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a Mixed Gamble Approach**

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FIRM ACQUISITIONS BY FAMILY FIRMS: A MIXED GAMBLE APPROACH

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ABSTRACT

This study elucidates the mixed gamble confronting family firms when considering a related firm acquisition. The socioemotional and financial wealth trade-off associated with related firm acquisitions as well as their long-term horizon turns family firms more likely to undertake a related acquisition than non-family firms, especially when they are performing above their aspiration level. Post-merger performance pattern confirm that family firms are able to create long-term value through these acquisitions and by doing so they surpass non-family firms. These findings stand in contrast to commonly used behavioural agency predictions, but can be reconciled with theory through a mixed gambles' lens.

Key Words: Firm acquisitions; related firm acquisitions; mixed gamble; aspiration level, socioemotional wealth, value creation

Classification-JEL: G34, L10, L20, M20.

INTRODUCTION

It is a well-documented fact that strategic decisions of family firms are not motivated by financial considerations only, but to a large extent by non-financial considerations summarized under the concept of socioemotional wealth (SEW) (Gomez-Mejia, Haynes, Nunez-Nickel, Jacobson & Monzano-Fuentes, 2007; Zellweger, Nason, Nordqvist & Brush, 2011, Kellermanns, Eddleston & Zellweger, 2012; Miller & Le Bretton, 2014). SEW expresses itself in the form of the emotional and non-financial value attached by family members to their firm which fulfils affective needs of the family, such as preserving the family dynasty, values and family identity as well as the ability to exercise control (Gomez-Mejia et al, 2007; Miller & Le Bretton , 2014; Kellermanns et al, 2012).

Aiming at preserving their SEW, family firms have been said to be loss averse (Gomez-Mejia et al, 2007) which is an often stressed reason for family firms' reluctance to engage in risky activities such as research and development (R&D) (Gomez-Mejia et al., 2007; Chrisman & Patel, 2012; Muñoz-Bullon & Sanchez-Bueno, 2011; Block, 2012), industry cooperatives (Gomez-Mejia et al., 2007), polluting activities (Berrone, Cruz, Gomez-Mejia & Larraza-Kintana, 2010) and firm acquisitions (Shim & Okamuro, 2011; Caprio, Croci & Del Giudice, 2011; Gomez-Mejia, Patel & Zellweger, 2015).

How does this fit to the well-established finding that family firms have a longer time orientation than non-family firms (Sirmon & Hitt., 2003) and, thus, by neglecting the option of firm acquisitions may forgo an important strategic means that promises longer-term advantages? And how does this fit to the empirical observation that family firms are, in fact, engaging in the market for corporate control (Family Capital, 2015, Worek, 2017) and that their post-acquisition

performance is not worse than that of non-family firms (Shim & Okamuro, 2011; Caprio, Croci & Del Giudice, 2011)? These questions raise the theoretical challenge to reconcile theory and empirical facts.

In order to address this challenge, our study revisits family firms' engagement in M&As using the concept of mixed gambles, i.e. those gambles that have the potential outcome of gains and losses (Bromiley, 2009, Martin et al., 2013; Gomez-Mejia et al., 2015). We analyze the specific mixed gamble of family firms balancing potential socioemotional as well as financial gains and losses associated with related firm acquisitions. Our theoretical framework, hence, diverges from previous studies which assume that family ownership invariably reduces or increases the willingness to take risky decisions (Le Breton-Miller, Miller, & Lester, 2011; Miller, Le Breton Miller, & Lester, 2011). Employing the mixed gamble concept, we can explain why their long-term orientation prompts family firms to engage more likely in related firm acquisitions than non-family firms, rather than less likely as predicted by the prominent behavioral agency model (BAM). BAM focuses exclusively on potential losses ignoring the possibility of potential (long-term) gains. Our framework, in contrast, recognizes the possibility of SEW gains and the longer time horizon used to evaluate decisions allowing family firms to differ from non-family firms and to make specific acquisitions – here we focus on related acquisitions - which allow them to generate value.

Our focus on related acquisitions makes an important point as well. The potential gains from related acquisitions which can be derived from related assets and knowhow suggest that for family firms, which are financially healthy, missing out on acquisitions to access external assets in a timely manner in order to complement their internal assets and knowhow may create the potential for greater downside risk (Cassiman & Veugelers, 2006), implying that, for financially healthy family

firms, related acquisitions may in fact reduce rather than increase firm risk. This challenges the paradigm in family firm research that firm acquisitions are inherently risky strategic actions from which family firms shy away (Shim & Okamuro, 2011; Caprio, et al., 2011). In contrast to unrelated M&As where expected financial gains are highly uncertain (Hitt, Ireland, & Harrison, 2001) and SEW losses likely, related acquisitions may lead to important advantages that especially family firms can realize (Gomez-Mejia et al., 2015). Said differently, the potential gains and losses from firm acquisitions are amplified for the acquisition of firms with related assets and knowhow, thus increasing the salience of the mixed gamble scenario confronting family firms. Focusing on related firm acquisitions, therefore, allows for a more stringent test of family firms' engagement in the market for corporate control from a mixed gamble's perspective.

We find empirical support for our predictions that family firms – after weighing potential financial and SEW gains and losses and putting a higher weight on the long term than non-family firms - are more rather than less likely to engage in related acquisitions than non-family firms, and even more so if they perform above their aspiration level. We further show that family firms are able to derive long-term value from related acquisitions and that by doing so they surpass non-family firms. Long-term gains are also larger for family firms in a gain frame as these firms have the resources to better exploit the acquired assets and knowhow. Our empirical results are obtained from regression analysis based on a tailor-made panel dataset that is based on the Standard & Poor's (S&P) 500 firms followed over a period of 31 years (1980-2010).

We provide several contributions to the study of family firm decision making and firm acquisitions. First, we contribute to the literature by reconciling theory and empirical facts regarding the involvement of family firms in the market for corporate control. Our theoretical

framework and empirical evidence suggest that we observe family firms on the market for corporate control because due to their SEW considerations and long-term horizon they are more likely to create long term value through these acquisitions. Therewith, we go an important step further than prior research which focuses on the acquisition decision in isolation from realized post-merger gains or losses (e.g. Gomez-Mejia et al, 2015). We, hence, provide a conclusive answer to the important question of why we observe family firms being active in the market for corporate control.

Second, this study elucidates the mixed gamble confronting family firms when considering strategic decisions with a short- and long-term impact such as firm acquisitions. As noted above, the vast majority of recent family firm studies predicts that family firms act to preserve SEW, suggesting that they only consider potential SEW losses. Our framework extends those arguments by allowing family firms to account also for potential SEW gains. Formulating family firms' mixed gamble taking financial as well as SEW gains and losses into account responds to Kotlar, Signori, De Massis & Vismara (2018, p. 1074) who state "However, how family firms frame and evaluate these gambles is not as clear, and the question of how family firms make strategic decisions when both FW [financial wealth] and SEW are at stake remains subject to considerable debate."

Third, we contribute to the literature by illustrating that family firms are able to reconcile their economic and non-economic goals by engaging in related firm acquisitions that have the potential to reliably increase long-term gains, rather than acquiring unrelated targets, which could lead to an even higher long-term financial performance gain, but at a correspondingly higher risk. Forgoing the option to access related external assets and knowhow in a timely manner might increase family

firms' risk profile. Reconciling the long-term orientation of family firms with their pursuit of family goals that could lead to the avoidance of strategic actions with long-term losses but also gains is important for the advancement of both theory and practice.

Fourth, we use a short-term as well as long-term performance measures to assess whether family firms are able to create value through acquisitions. Therewith, we respond directly to the call by Haleblian, Devers, McNamara, Carpenter, & Davison (2009) for a need of using several and, in particular, long-term oriented performance measures. In our context, the use of both measures allows to show that the long-term value created by family firms' acquisitions exceeds the short-term value. The distinction between short-term and long-term financial gains speaks directly to the longer time horizon of family firms.

Lastly, we contribute to the literature on M&As which has paid little attention to differences in acquisition behaviour of family firms and non-family firms.¹ Therewith, we add to a better understanding of the influence of ownership types on strategic actions such as firm acquisitions (e.g., Connelly, Hoskisson, Tihanyi & Certo, 2010; David, O'Brian, Yoshikawa & Delios, 2010; Lane, Canella & Lubatkin, 1998; Ramaswamy, Li, Veliyath, 2002; Gomez-Mejia et al, 2015). We show that family firms follow different acquisition strategies due to their SEW considerations. In particular, they are more likely to engage in related acquisitions than non-family firms. Probably more important, we show that family firms, which are perceived to be reluctant to participate in

¹ Notable exceptions include Shim & Okamuro (2011), Caprio et al (2011), Miller, Le Breton-Miller & Lester (2010), and Gomez-Mejia et al (2015).

the market for corporate control, are able to generate greater long-term value through acquisitions than non-family firms. This is a remarkable result, which sheds new light on the rather careful engagement of family firms in the market for corporate acquisitions and sends the strong message to non-family firms to employ a long-time horizon for value creation through acquisitions.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Family Firms and the Market for Corporate Control

The behavioural agency model (BAM) has for a long time been the most important theoretical framework for analysing family firms' strategic decision making (e.g. Gomez-Mejia et al, 2007; Lim et al, 2010; Zellweger et al, 2012; Chrisman & Patel, 2012). BAM views the aim of preserving SEW as the sole main driver of family firms' strategic actions. This leads to the prediction that family firms are reluctant to engage in risky activities such as firm acquisitions (Shim & Okamuro, 2011; Caprio, et al, 2011), but cannot help explaining the fact that family firms are, in fact, well engaged in the market for corporate control (Family Capital, 2015, Worek, 2017).

