Economic policy uncertainty and the founding family firm premium

Markus Fütterer[a] Marc Steffen Rapp[a,b*] Ignacio Requejo[c,d]

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Studying a monthly panel of some 1,600 European listed firms over a 10-year period, we document a negative effect of economic policy uncertainty (EPU) on firm value but a positive effect on the founding family firm premium (FFFP). We confirm this pattern in a matched firm sample and using an instrumental variable approach. We also show that the EPU-effect for the FFFP is stronger for domestic firms, supporting the notion that EPU contributes to the time-series variation in the FFFP. Aiming to understand the channels, we document that EPU is uninformative regarding the investment behavior of founding family firms but negatively affects corporate investments of non-founding family firms. Overall, our results are consistent with the notion that founding family firms react less sensitive to exogenous uncertainty and thus add stability to the economic sector.

Keywords: economic policy uncertainty, firm value, founding family firms

JEL Classification: *G32, D80*

1 Introduction

Economic policy uncertainty (EPU) has experienced a substantial rise in recent years (Davis, 2020). The global EPU index of Baker, Bloom and Davis (2016) (BBD) doubled in size from the peak of the global financial crisis to the Corona pandemic. Especially Europe endured immense spikes of EPU due to events such as the Brexit referendum in 2016. A growing strand of literature documents the mostly negative implications of EPU, which affects macroeconomic growth (e.g., Baker, Bloom and Davis, 2016) and simultaneously firm-level investments (e.g., Gulen and Ion, 2016) or the cost of financing (e.g., Waisman et al., 2015). Hence, understanding the implications of this added burden, especially on a firm-level, deserves empirical attention. Family firms are a predominant organizational form worldwide (Aminadav and Papaioannou, 2020; Faccio and Lang, 2002; La Porta et al., 1999) and are considered a critical element for macroeconomic success, representing approximately 50% of European jobs (European Commission, 2009). A significant body of literature states, however, mixed effects of exogenous adverse shocks such as the global financial crisis (Lins, Volpin and Wagner, 2013), changing labor market regulations (Bennedsen et al., 2019), or the Covid 19 pandemic (Ding et al., 2021) on family firm performance. Hence, in this paper, we aim to further advance this strand of research by integrating the EPU perspective. Specifically, we examine the implications of EPU for the founding family firm premium/discount based on a large hand-collected sample of European founding family firms (FFF).

The reaction of family firms to adverse shocks is unclear a priori. Previous family firm literature suggests two main theories represented by the "risk perspective" and the "resilience perspective". Given the high concentration of family wealth in the firm (Boubaker et al., 2016) combined with the desire to maintain reputation and social capital, captured by the dimension of socioemotional wealth (Berrone et al., 2012; Gomez-Mejia et al., 2011; Gómez-Mejía et al., 2007), family firms are described as rather risk averse in previous studies (Anderson et al., 2012; Chua et al., 2003). Building upon this view, family firms were found to react more intensively by making sharp cuts in corporate investments during the global financial crisis resulting in a family firm discount (Lins et al., 2013). In contrast, the resilience perspective suggests that the concept of identification of the family with the firm and the connected goal to pass the heritage to the next generation results in a long-term (investment) perspective (Gómez-Mejía et al., 2007; James, 1999; Kandel and Lazear, 1992; Miller and Le Breton-Miller, 2006; Westhead et al., 2001). Following this line of arguments, family firms have been found to pursue comparatively stable levels of investment during periods of high political uncertainty in Italy (Amore and Minichilli, 2018) and to generate a founding family firm premium (FFFP) during the Covid-19 crisis (Ding et al., 2021). While we expect that EPU has a negative direct impact on firm value regardless of a firm's ownership structure (e.g., He and Niu, 2018; Iqbal et al., 2020), we hypothesize, according to the "resilience perspective", that, ceteris paribus, the family firm status mitigates this negative relationship. Our findings are indeed in line with this conjecture, providing support to the "resilience perspective".

For the empirical analysis, we construct a novel panel dataset capturing 1,600 listed non-financial and non-utility firms from nine European countries over the 2007 to 2016 period. We design the panel on a monthly level, including measures for Tobin´s Q and the European EPU index (EEPUI) by Baker, Bloom and Davis (2016).[1] We identify FFFs using the annual historical records of Bureau van Dijk (Osiris) and complement them with manually collected information on founding families. The resulting measure captures (i) the FFF-status (ii) on a yearly varying frequency (iii) for a European cross country sample. To the best of our knowledge, comparable literature mostly lacks at least one of these elements.

Exploiting ad-hoc (monthly) firm value responses to changes in the EEPUI, we find evidence that FFF are less negatively affected by such uncertainty. In particular, a one standard deviation increase in the EEPUI results in an on average decrease of Tobin´s Q of 5.13% (or 208 million EUR in terms of market capitalization, keeping all else equal). Accounting for the FFF-status, a one standard deviation rise in the EEPUI on average negatively affects firm value for non-FFF (FFF) by 5.41% (4.27%), corresponding to 219 (173) million EUR in terms of market capitalization. Thus, the difference between FFF and non-FFF accounts for a premium of on average 46 million

[1] In the robustness section, we also use the country specific index of policy uncertainty as alternative definition and find quantitatively and qualitatively similar results.

EUR in market capitalization, suggesting a mitigating effect of 21%. The effect is more pronounced for firms with lower international diversification (domestic firms), indicating that EPU is indeed the mechanism in play. Besides that, we draw on the importance of flexibility in times of uncertainty combined with the notion of a strong relation of FFFs to stakeholders like suppliers, customers and creditors and identify cross-sectional heterogeneity related to the degree of operational inflexibility and financial constraints. Finally, we find that the increasing FFFP can be attributed to less severe cuts in investments of family firms in response to increasing EEPUI.

One major concern in empirical research on the relation between corporate ownership and performance is the endogeneity problem (e.g., Demsetz and Lehn, 1985; Gompers et al., 2010; Himmelberg et al., 1999). We address this concern in four different ways (Wooldridge, 2010). First, to account for unobserved heterogeneity between family and non-family firms, we control for firm fixed effects by default and further perform a propensity score matching approach. Second, focusing on reverse-causality issues, considering the ownership status as a choice variable, we apply an instrumental variable approach. Third, using alternative definitions of key variables, we mitigate the measurement error problem. Fourth, we account for (omitted) alternative country-level explanations, potentially correlated with EPU and ultimately integrate country-year-month effects, implicitly controlling for all time-variant country-level variables. The results remain robust to all these types of analyses.

The results imply heterogeneity in family firms´ reactions to adverse exogenous country-level shocks. Compared to the global financial crisis, pointing towards a family firm discount, EPU exhibits the opposite effect. Hence, family firms appear to carefully differentiate between increased (bankruptcy) risk and (policy) uncertainty with the corresponding tendency towards risk aversion or rather resilience.

This research contributes to the literature in the following ways. First, we tie to the growing field of identifying moderating and mediating variables in the relation between family firms and performance (Bennedsen et al., 2019; Ding et al., 2021; Lins et al., 2013; Pindado and Requejo, 2015). Our study identifies EPU as a further determinant in this relation, fostering the understanding of the FFFP. Second, this study adds to the growing research about the performance implications of EPU at the firm-level (He and Niu, 2018; Iqbal et al., 2020). We show that the adverse performance effect of EPU is very much firm specific and depends on the corresponding blockholder type with a substantially mitigating effect for founding family firms. Finally, we add to the literature on the investment policy of family firms in times of high EPU (Amore and Minichilli, 2018). Specifically, we find that the resilience in FFF investments even persists in the context of comparably riskier types of investment, such as R&D and acquisitions, and provide a value implication for the heterogeneous investment behavior of FFFs.

2 Literature and hypotheses development

2.1 The effect of economic policy uncertainty

Since the study of Knight (1921), as one important foundation in the genesis of modern uncertainty theory, the element of uncertainty demonstrates a critical impact on decision makers on a macro- and microeconomic level (Baker, Bloom and Davis, 2016; Bloom, 2014). This paper focuses in particular on the subclass of economic policy uncertainty, which has experienced a consistent rise in previous years (Davis, 2020) and has proven to be relevant for firms in the areas of investment (e.g., Julio and Yook, 2012; Gulen and Ion, 2016; Jens, 2017; Atanassov, Julio and Leng, 2015; Bhattacharya et al., 2017; Nguyen and Phan, 2017), financing (e.g., Bordo et al., 2016; D'Mello and Toscano, 2020; Drobetz et al., 2018; Waisman et al., 2015; Phan et al., 2019; Duong et al., 2020), payout policy (e.g., Huang et al. 2015), tax avoidance (e.g., Nguyen and Nguyen, 2020) relational risk (e.g., Baxamusa, Datta and Jha, 2020) and disclosure policy (e.g., Bird et al., 2017; Nagar et al., 2019).[2]

The literature surrounding the underlying relationship of this paper, namely the effect of EPU on firm value, provides fairly conclusive evidence pointing towards a significant negative effect on a stock and firm-level. Theoretically modeling the relationship between political uncertainty and stock prices, Pástor and Veronesi (2012) show that the resulting direction of the effect is determined by the balance between the so-called cash flow effect" and "discount effect". Within their model, the government as a decision maker is interested in the prosperity of investors, measured in terms of firm profitability, and considers at the same time the costs associated with a political change. Therefore, a political transition is conducted during times of prevailing inferior

[2] For a detailed overview of the literature, see Dai and Zhang (2019).

profitability and thus, benefits from the political change outweigh the related costs. From the investor perspective, however, neither the associated costs nor the outcome of the political change is known. Hence, when a political change occurs, indicating an assumed upturn in expected profitability by definition, stock prices should increase ("cash flow effect"). Simultaneously, however, the investors' level of information decreased dramatically compared to the previous known and usual political situation. This uncertainty about the changed political conditions and their actual consequences urges investors to require higher risk premia and therefore increases firms' discount rates ("discount effect"). The study revealed a dominance of the latter effect on average, resulting in a stock price decline. In a more global setting, Brogaard et al. (2020) highlight the importance of cross country spillover effects. From a foreign country perspective, even the previously positively assumed "cash flow effect" may be detrimental for firms´ stock prices, vividly illustrated by the example of Brexit as a political decision in the UK on increasing tariffs of e.g., German firms. Empirically, the presumed impact of political uncertainty has been found to hold true based on further evidence suggesting a positive effect on the discount rate ("discount effect") and a resulting negative association to stock prices (Pástor and Veronesi, 2013; Antonakakis et al., 2013; Brogaard and Detzel, 2015; Brogaard et al., 2020; Ko and Lee, 2015; Liu et al., 2017; Waisman et al., 2015).

