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Sacrificing corporate investment for stock repurchases: Are family firms different?

Shane A. VanDalsem, PhD

Abstract

Recent changes to the US tax code have increased stock repurchases by US firms. Critics state and existing research provides evidence that firms forego valuable investment to repurchase stock for short-term stock price increases, benefiting managers whose compensation is closely tied to the firm's stock price. Firms for which the founding family is involved have been shown to have longer horizons regarding investment decisions. This study examines the repurchase and investing behavior of 831 firms for the period 2006 through 2015. The results provide evidence that firms decrease investment in employment and research & development concurrently with stock repurchases. Family firms, however, are less likely to repurchase shares during the period and, when they do, have a lower propensity to decrease investment in capital expenditures, employment, and research & development compared to firms that do not have a founding family presence.

Keywords

family firms; repurchases; corporate investment; corporate governance

JEL Codes

G32; G35; M12

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1. Introduction

The use of stock repurchases to pay out cash to stockholders has grown dramatically over the past few decades. Along with this growth criticism has emerged that repurchases are used to inflate the value of stocks and executive compensation tied to stock prices. Additionally, to fund repurchases, firms choose to reduce corporate investments (Lazonick, 2014). This criticism has intensified recently due to the increase in expected repurchases resulting from the Tax Cut and Jobs Act of 2017. In June of 2018, UBS stated that it expected repurchases by US companies to range between \$700 and \$800 billion for the year. May of 2018 ended with a record setting \$171.8 billion in repurchase announcement by US firms (Cox, 2018). Recent empirical research supports the criticism that repurchases decrease corporate spending on capital projects and employing workers (Almeida, Fos & Kronlund, 2016).

Family firms (FFs) are firms for which a founder or descendant has the role of CEO or chairperson or for which a founding family has a significant equity stake. Family firms make up a large portion of publicly-traded firms. *The Economist*, in a November 2014 article, states that 19% of the Fortune Global 500 firms are controlled, at least in part, by members of the firm's founding family. For the US firms on the list, 15% have founding families that manage or exert significant influence over the firm ("Business in the Blood", 2014). Existing literature provides evidence that FFs have longer investment horizons (Stein 1988 and Stein 1989) and make riskier, larger (Fahlenbrach, 2009) and more efficient investment decisions (Adhikari & Sutton, 2016; Tsao, Lin, & Chen, 2015; Choi, Zahra, Yoshikawa, & Han; 2015; and Lee 2004) than do non-family firms (NFFs).

Two philosophies dominate the discussion concerning the effects that founding families have on firm performance and results for investors who are not members of the founding family. One is that founding families make corporate decisions that benefit the members of the family, often at the expense of other investors. The second is that founding families see the firm as a multigenerational asset and make corporate decisions that benefit non-family investors as the founding family does not fall prey to short-term gains at the expense of long-term value maximization.

Using investment decisions surrounding stock repurchases for a balanced panel of 831 firms for the years 2006 through 2015, this paper investigates whether family firm status affects the likelihood of a repurchase during that period and whether family firm status affects the investment decisions surrounding stock repurchases. I use two-way fixed effects models to determine if investment in capital expenditures, employment, and research & development (R&D) expenses change as a result of a firm repurchasing its shares. Heckman (1979) models are used to estimate the impact of family firm status on the likelihood of a repurchase in the first stage probit model and the specific impact of family firm status on investment decisions in the second stage OLS models.

The results of this study provide evidence of the following: changes in employment and investment in research & development are negatively related to the act repurchasing shares; FFs are less likely than NFFs to repurchase shares; changes in employment and investment in CAPEX are positively related the firm being an FF; and a firm being an FF reduces or eliminates the decrease in investment in employment and R&D when the size of the repurchase is considered.

The results are consistent with prior literature that shows that repurchases result in decreases in investment. This paper adds to the existing literature by providing evidence that FFs are less

likely to repurchase shares and when they do repurchase shares, FFs have a decreased propensity to cut investment in employment, capital expenditures, and R&D.

The rest of the paper is organized as follows: Section 2 provides the literature review and hypotheses development; Section 3 describes the methodology and sample selection; the results are provided and discussed in Section 4; and Section 5 concludes.

2. Literature review and hypotheses

2.1 Family firms and firm performance

Extant literature generally documents a positive relation between a firm being an FF and firm performance (Fahlenbrach, 2009; Anderson & Reeb, 2003; and James, 1999). However, some research finds that as families gain control over the firm, performance and value declines. Anderson & Reeb (2003) find an inflection point at approximately 31% ownership where ROA and Tobin's Q begin to decline. They also find that for the period 1992 through 1999, in cases where the founding family does not have a majority ownership, their control of board seats is 2.75 times greater than their ownership level would dictate, which implies that the 31% reflects, on average, effective control of the board. Accordingly, using a sample of 1,672 non-financial Western European firms, Maury (2006) finds that the value benefits of active family control are only significant if the family does not own a majority of the firm's equity. These findings suggest the benefits of higher profitability that occur with greater family ownership do not always accrue for the non-family minority owners. Alternatively, Sitthipongpanich (2017) finds that family ownership of forty percent of shares and above is positively associated with superior accounting performance for Thai firms.

Superior performance for FFs is associated with superior monitoring and reduced agency problems (Demsetz and Lehn, 1985); longer investment horizons (Stein, 1988 and 1989); and riskier, larger (Fahlenbrach, 2009) and more efficient investments (Adhikari and Sutton, 2016; Tsao, Lin, & Chen, 2015; Choi et al.; 2015; and Lee 2004).