The acquisition literature, in contrast, emphasizes financial performance gains as the main reason to engage in firm acquisitions (Haleblian et al, 2009; McNamara, Haleblian, & Dykes, 2008), but also acknowledges various additional M&A goals such as the access to new technologies (Ahuja & Katila, 2001; Graebner, 2004), intellectual property rights (Grimpe & Hussinger, 2008, 2014), as well as access to R&D related expertise beyond the boundaries of the firm (Kotlar, De Massis, Frattini, Bianchi & Fang, 2013; Calantone & Stanko, 2007), gains from economies of scale and scope as well as market power increases (Hitt et al, 2001), market discipline (Rhodes-Kropf, Robinson, & Viswanathan, 2005) and efficient resource deployment (Uhlenbruck, Hitt, &

Semadeni, 2006). Only recent advances by family firms' research acknowledge that decision making of family firms is more complex involving various goals, most prominently financial as well as SEW goals (Kotlar et al, 2018; Worek, De Massis, Wright & Veider, 2018). This progress allows analysing family firms' participation in the market for corporate control developing a more nuanced perspective.

The M&A literature also describes that returns to acquisitions are inherently uncertain (e.g. Capron & Pistre, 2002; King, Dalton, Daily & Covin., 2004; Masulis, Wang & Xie, 2007). In fact, available evidence suggests that about half of acquisitions turn out to be failures mirroring the substantial level of risk involved (Schoenberg, 2006; Krug & Aguilera, 2005). Many acquisitions result in lower cost reduction than anticipated (Graham, Lemmon & Wolf, 2002), inefficient resource deployment (Uhlenbruck et al, 2006) and less market power gains than projected (Hitt et al, 2001). While the exact reasons for the failure of acquisitions are often difficult to determine (Ellis, Reus, & Lamont, 2009), there is robust evidence that several factors moderate post-merger performance including the pre-merger performance of both acquired and acquiring firms, the acquisition premium paid, whether the merger was related or unrelated and complementarities of firm resources (King et al, 2004). This suggests that there are certain acquisition types which promise high synergetic gains leading to potentially high SEW and financial gains and a comparably limited risk of failure.

Further, the M&A literature suggests that while firms engage in acquisitions according to rational decision criteria, the acquisition likelihood and success is also positively influenced by behavioural factors such as acquisition experience, the resource endowment and the availability of slack (King et al, 2004). Firms with acquisition experience, for instance, repeat a strategic action and benefit

from learning effects, independent of whether their past experience was positive (e.g., Franks, Hariss & Titmans, 1991; Halebian & Finkelstein, 1999; Hayward, 2002; Kroll, Wright, Toombs & Leavell, 1997). A better resource endowment and slack allow firms to commit excess resources to pursue new opportunities supporting acquisition success (Levinthal & March, 1981, Iyer & Miller, 2008; Tyler & Caner, 2016). Experience, excess resources and slack should, hence, positively influence M&A considerations as they allow a firm to mitigate potential negative acquisition consequences (Iyer & Miller, 2008) and may help family firms to increase their SEW stock (Patel and King, 2015). This intuitive prediction stands against BAM which predicts that family firms in a healthy financial situation, i.e. when performing above their aspiration level, are particularly risk averse being only motivated by preserving the status quo (Chrisman and Patel, 2012, Caprio et al, 2011).

Another important issue that the M&A literature raises is that firm acquisitions are often used as a strategic means to get access to valuable resources in a timely manner. An example is the acquisition of innovative assets (Ahuja & Katila, 2001; Graebner, 2004) and intellectual property rights (Grimpe & Hussinger, 2008, 2014). A firm that finds itself with an empty innovation project pipeline or having missed a technology trend does not have the time to catch up by starting own R&D activities from scratch. In such a situation, it is often essential that the firm acquires external knowledge assets to realize complementarities with internal knowhow and resources (Cassiman & Veugelers, 2006). In comparison to other forms of accessing external assets such as collaborations and joint ventures, firm acquisitions should be an attractive means for family firms because ownership and control stay with the firm (Titus, House, & Coven, 2017). The long-term horizon of family firms should additionally encourage family firms to undertake firm actions that may

involve short-term losses, but also substantial potential long-term gains through synergies and complementarities realizable through the acquired assets.

The Notion of Mixed Gambles and M&As

Having moved on from a strong focus on loss aversion and the goal of preserving SEW as the sole decision factor for family firms (Tversky & Kahneman, 1991; Chrisman & Patel, 2012), recent literature acknowledges that family firms take strategic decisions based on two value dimensions, financial wealth and SEW, where gains in one dimension of wealth are often associated with losses in the other dimension (Gomez-Mejia, Cruz, Berrone, & De Castro, 2011; Gomez-Mejia et al, 2007; Kotlar et al, 2018). This turns strategic decisions for family firms into “mixed gambles” involving possible gains and losses in both dimensions (Bromiley, 2009, Martin et al., 2013, Gomez-Mejia, Campbell, Martin, Hoskisson, Makri, & Sirmon, 2014; Gomez-Mejia et al, 2018; Kotlar et al., 2018).² In other words, decision makers in family firms face trade-offs and need to weigh potential gains and losses with regard to different value dimensions (Kim, Hwang & Burgers, 1993; Martin et al, 2013).

When focusing on unrelated acquisition, we mostly find family firms reluctant because the expected financial returns are uncertain (e.g. Capron & Pistre, 2002; King et al, 2004; Masulis et al, 2007) and, at the same time, potential SEW losses are likely (Gomez-Mejia et al, 2010) as BAM predicts. Unrelated acquisitions are a means to reduce firm specific risk (Amihud & Lev, 1981,

² Examples include international diversification (Gomez-Mejia, Makri, & Larraza-Kintana, 2010), investments in R&D (Chrisman & Patel, 2012) and IPOs (Kotlar et al, 2018).

Anderson & Reeb, 2003a). Despite the fact that diversified firms tend to be low return - low risk firms (Amit and Livnat, 1988), family firms tend to be less diversified than non-family firms because of their need to preserve control (Anderson & Reeb, 2003a; Gomez-Mejia, Makri & Larraza-Kintana, 2010; Essen, Carney, Gedajlovic & Heugens, 2015). Due to their reliance on family members in important strategic positions, family firms have been also found to be less capable to judge and act upon new opportunities (Miller & Le Bretton-Miller, 2014).

Related acquisitions, in contrast, promise financial and SEW gains through synergies and complementarities in the long run, they are easier to judge ex ante and are associated with a lower risk. The potential SEW and financial gains and losses are amplified for the acquisition of targets with related assets and knowhow (Amit and Livnat, 1988), thus increasing the salience of the mixed gamble scenario. This is why focusing on the mixed gamble that family firms face confronting the opportunity of a related acquisition provides a unique opportunity to get a better understanding of the strategic considerations of family firms in the market for corporate control.

The Mixed Gamble of Related Firm Acquisitions

In line with a well-established literature, we define related firm acquisitions as a means for related diversification (Gomez-Mejia et al, 2018; Miller, Le Breton-Miller & Lester, 2010; Cefis, Marsili & Rigamonti, 2019; Capron, Dussauge & Mitchell, 1998). Related diversification through firm acquisition bears a lot of potential advantages for family firms (Gomez-Mejia et al, 2018). Related diversification allows the managers of family firms to stay close to their core businesses (Gomez-Mejia et al, 2010; Anderson & Reeb, 2003a). With time, family members typically have developed affection and emotional attachment for the core technology, products and services as well as the domain knowledge and expertise needed to succeed in the industry. In other words,

their SEW is closely related to the family firms' core business. Since related acquisitions allow family firms to stick to what is dear to their heart there is limited risk of losing SEW. On the contrary, related acquisitions allow family firms to realize synergies and to benefit from complementarities of their own assets and knowhow and the acquired resources. Hence, there is a substantial potential to increase SEW in the long run.