A further strand of research builds the effect of policy uncertainty around the theory of real options (Bernanke, 1983; Brennan and Schwartz, 1985; McDonald and Siegel, 1986; Bloom et al., 2007). From this perspective, a firm's investment policy is perceived as a line-up of multiple options to act (e.g., invest) with an associated value. The argument originates from the trade-off between expected adjustment costs and benefits from the project. The adjustment costs[3] arise in case the investment has to be reversed due to an unfavorable outcome. The value of the option not to invest directly, but to wait, increases when policy uncertainty is high, and therewith the corresponding outcomes of the investment become more insecure.[4]

[3] Adjustment costs for investments can be separated into costs associated with (i) instalment and displacement and (ii) value discount through pre-ownership and were found to account for a substantial portion of around 50% of invested capital (Ramey and Shapiro, 2001; Cooper and Haltiwanger, 2006; Bloom, 2014).

[4] The model makes three implicit assumptions. First, there is a substantial cost associated with the reversal of the investment (e.g., less likely for more flexible labor contracts). Second, firms have "time to wait" (e.g., less pronounced in a race for innovation leadership). Third, there is a connection between the investment option this period and the subsequent firm profit (e.g., not the case in perfect competitive markets) (Bloom, 2014).

Evidence promoting this concept was found, among others, by Julio and Yook (2012), Baker, Bloom and Davis (2016) or Gulen and Ion (2016), who document significant declines in corporate investment-activity. Given that firm value can be interpreted as the discounted sum of cash flows from future investment projects (e.g., Abel and Blanchard, 1986), a downturn in investment-activity (of positive net present value projects) should therefore negatively impact firm value (e.g., Lins et al. 2013). Recent studies test the effect of policy uncertainty on firm value and performance measures and find a significant negative impact for US financial (He and Niu, 2018) and non-financial companies (Iqbal et al., 2020).

Referring to the abovementioned arguments, we hypothesize that ceteris paribus EPU has a negative effect on firm value.

2.2 Is there a family firm premium?

Family firms have been found to behave differently with regards to, for example, financing (Anderson et al., 2004; Boubakri et al., 2010; Zellweger, 2007) investment (Anderson et al. 2012; Chrisman and Patel, 2012), dividend policy (Attig et al., 2016; Pindado et al., 2012), risk behavior (Anderson and Reeb, 2004; Chua et al., 2003) or their relationships with stakeholders, like employees (Huang et al., 2015; Lansberg, 1983; Sraer and Thesmar, 2007) or creditors (Crespí et al., 2015; Hillier et al., 2018). Aiming to evaluate the observed differences in terms of performance, however, literature still appears to be divided, providing evidence for both a value discount (e.g., Bennedsen and Nielsen, 2010) and premium (e.g., Maury, 2006) of family firm ownership.[5]

One could argue that performance in family controlled firms may differ due to a peculiar decision making process shaped by the underlying set of incentives (Pindado and Requejo, 2015).[6] Based on this foundation, family firms act accordingly, considering the regulatory and economic framework. Thus, in case the resulting decisions differ from non-family firms, implications for performance may arise. Bennedsen et al. (2019), for example, found the existence of a FFFP based on the

[5] For a literature review or a meta-analysis focusing on family firms and performance see, e.g., Pindado and Requejo, (2015) or Wagner et al. (2015).
[6] For completeness, the authors also describe the importance of ownership structure and the succession process as possible explanations for performance differences, which is however not the focus of this paper (Pindado and Requejo, 2015).

incentive for a strong relationship with employees in terms of lower labor volatility in low labor regulated environments. Hence, the analysis of family firms considering the economic and regulatory contexts may represent a fruitful avenue to explain the ensuing family firm premia/discounts and thus to add further clarity on our understanding of family firm performance differences.

A priori, the impact of adverse exogenous shocks on family firm performance is unclear. On the one hand, family firms could react more intensively than non-family firms, as they are described as rather risk averse (Anderson et al., 2012; Chua et al., 2003), given the high concentration of (poorly diversified) family wealth within the firm (Boubaker et al., 2016; Shleifer and Vishny, 1986). Besides that, family firms also show intense local ties with a comparatively low degree of international diversification (Dyer, 1988; Gómez-Mejía et al., 2010), limiting their opportunity to escape changing domestic economic or regulatory conditions. Also, from a financing perspective, family firms appear to be relatively financially constrained regarding equity financing due to the potential dilution of ownership and control (Croci et al., 2011). Evidence for the perspective of an increased sensitivity of family firms to adverse exogenous shocks could be found in the global financial crisis. Lins, Volpin and Wagner (2013), for example, identify a significant underperformance due to a sharp cut of (positive net present value) investments. As the financial crisis shortens liquidity and therefore increases bankruptcy risk, the family may aim to preserve its heritage by balancing risk with additional liquidity from reduced investments ("risk perspective").

On the other hand, the attested identification of the family with the firm (Kandel and Lazear, 1992; Gómez-Mejía et al., 2007; Westhead et al., 2001) and the connected goal to transfer the firm to the next generation comes with a long-term (investment) horizon (James, 1999; Miller and Le Breton-Miller, 2006). Hence, this long-term orientation may lead the family to refrain from short term investment cuts when, e.g., uncertainty increases. Further, Anderson and Reeb (2003) argue that the strong monitoring position of the family in the firm, along with decreasing asymmetric information concerns, may have a mitigating effect on risk aversion (Anderson et al., 2012). Also, the tight relationship with stakeholders, especially creditors, implies enhanced access to debt financing at better terms (Crespí et al., 2015; Hillier et al., 2018), which could rather have a stabilizing effect in adverse conditions. This "resilience perspective" of family firms was substantiated in recent studies that show less severe cuts in investments during periods of high political uncertainty in Italy (Amore and Minichilli, 2018). Finally, further corroborating this strand of research, Ding et al. (2021) found family firms to outperform during the Covid-19 pandemic. Based on the previously discussed arguments and findings, we follow the "resilience perspective" and hypothesize that ceteris paribus, the founding family firm status mitigates the negative effect of EPU on firm value.

3 Data and univariate evidence

3.1 Sample composition

This paper aims to analyze the effect of EPU on the firm value of family firms compared to non-family firms. The dataset is constructed by combining firm-level capital market (monthly level) and financial data (yearly level) from Datastream/Worldscope, yearly varying firm-level ownership information from Bureau van Dijk´s Osiris and the monthly European EPU indicator by Baker, Bloom and Davis (2016). Focusing on Europe, the nine sample countries naturally emerge from the availability of European EPU information.[7] For this universe, we analyze all active and inactive primary listed firms in the period from 2007 to 2016.[8]

Following previous literature (e.g., Villalonga and Amit, 2006), we exclude firms operating in financial or utility industries (SIC code between 6000-6999 and 4900-4999) to avoid a lack of comparability due to differences in balance sheet structure and regulatory impact. At the firm-level, we require at least positive and non-missing total assets, total sales and total shareholders' equity, suggesting a firm's viability. In order to reduce the effect of extreme observations, potentially biasing the results, we proceed in two steps. First, we do not consider firm years indicating reorganizations, defined by a one year asset growth above 100% (Chen and Chen, 2012; Jaslowitzer et al., 2018). Second, we exclude observations signaling implausible values or severe financial distress demonstrated by a debt to total assets

[7] The countries are: France, Germany, Greece, Ireland, Italy, Netherlands, Spain, Sweden and the United Kingdom; accessed on August 7 2018.

[8] The identification of sample companies within the Datastream universe follows the process defined in (Hanauer, 2014). In detail, we collect firm identifier based on country constituents lists and include only primary listed firms with security type "equity" and a corresponding location of listing and headquarter. The sample starts in 2007 due to lower data quality in the global ultimate ownership information (from Osiris) in the preceding years.

ratio above one (Baker and Wurgler, 2002) or EBITDA to total assets below minus one (Bris et al., 2009). Finally, we require available information for 60 consecutive months of contemporaneous Tobin´s q, the EEPUI, the family firm status and lagged control variables.[9] The resulting dataset consists of 1.600 unique firms with 156,250 monthly observations.

3.2 Key variables

3.2.1 Founding family firms

One of the core elements of our argumentation, namely the long-term horizon of family firms, implicitly assumes two essential characteristics – control of the firm and identification with the firm. Hence, these two elements should be considered when choosing the family firm definition. Similar to Bennedsen et al. (2019) or Franks (2012), we, therefore, opt for a relatively conservative threshold of 25% of voting rights, safeguarding the prerequisite of the potential influence of the family. Consistent with the European focus of the analysis, the 25% cutoff point is also in line with the family business definition of the European Commission[10]. The voting rights represent the total sum of voting rights of all individuals within a family, traced back through potential networks or pyramidal structures (ultimate ownership). With regards to the identification of the family with the firm, e.g., Gomez-Mejia et al. (2011) or Westhead et al. (2001) underline the importance of the element of foundation in this relation. In this light, we opt for a founding family firm definition, requiring that the owner's family is related by blood or marriage to the company's founder.

The underlying data has been extracted from Bureau van Dijk´s Osiris database. The main feature of this source is represented by the yearly varying global ultimate owner (GUO) -name and -type variables. The GUO represents the owner (for example, individual person/family or government besides others) considering any potential networks or pyramidal structures and hence safeguards identification of factual voting power within a firm (above a threshold of 25% of voting rights). For the classification process, we firstly identified all firm years with global ultimate owner types labeled

[9] As a robustness test in untabulated results we found consistent support for our main analysis when using 24, 36 or 48 consecutive periods, corresponding to a number of sample firms of 2,595, 2,224 and 1,900, respectively.
[10] For more details, please see: https://ec.europa.eu/growth/smes/supporting-entrepreneurship/family-business_en, accessed on November 4 2021.

as “One or more named individuals or families”[11]. For all these observations, we secondly hand collect information about the firm’s founder using publicly available information. Thirdly, in case a relation by blood or marriage was verified between the founder of the firm and the current ultimate owner, a classification as founding family firm was applied (FFF). Finally, the classifications were reviewed on a firm-level and checked for consistency.[12]

The main features of the resulting family firm classification are represented by a (i) yearly varying (ii) founding family firm dummy (iii) for a European cross country sample. In contrast, to the best of our knowledge, previous literature mostly lacks at least one of these elements. Table 1 Panel A presents the resulting distribution of family firm observations across sample countries. First, we find that the general pattern of a higher frequency of founding family firm observations (and firms) in continental Europe (Italy 49%, Greece 45% or France 43%), compared to the UK (9%) and Ireland (6%), holds in this dataset (Faccio and Lang, 2002; Lins et al., 2013). Second, the total sum of firms with a family or an individual (not necessarily the founding family) as GUO accounts for 46% of sample firms, which appears to be fairly comparable to the 48% (excluding financial companies) found by Faccio and Lang (2002). Considering that founding family firms represent only one part of the category of “family or individuals as global ultimate owner”, the overall fraction of founding family firms[13], with 27%, appears to be plausible.