Adhikari & Sutton (2016) examine buy-and-hold returns following 213 corporate acquisitions by S&P 500 firms for the years 1993 through 2006. They find that FFs achieve significantly higher long-term returns following acquisitions than NFFs. They also find evidence that diversifying acquisitions by FFs are motivated by reducing the cost of capital for the firm.

Tsao et al. (2015) study 375 Taiwanese firms in R&D intensive industries for the years 1996 through 2009. They find CEO compensation is positively related and more sensitive to R&D expense in FFs than in NFFs; that FFs generate more patents per dollar of R&D spending than NFFs; and that the relationship between R&D expense and Tobin's Q is greater for FFs than for NFFs. The authors indicate that the results are due in part to information advantages and longer investment horizons that FFs have relative to NFFs.

Choi et al. (2015) study the relationship between family ownership and R&D expenditures for 298 Korean firms for the years 1998 through 2007. Overall, they find a negative relationship between R&D expense and family ownership. However, the relationship becomes positive when the firm is operating in a high-growth environment. The authors attribute the change in the relationship to the fear of family owners that they will lose control of the firm if they do not take advantage of growth opportunities when they arise. The results of their study can be interpreted to support the idea of efficient investment by FFs as they demonstrate that FFs decrease investment

in environments with low growth opportunities and increase investment in environments that provide higher returns to that investment.

The comparison of 63 of the largest FFs in the US to their industries by Lee (2004) using their 2002 financial results indicated that FFs make better investment decisions regarding their assets. Specifically, Lee finds that FFs have higher returns on assets, returns on invested capital, and asset turnovers than their industry averages.

Many of the benefits of FFs can be traced to the perception by founding family members that the firm is an asset to pass on to their descendants rather than a source of income to be consumed during the family member's lifetime (Casson, 1999; Chami, 1999). Retention of this asset, though, requires that the family retain ownership, which may result in suboptimal managerial selection and cash distribution policies when the family exercises control over the firm. Examining a sample of firms for the period 1994 through 2000, Villalonga and Amit (2006) find lower performance in firms for which the descendants of family founders are appointed CEO when compared to non-founding family firms. Their findings may be due to the founding family members controlling both the operations (as CEO) and long-term strategic decision making. The founding family member may not have the necessary skills, albeit the necessary name, to manage the firm.

Moreover, Chen et al. (2005) examine firm valuation and dividend payout policies for FFs in Hong Kong for the period 1995 through 1998 and find a positive relationship between controlling family ownership and dividend payouts for small firms. They provide two opposing explanations based on Faccio, Lang & Young, (2001) and La Porta, Lopez-de-Silanes, Schleifer, & Vishny (2000), respectively, for these findings. The first expectation is that controlling families may use dividends to extract resources from the firms. The second explanation is that minority shareholders anticipating possible wealth expropriation may demand higher payments from the smallest firms, which have a higher risk of expropriation. They find no significant relation between dividend policy and firm value for small firms, which allows for both explanations. Consistent with the rent expropriation argument, Chang & Hertzler (2004) find that targeted stock repurchases from founders result in a positive abnormal return surrounding the date of the repurchase announcement. However, these repurchases may not be representative of the typical founder-firm relationship.

Isakov & Weisskopf (2015) examine the influence of founding families on payout policies for Swiss-listed firms for the period 2003 through 2010. They find that FFs have higher dividend payout ratios than non-founding family firms. Swiss tax policy results in large tax liabilities for investors from share repurchase programs that are used to reduce equity capital (Chung, Isakov, & Perignon, 2007). Consequently, Isakov & Weisskopf find that stock repurchases are not a reasonable alternative to dividends with only an average of ten percent of firms annually repurchasing shares in Switzerland. They categorize founding family involvement based on ownership and find that dividend payout is positively related to percent of stock owned and that founding family ownership results in significantly higher dividend payouts relative to payouts of firms with no founding family ownership.

Schmid, Ampenberger, Kaserer, & Achleitner (2012) examine the cash distribution policies of FFs in Germany for the years 1995 through 2006. They specifically examine the role of founding family management and generation on dividend payouts and stock repurchases. They find that dividend payouts are positively related to founding family ownership, but not management, and dividend payouts increase in later generations. They also find that stock repurchases are unrelated to founding family involvement with the firm. Their results provide support for the idea that founding families have *a taste for dividends* as dividends provide a source of continued income that allows the family to pass down the firm as an asset to succeeding generations. Based on their

findings, the authors also reject the notion that higher dividend payouts are the result of reassuring minority shareholders that the firm is well run.

Studies of dividend payouts of FFs in other countries are consistent in finding that FFs treat the firm as a source of multigenerational continuing income. Setia-Atmaja, Tanewski, & Skully (2009) find that FFs have higher payout ratios than NFFs in Australia for the years 2000 through 2005 and that payout ratios increase with family ownership. Yoshikawa & Rasheed (2010) examine Japanese firms for the years 1998 through 2002 and find a higher propensity to pay dividends for FFs. Pindado, Requejo, & de la Torre (2012) study a sample of firms from European Union countries for the years 1996 through 2006 and find that FFs have higher dividend payout ratios and that they also smooth dividends more than NFFs do.