Another important factor is that related acquisitions help to maintain the familial control in the firm as no major restructuring may be needed in order to integrate the target's assets and knowhow as it is often the case with unrelated acquisitions (Barkema & Schijven, 2008). For the acquisition of a related target, there will be no need to recruit new external executives in order to integrate new relevant skills and the family firms can stay within their routines and time proven methods (Eisenmann, 2002; Vermeulen & Barkema, 2001). Diversifying into related industries allows family firms to apply their accumulated experience to the acquired firm (Anderson & Reeb, 2003a) and to preserve the well-acknowledged age-old established knowledge held (Duran, Kammerlander, Van Essen, & Zellweger, 2016). This contributes to the expected positive long-term effect of increasing SEW (Gomez-Mejia et al, 2014).

Furthermore, the ex-ante uncertainty when acquiring a related firm is limited. Family firms' focus on existing competencies and products or services often leads to a lack of competence to venture into new markets (Miller & Le Bretton-Miller, 2014).

The discussion above suggests that related acquisitions promise substantial SEW gains in the long run. In the short run, SEW losses are possible due to the managerial attention that the acquisition requires which is then not available for routine activities. Also, short-term financial

losses are well possible due to the costs related to the acquisition. The expected long-term SEW increases through synergies and complementarities are, however, expected to outweigh the potential short-term SEW losses. Importantly, long-term SEW increases through synergies and complementarities should translate into long-run financial gains after a related acquisition. In summary, comparing to non-family firms, which do not take account of SEW and apply a rather short term focus for their strategic actions, we hypothesis that family firms are more likely to engage in related firm acquisitions than non-family firms (see Figure 1):

Hypothesis 1: Family firms are more likely to engage in related firm acquisitions than non-family firms.

Insert Figure 1 about here

Acquisitions and the post-merger integration of the acquired firm typically require large amounts of financial and non-financial resources. Only firms that are financially viable will be able to finance such resource demanding strategies with internal funds. For those who are financially constrained, the alternative to internal financing is to seek external financing that presents its own set of challenges such as giving up ownership, control and influence in decision making to external actors (Gomez-Mejia et al, 2014). External financing makes acquisitions of any kind unattractive for family firms since it undermines family control and influence on the strategic direction of the firm, which is fundamental to SEW (Zellweger et al, 2012; Gomez-Mejia et al, 2018). Financially healthy family firms are in the beneficial position to rely on internal sources to execute activities

including acquisitions. This should limit potential short-term financial and SEW losses and increase the expected long-term SEW and related financial gains because the firm is better and freely able to exploit the acquired assets. In turn, this renders related acquisitions more attractive for financially healthy family firms than for financially less healthy family firms, a prediction that is contrary to BAM (Gomez-Mejia et al, 2014; Chrisman & Patel, 2012).³

Hypothesis 2: Family firms with a healthy performance (gain frame), are more likely to engage in related firm acquisitions than family firms with performance deficits (loss frame).

Figure 2 illustrates how family firms would decide differently for a risky action when applying a BAM or mixed gambles framework. As argued above, mixed gambles predict that the likelihood to engage in a related acquisition is higher for family firms in a gain frame based on the weighing of expected gains and benefits. Positive SEW gains are taken into account in a gain frame. In contrast, BAM assumes that in a gain frame family firms are solely interested in preserving the status quo.

 Insert Figure 2 about here

³ Chrisman & Patel (2012) derive from BAM that family firms only engage in risky activities if they are performing way below their financial aspiration level. The argument is that only when the pressure is high enough family firms are taking risk to reach their aspiration level. Here, we argue that financial wealth reduces the short- and long-term risk of a strategic action so that a strategy which promises long term SEW and financial gains becomes more attractive.

Family firms in a gain frame are further expected to be more likely to engage in related acquisitions than non-family firms in a gain frame. The main reason is their superior willingness to not give up control and their ability to increase SEW through the firm acquisition which is facilitated by financial wealth and the higher value family firms associate with the long term (Gomez-Mejia et al, 2014). In the presence of a limited downside risk for both type of firms, the gap between expected gains and losses for well performing family firms as compared to well performing non-family firms is, hence, expected to be significant (see Figure 3).

Hypothesis 3: Family firms with a healthy performance (gain frame), are more likely to engage in related firm acquisitions than non-family firms with a healthy performance (gain frame).

Insert Figure 3 about here

As argued above, family firms have the potential to increase their SEW in the long run through a related acquisition by realizing synergies and complementarities between their internal and externally acquired assets and know how (Cassiman & Veugelers, 2006). The exploitation of the acquired assets and knowhow can strengthen the family firms' core business and core value. Family firms with excess resources and financial slack are better able to make use of the acquired assets and knowhow with expected positive implications for the long-term SEW gains and associated post-merger financial performance (Iyer & Miller, 2008).

Non-family firms are in a relatively disadvantageous position because they put less emphasis on the long-term potential of the acquisition and because they miss to realize additional long-term financial gains stemming associated to long-term SEW gains. Hence, we hypothesize:

Hypothesis 4: Family firms in a gain frame realize higher post-merger performance gains from related acquisitions than non-family firms in a gain frame or family firms in a loss frame.

METHODOLOGY

Estimation Strategy – Acquisition Strategy

In order to test hypotheses 1-3, we estimate probability and count data models to determine the acquisition strategy of family firms. We apply random effect panel logit and poisson regressions. Our choice of random effect models is influenced by the fact that our main independent variable, the family firm status, is binary and time-invariant. We note that the coefficients of time invariant firm specific effects are not defined in a fixed effect model.

Estimation Strategy - Performance Effects

In order to estimate performance implications of acquisitions (hypothesis 4), we employ a non-parametric nearest neighbour matching approach (see e.g. Imbens & Wooldridge, 2009, for a methodological overview). The matching accounts for the fact that the decision to engage in a related firm acquisition is not exogenous, but depends on firms characteristics which our panel logit models strongly confirm for the present sample. We match acquiring firms involved in related acquisitions to two sets of “twin firms” with the same characteristics as the focal firm. The first set of twin firms, i.e. the first control group, is chosen from all firms that were not engaged in any acquisition in the focal year. The second control group is drawn from firms that were involved in unrelated acquisitions in the same year. We match the firms engaged in related acquisitions, i.e. the treatment group, to twin control observations based on the probability of engaging in a related firm acquisition taken from a probit estimation for the likelihood to conduct a related firm

acquisition. This so-called propensity score matching has the advantage of summarizing different factors such as firm size, return on assets and debt in our score in one number, hence avoiding the problem of multidimensionality that arises if treated and control firms are required to be exactly identical with regard to several characteristics (Rubin, 1977). We then compare the post-merger performance of our treatment group, i.e. the firms engaged in related acquisitions, to the performance of both control groups. The performance difference is called the average treatment effect on the treated and can be given a causal interpretation.

After having obtained the treatment effect on the treated which informs us about performance benefits of related acquisitions for the average treated firm as compared to non-M&A firms and firms engaging in unrelated acquisitions, we are interested in finding out whether family firms in gain frames realize greater treatment effects, i.e. post-merger financial performance gains, than non-family firms and family firms in a loss frame (hypothesis 4). Therefore, we regress the average treatment effect on the treated on a family firm dummy, a gain frame dummy and the interaction of both terms. A set of year and industry dummies is included in the regression as well.

Data Source and Sample

We use the Standard & Poor's (S&P) 500 firms as of July 2003 as the basis of constructing the data sample.⁴ The July 2003 issue of the BusinessWeek, published qualitative details of family

⁴ S&P as well as Fortune 500 firms have been used previously to analyze the R&D performance of family firms and non-family firms (Chrisman & Patel, 2012) as well as the performance of family and non-family firms (Anderson & Reeb, 2003a; Miller et al., 2007).

firms among the S&P 500 firms. The Business Week definition is based on the definition of Anderson & Reeb (2003b) who classify any firm where the ownership of the founding family controls more than 5% or where a member of the founding family is on the board as a family firm. For ambiguous cases, i.e. where the family's involvement in the firm was not clear, Business Week used their own judgement after having consulted Prof. Ronald C. Anderson and Prof. David M. Reeb. The list was validated a second time by Block (2009) and used in Block (2010, 2012).⁵ The S&P data is combined with the Compustat database to retrieve financial and market information for firms. This results in a panel dataset for the 500 firms. M&A data was retrieved from Thomson One Banker. We identified majority acquisitions and linked them to the S&P firms.

We focus on manufacturing and service industries. This leads to a loss of 272 of the S&P 500 firms. We also dropped three firms and their corresponding observations since they turned out to be outliers concerning some of their characteristics.⁶ The final sample is a panel dataset of 4903

⁵ Block (2009) has previously used the Business Week publication of July 2003 to analyse the performance, R&D spending and employment downsizing of family and non-family firms. This study relies on the final list of family and non-family firms provided by Block. The subsample of family firms along with their family connection can be obtained from the authors upon request.