[Table 1]

3.2.2 Economic policy uncertainty

The choice of the policy uncertainty variable naturally emerges from our research design. By exploiting ad-hoc monthly firm value responses to changes in policy uncertainty, we aim to increase the precision of our estimation and simultaneously reduce the potential impact of alternative explanations compared to quarterly or yearly analyses. Consequently, besides monthly firm value data, this design requires a policy uncertainty measure on a comparable frequent scale, letting us opt for the

[11] The wording of this global ultimate owner type varied over the sample years but always refers to the same type of owner.
[12] The European family firm dataset used in this study was first described in Fütterer, Kononova, and Rapp (2021). Please see here for further details.
[13] When referring to the firm level, we categorize a firm as a founding family firm when at least one observation of the firm was classified as founding family firm in the sample period.

monthly available EPU indicator developed by Baker, Bloom and Davis (2016). This index represents a well-established measure in literature and has been shown to be of relevance at a macro and microeconomic level (e.g., Dai and Zhang, 2019). In contrast to political uncertainty (Amore and Minichilli, 2018; Jens, 2017; Julio and Yook, 2016) capturing the general level of the political dimension, frequently measured using elections, EPU represents a more holistic approach including various types of policy related uncertainty, e.g., tax policy or foreign affairs (Gulen and Ion, 2016; Nguyen and Phan, 2017). Finally, using the BBD-index further allows for variation within and between events of increased policy uncertainty beyond a general dichotomous categorization based on election dummies (Gulen and Ion, 2016).

The free available[14] EPU index is created based on textual analysis. Scott Baker, Nicholas Bloom and Steven Davis, who developed the index, conduct a keyword count of newspaper articles, including terms related to uncertainty. For example, articles are classified as policy uncertainty related in case they contain the words "uncertain" or "uncertainty", "economic" or "economy" and an additional policy-related term such as "regulation" or "deficit" (besides others). The keywords are translated in the corresponding language of the specific country. The resulting number of articles is then divided by the total number of articles in the corresponding month and newspaper and finally transformed into a continuous monthly varying index.[15]

Focusing on European firms and considering the high degree of economic interdependence and regulatory integration within the European Union, we follow Boumparis et al. (2017) and opt for the European EPU index by Baker, Bloom and Davis (2016). This approach also provides us with the ability to better account for potential spill-over effects between countries documented in the literature (Brogaard et al., 2020; Klößner and Sekkel, 2014; Ko and Lee, 2015). The EEPUI considers articles from ten leading European newspapers as the basis for index construction (equally weighted). We standardize the time-series such that it starts with a value of 1.00 in January 2007 to ease interpretation. Following Baker, Bloom and Davis (2016), we use the logarithmic transformation of the standardized EEPUI variable to enhance distributional characteristics ($lnEEPUI^{07}$). Figure 1 shows the logarithm of the

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[14] The data was downloaded from https://www.policyuncertainty.com/europe_monthly.html, accessed on August 7 2018.
[15] For a detailed description please see Baker, Bloom, and Davis (2016).

standardized EEPUI over the sample period from 2007 to 2016. The graph reveals substantial spikes near events like the global financial crisis in 2008 or the Brexit referendum in 2016. The range of the index varies from around -0.2 at the beginning of 2007 to more than 1.8 in 2016.

[Figure 1]

3.2.3 Measuring firm value

Interested in exploring the existence of a FFFP and whether it depends on the level of EPU, we use Tobin´s Q as a measure of firm valuation (e.g., Barontini and Caprio, 2005; Maury, 2006; Villalonga and Amit, 2006). Given the absence of precise data for a firm´s replacement costs (Gompers et al. 2010; Thomsen et al. 2006), we follow the approach conducted by Kaplan and Zingales (1997), defining Q as the market value of assets to the book value of assets. The components are defined as in Fauver and McDonald (2014) by total market capitalization of equity plus the book value of debt divided by the book value of total shareholder´s equity plus the book value of debt.[16]

Accounting for the concern of measurement error in Q, especially with respect to the discrepancy between replacement costs and balance sheet values for intangible assets, we proceed twofold following Gompers et al. (2010). First, we apply a log transformation of Q in the main specification (lnQ), representing an established way to mitigate the effect of outliers, balancing the right skewed Q distribution. Second, as a robustness check, we re-estimate the main model using −(1/Q) ($Transformed\ Q$) as dependent variable. This approach shifts the measurement error from the denominator to the numerator, mitigating the effect of extreme observations. Both approaches deliver quantitatively and qualitatively similar results. Table 1 Panel B provides summary statistics for Tobin´s Q. The median Q of 1.33 appears to be fairly comparable in size with regards to the literature covering similar countries, as, for instance, Maury (2006) with a value of 1.26.

[16] The market capitalization represents the sum of all shares of the firm. Unlisted shares are measured at prices of corresponding listed shares following Gompers et al. (2010). As a robustness check, we also apply an alternative definition of Tobin´s Q ($Tobin's\ Q2$) as in Gompers et al. (2010), showing qualitatively and quantitatively similar results.

3.3 Firm- and country-level control variables

With Tobin´s Q as the key dependent variable, we include a set of firm and country-level control variables that have been shown to have explanatory power in previous studies, mainly inspired by Bris et al. (2009). We extend this choice by incorporating dividend payment, sales growth and a measure of diversification as further established determinants of Tobin´s Q (Villalonga and Amit, 2006) as well as firm age and a dummy variable, capturing firms with a non-family blockholder, as family firm specific control variables (Anderson et al., 2012; Andres, 2008).

Firm-level controls are defined as follows: logarithm of total assets ($Size$); EBITDA divided by total assets ($Profitability$); total debt scaled by total assets ($Leverage$); property plant and equipment divided by total assets ($Tangibility$); capital expenditures divided by total assets ($Capex$); research and development expenses divided by total assets ($R\&D$); entropy measure (Palepu, 1985) based on product segment sales ($Diversification$); dummy variable equal to one in case a non-founding family firm blockholder exists (above 25% of voting rights) and zero otherwise ($Other\ Ultimate\ Owner$); dummy variable equal to one in case cash dividends were paid and zero otherwise ($Dividends$); logarithm of the difference between year of foundation and current year (Age); logarithm of sales divided by last period sales ($Sales\ Growth$). Country controls are represented by the logarithm of GDP per Capita ($GDP\ per\ Capita$), seasonally adjusted GDP growth rate ($GDP\ Growth$) and the logarithm of the change in the domestic currency compared to the USD ($Change\ in\ Exchange\ Rate$). More detailed definitions of variables can be found in Table 10. All non-dichotomous firm-level variables are winsorized on a monthly basis at the 1% and 99% threshold, to mitigate concerns over extreme values.

Table 1 provides summary statistics for firm-level (Panel C) and country-level (Panel D) variables. The average sample company exhibits a mean of 3,934 million EUR in total assets, $Profitability$ of 9.9%, $Leverage$ of 20.9%, $Tangibility$ of 22.8%, $Capex$ of 4%, $R\&D$ of 1.7% and $Diversification$ of 0.634. A given firm is 61 years old and shows a $Sales\ Growth$ of 5.1% per year. A fraction of 27.8% of firm observations have $Other\ Ultimate\ Owner$ and 70.2% pay $Dividends$. Interested in comparing family with non-family firms, Table 2 gives information about differences in means regarding the firm-level control variables. As expected, founding family firms appear to be smaller, younger, more levered, and invest more in $Capex$ but less in $R\&D$ compared to non-founding-family firms (e.g., Anderson et al., 2012; Fahlenbrach, 2009; Pindado, 2014).

[Table 2]

3.4 Univariate evidence

We start our investigation with a bivariate scatter-analysis by examining the relation between the FFFP and EPU. Thereby, we aim to visualize the monthly FFFP against the monthly development of $lnEEPUI^{07}$. Given that the FFFP varies across firms and months, in a first step, we perform month-by-month cross-sectional regressions to receive a monthly varying measure of the FFFP based on equation 1.

$$lnQ_{i,t} = a_0 + \beta_1 \, FFF_{i,t} + XControls_{ci,t-\tau} + \zeta_i + \varepsilon_{i,t} \qquad (1)$$

The term $lnQ_{i,t}$. represents the logarithm of Tobin´s Q (as in section 3.2.3) for month (t) and firm (i), $FFF_{i,t}$ describes the founding family firm dummy (as in section 3.2.1), and $Controls$ embodies a vector of lagged control variables as described in section 3.3 to account for heterogeneity in firm- as well as country(c)-characteristics. By default, the time unit is defined on a monthly basis, controls are lagged by τ-periods depending on the frequency of the respective variable.[17] Given that firm fixed effects would absorb all variation within a month, we include industry effects and country effects (ζ) to control for industry-specific and country-specific time invariant heterogeneity. The ε_{it} is the error term. In order to account for potential time-trends in the data, the FFFP (β_1) and the standardized EEPUI measure ($lnEPU^{07}$) are detrended based on separate regressions of both variables on a monthly time trend.[18] The error term of the corresponding regression captures the detrended version of each variable (β_1^{dt}; $lnEEPUI^{07,dt}$), which are plotted in Figure 2. The scatterplot shows a positive correlation with a significant coefficient of 0.0265 (t-value: 3.09), which

[17] Yearly and quarterly varying control variables, despite the other blockholder variable, are lagged by τ-periods to integrate the most recent available value of the corresponding variable from an investor perspective in time t. Given that the other blockholder dummy variable should capture a general blockholder effect, it is kept in the same time period as the family firm dummy and therefore not lagged. For example, τ would represent 12 for yearly and 3 for quarterly data.

[18] Note that time fixed effects could not be included in the month-by-month regressions.

suggests a first evidence of a positive correlation between the FFFP and economic policy uncertainty.

[Figure 2]

4 Empirical results

4.1 Estimation method

The starting point of the multivariate estimation constitutes the analysis of an EPU effect on firm value. To this end, we modify equation 1 and introduce the baseline firm-fixed effects panel regression model in equation 2.

$$lnQ_{i,t} = a_0 + \beta_1 FFF_{i,t} + \beta_2 lnEEPUI^{07}{}_t + XControls_{ci,t-\tau} + \gamma_i + \varphi_t + \theta_{c,t} + \varepsilon_{i,t} \quad (2)$$

The term $lnEEPUI^{07}$ is the logarithm of the standardized European EPU index (as in section 3.2.2). With γ_i, we include firm fixed effects to account for time invariant firm specific heterogeneity (Wooldridge, 2010). Following the suggestion of Gulen and Ion (2016), we add a set of month and fiscal month dummies capturing seasonality in investments, presumably affecting Tobin´s Q (φ_t). Finally, θ_{ct} represents country-year effects accounting for country specific time dependent shocks potentially correlated with EPU (see, e.g., Brogaard et al., 2020) and the firm´s fiscal year capturing deviations in fiscal and calendar years. Heteroscedasticity consistent standard errors are clustered at the country-level to allow for serial correlation of residuals within countries (Petersen, 2009). Based on our prediction, we would expect β_2 to exhibit a negative sign, implying a value discount of EPU.