The lack of research on stock repurchase activity outside of the United States is unsurprising. In their study of global stock repurchase programs, Manconi, Peyer, & Vermaelen (2015) remark on the lack of research on stock repurchases outside of the United States. Kim, Schremper, & Varaiya (2005) note that one of two approaches for stock repurchases are typically followed. The first approach gives the firm management flexibility in determine when shares should be repurchased and only requires that the board approve the announcement of a stock repurchase. This approach is currently followed by the United States, Australia, Canada, India, New Zealand, Taiwan, and Thailand. The approach followed by the rest of the world requires approval by stockholders directly. The second approach provides a significant hurdle for stock repurchases and, accordingly, results in a greatly reduced propensity to repurchase stock.

2.2 Trends in US share repurchases

The propensity to pay dividends fell dramatically throughout the 1990s. Fama & French (2001) find that out of all US industrial firms, 32 percent paid a dividend in 1984 compared to 16 percent in 1999. Dittmar and Dittmar (2008) find that the fraction of earnings paid out as dividends fell from 55.6% in 1991 to 26.3% in 1999. Meanwhile, the propensity to distribute cash through stock repurchases increased and the dollar amount of repurchases overtook the dollar amount of dividends paid in 1997 through 2000 (Dittmar and Dittmar, 2008). The popularity of repurchase programs came from their flexibility and tax advantages relative to dividends (Brav, Graham, Harvey, & Michaely, 2005).

The downturn in the economy at the beginning of the millennium increased the desire of firms to signal stability. This desire combined with the Jobs and Growth Tax Relief Reconciliation Act, which lowered the tax rates on dividends, led dividends to dominate repurchases at the beginning of the 21st century (Blouin, Raedy, & Shackelford, 2004). Floyd, Li, & Skinner (2015) examine dividend payments and stock repurchases for the period 1980 through 2012. They find that the percent of industrial firms available in COMPUSTAT that paid dividends between 1980 and 2002 declined from 57.2% to 15.2%. The following years resulted in a resurgence in the proportion of firms paying dividends to 28.1% in 2012, likely due to the decrease in dividend tax rates in 2003. Over the same 32-year period, the percentage of industrial firms that repurchased shares increased from 0% to 28.8%. The aggregate payout in dividends (in real 2012 dollars) grew from \$115.9 billion in 1980 to \$276.2 billion in 2012. The aggregate dollar amount of shares repurchased rose from \$0 to \$282.3 billion for the same timer period.

The flexibility of repurchases versus that of dividends can be seen during economic downturns. Floyd et al.'s (2015) results show that payouts through repurchases are more volatile than those through dividends. In 2001, the dollar amount of repurchases fell by 35% from the previous year

compared to dividends, which fell by 6.5%. A similar situation occurred during the most recent financial crisis; the percent of dollars used to repurchase shares fell by 58.3% in 2008 from the previous year compared to 4.5% for dividends.

Additional literature on the trends of stock repurchases report trends consistent with Floyd et al. (2015) surrounding the financial crisis, yet the authors of these studies interpret the success of those repurchases at increasing shareholder wealth differently. Lazonick (2014) theorizes that the increased reliance on stock-based managerial compensation has resulted in increasing share repurchases to manipulate stock prices. He states that the increase in repurchases come at the cost of investments in innovation concurrent with the repurchases and in the future due to an increase in the use of debt to finance the repurchases. He points to the increase in repurchase activity during bull markets and a decrease in repurchases during bear markets as evidence that, in the aggregate, firms are not successful in purchasing shares when they are undervalued and reselling them when prices correct.

Conversely, Dittmar & Field (2015) examine repurchases of US firms for the years 2004 through 2011 and differentiate between frequent and infrequent repurchasers. They define infrequent repurchasers as those firms that repurchase shares only one to four times in a year. Dittmar & Field find that those firms were able to time the market and achieve significant abnormal short-term returns. They also find that infrequent repurchasers achieved a statistically significant average alpha from the Fama-French model of 0.5% per month following repurchase months for a three-year period for infrequent repurchasers compared to a 0.2% alpha for frequent repurchasers.

Almeida, Fos, & Krunlund (2016) investigate the possible use of repurchases to reduce or eliminate negative EPS surprises. Almeida et al. study stock repurchases for the years 1988 through 2010 and find that the likelihood of a stock repurchase is positively related to the likelihood of a negative earnings announcement. They analyze the effect of repurchases in general and on repurchases that appear to occur to avoid a negative EPS surprise. They find consistently that stock repurchases result in lower investments into employment and capital expenditures and provide some evidence that repurchases result in lower investments into R&D. While the argument could be made that the repurchases mitigated overinvestment, stock returns surrounding the EPS announcements were lower for those that cut investment, especially if the reduction was in R&D spending.

2.3 Hypotheses

When a firm generates cash in excess of its expected cash needs, the firm can pay out the excess cash as dividends, pay it out using stock repurchases, invest the funds internally, or use the funds for external investment through mergers and acquisitions. Existing literature demonstrates that FFs generally seek to maximize long-term performance through efficient investing and use dividends as the primary source of cash distribution to maintain familial ownership and income.

H1: FFs should be less likely to repurchase shares than NFFs.

Almeida et al. (2016) indicate that firms sacrifice investment to avoid negative earnings surprises by repurchasing shares. Lazonick (2014) states that management engages in stock repurchases to maximize the value of stock-based incentive compensation and generate increased income for executives. The controlling families of FFs generate income through dividends, rather

than through the exercise of stock options or sale of stock. Stock repurchases for FFs may occur due to the combination of excess liquidity and a lack of investment opportunities or the desire to concentrate ownership. The demonstrated long-term focus of FFs indicates that they should not forego valuable investments in order to repurchase shares.