⁶ Amgen Inc, a top independent biotechnology firm, was dropped for having a low return on sales ratio (-65.01, which is not comparable to the rest of the sample (the second lowest ROS stood at -5.12). Amgen Inc also had a firm level aspiration gap of 62.17, which is about three times the second largest value of 2.63. The outlier in Medimmune was found in its R&D/employment ratio of 824.59, which is more than half the value of the second largest value of 406.77. Danaher made several acquisitions over the years and displayed a huge R&D/patent ratio of 60.43 being an

observations from 225 firms spanning the period 1980-2010. 1676 observations correspond to 86 family firms and 3226 to 139 non-family firms. The share of family firms in our sample is 38.2%. Out of the 225 firms we recorded 423 acquisitions conducted by 129 firms during this time window, among them 158 acquisitions made by 46 family firms and 265 acquisitions made by 83 non-family firms. In terms of industry classification of firms in our sample, 189 firms, 68 of which are family firms are in manufacturing. Of the 36 firms in the service sector, 18 are family firms.

Dependent variables

We employ several dependent variables for our empirical analysis.

Firm acquisitions: Our first dependent variable is a binary variable, which takes the value of 1 if a firm has conducted a firm acquisition in year t and 0 otherwise. In addition, we use the number of firm acquisitions per firm in order to show robustness of our results for a different definition of the dependent variable.

Related firm acquisitions: We use the two-digit standard industry classification (SIC) codes to define acquisitions in related industries. A firm acquisition is declared as related if the core business activities of the acquiring and acquired firm are associated to the same two-digit industry class. Again, we also use the number of related firm acquisitions per year in order to show robustness of our results.

outlier. All three firms are in the manufacturing industry. Amgen Inc and Medimmune are both in the drug manufacturing sector while Danaher is in Measuring & controlling devices subsectors.

The two-, three- and four-digit SIC codes have been used by prior research to measure relatedness (see Miller et al, 2010). We use the two-digit and four-digit (for robustness tests) SIC codes. We choose the two-digit level because for an acquisition to be useful enough for firms to benefit from synergies, they must not be too distant as in operating in completely unrelated industries, but they should also not be too related. There is therefore the need for some level of relatedness for an acquirer to be able to fully benefit from acquisitions (Ahuja & Katila, 2001). The four-digit SIC codes are therefore too finely grained to capture the essence of relatedness (Miller et al, 2010). This explains why the conventional four-digit SIC measure of relatedness is less used in the literature (See Martin & Sayrak, 2003).

Financial performance: For the evaluation of the financial success of the strategy we use return on assets (ROA) as a dependent variable. ROA is a commonly used performance measure, also in the family firms literature (see e.g. Bonilla, Sepulveda & Carvajal, 2010; Kowalewski, Talavera & Stetsyuk, 2010; Michiels, Voordeckers, Lybaert & Steijvers, 2013; Graves & Shan, 2014, Holt, Pearson, Carr & Barnett, 2017). ROA describes the current ability of the firm to effectively use its assets and is often used when firm performance in different time periods is compared. We measure ROA as the ratio of net income to total assets in year $t + 2$. The choice of a two years lead is driven by data limitations.⁷

⁷ We use a lead of two years because of data limitations. If we use a longer lead the sample size becomes smaller than 100 observations and the econometric matching approach that we use does not lead to a balanced sample of treated and non-treated firms. This implies that the matching with a dependent variable based on a 3-years lead is not

As an alternative performance measure we use Tobin's Q defined as the market value over the book value of the firms' assets. In contrast to ROA that assesses the current performance of the firm, Tobin's Q is a forward-looking performance measure that takes the expectations of the stock market about the future performance of the firm into account (Griliches, 1981). This means that while ROA allows us to assess the short-term post-acquisition performance of the firm, Tobin's Q allows a more long-term assessment. As for ROA, we use two-years lead of Tobin's Q.

Treatment effect on the treated: For the final regression, where we are interested in identifying whether family firms in gain frames face greater post-merger performance gains from related acquisitions than family firms in a loss frame or non-family firms in a gain frame, we use the estimated average treatment effect on the treated as a dependent variable which depicts financial performance gains due to the merger.

Independent variable & definition of the aspiration gap

Family firm: We measure the family firm status as a binary variable which is equal to 1 for family firms and 0 otherwise where family firms are defined as outlined in the first paragraph of this section. For robustness tests, we use founder family firms as an alternative definition. Founder family firms are defined as family firms if a member of the founding family is present in the firm in any of the following capacities: CEO, chairman, chairman emeritus, member of the board and management. This information was also taken from the BusinessWeek publication of July 2003.

appropriate to produce causal results. Note that the results are qualitatively similar for the invalid matching results based on a 3-years lead, but not significant anymore. Results are available from the authors upon request.

Aspiration gaps: Organizations depend on performance feedback to adapt their behaviour if necessary and to decide to engage in impactful actions such as acquisitions (Iyer & Miller, 2008). Typically, financial performance figures are used as decision criteria. Therefore, we measure the aspiration gap as the difference between a firm's financial performance in year $t-1$ and the median financial performance of firms in the same four-digit industry in year $t-2$ following Greve (2003), Iyer & Miller (2008) and Chrisman & Patel (2012). Return on sales (ROS) is one of the most commonly used measures of firm performance (Greve, 2003). For our empirical analysis, we perform sample splits distinguishing between firms in a gain frame, i.e. those that experience a performance increase as compared to the average firm in the industry, and in a loss frame, i.e. those that perform below the industry average. We use a binary variable that separates firms in a gain frame from those in a loss frame.

We also use a gain frame variable in the last models to determine the performance implications of acquisitions. The variable is coded 1 if a firm is in gain frame and 0 otherwise.

Control variables

We introduce several control variables to account for firm level heterogeneity. Larger firms are, for instance, more likely to have the capacity to implement a firm acquisition (Ellis et al, 2011). In addition, a larger firm size makes it more likely that the acquiring firm retains control after the firm acquisition (Shim & Okamura, 2011). Moreover, the fact that large family firms can maintain control has important implications on the mixed gamble of family firms as the expected SEW gains associated with a related acquisition increase (Patel & King, 2015). We use the natural logarithm of total assets as a measure for firm size. The natural logarithm is used to handle the skewed distribution of the variable. Debt, measured as the ratio of total debt to total assets (Block, 2009),

shows whether a firm is highly leveraged and proxies the risk associated with the firm's operations (Shim & Okamuro, 2011). This variable is expected to have a negative relationship with the probability of acquisitions as it also reflects the scarcity of cash flow. ROA controls for overall firm efficiency and is measured as the ratio of net income to total assets (Chrisman & Patel, 2012). It is expected to have a positive association with the acquisition probability. The R&D/Assets ratio is used in the present context as a proxy for the firm's readiness to take risk and to engage in long-run investments. Hence, the measure is expected to have a positive relationship with the likelihood of acquisitions. We also include a variable that controls for the firm's past acquisition experience (e.g., Franks et al, 1991; Haleblan & Finkelstein, 1999; Hayward, 2002; Kroll et al, 1997). A firm that already has some experience with firm acquisitions is likely to repeat it (Haleblan, Kim & Rajagopalan, 2006). The variable is binary and takes the value one if the focal firm has undertaken an acquisition in the past 5 years. The Patent/R&D ratio controls for the firm's R&D success rate. Moreover, it is commonly known that slack resources may influence firms' likelihood to undertake acquisitions (Iyer & Miller, 2008). Therefore, absorbed slack which is measured as the ratio of selling, general and administrative (SGA) expenses to sales as well as potential slack measured as a firm's ratio of debt to equity are controlled for.

Industry dummies are introduced to control for any industry related variance. Year dummies control for macroeconomic effects, in particular for the fact that mergers and acquisitions tend to occur in waves (Martynova & Renneboog, 2008). We lag all independent and control variables to limit possible endogeneity.

EMPIRICAL RESULTS

Descriptive Statistics

Descriptive statistics are presented in Table 1. Table 1 shows the mean differences for family firms and non-family firms along with t-tests that show whether the means are statistically different from each other. The acquisition dummy shows a mean of 0.10 for family firms as compared to 0.08 for non-family firms. Since the t-test is not significant we cannot conclude that, for our S&P sample of large firms, family firms undertake, on average, more or less acquisitions than non-family firms. With respect to the number of deals, we find that family firms make an average of 0.12 acquisitions per year as compared to a 0.10 average for non-family firms. Again, the mean difference is not statistically significant at the 5% level of statistical significance so that we are hesitant to conclude that there is a systematic difference. The related acquisition dummy, however, shows a mean of 0.08 for family firms 0.04 for non-family firms. The mean difference is statistically significant. Also, with regards to the number of related acquisitions, we find that family firms are significantly leading with on average 0.09 acquisitions per year as compared to a 0.05 average for non-family firms.