To test the second hypothesis, which focuses on whether the FFF dimension shapes the expected negative relation between EPU and firm value, we expand the baseline model with an interaction term as captured in equation 3.

$$lnQ_{i,t} = a_0 + \beta_1 FFF_{i,t} + \beta_2 lnEEPUI^{07}{}_t + \beta_3 lnEEPUI^{07}{}_t * FFF_{i,t} + XControls_{ci,t-\tau} + \gamma_i + \varphi_t + \theta_{c,t} + \varepsilon_{i,t} \quad (3)$$

The average effect of EPU on firm value is now split into the impact for non-FFFs (β_2) and FFF ($\beta_2 + \beta_3$). In line with our theoretical framework and hypotheses, we expect a negative sign for β_2 and a positive one for the estimated coefficient on the interaction term (β_3), which would support the idea that FFF are less heavily affected by EPU compared to non-FFFs.

4.2 Baseline results

The main regression results are presented in Table 3. We initially examine the effect of EPU on firm value (column 1), while further conditioning dummies are stepwise added, starting with the seasonality effects (column 2) followed by the country-year effects (column 3). The negative EPU effect remains statistically significant (at the one percent level) and rather stable throughout all specifications. The slight decrease in the magnitude of the impact when we include the country-year effects appears to be intuitive, given that this inclusion captures all yearly variation and consequently only allows for monthly changes within a given year and country. Based on the most restrictive specification so far (column 3), an estimated coefficient of -0.131 can be observed. From an economic perspective, this implies that ceteris paribus, a one standard deviation increase in EPU, decreases the firm value by 5.13% on average. Keeping all else equal, this would imply a decrease in market capitalization by 208 million EUR[19], thus supporting a considerable economic impact. Also, the signs of control variables appear to be as expected, with a positive significant effect of $Profitability$, $Capex$, $Dividends$, $Sales\ Growth$ and $GDP\ Growth$ and a negative significant impact of $Leverage$ (weakly significant) and $Tangibility$.

Column 4 (based on equation 3) splits the average EPU effect into non-FFFs ($lnEEPUI^{07}$) and FFFs ($lnEEPUI^{07}\ x\ FFF$). The EPU effect for non-FFFs slightly increases compared to the average effect with a decrease of 5.41%, corresponding to 219 million EUR in market capitalization. In contrast, the positive coefficient for the interaction term implies a significant difference between the two groups, with FFF being significantly less affected (0.029) than non-FFF. Hence, an increase in EPU by one standard deviation would decrease firm value for FFFs by only 4.27% or 173 million EUR. This corresponds to a difference in impact for market capitalization of 46 million EUR or 21%, indicating the existence of a FFF-premium in times of high EPU.

[Table 3]

[19] With an average market capitalization of 2,847,546 (EUR thous.), mean total debt of 1,209,685 (EUR thous.), a mean total shareholder´s equity of 1,382,350 (EUR thous.) and a resulting mean Q before the EUPU effect of 1.57 and after the effect of 1.48.

4.3 Endogeneity

4.3.1 Propensity score matching

Founding family firms have been shown to exhibit a particular profile in terms of various firm characteristics compared to their non-FFF counterparts. They are often described as smaller, more levered, or having a different taste regarding capital allocation with more investments in Capex and less in R&D (e.g., Anderson et al., 2012; Pindado et al., 2014).[20] Beyond that, one can also observe the specificities of FFFs by their higher prevalence in certain industries (Villalonga and Amit, 2006) or regarding countries with a higher representation of FFFs in continental European countries and lower in Anglo-Saxon countries like the UK or Ireland. This observation highlights the possible existence of certain industry or country variables that are correlated with the FFF status, which might also be related to firm value. Consequently, the observed effects in this study may suffer from an endogeneity problem due to unobserved heterogeneity on a firm, industry or country-level, despite the fact that in our main regression analyses, we already account for firm fixed effects. To address this concern, we perform additional analyses adopting a propensity score matching approach. The idea of this test is to find a highly identical non-FFF for each FFF in the same country with similar firm and industry characteristics, which in turn further reduces possible concerns over heterogeneity in our comparison of FFFs and non-FFFs.

Following Bennedsen et al. (2019), we, therefore, match each FFF in the same country with a non-FFF (nearest neighbor, without replacement) based on its industry affiliation, $Firm\,Size$, $Leverage$, and $R\&D$.[21] We further account for the fact that propensity scores may still differ substantially between the matched pairs, due to the lack of an appropriate partner. To this end, we apply a caliper constraint, defining the maximal distance between scores of matched pairs.[22] Columns 1 and 2 of Table 4 provide the results based on a caliper restriction of 0.01.[23] Despite the fact that the number of observations is more than halved (from 156,250 to 66,879), the results

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[20] These differences can also be confirmed for this dataset on a univariate basis (section 3.3).

[21] Given that the number of industry categories reduces the pool of potential matching partners, we use the Fama-French 30 industry for this analysis. Based on the very low number of firms in Ireland, which increases the concern of heterogeneity even after the matching procedure due to a lack of possible matching-partners, we exclude this country from the analysis.

[22] The results remain also qualitatively and quantitatively similar without any caliper constraint.

[23] For a similar sized caliper restriction see, e.g., Simintzi et al. (2015).

remain statistically significant with stable coefficients for both the EPU impact (column 1) and the FFF interaction effect (column 2). Further challenging the results, we apply a more conservative threshold for the caliper restriction (0.001), again substantially limiting the number of observations to 37,847 in columns 3 and 4. The result remains consistent with the previous ones, thus corroborating the robustness of the effects, with even a slight increase in the magnitude of the coefficients in column 4. In sum, we can document that the observed effects remain statistically and economically similar in the resulting matched sample(s), mitigating the concern of firm, industry or country-level heterogeneity.

[Table 4]

4.3.2 Instrumental variable approach

To a certain degree, to be or not to be a FFF may be an active decision of the family. Family members can decrease (selling shares) or increase (buying shares) their equity stakes in the firm and hence determine whether the firm remains family controlled. It might well be that the family decides on the level of ownership based on particular factors, such as performance or (policy) uncertainty about the future outlook. Consequently, the results may suffer from an endogeneity problem concerning reverse causality (Demsetz and Lehn, 1985; Himmelberg et al., 1999; Bennedsen et al., 2019), as the possibility exists that the FFF status is contingent on firm value or EPU (or both). To address this concern, we conduct a two stage instrumental variable approach.

Given the challenge to find appropriate instruments, first, we follow previous literature exploiting industry-level information to proxy for the FFF status (e.g., Amit et al., 2015). The industry based instrument captures the frequency of FFF observations in a given country and industry. In detail, for each observation, all FFF observations within the same country and Fama-French 48 industry are summed up, the corresponding FFF-status is deducted and then divided by the total number of observations in the corresponding country industry minus one ($FFF - Proportion$). As the measure is by construction positively related to the founding family firm status, the necessary correlation between these variables is present. Beyond that, by deducting the own observation´s FFF status, the instrument should become exogenous with respect to the firm value of the corresponding company. Hence, the proposed instrument should fulfill the necessary requirements (i.e., the exclusion restriction and the relevance condition).

The second instrument draws on the life cycle of a founding family firm. The older the firm and especially the founder gets, the smaller the likelihood of a FFF-status (Adams, 2009; Fahlenbrach, 2009; Franks et al., 2012). This rationale becomes intuitive by simply considering the challenge of succession. Based on the FFF-definition, there is not only the possibility that succession fails but also, in case another individual or family takes over the firm, that these new leaders are not related by blood or marriage to the founder of the firm. As both options would result in a loss of the FFF-status, we expect a strong negative correlation between the founder's age (assumed death) and the FFF-status.

Given the sample size of 1,600 companies, we rely on an assumption when identifying the death of the founder. Fahlenbrach (2009), with a sample period starting in 1992, suggests that the founder of a firm that was set up before 1940 will most likely be dead. Hence, we transfer the difference of 52 years to our sample, starting in 2007, which results in a threshold of 1955.[24] The instrument ($Early\,Foundation$) is created as a dummy variable equal to one for all firms founded before 1955 and zero otherwise. The resulting measure should be negatively correlated to the founding family firm status and simultaneously be uncorrelated to firm value, considering the set of control variables (Fahlenbrach, 2009).

Table 4 columns 5 to 7 present the regression results for the two stage least squares instrumental variable approach. Given that one of the instruments is based on the year of foundation, and hence time invariant, we do not include firm fixed effects in these regressions. Interested in the interaction effect of FFF in times of high EPU, we instrument for both the FFF-base effect (column 5) as well as the interaction effect (column 6) and therefore conduct two first stage regressions (Bennedsen et al., 2019). The model includes the same control variables as in equation one for all stages. As expected, we can observe a positive (negative) significant coefficient for the $FFF - Proportion$ ($Early\,Foundation$) variable indicating necessary correlation to the endogenous regressor. The second stage regression (column 7), confirms the

[24] In untabulated results, we also applied a threshold of 1950 and 1960, showing qualitatively and quantitatively similar results.

negative significant effect of EPU for non-FFFs ($lnEEPUI^{07}$) and an incremental positive significant effect for FFFs in times of rising EPU ($lnEEPUI^{07} x\, FFF$). The size of the statistically significant coefficients substantially increased, as commonly documented in this type of analysis (Bennedsen et al., 2019). Confirming the validity of the model, the significant Kleipenbergen-Paap rk Wald F test statistic (37.44) provides statistical support to the notion that there is a sufficient correlation between the instruments and the endogenous variable. Finally, the insignificant Hansen test (0.292) provides some empirical evidence that the instruments chosen are valid, confirming the second condition of the IV-approach. To conclude, concerns over endogeneity can be mitigated based on the presented results.

4.4 Cross-sectional heterogeneity

Interested in further understanding the effect of policy uncertainty on the firm value of FFFs and non-FFFs, we focus on three potential sources of heterogeneity. First, to further substantiate that EPU is indeed the mechanism in play, we integrate the dimension of geographic diversification ($Domestic$) in the model. Second, we draw on the notion that flexibility is especially valuable in times of uncertainty combined with the tight relations of FFFs to stakeholders like suppliers, customers as well as creditors observed in literature and analyze cross-sectional heterogeneity in terms of operational inflexibility ($Inflexibility$) and financial constraints ($Financially\ constrained$).