H2: The reduction in investments surrounding stock repurchases should be less for FFs than for NFFs.

3. Methodology and sample selection

3.1 Methodology

A firm is designated as a family firm if a founding family member is either the CEO or board chairperson or if founding family members control 20% or more of stockholder votes, consistent with prior literature (Isakov & Weisskopf, 2015; Sraer & Thesmar, 2007; Villalonga & Amit, 2006).

The information on family firm designation and voting control of the family, insiders, and blockholders comes from the firm's proxy statement (DEF-14A) available from the Securities and Exchange Commission website.

Two-way fixed effects models are used to establish the relationships between the investment measures—EMPLOY, CAPEX, and R&D—and whether the firm repurchased shares during a fiscal quarter. The investment variables are described below

The following two-way fixed effects model is estimated for each of the investment measures:

$$\text{INVEST}_{i,t} = \beta_0 + \beta_1 \text{REPURCHDUM}_{i,t} + \beta_2 \text{CASH}_{i,t} + \beta_3 \text{TOBIN}_{i,t} + \beta_4 \text{SIZE}_{i,t} + \text{FIRM}_i + \text{FQ}_t + \varepsilon_{i,t} \quad (1)$$

The fixed effects are the firm, FIRM, and the fiscal quarter, FQ. Two-way fixed effects are not used to determine the effects of FFs versus those of NFFs repurchasing on the investment variables because the firm fixed effects would eliminate the effect of the FF designation as 78.9% of the firms that are a FF in 2006 retain that designation for the entire sample period. To test the hypotheses presented in the previous section, Heckman (1979) two-stage models are used. The first stage is a probit model that estimates the probability of a repurchase for a firm during a fiscal quarter. This regression identifies the relationship between the probability of a stock repurchase and whether the firm is a family firm.

$$\begin{aligned} \text{REPURCHDUM}_{i,\text{FQ}} = & \gamma_0 + \gamma_1 \text{FF}_{i,\text{FY}} + \gamma_2 \text{INSIDEOWN}_{i,\text{FY}} + \gamma_3 \text{BLOCKOWN}_{i,\text{FY}} + \gamma_4 \text{ROA}_{i,\text{FY}} \\ & + \gamma_5 \text{STDEV_ROA}_{i,\text{FY}} + \gamma_6 \text{SIZE}_{i,\text{FQ}} + \gamma_7 \text{IND_INVEST}_{i,\text{Y}} + \gamma_8 \text{IND_LEV}_{i,\text{Y}} + \text{Year Dummies} + \varepsilon_{i,\text{FQ}} \end{aligned} \quad (2)$$

The second stage is an OLS model that incorporates the inverse Mills ratio to account for omitted variables in the sample selection process. Two equations are estimated for the second stage results.

$$\begin{aligned} \text{INVEST}_{i,t} = & \beta_0 + \beta_1 \text{FF} + \beta_2 \text{CASH}_{i,t} + \beta_3 \text{TOBIN}_{i,t} + \beta_4 \text{SIZE}_{i,t} + \beta_5 \text{IND_INVEST}_{i,\text{Y}} \\ & + \beta_6 \text{IND_LEV}_{i,\text{Y}} + \text{Year Dummies} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

$$\begin{aligned} \text{INVEST}_{i,t} = & \beta_0 + \beta_1 \text{FF} \times \text{REPURCH}_{i,t} + \beta_2 \text{NFF} \times \text{REPURCH}_{i,t} + \beta_3 \text{CASH}_{i,t} + \beta_4 \text{TOBIN}_{i,t} \\ & + \beta_5 \text{SIZE}_{i,t} + \beta_6 \text{IND_INVEST}_{i,y} + \beta_7 \text{IND_LEV}_{i,y} + \text{Year Dummies} + \varepsilon_{i,t} \end{aligned} \quad (4)$$

Equation 3 is estimated to determine the effects of FFs repurchasing stock on the investment variables relative to the effects of NFFs repurchasing stock. Equation 4 is estimated to include the interaction of the size of the repurchase relative to the market value of equity of the firm.

The investment variables are constructed based on Almeida et al. (2016). The investment variables are the change in employment (EMPLOY), capital expenditures (CAPEX), and research and development expense (R&D). These variables are constructed by taking the average values of each for the four quarters following the current fiscal quarter, subtracting the average value of each for the four quarters prior to the current fiscal quarter, and dividing the difference by the assets lagged by four fiscal quarters. The calculated quotients for CAPEX and R&D are multiplied by 100.

REPURCHDUM is a dummy variable equal to 1 if the firm had a net repurchase of stock during the fiscal quarter and 0 otherwise. FF is a dummy variable that is equal to 1 if the firm meets the definition of being a family firm for the fiscal year in which the firm-fiscal quarter observation occurs and 0 otherwise. NFF is a dummy variable that is equal to (1-FF). TOBIN is used as a measure of the investment opportunities for the firm and is calculated as the sum of the book value of liabilities and the average market value of equity divided by the book value of assets for the fiscal quarter. CASH is net income plus depreciation scaled by the value of assets.

The REPURCH variable is constructed as follows. Net repurchases are measured per Fama & French (2001) as the increase in common treasury stock if the value of treasury stock is not zero or missing. If treasury stock is zero or missing during the fiscal year, repurchases are measured as the difference between stock purchases and stock issuances on the statement of cash flows. If either of these amounts is negative, i.e. the firm had net positive stock issuances, the repurchases are set to 0. The dollar amount of net repurchases is divided by the average market capitalization for the firm's fiscal quarter per Capital IQ. REPURCHDUM is equal to 1 if REPURCH > 0 and equal to 0 otherwise.

