regress Significant Dividend Changes against the Family firm indicator variable (Family Firm = 1, Non-Family Firm = 0) and the control variables. DPSAi25 is at least 25% of increase in the dividends per share adjusted for share split. DPSAi10 is at least 10% of increase in the dividends per share adjusted for share split. DPSAd25 is at least 25% of decrease in the dividends per share adjusted for share split. DPSAd10 is at least 10% of decrease in the dividends per share adjusted for share split. Lsales is log of sales, MTB is market to book ratio, Lever is leverage, TanA is tangibility of assets and ROA is return on assets. For each regression the first row is the coefficient on the independent variable and the second is the asymptotic Z-statistic. ***, ** and * denote significance at the 1, 5 and 10 per cent levels, respectively.

Table 6
Lintner Model Regression Estimates (Total Payout Smoothing)

	No.of Obs.	Constant	TPOP	EPSA	TPOP*Fam	Adj. R-square
Total Sample	4 249	1.46845 (17.7)***	0.1934 (12.42)***	0.049574 (5.25)***		4.2
	3 074	1.7209 (16.79)***	0.1957 (10.63)***	0.09365 (6.45)***		5.1
SIC & Year indicators	4 249	2.9345 (3.24)***	0.17367 (11.12)***	0.041903 (4.38)***		6.3
	3 074	2.8805 (3.22)***	0.16749 (9.05)***	0.07798 (5.18)***		7.5
TPOP*Fam interaction	4 249	1.42787 (14.38)***	0.28619 (11.93)***	0.055952 (5.83)***	-0.16581 (-5.28)***	5.1
	3 074	0.7296 (5.50)***	0.6898 (17.18)***	0.06445 (4.45)***	-0.61817 (-13.78)***	10.6
TPOP*Fam interaction with SIC & Year indicators	4 249	2.6703 (2.96)***	0.26149 (10.89)***	0.047352 (4.98)***	-0.15614 (-5.01)***	7.1
	3 074	1.8915 (2.16)**	0.64362 (15.80)***	0.04981 (3.33)***	-0.58923 (-13.08)***	12.5
TPOP*Fam interaction with SIC & Year indicators, and control variables	4 248	-3.998 (-3.72)***	0.21479 (9.01)***	0.06941 (6.90)***	-0.15495 (-5.06)***	10.8
	3 074	-3.426 (-3.00)***	0.56083 (13.56)***	0.07769 (5.11)***	-0.54076 (-12.00)***	15.6

The total payout per share (Common dividends plus Dollar value of net share repurchases divided by total shares outstanding) adjusted for share split at time t (TPOA) is regressed against the lagged total payout (TPOP) and earnings per share adjusted for share split (EPSA). The dollar value of net share repurchases is calculated as stock purchases (Data115) minus stock issuances (Data108). SIC and Year are industry and year dummies respectively. TPOP*Fam is an interaction variable constructed as the Family firm indicator variable (Family Firm = 1, Non-Family Firm = 0) times the lagged total payout. The control variables include the log of sales, market to book ratio, leverage and tangibility of assets. For each regression, the first is over all observations including zero dividend observations and the second is over positive dividends observation only. In each case, the first row is the coefficient on the independent variable and the second is the t-statistic. ***, ** and * denote significance at the 1, 5 and 10 per cent levels, respectively.

6. Reference

Aivazian, V.A., Booth, L. and Cleary, S. 2006, 'Dividend smoothing and debt ratings', *Journal of Financial & Quantitative Analysis,* vol. 41, no. 2, pp. 439-453.

Ali, A., Chen, T.-Y. and Radhakrishnan, S. 2007, 'Corporate disclosures by family firms', *Journal of Accounting and Economics,* vol. 44, no. 1-2, pp. 238-286.

Anderson, R.C. and Reeb, D.M. 2003a, 'Founding-family ownership and firm performance: Evidence from the S&P 500', *The Journal of Finance,* vol. 58, no. 3, pp. 1301-1327.

Anderson, R.C. and Reeb, D.M. 2003b, 'Founding-family ownership, corporate diversification, and firm leverage', *Journal of Law and Economics,* vol. 46, no. 2, pp. 653-684.

Anderson, R.C., Mansi, S.A. and Reeb, D.M. 2003, 'Founding family ownership and the agency cost of debt', *Journal of Financial Economics,* vol. 68, no. 2, pp. 263-285.

Andres, C. 2008, 'Large shareholders and firm performance - An empirical examination of founding-family ownership', *Journal of Corporate Finance,* vol. 14, no. 4, pp. 431-445.