4.4.1 Domestic firms

EPU is, by definition, first of all, related to a given country or region. As a consequence, firms with only a rather local geographic footprint will be fully exposed to local EPU in their home country. In contrast, companies with an international structure have the option to shift capital allocation to subsidiaries in countries with comparable lower EPU in case increased EPU in the home market made investment projects unattractive (Amore and Minichilli, 2018; Hill et al., 2019). Also, the adverse effect of EPU on the cost of financing (e.g., Waisman et al., 2015) might be mitigated when firms have access to capital providers in a low-EPU country through foreign subsidiaries. Prior research has already documented a preference of firms situated in countries with relatively high EPU towards foreign direct investments into comparable low-EPU countries (e.g., Nguyen et al., 2018). In order to test for diversification specific heterogeneity of the EPU effects for FFFs, we define a variable that is equal to one for domestic firm observations and zero otherwise, with regards to the fraction of local assets to total assets.[25] Based on the previous argument, we expect that the effect of EPU on FFFs and non-FFFs is more pronounced for domestic firms with a lack of options to shift investment or financing-activity to low EPU countries.

The results in Table 5 column 1 suggest that the effect of EPU is more negative (positive) for non-FFFs (FFFs) indicated by a negative (positive) significant coefficient for $lnEEPUI^{07}\ x\ CSH$ ($lnEEPUI^{07}\ x\ FFF\ x\ CSH$) of -0.042 (0.077). Hence, the results imply further evidence that EPU is indeed the mechanism in play.

[Table 5]

4.4.2 Inflexible firms

Given that EPU negatively affects the option value of corporate actions, flexibility should become more valuable during these periods. In detail, firms with per se high flexibility in investment opportunities and operating capacity should have the resources/means to react to such exogenous variations in a timely manner. Hence, a high level of (operating) flexibility increases potential cost savings, e.g., lowers overproduction or minimizes capital misallocation caused by changing conditions due to rising EPU. By the same token, a high degree of flexibility provides the firm with the opportunity to react to ad hoc decreasing EPU. Hence, flexibility enables the firm to promptly approach new investment opportunities or increase consumption/demand as soon as a more precise outlook towards market conditions returns (Grullon et al., 2012).

Drawing on real option literature, Grullon et al. (2012) identify these very kind of flexible firms based on the sensitivity of changes in volatility to stock prices (real option intensity). The authors argue that firms with the capacity to react flexibly to positive and negative shocks in, e.g., demand, which increases stock volatility,

[25] Considering the time lag from foreign direct investment to the completion of a subsidiary, allowing for diversification effects, we focus on the element of already established international assets and additionally use a two-year average value. We define a firm observation as domestic, in case the fraction of local assets (two-year-average) to total assets (two-year-average) is within the fourth quartile within a given country, industry (Fama-French 48) year, zero otherwise. Local assets are defined as total assets minus international assets (provided by Worldscope/Datastream). Following this approach allows for a relative assessment of diversification, which might vary over time (waves of international M&A) across countries or industries (e.g., Servaes 1996) and hence to carve out comparative (dis)advantages of firms which in turn may impact valuation. Based on common practice, we assume international assets to be zero if missing and to be equal to total assets if exceeding total assets.

experience a positive effect on share prices. Thus, firms with a positive coefficient of real option intensity demonstrate an inherent (market assigned) ability to act flexibly to changing volatility.[26] Based on the previous rationale, we expect that the negative effect of EPU should be more pronounced in rather inflexible firms, with a low degree of real option intensity, not having the capacity of timely reactions.

FFFs are often considered to follow a long-term orientation (e.g., James, 1999), which fosters stable and long-lasting relationships to external stakeholders like suppliers and customers (e.g., Carney, 2005). This strong relations are suggested to have a social-insurance-like character, in times of adverse exogenous environments implying a comparative advantage towards non-FFFs without these strong connections (Godfrey, 2005; Gomez-Mejia et al., 2011). Hence, there should be a higher probability for FFFs to find timely agreements regarding an, e.g., decrease in the delivery of raw materials with suppliers or stable purchase quantities with customers in times of rising EPU. Conclusively, this comparative advantage of FFFs compared to non-FFFs based on social ties should be more pronounced in an overall inflexible environment, which in turn increases the FFFP.

To test this conjecture, we create a dummy variable equal to one for inflexible firm observations and zero otherwise, based on the corresponding real option intensity.[27] The results for this analysis are provided in Table 5 column 2 and suggest that the effect of EPU is more negative (positive) for inflexible non-FFFs (FFFs). In detail we consistently find a negative (positive) significant coefficient for the interaction between $lnEEPUI^{07} x\ CSH$ ($lnEEPUI^{07}\ x\ FFF\ x\ CSH$) of -0.022 (0.030). In sum, the result substantiates the importance of operating (in-)flexibility in uncertain times and suggests further evidence for a comparative advantage of FFFs.

4.4.3 Financially constrained firms

Relatively recent studies suggest a positive relation between EPU and the cost of capital (e.g., Gilchrist et al., 2014; Pástor and Veronesi, 2013; Waisman et al., 2015). In case a firm already suffers from limited access to external funds, the effect of EPU

[26] The measure of Grullon et al. (2012) is frequently used in literature, for instance in the study of Lee et al. (2018), who find a negative association of CEO short-termism to real option intensity, due to a reduced incentive to build real option potential. In this study, we compute the measure of real option intensity following Lee et al. (2018), as they modify the approach of Grullon et al. (2012) to a yearly varying firm specific variable.

[27] In detail, the variable "Inflexibility" is defined as a dummy variable equal to one in case real option intensity is below median in a given country, industry (Fama-French 48) year, zero otherwise.

should hence intensify this problem. With respect to FFFs, one could argue that this type of firm experiences a benefit regarding access to financing. This argument can be based on several specific characteristics observed in previous works that point towards a stronger alignment of interest between family firms and creditors (e.g., Hillier et al., 2018). First, there is a strong incentive for FFFs for a long-term survival of the firm, and hence not solely to follow the goal of pure shareholder wealth maximization, given the high concentration of (mostly undiversified) family wealth within the firm (Boubaker et al., 2016). Second, FFFs have a preference for rather low risk investments when using externally provided funds (Anderson et al., 2012). Finally, an increasing strand of literature highlights the concern of the family about its standing in society, as captured by the socioemotional-wealth dimension (Berrone et al., 2012; Gomez-Mejia et al., 2011; Gómez-Mejía et al., 2007). Consequently, one could assume that the increased pressure on financing constraints could be less harmful to FFFs.

To shed some light on this line of reasoning, we run an additional analysis incorporating the perspective of financial constraints. In order to quantify this characteristic, we refer to the work by Almeida, Campello and Weisbach (2004), which developed the measure of cash-to-cash flow sensitivity. The idea behind this concept is that more financially constrained firms have the incentive to accumulate cash from internal cash flows. Hence, the higher the cash-to-cash flow sensitivity, the higher the dependence on internal cash flows, and consequently, the higher the degree of financial constraints. Building upon this, in a first step, we compute the 5-year rolling cash-to-cash flow sensitivity for each sample firm. In a second step, to facilitate interpretation, we create a dummy variable of financial constraints equal to one for observations within the third tercile of the corresponding industry (Fama-French 48) year and zero otherwise.

The results in Table 5 column 3 corroborate the propositions presented above as they indicate that the effect of EPU is significantly more negative for financially constrained non-FFF ($lnEEPUI^{07}\ x\ CSH$; -0.029) and more positive for financially constrained FFFs ($lnEEPUI^{07}\ x\ FFF\ x\ CSH$; 0.076). Conclusively, the results underline the increased need for financial flexibility in uncertain times and suggest a further indication in favor of rather superior access to external financing of FFFs.

4.5 Channel analysis

Real option theory of investments in times of increasing (policy) uncertainty combined with the "resilience perspective" on founding family firms constitute the central elements in this study. FFFs are expected to rather maintain their level of investments even if EPU increases, as opposed to non-FFFs (Amore and Minichilli, 2018). The resulting disparity in investment projects should then translate in a valuation difference – namely, a FFFP. Consequently, with this channel analysis, we aim to further substantiate the proposed line of reasoning.

To this end, we adjust our model from equations 1 and 2 in several ways. First, the dependent variable is changed to measures of investment. Second, given that the dependent variable now varies on a yearly basis, we accordingly adjust the time frequency of the analysis from monthly to yearly. Third, related to this, we consistently modify the EPU variable to a yearly frequency. In detail, yearly EEPUI ($YlnEEPUI^{07}$) is defined as the average $lnEEPUI^{07}$ of the final six month of the prior fiscal year (Sha et al., 2020). Fourth, we include the market to book ratio to capture investment opportunities (Julio and Yook 2012) as well as cash holdings reflecting the state of liquidity (An et al., 2016) as two further control variables, given that they have been shown to exhibit explanatory power in investment analyses. Finally, in the firm fixed effects regressions, we refrain from controlling for country-year effects, as they would now totally absorb the yearly EEPUI effect.

Starting from an aggregated perspective, columns 1 and 2 of Table 6 present the results for $Full\ Investments$, defined as the sum of capital expenditures, research and development expenses, and acquisitions scaled by total assets.[28] The analyses show, as expected, an average negative effect of EPU ($YlnEEPUI^{07}$; -0.014) on firm investment. Differentiating between family and non-FFFs, we find evidence for a significant reduction in $Full\ Investments$ for non-FFFs ($YlnEEPUI^{07}$; -0.018). The negative effect of EPU on $Full\ Investments$ is significantly mitigated for FFFs, as indicated by the positive interaction term ($YlnEEPUI^{07}\ x\ FFF$; 0.014). From an economic perspective, doubling EPU (level-log model) would imply an average decrease in mean $Full\ Investments$ by 17% (column 1). Based on the same reasoning

[28] Following common practice in previous literature, we assume research and development expenses as well as acquisitions to be zero if missing (e.g., Breuer et al. 2017).

and applying it to the results presented in column 2, the estimated coefficients suggest that while $Full\ Investments$ decline in non-FFFs by 22% compared to the mean, the adverse effect for FFFs only accounts for 5% in mean reduction.[29]

Given our interest in the underlying determinants, we split $Full\ Investments$ into two parts. First, $Capex$ defined as capital expenditures scaled by total assets (columns 3 and 4) and, second, $R\&D\ and\ Acquisitions$ specified as the sum of R&D expenses and acquisitions divided by total assets (columns 5 and 6). The categorization of the investment measures is based on the assumed level of inherent risk, which is suggested to be lower for $Capex$ and comparably higher for $R\&D\ and\ Acquisitions$.[30] Based on prior research that focuses on risk aversion, FFFs appear to prefer rather low-risk types of investments, such as capital expenditures, but to engage less in riskier projects such as those intensive in R&D (Anderson et al., 2012). In cases in which EPU increases and hence impedes the assessment of investment outcomes, one could argue that FFFs show resilience for low-risk types but proceed just like non-FFFs when it comes to per se risky investments.