In terms of firm size, the mean of 7.60 for family firms is significantly smaller than non-family firms with a mean of 8.20. Family firms in our sample employ less debt over assets than non-family firms. In terms of performance, family firms show significantly higher ROA than non-family firms. Interestingly, family firms also display a significantly higher R&D/asset ratio with an average of 0.07, compared to the 0.05 of non-family firms. Absorbed slack is higher for family firms as well is the post-merger performance. The further control variables do not differ significantly for family and non-family firm. Table 2 shows the correlation coefficients among the key variables in our

analysis.⁸

 Insert Table 1 about here

 Insert Table 2 about here

Empirical Analysis

Table 3 presents the results of panel logit and poisson random effect regression models predicting firm acquisitions. Models 1 and 2 show regressions for the full sample for the likelihood of engaging in a firm acquisition. These models act as baseline regressions. The results suggest that family firms are not more or less likely to engage in acquisitions than non-family firms. The coefficient of the family firm dummy as depicted by model 1 ($\beta = 0.15$) and model 2 ($\beta = 0.14$) shows a positive but not statistically significant relationship with the acquisition likelihood and number of acquisitions respectively.

Models 3 and 4 test hypothesis 1, i.e. whether family firms are more likely to engage in related acquisitions than non-family firms. Our results show, that the probability and the number of firm acquisitions in related industries are significantly higher for family firms than for non-family firms.

⁸ Note that the high correlations occur among the different dependent variables, namely merger dummy, number of acquisitions and related acquisitions so that they are not a problem for the regression analysis.

Model 3 ($\beta = 0.47, p < 0.05$) and model 4 ($\beta = 0.39, p < 0.05$), hence, display empirical support for hypothesis 1. Looking at the marginal effects,⁹ we find that in comparison to non-family firms, family firms are 2% more likely to engage in related acquisition according to model 3. As the average probability of an acquisition in our sample is 9% this implies a 22.22% change for the average firm at the mean. Model 4 implies that being a family firm increases the number of related acquisitions by 48%. Since the average deal number per firm and year in our sample corresponds to 0.11, a 48% increase increases this value to 0.16.¹⁰

The next set of regressions (models 5-8 of Table 3) distinguishes between underperforming firms (loss frame) and well performing firms (gain frame). Regressions are presented for both subsamples to test hypothesis 2 and 3. The results show that family firms in a gain frame (model 7, $\beta = 0.77, p < 0.01$; model 8, $\beta = 0.63, p < 0.01$) are more likely to engage in related acquisitions than family firms in a loss frame (model 5, $\beta = -0.02, p > 0.10$; model 6, $\beta = -0.06, p > 0.10$). These results support hypotheses 2.

Family firms in a loss frame are not more or less likely to engage in related acquisitions than non-family firms (models 5 and 6) while family firms in a gain frame are 4% more likely to engage in related acquisitions than non-family firms in a gain frame (this corresponds to an increase of the likelihood of an acquisition for the average firm of 66.66%) with a 87% higher number of

⁹ The marginal effects in the poisson model are calculated as follows: $\exp(\text{coefficient}) - 1$.

¹⁰ Note that the numbers of observations vary for models 3 and 4 as well as models 5 and 6 and 7 and 8 respectively since we do not observe variance in the dependent variable for all our firms.

acquisitions as the marginal effects corresponding to models 7 and 8 indicate. These findings support hypothesis 3.

With regard to our control variables, firm size shows a positive and statistically significant effect on the likelihood and number of acquisitions in all our models. ROA shows a positive relationship with firm acquisitions for the full sample and the subsample of firms in a gain frame. The debt over assets ratio as well as R&D/assets, patent/R&D ratio and potential slack do not exhibit a significant effect on related acquisitions. Absorbed slack shows a significant positive effect on acquisitions except for the subsample of firms in gain frame in model 8 of Table 3. Acquisition experience matters, in particular, for related acquisitions made by firms in a loss frame. Lastly, industry and year dummies matter (not reported in Table 3).

Insert Table 3 about here

Next, we investigate the post-merger performance of related acquisitions, in a final step, we relate post-merger performance to family firm status and position vis-à-vis the aspiration level. Therefore, we first estimate a probit model on the likelihood of conducting a related acquisition. In order to retrieve our two control groups we run the probit model twice, once for the full sample (control group 1) and once for the sample of M&A observations only (control group 2). Control variables are the logarithm of firm assets, debt over assets, ROA, R&D over assets as well as a set of industry and time dummies. An important additional control variable is the pre-merger performance as it has been shown that firms with a better pre-merger performance also show a better post-merger performance (King et al, 2004). The matching leads to balanced control groups,

i.e. treated and control observations do not differ systematically at the means of the variables used for the matching.

The matching results reveals that there are no significantly different post-merger performance effects between treatment group, i.e. the firms that engage in related acquisitions, and both control groups. The average treatment effects on the treated for ROA are 0.00 for control group 1 and 0.03 for control group 2 and for Tobin's Q 0.14 for control group 1 and 0.22 for control group 2. All treatment effects are insignificant suggesting that the average firm engaged in a related acquisition is financially not better off than a firm that did not engage in any M&A (control group 1) or a firm that engaged in an unrelated acquisition (control group 2). This may reflect the prior evidence which suggests that about half of acquisitions fail (Schoenberg, 2006; Krug & Aguilera, 2005).¹¹

In the last step, we regress the treatment effects on the treated for ROA and Tobin's Q on a family firm dummy, a gain frame dummy and the interaction of both variables. Table 4 shows the results.

Insert Table 4 about here

Model 1, 3, 5 and 7 show a basic specification for ROA and Tobin's Q that includes the family firm status and the gain frame status plus industry and time dummies for the two different control groups. Models 2, 4, 6 and 8 also include the interaction of the family firm dummy and the gain

¹¹ All results are available upon request, but not reported here due to space limitations.

frame variable. We do not find that family firms realize a financial performance advantage from related acquisitions as compared to non-family firms as measured by ROA, a contemporaneous performance measure (model 1 and model 3). Focusing on Tobin's Q as a forward-looking measure that takes expected future performance gains into account we, however, find that family firms well outperform non-family firms after related acquisitions (model 5 and model 7).

Model 1 shows a weak ROA performance advantage for firms in a gain frame suggesting that firms in a gain frame that engage in related acquisitions outperform firms that have not engaged in any M&A ($\beta = 0.04^*$, $p < 0.10$). The result does not hold for the control group of firms engaging in unrelated acquisitions (model 3). The performance advantage of firms in a gain frame is more pronounced for Tobin's Q which takes the expectations about the firm's future performance into account (see model 5 and model 7).

Model 2 of Table 4 shows that family firms who engage in related acquisitions in a gain frame actually observe increases in financial performance post M&A as compared to firms not engaged in any acquisition ($\beta = 0.09^{**}$, $p < 0.05$). The effect is even more pronounced if compared to the control group of family firms that engaged in an unrelated acquisitions in the same year ($\beta = 0.13^{**}$, $p < 0.05$, model 4). Also, with regard to Tobin's Q, the forward-looking measure, model 6 suggests a performance advantage for family firms in a gain frame which exceeds the short-term performance measure, ROA, by far. Summarizing, the results show that there is a short-term performance advantage for family firms in a gain frame while the long-term advantage vis-à-vis firms that did not engage in firm acquisitions is even larger. These findings provide support for hypothesis 4.

Robustness tests

We provide different types of robustness checks. First, our analysis is based on the classification of S&P 500 firms as family and non-family-firms as of 2003. The previous results are relying on the assumption that the family firm status did not change after 2003. Since this is a strong assumption, we re-ran our analysis using the subsample of observations for our firms before 2003, i.e. for the period of which we can be sure that our family firm classification is accurate. The findings are presented in Table 5 and show a very similar pattern as the full sample analysis.

Insert Table 5 about here

Second, we estimate pooled cross-sectional poisson estimations with robust and clustered standard errors (see Table 6). The clustered robust standard errors account for over-dispersion and correlation over time for the specific firms (Cameron & Trivedi, 2009). The results confirm our previous findings. This robustness check is not unimportant since tests for over-dispersion cannot reject the null hypothesis of equal mean and variance.

Insert Table 6 about here

Also, the 2-digit SIC industry classification has been criticized for being a too broad measure to capture relatedness. Table 7 presents results of related acquisitions as a further robustness check using the 4-digit SIC classification which is more fine-grained than the 2-digit classification. Here, we find strong support for family firms in a gain frame being more likely to engage in related

acquisitions than family firms in a loss frame. We do not find a significant effect for family firms being more likely to engage in related acquisitions (results not presented). Using the 3-digit SIC classification to define relatedness leads to qualitatively the same results: family firms are more likely to engage in related acquisitions, especially when they are in a gain frame. The results are available from the authors upon request.

 Insert Table 7 about here

We present a further robustness test for founder family firms (Miller, Le Breton-Miller.& Lester., 2011, and Block, 2012), i.e. firms that have a member of the founding family as a CEO, Chairman, chairman emeritus, board member or part of management. The results are presented in the Table 8 and show that the results are qualitatively the same as for our family firm definition.