For control variables for the probit model, the percent of stock held by non-founding family insiders, INSIDEOWN, and 5% blockholders, BLOCKOWN, are used to control for monitoring and significant non-founding family member control of the firm. Ownership of insiders of less than 1% are usually not reported in the proxy statements, so those amounts are coded as having a value of zero. Return on assets, ROA, is measured as net profit before extraordinary items divided by total assets and is included to control for profitability and the ability to distribute cash for the fiscal year. The standard deviation of ROA, STDEV_ROA, for the fiscal years -2 to 0 is included to control for profit predictability. The natural log of firm assets for the fiscal quarter, SIZE, is included to control for firm size. The 2-digit SIC industry median sum of acquisitions, research and development, and capital expenditures less depreciation scaled by total assets for the year, IND_INVEST, is used to measure the expected investment activity within the firm's primary industry. The 2-digit SIC industry median long-term debt to assets for the year, IND_LEV, is used to control for fixed payments that may inhibit cash distribution or limit the availability of capital. The firms used to calculate the industry variables were the firms available in Capital IQ for the fiscal year. The primary SIC industry was used as the industry for the firms.

3.2 Sample selection

The sample consists of all firms from the Capital IQ database that had a market capitalization greater than \$500 million as of 12/31/2006, were traded on major US exchanges, were not primarily in the financial or utility industries, were not real estate investment trusts, had revenues of at least \$1 million for each of the years 2006 through 2015, and had sufficient information to calculate the value of each of the variables for each fiscal quarter for the period 2006 through 2015. This resulted in a sample of 838 firms. Seven firms were eliminated due to being outliers for one or more of the investment variables, resulting in a final sample of 831 firms and 33,240 firm-quarter observations.

4. Results

4.1 Descriptive statistics and bivariate results

Table 1 provides the dollar amount of repurchases, percent of firms repurchasing, and the percent of the average market capitalization repurchased for those firms repurchasing by year for the firms in the sample. As can be seen in the table, all three measures declined significantly in 2009 as a result of the financial crisis. The dollar amount of repurchases and the percent of firms repurchasing has grown since the financial crisis to approximately \$400 billion and 81.35%, respectively, in 2015 for the sample firms. The percent of average market value of equity repurchased peaked in 2011, likely due to lingering low stock prices. The trends presented in the table are consistent with the view that repurchases are popular due to their flexibility.

Table 1

Repurchase activity by year

Year	Repurchases	Percent of firms repurchasing	Percent of average value repurchased
2006	\$284,985	64.98%	3.68%
2007	\$364,849	73.29%	4.17%
2008	\$316,095	78.22%	4.65%
2009	\$135,772	61.01%	2.79%
2010	\$181,919	67.63%	2.70%
2011	\$287,989	75.69%	3.85%
2012	\$277,768	74.85%	3.68%
2013	\$322,965	75.21%	3.00%
2014	\$396,298	78.34%	3.24%
2015	\$399,586	81.35%	3.36%

Table 1 provides the repurchase activity for the sample of 831. A repurchase is reported as occurring during the fiscal year that the firm reports the repurchase occurring. *Repurchases* are reported in millions of USD. *Percent of firms repurchasing* is the percent of the sample firms that reported repurchasing during at least one fiscal quarter during the year. *Percent of average value repurchased* is the average percent of the dollar amount of repurchases divided by the average market capitalization during the fiscal quarter in which the repurchases occurred for those firms that repurchased shares during the year.

Table 2 provides the descriptive statistics for the variables used in the study. Firms repurchased shares in 51% of the firm-quarter observations. Comparing the results provided in Tables 1 and 2 demonstrate that different firms are repurchasing shares from quarter to quarter based on the higher percent of firms repurchasing during each of the years in Table 1. The percent of firm-quarter observations for which firms are designated as family firms is 27.61%. Whether a firm is a family firm is determined on an annual basis. The percent is highest in 2006 at 30.80% of observations

declining to 24.31% in 2015. The decrease is not due to a decrease in family firms over time, but due to firms in the sample switching from family to non-family firms as the founders or their family members step away from the firm over the sample period.

Table 2
Descriptive statistics

Variable	n	Mean	Median	Standard Deviation
REPURCH	33,240	0.64	0.00	2.17
EMPLOY	33,240	0.21	0.05	1.44
CAPEX	33,240	0.12	0.03	1.13
R&D	33,240	0.08	0.00	0.57
FF [†]	33,240	0.28	0.00	0.45
CASH	33,240	2.41	2.45	4.11
TOBIN	33,240	2.00	1.64	1.21
SIZE	33,240	7.89	7.71	1.50
INSIDEOWN	33,240	4.69	2.30	9.32
BLOCKOWN	33,240	24.4	23.1	16.3
ROA	33,240	6.62	6.19	6.50
STDEV_ROA	33,240	1.86	1.13	2.34
IND_INVEST	33,240	0.02	0.02	0.01
IND_LEV	33,240	0.06	0.05	0.05

Table 2 provides the descriptive statistics for each of the variables used for analysis. There are 831 firms in the sample and forty fiscal quarter observations for each firm. [†] indicates that the variable is a dummy variable for which the mean is the proportion of observations for which the value is equal to 1. Variable definitions are provided in Section 3.1.