Columns 3 and 4 of Table 6 provide the results for the impact of EPU on $Capex$. On average, we find a negative coefficient of EPU on $Capex$ in column 3 ($YlnEEPUI^{07}$; -0.003). If we assume that EPU doubles, we would see an 8% decrease in mean investments, corroborating the statistical and economic significance of the result.[31] Focusing on the ownership interaction effect, we find in column 4 that FFFs reduce $Capex$ significantly less ($YlnEEPUI^{07} + FFF$; -0.02) compared to non-FFFs ($YlnEEPUI^{07}$; -0.04) in line with previous literature (Amore and Minichilli, 2018). A 100% increase in EPU would translate into a 10 % (5%) decrease in mean $Capex$ for non-FFFs (FFFs), again corroborating the economic importance of the finding.

[29] As this analysis is conducted on a yearly sample, we should clarify the used mean values for Full Investments (0.080), Capex (0.039) and R&D and Acquisitions (0.041).

[30] Despite the arguably differing characteristics of R&D and acquisitions, recent evidence suggests that a vast majority of deal value in M&A transactions consists of intangible assets and goodwill. The sum of these more risky immaterial components accounts for around 80% in the analysis of Ewens et al. (2020), suggesting a convergence of M&A transactions towards the higher level of associated risk expected from R&D.

[31] While the effect therefore appears to be economically important, it is comparable but still smaller than the one found by Gulen and Ion, (2016), who report a 24% decrease. A potential explanation for the difference could lie in the underlying models, with Gulen and Ion using quarterly policy uncertainty shocks, possibly showing higher responsiveness compared to the yearly data used in this analysis. Also regional differences between the US and Europe might play a role.

Finally, with regards to the riskier type of investment, a similar pattern can be detected (columns 5 and 6). The average negative effect of EPU ($YlnEEPUI^{07}$; -0.011) represents a 27% decrease in mean $R\&D\ and\ Acquisitions$ (column 5) when EPU doubles. Differentiating between ownership groups, and again assuming an increase of EPU by 100%, non-FFFs (FFFs) would suffer from a 34% (5%) decrease in mean $R\&D\ and\ Acquisitions$. Hence, this group of investments shows a substantial differential effect between family- and non-FFFs with a difference of 29 percentage points. The result should, however, be interpreted with caution, given the weak level of statistical significance of the interaction term ($YlnEEPUI^{07}\ x\ FFF$, 0.012).

In sum, our empirical evidence further corroborates the proposed argumentation of an investment channel that contributes to explaining the divergence in valuation between family and non-FFFs.

[Table 6]

4.6 Robustness of results

4.6.1 Alternative measures

In order to mitigate potential concerns over measurement error, we challenge our results using alternative definitions for all key variables – Tobin´s Q, EPU and the FFF classification.

4.6.1.1 Firm value

The correct calculation of Tobin´s Q has been widely debated in the literature (e.g., Gompers et al., 2010) (also see section 3.2.3). To account for the issue of measurement error, we proceed twofold. First, we apply a different definition of Tobin´s Q ($lnQ2$), following Gompers et al. (2010).[32] Second, we perform a Q transformation proposed by Gompers et al. (2010), adjusting Q to -1/Q ($Transformed\ Q$). By doing so, the measurement error, represented by an overestimation of the replacement value, particularly due to intangible assets, switches from the numerator to the denominator, reducing its impact. Table 7 provides results for $lnQ2$ (columns 1 and 2) and $Transformed\ Q$ (columns 3 and 4).

[32] Tobin´s Q is defined as (book value of assets + market value – book value of equity – deferred taxes)/book value of assets.

The results remain qualitatively and quantitatively significant, further corroborating our previous findings.

[Table 7]

4.6.1.2 Economic policy uncertainty

So far, we have focused on the European EPU index provided by BBD. To check the robustness of our regression results, we challenge this definition by applying a local, country specific measure for EPU.

Specifically, we utilize the local EPU measures from Baker, Bloom, and Davis (2016) for France, Germany, Italy, Spain and the United Kingdom; the local EPU index for Greece provided by Fountas, Karatasi and Tzika (2018); the local EPU index for Ireland developed by Zalla (2016); the local EPU index for the Netherlands by Kok, Kroese and Parlevliet (2015); and finally, the local EPU index for Sweden by Armelius, Hull, and Köhler (2017). Consistent with our European EPU variable, for the analysis, we use the logarithm of the standardized (to January 2007) measure of the country specific EPU index ($lnEPUI\ local^{07}$). Table 7 columns 5 and 6 exhibit our main model regressions using this alternative measure and indicate that our results are robust to this alternative approach.

4.6.1.3 Founding family firms

A strand of family firm literature suggests the so-called "founder effect" as an explanation for the FFFP (Adams et al., 2009; Fahlenbrach, 2009; Miller et al., 2007). Hence, the potential advantages of FFFs may be exclusively explained by the entrepreneurial spirit of the founder who manages the company. By contrast, this study is based on the concept of a family (opposed to one single entrepreneur) with certain incentives to, e.g., intergenerational transfer, which would not necessarily be the case in a solely entrepreneurial firm. Therefore, we adjust the FFF definition in a way that clearly differentiates between $Entrepreneurial\ FFF$ assumed to include the "founder effect" and their counterpart ($Non-Entrepreneurial\ FFF$) by splitting up the original variable (FFF). To this end, we manually collect yearly varying information on the corresponding FFF-generation and the participation of family members in the management or supervisory board. Building upon this, we define $Entrepreneurial\ FFF$ as a dummy variable equal to one when it is a first generation founding family firm without any participation of a family member in the management or supervisory board, and zero otherwise. $Non-Entrepreneurial\,FFF$ are then represented by the remaining firms included in the original FFF category.

Table 7 columns 7 and 8 provide results of "horse-race"-regressions between the two described founding family firm types and the corresponding interactions with EPU. If our results are exclusively attributable to the "founder effect", we would expect this group to capture the entire FFFP and therefore to obtain only significant results in the interaction between entrepreneurial FFFs and economic policy uncertainty ($Entrepreneurial\,FFF\ x\ lnEEPUI^{07}$). Examining the outcomes, however, we can observe the exact opposite result. That is, the slightly increased FFFP is fully captured by the $Non-Entrepreneurial\,FFF\ x\ lnEEPUI^{07}$ interaction coefficient. Hence, this outcome provides further evidence that the results are not driven by a "founder effect".

4.6.2 Alternative country-level explanations

A further concern regarding the validity of the results is that the observed effects do not stem from EPU but are rather driven by correlated country-level confounders not considered in the model. Two common examples for such variables based on EPU literature are (i) investment opportunities and (ii) economic uncertainty (Gulen and Ion, 2016), which are accounted for in the following. For the subsequent horse race regressions, the EPU variable, as well as the included proxies for investment opportunities and economic uncertainty, were centered by the sample mean to avoid potential estimation problems like multicollinearity (e.g., Martin et al., 2007; Qian and Zhu, 2015).

First, it can be argued that EPU is positively correlated with the need for policy decision makers to act, which increases with weaker economic conditions (Gulen and Ion, 2016). At the same time, investment opportunities are also subject to such an anticyclical character and are expected to negatively affect firm value (Bloom, 2014). Hence, a concern arises that the measured impact on firm value for family and non-FFFs is driven by a firm´s investment opportunities based on the business cycle. To further investigate this alternative explanation, we expand our baseline model with three common country-level measures of investment opportunities in Table 8. The added country-level variables consist of expected GDP growth ($Exp.\,GDP\,Growth$), OECD´s customer leading indicator (CLI) and the consumer confidence indicator (CCI)

jointly capturing the expected future variation in the business cycle (Gulen and Ion, 2016). Column 1 shows the results when we just control for the direct effect of the previously mentioned variables. Column 2 also includes the interaction terms of the macroeconomic factors that capture the current state of the economy, as well as $GDP\ Growth$, with the FFF variable. The observed effects remain statistically significant and economically meaningful when we consider the confounders and the corresponding interactions with FFF. Thus, the concern of investment opportunities as an alternative explanation is mitigated.

Second, spikes of EPU frequently come along with events of general economic uncertainty (Bloom, 2014), e.g., uncertainty within the global financial crisis (also see Figure 1). Hence, it may be the case that the identified effect does not really represent EPU, but instead, it captures general uncertainty about the economic conditions (Gulen and Ion, 2016). To address this issue, we extend our baseline model by including four proxies of economic uncertainty. Specifically, as measures for uncertainty about the future outlook, we add the GDP forecast dispersion within analysts ($GDP\ Forecast\ Dispersion$) (Gulen and Ion, 2016) and the Inter-question dispersion variable from Girardi and Reuter (2017) ($Inter-Question\ Dispersion$). Considering uncertainty in firms' profits, we include the cross-sectional standard deviation of firm´s profit growth ($Profit\ Growth\ SD$) (Gulen and Ion, 2016). Finally, we further add the measure of Rossi and Sekhposyan (2017), which captures aggregate macroeconomic uncertainty ($Macroeconomic\ Uncertainty$). Table 8 reports the new regression results considering the direct impacts of these potential confounders (column 3) and their interactions with the FFF variable (column 4). The coefficients from both estimations remain qualitatively and quantitatively similar, confirming our previous results. Columns 5 and 6 of Table 8 present the estimated coefficients when we simultaneously include the measures of investment opportunities and economic uncertainty (and the corresponding interactions, column 6) in the models. The results remain qualitatively and quantitatively similar.

Finally, in column 7 of Table 8, we modify our baseline model by including country-year-month effects. This adjustment controls for all time-variant country-level variables that could potentially represent an alternative explanation for our results, such as labor market regulations, which were also found to influence the FFFP

(Bennedsen et al., 2019). Despite this very restrictive specification (totally absorbing the EPU base effect), the interaction effect remains statistically and economically significant.

To conclude, the initially documented negative direct impact of EPU on firm value and its interaction with the FFF variable continue to hold even when we control for several proxies for investment opportunities, general economic uncertainty and country-year-month effects.

[Table 8]

4.6.3 Excluding countries

Given the cross-country nature of the sample, it may also be necessary to check that our main findings are not biased by the sample composition. To this end, we analyze the distribution of all observations and FFF observations across countries. First, the number of observations across countries reveals a strong concentration in the United Kingdom, with a proportion of approximately 30%. Hence, one could argue that the results solely represent a UK-effect and not the coefficient of an average European firm. To account for this concern, we exclude UK companies from the sample and rerun the main analysis. Table 9 columns 1 and 2 report the new estimated coefficients and show that results remain qualitatively and quantitatively unchanged. Interestingly, the FFF base effect is statistically significant in these specifications, in line with previous literature indicating an average FFFP (e.g., Maury, 2006).