 Insert Table 8 about here

DISCUSSION, LIMITATIONS AND CONCLUDING REMARKS

Discussion

Our study examines how a family firm's decision to acquire another firm is impacted by financial and socioemotional factors for related firm acquisitions. Related firm acquisitions provide a setting that allows elucidating the long-term SEW effects upon the family firm's mixed gamble, given the potentially very high long-term SEW gains that imply additional financial gains. These additional

financial gains are not realized by non-family firms which do not consider SEW in their mixed gamble. The empirical findings support our theoretical predictions that family firms are more likely to engage in related acquisition than non-family firms, especially when they are performing above their aspiration level. We also show that family firms are able to create superior value from related acquisitions in the long run than non-family firms and that value creation is superior for family firms in a gain frame.

Our study provides important contributions to the literature on family firm decision making. First, by reconciling theory and empirical facts regarding the involvement of family firms in the market for corporate control we provide empirical evidence and a theoretical explanation for family firms' involvement in the market for corporate control. Our theoretical framework and empirical evidence suggest that we observe family firms undertaking related firm acquisitions because of their SEW considerations and long-term horizon. Employing the concept of mixed gambles and taking into account both potential SEW and financial gains and losses, we show that the long-term orientation of family firms induces family firms to invest more in the exploitation of related assets leading to additional long-term SEW and financial gains. The expectation of long-term SEW and financial gains renders related acquisitions an interesting strategic option for family firms. As compared to non-family firms which do not consider potential SEW gains and attribute a lower weight to long-term financial gains, related acquisitions appear more attractive to family firms. We, therewith, provide a conclusive answer to the important question of why we observe family firms on the market for corporate control despite their often-stressed loss aversion.

A second contribution of our study is that we arrive at this answer by elucidating the mixed gamble confronting family firms when considering the decision to engage in related firm

acquisitions. By allowing family firms to account also for potential long-term SEW gains and losses as well as for potential financial gains and losses associated with a firm acquisition we respond to Kotlar et al.(2018, p. 1074) who declare a need to better understand how family firms make strategic decisions when both financial wealth and SEW are at stake. The focus on related acquisitions is an appropriate setting because as compared to unrelated acquisitions potential gains and losses are more salient when related assets and knowhow are acquired.

Third, we illustrate that family firms are able to reconcile their economic and non-economic goals by engaging in related firm acquisitions that have the potential to reliably increase long-term SEW and financial gains. Long-term SEW gains arising through the synergies and complementarities between the acquiring and acquired firms' assets and knowhow most likely turn into additional long-term financial gains. Forgoing the option to access related external assets and knowhow through an acquisition might increase family firms' risk profile rather than decrease it (Cassiman & Veugelers, 2006). The family firm might lose the opportunity of a competitive advantage that would safeguard the SEW stock. Reconciling the long-term orientation of family firms with their pursuit of family goals as well as financial goals is important for the advancement of both theory and practice.

Fourth, we use a short term as well as a long-term performance measures to assess whether family firms are able to create value through acquisitions. Our results reveal that family outperform non-family firms in particular in the long-run which is very closely related to our theoretical considerations that emphasize the long-term horizon of family firms. By using different performance measures, we respond to the call by Haleblan et al. (2009) and show that there are

important performance difference in the long- and short-run. The performance differences we empirically find are perfectly in line with notion that family firms have a longer time horizon.

Fifth, we add to the literature on M&As by helping to develop a better understanding of the influence of ownership types on strategic actions such as firm acquisitions (e.g., Connelly, Hoskisson, Tihanyi & Certo, 2010; David, O'Brian, Yoshikawa & Delios, 2010; Lane, Canella & Lubatkin, 1998; Ramaswamy, Li, Veliyath, 2002; Gomez-Mejia et al, 2015). By showing that family firms follow different acquisition strategies due to their SEW considerations and are able to realize higher long-term performance gains we shed new light on the rather careful engagement of family firms in market for corporate acquisitions. Our results send the strong message to non-family firms to employ a long-time horizon for value creation through acquisitions.

Further implications for practitioners include that financial and SEW gains in the short and in the long run need to be weighed carefully against each other. Our results show that potential short-term losses can be well compensated by expected long-term gains. For family firms with their long-term planning horizon, this calculus encourages engagement in related firm acquisitions, especially if the family firm is in a solid financial situation. For the manager of a family firm the direct implication is that the expected long-term gains or losses should receive a higher weight in decision making than potential short-term gains or losses. A last practical implication concerns the measurement of post-merger performance effects. While often short-term performance measures such as the reaction of the stock market are used, we suggest Tobin's Q as a forward-looking measure to determine long-term expectations about the acquisition.

Limitations and future research

Our study is not free of limitations. One limitation that our study shares with many others is that we do not have access to all information that we would like to have. For instance, we are limited to a binary measure of family ownership. The difficulty in obtaining a continuous measure of family ownership has made the practice of using a binary variable common in family firm studies (Gomez-Mejia et al, 2014; Gomez-Mejia et al, 2010). While our focus has been on showing the differences of the type of firm ownership (family firms versus non-family firms), future studies may investigate the levels of ownership and how that influence the acquisition behaviour of family firms.

Furthermore, it would be very interesting to have more detailed information about decision processes within the firms. Such information is, however, difficult to collect, especially for large sample studies. Hence, we accept that our study has to be seen as complementary to qualitative studies that may have a deeper look into the processes of strategic decision making in family firms (e.g. Kumeto, 2015). In a similar vein, we cannot observe the objective of firm acquisitions and follow prior literature by assuming that related acquisitions are to some extent motivated by the aim of related diversification (e.g. Anderson & Reeb, 2003a). We also acknowledge that measuring relatedness by means of the SIC classification is not perfect, but believe that this is the most suitable measure available for a large sample. Beyond measurement, it should be acknowledged that relatedness of acquisitions is only one dimension of deal heterogeneity. It would be interesting for future research to explore other dimensions in which family firms are supposed to have an SEW advantage in the market for corporate control.

Another potential limitation is that we focus on the S&P 500 firms. These firms are large and well performing and, hence, have access to the resources necessary for firm acquisitions. This implies that the results may not be generalizable to small and medium-sized firms. Our results may, however, challenge prior findings that suggest that firms in a loss frame are less likely to engage in risky activities like firm acquisitions as such. These results may be explained by a lack of resources for acquisitions for samples of small and medium-sized firms rather than by the position of the firms vis-à-vis their aspiration level.

There are at least two interesting avenues for future research that we would like to mention. First, it would be interesting to investigate the importance of irrational determinants for the decision to acquire another firm. Since Cyert & March (1963), it is known that many firm decisions are irrational and an investigation into what extent this applies to family firms and non-family firms in the market for corporate control would be of great interest. Second, in a recent article De Massis, Kotlar, Mazzola, Minola & Sciascia. (2018) illustrate the importance of self-control agency problems associated with family owners' inner conflicts between economic and noneconomic goals. It would be of great interest to investigate whether self-control agency problems play a role for family firms' engagement in the market for corporate control.

Conclusion

Elucidating long-term SEW and financial effects upon the family firm's mixed gamble associated with related firm acquisitions, our study tests predictions for strategic decision making of family firms. Empirical results for firm acquisition decisions of a sample based on the S&P 500 firms confirm the mixed gambles predictions that family firms are more likely to engage in related acquisitions than non-family firms, especially when they are performing above their financial

aspiration level. Family firms are also able to realize superior long-term financial post-merger performance than non-family firms. Reconciling theory and empirical facts our study provides an answer to the important question why family firms are engaged in firm acquisitions despite their well-acknowledged loss aversion.