Barontini, R. and Caprio, L. 2006, 'The effect of family control on firm value and performance: Evidence from continental Europe', *European Financial Management,* vol. 12, no. 5, pp. 689-723.

Bhattacharya, S. 1979, 'Imperfect information, dividend policy, and "The bird in the hand" fallacy', *The Bell Journal of Economics,* vol. 10, no. 1, pp. 259-270.

Booth, L. and Xu, Z. 2007 'Who smoothes dividends?' SSRN,

Brav, A., Graham, J.R., Harvey, C.R. and Michaely, R. 2005, 'Payout policy in the 21st century', *Journal of Financial Economics,* vol. 77, no. 3, pp. 483-527.

Chemmanur, T.J., He, J., Hu, G. and Liu, H.Y. 2007 'Is dividend smoothing universal? New insights from a comparative study of dividend policies in Hong Kong and the US'. SSRN,

Dewenter, K.L. and Warther, V.A. 1998, 'Dividends, asymmetric information, and agency conflicts: Evidence from a comparison of the dividend policies of Japanese and U.S. firms', *The Journal of Finance,* vol. 53, no. 3, pp. 879-904.

Easterbrook, F.H. 1984, 'Two agency-cost explanations of dividends', *American Economic Review,* vol. 74, no. 4, p. 650.

Ehrhardt, O., Nowak, E. and Weber, F.-M. 2006 "Running in the family' The evolution of ownership, control, and performance in German family-owned firms 1903-2003'. Swiss Finance Institute

Fama, E.F. and Babiak, H. 1968, 'Dividend policy: An empirical analysis', *Journal of the American Statistical Association,* vol. 63, no. 324, pp. 1132-1161.

Favero, C.A., Giglio, S.W., Honorati, M. and Panunzi, F. 2006 'The performance of Italian family firms'. European Corporate Governance Institute,

Grullon, G. and Michaely, R. 2002, 'Dividends, share repurchases, and the substitution hypothesis', *The Journal of Finance,* vol. 57, no. 4, pp. 1649-1684.

Hu, Y., Wang, D.D. and Zhang, S. 2007 'Founding family ownership, management and payout policy'. SSRN,

Jensen, M.C. 1986, 'Agency costs of free cash flow, corporate finance, and takeovers', *American Economic Review,* vol. 76, no. 2, p. 323.

Leary, M.T. and Michaely, R. 2008 'Why firms smooth dividends: Empirical evidence'. SSRN,

Lintner, J. 1956, 'Distribution of incomes of corporations among dividends, retained earnings, and taxes', *The American Economic Review*, vol. 46, no. 2, pp. 97-113.

Martinez, J.I., Stohr, B.S. and Quiroga, B.F. 2007, 'Family Ownership and Firm Performance: Evidence From Public Companies in Chile', *Family Business Review*, vol. 20, no. 2, June 1, 2007, pp. 83-94.

Miller, M.H. and Rock, K. 1985, 'Dividend policy under asymmetric information', *Journal of Finance*, vol. 40, no. 4, pp. 1031-1051.

Prencipe, A., Markarian, G. and Pozza, L. 2008, 'Earnings Management in Family Firms: Evidence From R&D Cost Capitalization in Italy', *Family Business Review*, vol. 21, no. 1, March 1, 2008, pp. 71-88.

Roberts, M.R. and Michaely, R. 2007 'Corporate dividend policies: Lessons from private firms'. SSRN,

Schmid, T., Ampenberger, M., Kaserer, C. and Achleitner, A.-K. 2010, 'Controlling Shareholders and Payout Policy: Do Founding Families Have a Special 'Taste for Dividends'?' *SSRN eLibrary*.

Setia-Atmaja, L., Tanewski, G.A. and Skully, M. 2009, 'The Role of Dividends, Debt and Board Structure in the Governance of Family Controlled Firms', *Journal of Business Finance & Accounting*, vol. 36, no. 7/8, pp. 863-898.

Skinner, D.J. 2008, 'The evolving relation between earnings, dividends, and stock repurchases', *Journal of Financial Economics*, vol. 87, no. 3, pp. 582-609.

Sraer, D. and Thesmar, D. 2006 'Performance and behaviour of family firms: Evidence from the French stock market'. European Corporate Governance Institute,

Villalonga, B. and Amit, R. 2006, 'How do family ownership, control and management affect firm value?' *Journal of Financial Economics*, vol. 80, no. 2, pp. 385-417.

Wang, D. 2006, 'Founding family ownership and earnings quality', *Journal of Accounting Research*, vol. 44, no. 3, pp. 619-656.