Second, 32% of founding family firm observations are located in France. By the same token, to check that the observed effects are not solely driven by French firms, we exclude all firms of this country from the analysis in columns 3 and 4 of Table 9. Confirming our results, the coefficients for the direct EPU effect as well as the interaction term with the FFF variable remain statistically significant and economically important.

[Table 9]

5 Conclusion

In this study, we analyze the effect of economic policy uncertainty on firm value considering the role of founding family firms. Using a partially hand-collected panel dataset of 1,600 listed firms from nine European countries over the period from 2007 to 2016, we exploit the effects of monthly changes in the European EPU index on firm value and differentiate between FFFs and non-FFFs. Trading off the “risk perspective” and the “resilience perspective”, we find that the negative effect of EPU on firm value is mitigated in FFFs’ case, which supports the FFF value premium during times of rising EPU, in line with the latter perspective. We further document cross-sectional heterogeneity of this effect with regards to the degree of international diversification, operating flexibility and financial constraints of firms. As an underlying mechanism that could explain our main findings, we suggest and find that there is heterogeneity in FFFs´ investment policy in response to increasing EPU. The results from our investment models provide an explanation for the previously reported FFF value premium.

This research provides further implications towards a more careful understanding of the reactions of FFFs to adverse exogenous country-level shocks. Although previous studies initially suggested a predominantly more negative effect of the global financial crisis on family firms (e.g., Lins et al., 2013), more recently the corona pandemic (Ding et al., 2021) and now EPU point to a different pattern, whereby founding family firms are less affected by the volatility from such events. Hence, as FFFs trade-off the risk and resilience perspectives, they appear to cautiously differentiate between (bankruptcy) risk and (policy) uncertainty when deciding how to react to external pressures. Given the macro-economic importance of (founding) family firms, this information could be of relevance for policy-makers, which aim to implement mechanisms to weaken the adverse effects of (policy) uncertainty for the economy. Finally, this study further accentuates the importance of a long-term (investment) orientation from a management perspective, which can, on average, be translated into a direct value premium in times of high policy uncertainty.

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Tables

Table 1
Summary statistics

This table provides summary statistics for the country-specific distribution of founding family firms (Panel A), firm value as key dependent variable (Panel B), firm-level independent variables (Panel C) and country-level independent variables (Panel D), all defined as in Table 10.

Country	All firm-years	Family as GUO (in %)	FFF (in %)	All firms	Firms - Family as GUO (in %)	Firms – FFF (in %)
Panel A: Sample Composition						
United Kingdom	46,341	15%	9%	477	26%	10%
Germany	30,057	44%	31%	304	53%	31%
France	29,836	56%	43%	301	66%	44%
Sweden	15,079	26%	17%	151	39%	17%
Greece	10,788	57%	45%	128	65%	47%
Italy	10,322	60%	49%	101	69%	48%
Spain	6,535	29%	23%	66	38%	26%
Netherlands	5,427	8%	5%	53	17%	6%
Ireland	1,865	10%	6%	19	11%	5%
Total	**156,250**	**36%**	**26%**	**1,600**	**46%**	**27%**

Variable	N	Mean	STD	P25	Median	P75
Panel B: Firm Value						
$Q_{(t)}$	156,250	1.757	1.465	0.947	1.333	2.022
$\ln Q_{(t)}$	156,250	0.354	0.609	-0.054	0.288	0.704
$\ln Q2_{(t)}$	156,250	0.263	0.460	-0.037	0.191	0.497
Q Transformed$_{(t)}$	156,250	-0.832	0.498	-1.055	-0.750	-0.495
Panel C: Firm-level Variables						
Founding Family Firm (FFF)$_{(t)}$	156,250	0.260	0.438	0.000	0.000	1.000
Size$_{(t-12)}$	156,250	12.695	2.133	11.131	12.439	14.123
Profitability$_{(t-12)}$	156,250	0.099	0.115	0.060	0.103	0.151
Leverage$_{(t-12)}$	156,250	0.209	0.160	0.073	0.192	0.316
Tangibility$_{(t-12)}$	156,250	0.228	0.200	0.064	0.176	0.328
Capex$_{(t-12)}$	156,250	0.040	0.042	0.013	0.028	0.052
R&D$_{(t-12)}$	156,250	0.017	0.042	0.000	0.000	0.012
Diversification$_{(t-12)}$	156,250	0.634	0.469	0.203	0.649	0.985
Other Ultimate Owner$_{(t)}$	156,250	0.278	0.448	0.000	0.000	1.000
Dividends$_{(t-12)}$	156,250	0.702	0.457	0.000	1.000	1.000
Age$_{(t-12)}$	156,250	3.693	0.940	2.996	3.664	4.489
Sales Growth$_{(t-12)}$	156,250	0.051	0.243	-0.037	0.049	0.139
Panel D: Country-level Variables						
$EEPUI^{07}_{(t)}$	1,080	2.680	1.050	2.120	2.530	3.280
$\ln EEPUI^{07}_{(t)}$	1,080	0.910	0.390	0.750	0.930	1.190
EPUI local$^{07}_{(t)}$	1,080	1.430	0.850	0.900	1.240	1.760
lnEPUI local$^{07}_{(t)}$	1,080	0.220	0.520	-0.110	0.210	0.570
ln(GDP p.c.)$_{(t-3)}$	1,080	10.640	0.190	10.520	10.630	10.780
GDP Growth$_{(t-3)}$	1,080	0.000	0.020	0.000	0.000	0.010
Change in Exchange Rate$_{(t-3)}$	1,080	0.000	0.050	-0.030	0.000	0.030

Figure 1
European economic policy uncertainty over time

This graph plots the logarithm of the standardized European policy uncertainty index by Baker, Bloom and Davis (2016) ($lnEEPUI^{07}$) or the years 2007 to 2016. The standardization is based on the value of January 2007.

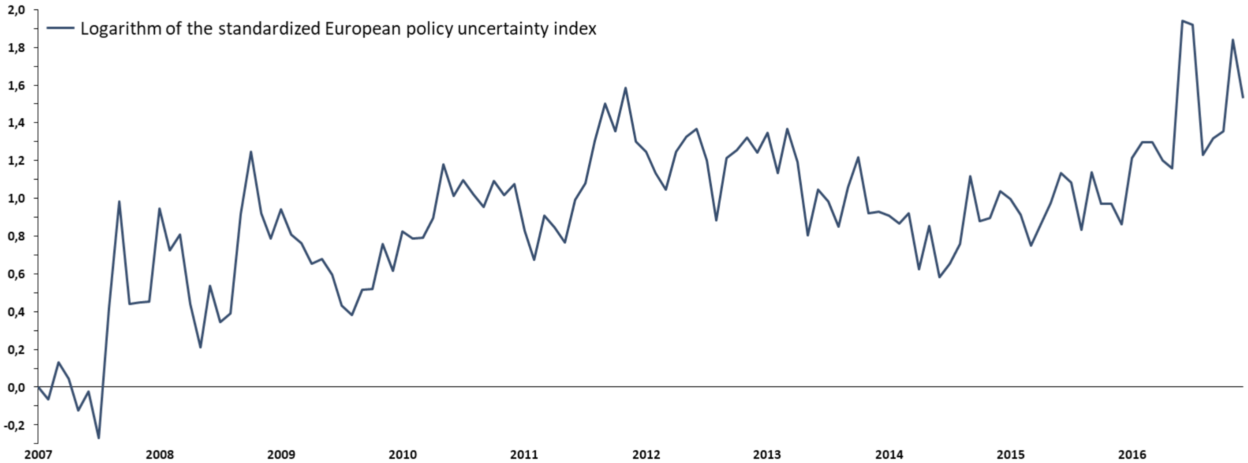

Figure 2
Founding family firm premium and policy uncertainty

This graph plots the monthly detrended founding family firm premium against the monthly detrended logarithm of the standardized European policy uncertainty index. The FFFP represents the coefficient of the FFF variable (β_1) of the following cross-sectional month-by-month regression: $lnQ_{i,t} = a_0 + \beta_1 \, FFF_{i,t} + XControls_{i,t-\tau} + \zeta_i + \varepsilon_{i,t}$, where $Controls$ is a vector of control variables as described in section 3.3. The term ζ represents industry (Fama-French 48) and country effects. The detrending is conducted by a separate regression of both, the FFF-Premium and $lnEEPUI^{07}$, on a monthly time trend. The error term of the corresponding regression captures the detrended version of each variable. Variables are defined as in Table 10.

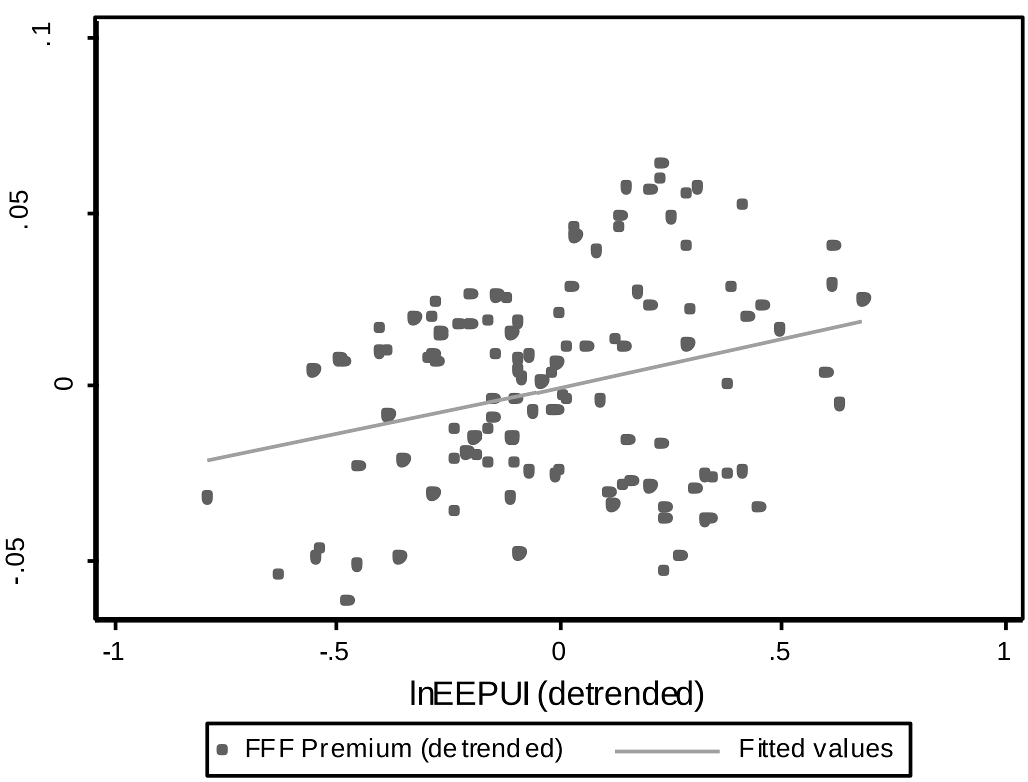

Table 2
Descriptive analysis of firm characteristics

This table provides univariate descriptive statistics for differences in means between FFF- and non-FFF. Variables are defined as in Table 10. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	All firms	Non-FFF	FFF	Difference in means
Number of Observations	156,250	115,684	40,566	-
$Size_{(t-12)}$	12.695	12.811	12.363	0.449***
$Profitability_{(t-12)}$	0.099	0.095	0.113	-0.018***
$Leverage_{(t-12)}$	0.209	0.207	0.215	-0.009***
$Tangibility_{(t-12)}$	0.228	0.228	0.226	0.002
$Capex_{(t-12)}$	0.040	0.040	0.041	-0.001***
$R\&D_{(t-12)}$	0.017	0.017	0.015	0.003***
$Diversification_{(t-12)}$	0.634	0.65	0.588	0.062***
Other Ultimate $Owner_{(t)}$	0.278	0.376	0.000	0.376***
$Dividends_{(t-12)}$	0.702	0.689	0.738	-0.049***
$Age_{(t-12)}$	3.693	3.739	3.563	0.175***
Sales $Growth_{(t-12)}$	0.051	0.051	0.053	-0.003**