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TABLES & FIGURES

TABLE 1

Summary statistics and univariate test							
Variables	Non-family firms			Family firms			T-test
	Mean	Median	S.D.	Mean	Median	S.D.	
Acquisition dummy	.08	.00	.28	.10	.00	.30	-.01
Number of deals	.10	.00	.37	.12	.00	.40	-.02*
Related acquisition dummy	.04	.00	.21	.08	.00	.26	-.03***
Related acquisitions	.05	.00	.24	.09	.00	.35	-.04***
Firm size	8.20	8.25	1.63	7.60	7.81	1.76	.60***
Debt/assets	.17	.15	.13	.13	.11	.13	.04***
ROA	.06	.07	.09	.07	.08	.10	-.01***
R&D/assets	.05	.03	.05	.07	.06	.06	.02***
Acquisition experience	.28	.00	.45	.29	.00	.45	-.01
Patent/R&D	1.81	1.30	2.05	1.79	.70	3.54	.02
Absorbed slack	.26	.24	.17	.31	.31	.17	-.05***
Potential slack	.68	.34	11.24	.30	.19	1.74	.38
ROA _{t+2}	.06	.07	.09	.07	.08	.09	-.01***
Gain frame	.47	.00	.50	.49	.00	.50	-.02

This table presents the summary statistics of our main variables and the results of the significance test. The mean differences are reported

*** Statistical significance at 5% level; *Statistical significance at 10% level.

TABLE 2

		Correlations														
Variables		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Acquisition dummy	1														
2	Number of deals	0.90	1													
3	Related acquisition dummy	0.68	0.63	1												
4	Related acquisitions	0.63	0.69	0.92	1											
5	Family firms	0.02	0.02	0.06	0.07	1										
6	Firm size	0.13	0.14	0.08	0.08	-0.17	1									
7	Debt/assets	-0.05	-0.05	-0.04	-0.05	-0.16	0.19	1								
8	ROA	0.06	0.06	0.05	0.06	0.05	-0.06	-0.27	1							
9	R&D/assets	0.06	0.06	0.09	0.08	0.18	-0.28	-0.37	-0.03	1						
10	Acquisition experience	0.22	0.22	0.14	0.14	0.00	0.25	0.03	-0.08	0.06	1					
11	Patent/R&D	-0.03	-0.03	-0.05	-0.04	0.00	-0.11	0.08	-0.05	-0.20	-0.07	1				
12	Absorbed slack	0.07	0.07	0.11	0.10	0.15	-0.29	-0.23	-0.06	0.51	0.12	-0.14	1			
13	Potential slack	0.00	0.00	0.00	0.00	-0.02	0.02	0.05	0.00	-0.03	0.00	-0.01	-0.03	1		
14	ROA _{t+2}	-0.02	-0.01	-0.02	0.00	0.06	-0.10	-0.16	0.36	0.05	-0.09	-0.04	0.06	-0.01	1	
15	Gain frame	0.07	0.07	0.05	0.06	0.01	0.12	-0.07	0.25	-0.03	0.05	-0.05	-0.04	0.00	0.15	1

Note: The high correlations are not an issue because they occur between the different dependent variables (Acquisition dummy, Number of deals, Related acquisition dummy and Related acquisitions)

*** Statistical significance at the 5% level.

TABLE 3

Panel Logit & Poisson Random-Effect Regression Models for Family Firm Acquisitions (Full Sample)

Variables	All acquisitions		All related acquisitions		Related acquisitions - loss frame		Related acquisitions - gain frame	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Logit	Poisson	Logit	Poisson	Logit	Poisson	Logit	Poisson
Family firms	0.15 (0.17)	0.14 (0.15)	0.47** (0.20)	0.39** (0.19)	-0.02 (0.24)	-0.06 (0.24)	0.77*** (0.25)	0.63*** (0.24)
Firm size	0.44*** (0.06)	0.41*** (0.05)	0.40*** (0.07)	0.41*** (0.07)	0.23** (0.09)	0.23*** (0.09)	0.45*** (0.10)	0.43*** (0.09)
Debt/assets	-1.06* (0.61)	-0.93* (0.52)	-0.43 (0.73)	-0.60 (0.65)	-0.64 (1.04)	-0.43 (0.97)	-0.04 (0.94)	-0.57 (0.88)
ROA	3.22*** (0.87)	2.39*** (0.70)	2.58** (1.01)	2.00** (0.86)	0.93 (1.15)	0.79 (1.07)	4.58*** (1.71)	3.84*** (1.46)
R&D/assets	1.40 (1.64)	0.97 (1.42)	1.34 (1.86)	-0.09 (1.71)	1.71 (2.28)	1.07 (2.24)	-0.14 (2.87)	-2.24 (2.62)
Acquisition experience	0.60*** (0.17)	0.46*** (0.15)	0.25 (0.20)	0.09 (0.17)	0.71*** (0.27)	0.49* (0.27)	0.30 (0.27)	0.13 (0.23)
Patent/R&D	0.02 (0.03)	0.01 (0.03)	-0.02 (0.04)	-0.03 (0.04)	-0.04 (0.07)	-0.05 (0.06)	-0.02 (0.06)	-0.02 (0.05)
Absorbed slack	0.95* (0.49)	0.65 (0.44)	1.52*** (0.51)	1.17*** (0.45)	1.24** (0.52)	1.06** (0.45)	1.82* (1.01)	1.41 (0.94)
Potential slack	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.03)	-0.01 (0.02)	0.00 (0.06)	0.00 (0.06)
Industry dummy	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-5.93*** (0.72)	-5.52*** (0.62)	-6.68*** (0.91)	-6.20*** (0.81)	-4.60*** (1.05)	-4.79*** (1.01)	-7.67*** (1.24)	-6.80*** (1.12)
Observation	4903.00	4903.00	4789.00	4903.00	2390.00	2569.00	2274.00	2334.00
Log likelihood	-1242.24	-1450.45	-886.50	-1005.60	-402.65	-434.21	-472.96	-557.84

Note: Standard errors are reported in parentheses.

* p < .10; ** p < .05; *** p < .01

TABLE 4

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Dependent variable	ROA	ROA	ROA	ROA	Tobin's Q	Tobin's Q	Tobin's Q	Tobin's Q
Control group	All Firms not involved in M&As		Firms involved in unrelated M&As		All Firms not involved in M&As		Firms involved in unrelated M&As	
Family firms	0.02 (0.02)	-0.03 (0.03)	0.02 (0.03)	-0.05 (0.04)	0.86*** (0.27)	0.21 (0.39)	0.63* (0.33)	0.52 (0.48)
Gain frame	0.04* (0.02)	-0.00 (0.03)	0.03 (0.03)	-0.02 (0.04)	0.46* (0.26)	-0.09 (0.35)	0.76** (0.32)	0.66 (0.43)
Family*gain frame		0.09** (0.04)		0.13** (0.05)		1.18** (0.51)		0.21 (0.63)
Industry dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year dummies	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-0.05 (0.05)	-0.03 (0.05)	-0.02 (0.06)	-0.00 (0.06)	-1.36* (0.71)	-1.68*** (0.61)	-1.36* (0.71)	-1.33* (0.71)
Observation	232	232	198	198	230	230	197	197

TABLE 5

Panel Logit & Poisson Random-Effect Regression Models for Family Firm Acquisitions (sub Sample)

Variables	All acquisitions		All related acquisitions	Related acquisitions - loss frame		Related acquisitions - gain frame	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	Logit	Poisson	Poisson	Logit	Poisson	Logit	Poisson
Family firms	0.19 (0.19)	0.13 (0.18)	0.40* (0.21)	-0.01 (0.28)	-0.06 (0.27)	0.85*** (0.28)	0.65** (0.27)
Firm size	0.41*** (0.07)	0.40*** (0.06)	0.39*** (0.07)	0.20** (0.09)	0.20** (0.09)	0.47*** (0.11)	0.42*** (0.09)
Debt/assets	-0.80 (0.74)	-0.88 (0.65)	-0.48 (0.79)	0.02 (1.17)	0.13 (1.11)	0.15 (1.24)	-0.68 (1.14)
ROA	2.37** (1.02)	2.02** (0.86)	1.70* (1.02)	-0.52 (1.24)	-0.64 (1.17)	5.09** (2.02)	4.38** (1.71)
R&D/assets	2.44 (1.84)	1.32 (1.60)	0.64 (1.87)	1.82 (2.56)	0.80 (2.49)	0.64 (3.33)	-1.51 (2.97)
Acquisition experience	0.55*** (0.21)	0.37** (0.17)	0.03 (0.20)	0.58* (0.31)	0.39 (0.30)	0.08 (0.33)	-0.02 (0.27)
Patent/R&D	0.03 (0.03)	0.00 (0.03)	-0.03 (0.04)	-0.06 (0.08)	-0.08 (0.07)	0.01 (0.06)	-0.01 (0.05)
Absorbed slack	1.15** (0.58)	0.91* (0.48)	1.25*** (0.48)	1.34** (0.66)	0.96* (0.51)	2.14 (1.35)	1.65 (1.24)
Potential slack	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.02)	-0.00 (0.02)	-0.00 (0.02)	0.01 (0.08)	0.01 (0.08)
Industry dummy	Yes	Yes	Yes	No	No	No	No
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-5.24*** (0.81)	-5.08*** (0.72)	-5.68*** (0.88)	-3.87*** (1.07)	4.11*** (1.06)	8.37*** (1.55)	-7.22*** (1.38)
Observation	3448.00	3616.00	3616.00	1832.00	1974.00	1553.00	1642.00
Log likelihood	-899.17	-1049.42	-749.53	-306.97	-334.81	-336.01	-399.21

Note: Standard errors are reported in parentheses.