Table 3 provides the means and a test of their differences for the repurchase variable, the investment variables, and the control variables for the two-way fixed effects models and the second stage of the Heckman model. The average percent of the estimated market value of equity that is repurchased per quarter for those firms repurchasing is 1.26%. The values of the change in capital expenditure investment and R&D investment are lower for repurchasing firms than for those not repurchasing.

The differences in means for the capital expenditures and R&D for repurchase and no repurchase observations are statistically significant at the 5% and 1% levels, respectively. The means of cash flow, Tobin's Q, and size of the firm for repurchasing firms are all greater than those firms that are not repurchasing. These results may be due to the firms' places in their lifecycles. Smaller firms with less cash may have a greater need for internal investment and may have a decreased ability to repurchase shares than larger, older, and more stable firms.

Table 3

Differences in means between repurchase and no repurchase observations

Variable	Repurchase		No repurchase		Difference test
	n	Mean	n	Mean	p-value
REPURCH	16,559	1.26%	16,281	0.00%	0.00
EMPLOY	16,559	20.44	16,281	22.07	0.30
CAPEX	16,559	0.11	16,281	0.14	0.05
R&D	16,559	0.05	16,281	0.10	0.00
CASH	16,559	2.80	16,281	2.00	0.00
TOBIN	16,559	2.09	16,281	1.91	0.00
SIZE	16,559	8.14	16,281	7.63	0.00

Table 3 provides the means for the variables used in the fixed effects and second stage Heckman regressions. *Repurchase* observations are firm-quarter observations for which the firm reported positive net repurchases. *No repurchase* observations are firm-quarter observations for which the firm did not report positive net repurchases. The difference test is a t-test to determine the difference in means for the subsamples. Variable definitions are provided in Section 3.1.

Table 4 provides the means and tests of their differences between founding family and non-founding family observations for the variables used in the first stage probit estimation for the Heckman model. The results for the repurchase dummy and the repurchase variable indicate that founding family firms have a reduced propensity to repurchase shares than non-founding family firms. As indicated in the discussion of Table 3, the reduced propensity of the FFs to repurchase shares may be due to the FFs being smaller than the NFFs. The lower levels of insider ownership and block ownership by FFs is not surprising as the founding family ownership is deducted from the value of these variables' observations.

Table 4

Differences in means between founding family and non-founding family observations

Variable	Founding family		Non-founding family		Difference test
	n	Mean	n	Mean	p-value
REPURCHDUM [†]	9,176	0.45	24,064	0.53	0.00
REPURCH	9,176	0.54%	24,064	0.68%	0.00
INSIDEOWN	9,176	3.02	24,064	5.32	0.00
BLOCKOWN	9,176	17.8	24,064	26.9	0.00
ROA	9,176	6.64	24,064	6.62	0.74
STDEV_ROA	9,176	1.93	24,064	1.84	0.00
SIZE	9,176	7.58	24,064	8.01	0.00
IND_INVEST	9,176	1.69	24,064	1.77	0.00
IND_LEV	9,176	6.36	24,064	6.00	0.00

Table 4 provides the means for the variables used in the selection stage Heckman (1979) regression. *Founding family* observations are observations for fiscal quarters that occur during fiscal years for which the firm is categorized as a family firm based on information from the firm's DEF-14A statement. Family firms are firms for which a founding family member is the CEO or chairperson of the board of directors or for which the founding family controls at least 20% of the voting power for the corporation. The difference test is a t-test to determine the difference in means for the subsamples. Variable definitions are provided in Section 3.1.

Table 5 provides the differences in means and tests of their differences between FF and NFF observations for those firm-quarter observations that include a repurchase. FF observations made up 24.39% of the repurchase observations compared to FFs making up 27.61% of all of the observations. The values of each of the investment variables are greater for the FFs than for the NFFs and the differences of each are significant at the 1% level. The Tobin's Q is higher and the

size is smaller for the FFs than for the NFFs, with the differences in means for both variables significant at the 1% level.

Table 5
Differences in means between founding family and non-founding family variables for repurchase observations

Variable	Founding family		Non-founding family		Difference test
	n	Mean	n	Mean	p-value
REPURCH	4,136	1.21%	12,823	1.28%	0.15
EMPLOY	4,136	36.71	12,823	15.19	0.00
CAPEX	4,136	0.16	12,823	0.10	0.00
RD	4,136	0.09	12,823	0.05	0.00
CASH	4,136	2.87	12,823	2.78	0.09
TOBIN	4,136	2.19	12,823	2.06	0.00
SIZE	4,136	7.75	12,823	8.27	0.00

Table 5 provides the means for the variables used in the fixed effects and second stage Heckman (1979) regressions. *Founding family* observations are observations for fiscal quarters that occur during fiscal years for which the firm is categorized as a family firm based on information from the firm's DEF-14A statement. Family firms are firms for which a founding family member is the CEO or chairperson of the board of directors or for which the founding family controls at least 20% of the voting power for the corporation. The difference test is a t-test to determine the difference in means for the subsamples. Variable definitions are provided in Section 3.1.

4.2 Multivariate results

Table 6 provides the results of the two-way fixed effects estimation of each of the investment variables as the dependent variables and a dummy variable included with the explanatory variables to determine if a repurchase decreases investment for the sample firms. The change in the number of employees and the change in investment in R&D are both negatively related to a repurchase occurring. The coefficient on the REPURCHDUM variable is significant at the 1% level. The coefficient on the REPURCHDUM variable is negative, but statistically insignificant for the change in capital expenditure investment.