* p < .10; ** p < .05; *** p < .01

Table 6
Pooled Cross Sections with Robust Clustered Standard Errors

Variables	Full sample			
	All acquisitions Model 1	Related acquisitions Model 2	Related acquisition - loss frame Model 3	Related acquisition - gain frame Model 4
Family firms	0.09 (0.12)	0.51*** (0.17)	-0.11 (0.21)	0.84*** (0.23)
Firm size	0.39*** (0.04)	0.34*** (0.06)	0.23*** (0.08)	0.39*** (0.08)
Debt/assets	-0.99** (0.50)	-0.36 (0.63)	-0.32 (0.85)	-0.18 (0.83)
ROA	2.34*** (0.80)	2.49** (1.02)	0.79 (1.16)	4.09** (1.75)
R&D/assets	1.40 (1.54)	0.70 (1.69)	0.81 (2.38)	-0.11 (2.32)
Acquisition experience	0.99*** (0.12)	0.74*** (0.16)	0.75*** (0.21)	0.65*** (0.23)
Patent/R&D	0.02 (0.02)	-0.04 (0.05)	-0.07 (0.07)	-0.02 (0.05)
Absorbed slack	0.79* (0.42)	1.37*** (0.38)	1.07*** (0.31)	1.73** (0.83)
Potential slack	-0.00* (0.00)	-0.01* (0.00)	-0.01 (0.01)	-0.00 (0.03)
Industry dummy	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes
_cons	-5.46*** (0.48)	-6.00*** (0.81)	-4.68*** (0.87)	-7.06*** (0.89)
Observation	4903.00	4903.00	2569.00	2334.00
Log likelihood	-1466.95	-1026.34	-435.92	-566.00

Note: Standard errors are reported in parentheses.

* p < .10; ** p < .05; *** p < .01

TABLE 7

Panel Logit Random-Effect Regression Models for Family Firm Acquisitions (Sub Sample) (4-digit SIC Codes)		
	Loss frame	Gain frame
Variables	Model 2	Model 3
Family firms	-0.16 (0.34)	0.68** (0.33)
Firm size	0.29** (0.12)	0.37*** (0.12)
Debt/assets	0.11 (1.46)	-0.51 (1.67)
ROA	-0.49 (1.46)	4.83** (2.42)
R&D/assets	1.93 (3.16)	0.70 (3.80)
Acquisition experience	0.84** (0.34)	0.46 (0.34)
Patent/R&D	-0.21 (0.13)	-0.55*** (0.19)
Absorbed slack	1.52* (0.82)	0.83 (1.66)
Potential slack	-0.03 (0.15)	0.10 (0.08)
Industry dummy	Yes	Yes
Year dummy	Yes	Yes
_cons	-4.58*** (1.25)	-6.70*** (1.55)
Observation	1638.00	1376.00
Log likelihood	-189.79	-183.83

Note: Standard errors are reported in parentheses.

* $p < .10$; ** $p < .05$; *** $p < .01$

TABLE 8

**Panel Logit Regressions for Family Firms in which
the Founding Family is Present**

	Related acquisitions		
		Loss frame	Gain frame
	Model 1	Model 2	Model 3
Founding family	0.50** (0.24)	-0.01 (0.27)	0.71** (0.31)
Firm size	0.41*** (0.08)	0.24** (0.10)	0.47*** (0.11)
Debt/assets	-0.93 (0.84)	-1.61 (1.15)	-0.16 (1.11)
ROA	2.92*** (1.11)	1.66 (1.26)	4.55** (1.85)
R&D/assets	1.91 (2.00)	1.98 (2.35)	0.86 (3.04)
Acquisition experience	0.34 (0.22)	1.04*** (0.25)	0.32 (0.29)
Patent/R&D	-0.08 (0.06)	-0.04 (0.08)	-0.19* (0.10)
Absorbed slack	1.67*** (0.54)	1.41*** (0.53)	2.41** (1.10)
Potential slack	-0.00 (0.02)	-0.00 (0.02)	0.02 (0.09)
_cons	6.96*** (1.00)	-4.52*** (1.05)	-8.04*** (1.37)
Observation	4671.00	2384.00	2038.00
Log likelihood	-726.38	-321.84	-396.62

Note: Standard errors are reported in parentheses. Panel estimators are used for all models

* p < .10; ** p < .05; *** p < .01

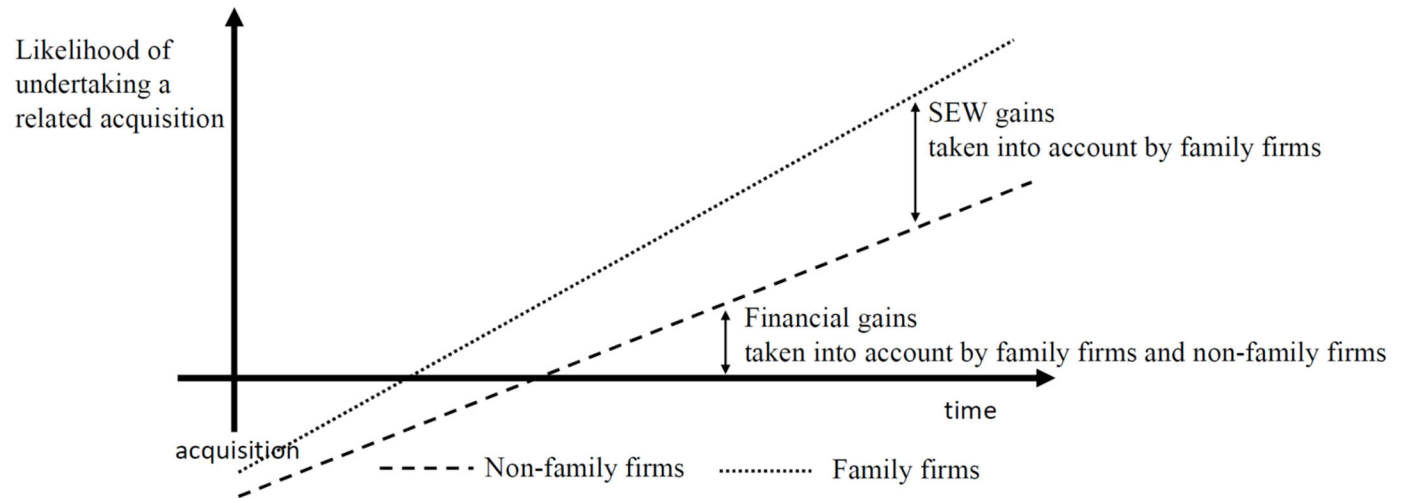
FIGURE 1: Hypothesis 1: Family firms versus non-family firms

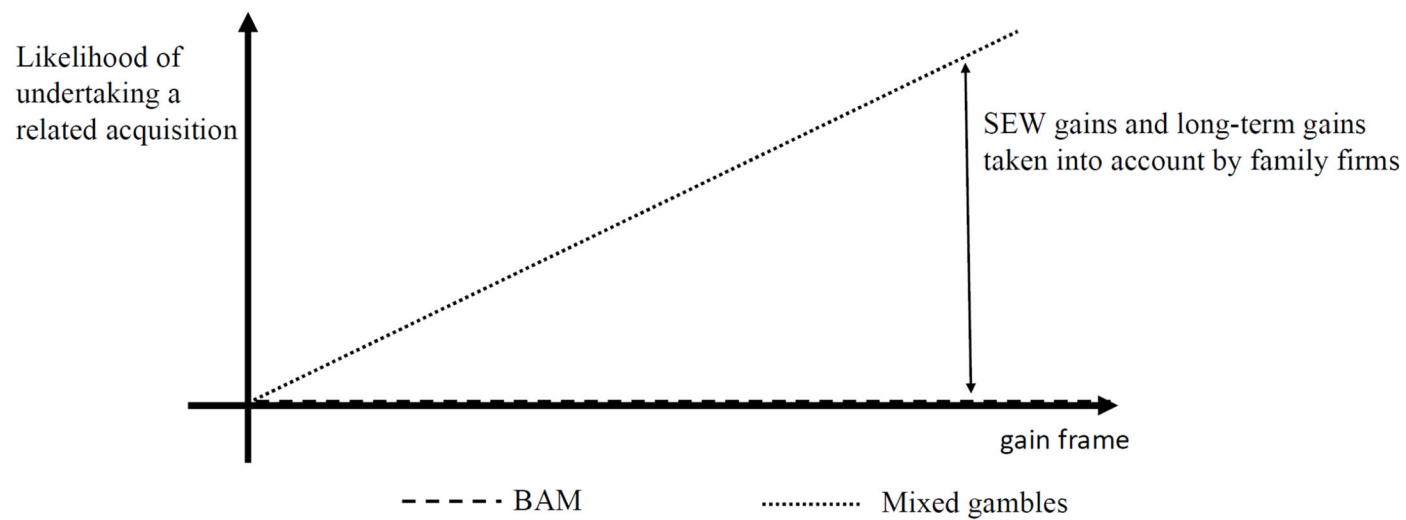
FIGURE 2: Hypothesis 2: BAM versus mixed gambles

FIGURE 3: Hypothesis 3: Family firms in a gain frame versus non-family firms in a gain