Table 6
Two-way fixed effects regressions estimating the determinants of investment variables

	EMPLOY		CAPEX		R&D	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	0.33	0.05	1.65	0.00	0.35	0.00
REPURCHDUM	-0.06	0.00	-0.01	0.72	-0.02	0.00
CASH	0.71	0.00	1.71	0.00	0.14	0.02
TOBIN	0.20	0.00	0.20	0.00	0.08	0.00
SIZE	-0.09	0.00	-0.26	0.00	-0.05	0.00
IND_INVEST	10.25	0.00	8.70	0.00	0.94	0.02
IND_LEV	0.55	0.03	-0.99	0.00	-0.18	0.08
Firm Dummies	Yes		Yes		Yes	
Fiscal Quarter Dummies	Yes		Yes		Yes	
R-square						
Within	.0225		.0393		.0147	
Between	.0266		.0023		.0868	
Overall	.0198		.0080		.0293	

Table 6 provides the results of the two-way fixed effects regressions for each of the investment variables. 33,240 firm-quarter observations for 831 firms over 40 fiscal quarters for each regression. Each of the dependent and independent variables are defined in Section 3.1.

Table 7 provides the results of the Heckman two-step estimation. Panel A provides the results of the selection-step probit estimation. With REPURCHDUM as the dependent variable, the selection step estimation is the same for each of the investment variables used as dependent variables in the second step. Panel A shows that if the observation was for an FF, then the probability that the firm would repurchase shares declined relative to the probability of an NFF. The positive coefficient for ROA and negative coefficient for STDEV_ROA are consistent with existing work as firms are expected to repurchase shares when they have excess earnings and are less likely to repurchase shares if future earnings and cash flows are uncertain.

Panel B provides the results of the estimation of the investment variables on the same control variables that are used for the two-way fixed effects estimations, with the exception of the firm dummy variables. The coefficient for the FF dummy variable shows the marginal effect of an FF on investment when the firm repurchases stock. The coefficients for EMPLOY and CAPEX are both positive and statistically significant. This means that relative to NFFs, FF increase or, at least, do not decrease investment as much during the periods surrounding a stock repurchase. CASH and TOBIN have the expected signs for EMPLOY and CAPEX as firms are expected to invest more if they have higher cash flows and greater investment opportunities. The results for investment in R&D are addressed in the following section.

Panel C provides the results of the second stage regressions that include interaction variables for if the firm was a family firm and the value of the REPURCH variable and for if the firm was not a family firm and the value of the REPURCH variable. For EMPLOY the coefficient for the $NFF \times REPURCH$ is negative and significant at the 1% level. A differences in coefficients test (unreported) shows that the coefficients for the $FF \times REPURCH$ and $NFF \times REPURCH$ are not equal. For the CAPEX equation the NFF variable is negative and significant at the 5% level. The FF variable is negative and statistically insignificant. A differences in coefficients test (unreported) shows that the two variables are not significantly different from each other at the 5% level. For the regression with RD as the dependent variable, the FF interaction coefficient is positive and the NFF coefficient is negative. While neither of the coefficients are statistically different from zero the result of a Wald chi-squared test of differences in the coefficients shows that they are different from each other at the 1% level (test statistic = 4.04).

Table 7

Heckman two-step regressions estimating the determinants of investment variables

Panel A: Selection probit regression with REPURCHDUM as the dependent variable						
Variable	Coefficient		p-value			
Intercept	-1.03		0.00			
FF	-0.18		0.00			
INSIDEOWN	-0.01		0.00			
BLOCKOWN	-0.00		0.65			
ROA	0.04		0.00			
STDEV_ROA	-0.07		0.00			
SIZE	0.11		0.00			
IND_INV	-1.18		0.09			
IND_LEV	-0.01		0.94			
Year Dummies	Yes					

Panel B: OLS estimation of investment variables for observation with REPURCH > 0 with correction						
Variable	EMPLOY		CAPEX		R&D	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	1.27	0.00	0.24	0.02	-0.37	0.00
FF	0.25	0.00	0.07	0.00	0.01	0.43
CASH	0.60	0.11	1.35	0.00	-0.59	0.00
TOBIN	0.08	0.00	0.05	0.00	0.08	0.00
SIZE	-0.08	0.00	-0.01	0.33	0.02	0.00
IND_INV	-0.72	0.46	1.18	0.09	-0.26	0.31
IND_LEV	-0.07	0.76	0.12	0.47	-0.36	0.00
Year dummies	Yes		Yes		Yes	
Lambda	-0.62	0.00	-0.08	0.16	0.25	0.00
Wald chi ²	581.58	0.00	692.07	0.00	1210.8	0.00

Panel C: OLS estimation of investment variables for observation with REPURCH > 0 with correction						
Variable	EMPLOY		CAPEX		R&D	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	1.04	0.00	0.17	0.10	-0.37	0.00
FF×REPURCH	1.07	0.18	-0.85	0.15	0.16	0.42
NFF×REPURCH	-1.42	0.00	-0.58	0.03	-0.03	0.76
CASH	0.92	0.02	1.46	0.00	-0.59	0.00
TOBIN	0.10	0.00	0.05	0.00	0.08	0.00
SIZE	-0.07	0.00	-0.00	0.59	0.02	0.00
IND_INV	-1.28	0.18	1.02	0.14	-0.27	0.29
IND_LEV	0.06	0.78	0.17	0.31	-0.36	0.00
Year dummies	Yes		Yes		Yes	
Lambda	-0.39	0.00	-0.01	0.92	0.25	0.00
Wald chi ²	517.59	0.00	684.38	0.00	1209.39	0.00

Panel A provides the results of the selection stage of the Heckman (1979) model. The dependent variable for the selection stage is REPURCHDUM and a probit model is used for the estimation. The results in Panel A are for the full sample of 33,240 firm-fiscal quarter observations. Panels B and C provide the results for the second state of the Heckman model. The dependent variables are indicated in the tables as the variables EMPLOY, CAPEX, and R&D. The results provided in Panels B and C are for the 16,559 firm-fiscal quarter observations for which firms repurchased shares. Lambda is the value of the inverse Mills' ratio, which corrects the second stage regressions for sample selection bias. Each of the dependent and independent variables are defined in Section 3.1.

4.3 Research and Development

One reason for the lack of results for the R&D regressions could be that many firms do not invest in research & development due to the nature of their business. To examine the firms that do, I created a subsample firms that reported R&D expenses some time during the ten-year period of the study. The resulting sample has 311 firms and 12,440 firm-quarter observations. The results of the two-way fixed effects model using RD as the dependent variable resulted in a coefficient of -0.05 for REPURCHDUM that was statistically significant at the 1% level and an increase to the R-square to 0.0487 (within = .0272 and between = .1447).

Table 8 provides the result of the Heckman models for the 12,440 firm-quarter observations for the 311 firms that reported research & development expense for at least one quarter during the ten-year sample period. The selection regression is consistent with the results presented with the results presented in Table 7 Panel A with regard to FF and the rest of the explanatory variables with the exception of block ownership and industry leverage. The results presented in Panel B indicate that family firms have a lower propensity to decrease research & development investment surrounding a repurchase and, while the coefficients for the interaction variables are not statistically different from zero at the 5% level, a Wald chi-squared test of the differences in coefficients results in a difference between the coefficients of the interactions at a 1% level (test statistic = 3.37).

Table 8.

Heckman two-step regression estimating the determinants of R&D

Panel A: Selection probit regression with REPURCHDUM as the dependent variable				
Variable	Coefficient		p-value	
Intercept	-0.87		0.00	
FF	-0.26		0.00	
INSIDEOWN	-0.00		0.03	
BLOCKOWN	0.00		0.08	
ROA	0.03		0.00	
STDEV_ROA	-0.08		0.00	
SIZE	0.12		0.00	
IND_INV	-11.0		0.00	
IND_LEV	1.47		0.00	
Year Dummies	Yes			

Panel B: OLS estimation of R&D for observations with REPURCH > 0 with correction				
Variable	R&D		R&D	
	Coefficient	p-value	Coefficient	p-value
Intercept	-0.33	0.00	-0.51	0.00
FF	0.12	0.00		
FF×REPURCH			0.47	0.28
NFF×REPURCH			-0.29	0.12
CASH	-1.05	0.00	-0.91	0.00
TOBIN	0.14	0.00	0.15	0.00
SIZE	0.02	0.00	0.03	0.00
IND_INV	-2.33	0.04	-3.44	0.00
IND_LEV	-0.48	0.03	-0.41	0.07
Year dummies	Yes		Yes	
Lambda	0.25	0.00	0.40	0.00
Wald chi ²	943.00	0.00	879.15	0.00

Panel A provides the results of the selection stage of the Heckman (1979) model. The dependent variable for the selection stage is REPURCHDUM and a probit model is used for the estimation. The results in Panel A are for the 12,440 firm-fiscal quarter observations for the 311 firms that reported R&D expense for at least one quarter during the study period. Panel B provides the results for the second state of the Heckman model. The dependent variable is R&D for both estimations. The results provided in Panel B are for the 6,293 firm-fiscal quarter observations for which firms repurchased shares. Lambda is the value of the inverse Mills' ratio, which corrects the second stage regressions for sample selection bias. Each of the dependent and independent variables are defined in Section 3.1.

5. Conclusion

Two philosophies dominate the discussion of the role of founding families in publicly-traded firms. One states that founding families seek to maximize their own wealth, even at the expense of non-family owners. The other states that because founding families see the firm as an asset to be passed to future generations, they are less likely to sacrifice future value maximization for short-term gains. The second philosophy leads to the premise that FFs create value for the founding family and investors who are not members of the family. Existing literature on the topic provides support for both philosophies.

The recent surge in stock repurchases and the criticism surrounding this phenomenon provides an opportunity to investigate if founder family involvement affects the likelihood of stock repurchases and how FFs make investment decisions surrounding repurchases compared to NFFs. Using evidence that firms use cash for stock repurchases that should be used for investment, critics such as Lazonick (2014) point to short-term incentive compensation for executives as a value-

destroying culprit. If these critics are correct, the presence of a founding family influence should decrease value-destroying share repurchases and the corresponding reduction in investment.

The results of this paper provide evidence that founding families are less likely to repurchase shares than firms that do not have a founding family influence. In instances in which the firm does repurchase shares, the FFs have a lower propensity of decreasing investment than NFFs. These results support the notion that FFs avoid sacrificing future value maximization for short-term gains.

For investors, the implications of this study provide evidence that investing in FFs may result in better long-term decision making and a decreased sensitivity of firm performance to current trends regarding repurchases and investment. Further research in this area could identify whether FFs respond to expected negative earnings surprises with repurchases as do the firms in Almeida et al.'s (2016) study.

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