Table 3
Policy uncertainty and firm value

This table provides OLS regression results of average (columns 1, 2 and 3) and FFF-dependent (columns 4 and 5) effects of the logarithm of the standardized European policy uncertainty index by Baker, Bloom and Davis (2016) ($\ln EEPUI^{07}$) on the logarithm of Tobin´s Q (lnQ). The standardization is based on the value of January 2007. Variables are defined as in Table 10. Independent variables, despite $\ln EEPUI^{07}$, FFF and Other Ultimate Owner are lagged by τ-periods depending on the frequency of the respective variable. All regression specifications include firm fixed effects. Conditioning dummies are added stepwise starting without dummy (column 1), adding seasonality dummies (column 2) and finally country-year effects and a fiscal year control (columns 3 and 4). The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	lnQ			
	(1)	(2)	(3)	(4)
$\ln EEPUI^{07}_{(t)}$	-0.155***	-0.157***	-0.131***	-0.138***
	(-9.65)	(-8.68)	(-10.85)	(-12.17)
$FFF_{(t)}$	0.002	0.002	0.031	0.033
	(0.04)	(0.04)	(0.64)	(0.67)
$\ln EEPUI^{07}$ x FFF				0.029***
				(7.85)
Firm Size$_{(t-12)}$	-0.005	-0.004	-0.093**	-0.094**
	(-0.36)	(-0.32)	(-2.53)	(-2.58)
Profitability$_{(t-12)}$	0.654***	0.654***	0.735***	0.735***
	(14.83)	(14.86)	(20.24)	(20.17)
Leverage$_{(t-12)}$	-0.341***	-0.342***	-0.197*	-0.197*
	(-4.17)	(-4.18)	(-2.03)	(-2.02)
Tangibility$_{(t-12)}$	-0.353*	-0.353*	-0.410**	-0.411**
	(-1.88)	(-1.87)	(-2.54)	(-2.54)
Capex$_{(t-12)}$	0.526**	0.525**	0.653***	0.653***
	(2.77)	(2.76)	(5.06)	(5.07)
R&D$_{(t-12)}$	0.459	0.459	0.300	0.298
	(1.25)	(1.25)	(0.97)	(0.96)
Diversification$_{(t-12)}$	0.008	0.008	-0.005	-0.006
	(0.49)	(0.50)	(-0.28)	(-0.29)
Other Ultimate Owner$_{(t)}$	-0.022	-0.021	-0.022	-0.021
	(-1.75)	(-1.74)	(-1.41)	(-1.35)
Dividends$_{(t-12)}$	0.020	0.020	0.046**	0.046**
	(1.28)	(1.28)	(3.14)	(3.16)
Age$_{(t-12)}$	0.212*	0.214*	-0.037	-0.038
	(2.16)	(2.16)	(-0.51)	(-0.53)
Sales Growth$_{(t-12)}$	0.148***	0.148***	0.130***	0.130***
	(5.40)	(5.39)	(4.83)	(4.84)
GDP per Capita$_{(t-3)}$	1.329	1.328	0.194	0.197
	(1.83)	(1.83)	(1.19)	(1.24)
GDP Growth$_{(t-3)}$	5.811***	5.829***	2.947*	2.948*
	(3.46)	(3.45)	(2.00)	(2.00)
Change in Exchange Rate$_{(t-3)}$	-0.132	-0.138	-0.181	-0.182
	(-0.86)	(-0.92)	(-1.29)	(-1.30)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Seasonality Dummies	No	Yes	Yes	Yes
Country-Year Fixed Effects	No	No	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes
Number of Observations	156,250	156,250	156,250	156,250
R-squared	0.185	0.186	0.287	0.287

Table 4
Endogeneity of FFF-status

This table provides OLS regression results for a propensity score matched sample (columns 1 to 4) and a two-stage least squares (2SLS) instrumental variable approach (columns 5 to 7). Variables are defined as in Table 10. Independent variables (as in section 3.2), despite $\ln EEPUI^{07}$, FFF and Other Ultimate Owner, are lagged by τ-periods depending on the frequency of the respective variable. The sample, contingent on propensity score matching, results from matching non-FFFs to FFFs (nearest neighbor, without replacement) in the same country based on industry affiliation (Fama-French 30 industry) firm size, leverage and R&D expenses. To control for the distance of propensity scores for matched pairs, we apply a caliper restriction of 0.01 (columns 1 and 2) and 0.001 (columns 3 and 4). Column 1 and 3 show the results for the average effect, column 2 and 4 exhibit the FFF-dependent impact of $\ln EEPUI^{07}$on lnQ. The specifications (column 1 to 4) include firm fixed effects, seasonality dummies, country-year effects and a fiscal year control. The instrumental variable approach relies on the two variables FFF-Proportion, Early Foundation (based on Fahlenbrach, 2009) and the corresponding interaction terms with $\ln EEPUI^{07}$ to instrument for FFF and $\ln EEPUI^{07}$x FFF. Column 5 exhibits the first stage regression for FFF, column 6 the first stage regression for $\ln EEPUI^{07}$x FFF and column 7 the second stage regression. The instrumental variable-regressions include seasonality dummies, country-year effects and a fiscal year control. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Method	Propensity Score Matching	Propensity Score Matching	Propensity Score Matching	Propensity Score Matching	IV – First Stage	IV – First Stage	IV - Second Stage
Dependent Variable	lnQ				FFF	$\ln EEPUI^{07}$ x FFF	lnQ
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\ln EEPUI^{07}_{(t)}$	-0.113***	-0.125***	-0.113***	-0.131***	0.007	0.055***	-0.158***
	(-12.24)	(-14.03)	(-10.77)	(-10.85)	(0.76)	(4.42)	(-7.93)
$FFF_{(t)}$	0.034	0.034	0.021	0.020			0.094
	(0.79)	(0.79)	(0.27)	(0.26)			(1.50)
$\ln EEPUI^{07}$ x FFF		0.024**		0.036***			0.097**
		(2.41)		(4.34)			(2.20)
$\text{FFF-Proportion}_{(t)}$					0.731***	-0.009	
					(11.62)	(-1.63)	
FFF-Proportion x ($\ln EEPUI^{07}$)					-0.029	0.940***	
					(-0.92)	(48.37)	
$\text{Early Foundation}_{(t)}$					-0.059***	-0.004*	
					(-4.62)	(-1.89)	
Early Foundation x ($\ln EEPUI^{07}$)					0.003	-0.090***	
					(0.45)	(-5.88)	
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	No	No	No
Seasonality Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Caliper	0.01	0.01	0.001	0.001			
Observations	66,879	66,879	37,847	37,847	156,250	156,250	156,250
R^2_{adj}	0.294	0.294	0.301	0.302			
Kleibergen-Paap rk Wald F test							37.44
p-value of Hansen's J test							0.292

Table 5
Cross-sectional Heterogeneity

This table provides OLS regression results for the effect of the logarithm of the standardized European policy uncertainty index by Baker, Bloom and Davis (2016) (ln$EEPUI^{07}$) on lnQ dependent on the FFF status and a further conditioning variable (CSH). The standardization of ln$EEPUI^{07}$ is based on the value of January 2007. The incorporated additional variables are firm observatiosn with the characteristics domestic (column 1), inflexible (column 2) and financially constrained (column 3). Variables are defined as in Table 10. Independent variables, despite ln$EEPUI^{07}$, FFF and Other Ultimate Owner are lagged by τ-periods depending on the frequency of the respective variable. All regression specifications include firm fixed effects, seasonality dummies, country-year effects and a fiscal year control. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	lnQ		
Cross-sectional Variable	Domestic	Inflexible	Financially constrained
Specification	(1)	(2)	(3)
ln$EEPUI^{07}_{(t)}$	-0.137***	-0.124***	-0.129***
	(-11.67)	(-8.07)	(-12.37)
$FFF_{(t)}$	0.009	0.011	0.033
	(0.18)	(0.21)	(0.63)
ln$EEPUI^{07}$ x FFF	0.026***	0.011*	0.003
	(8.01)	(2.09)	(0.40)
$CSH_{(t-12)}$	0.023	-0.006	0.019
	(0.44)	(-0.40)	(1.57)
FFF x CSH	-0.066	-0.001	-0.055
	(-1.52)	(-0.05)	(-1.85)
ln$EEPUI^{07}$ x CSH	-0.042**	-0.022**	-0.029**
	(-2.46)	(-2.34)	(-2.45)
ln$EEPUI^{07}$ x FFF x CSH	0.077**	0.030**	0.076**
	(3.01)	(2.75)	(2.69)
Firm Size $_{(t-12)}$	-0.094**	-0.077*	-0.090**
	(-2.59)	(-2.24)	(-2.46)
Profitability $_{(t-12)}$	0.735***	0.738***	0.722***
	(20.06)	(12.71)	(19.10)
Leverage $_{(t-12)}$	-0.197*	-0.280***	-0.210*
	(-2.03)	(-4.04)	(-1.95)
Tangibility $_{(t-12)}$	-0.412**	-0.462**	-0.418*
	(-2.55)	(-2.71)	(-2.15)
Capex $_{(t-12)}$	0.651***	0.734***	0.692***
	(5.02)	(4.92)	(4.91)
R&D $_{(t-12)}$	0.298	0.333	0.274
	(0.95)	(0.90)	(0.86)
Diversification $_{(t-12)}$	-0.006	-0.006	-0.003
	(-0.29)	(-0.30)	(-0.15)
Other Ultimate Owner $_{(t)}$	-0.021	-0.011	-0.019
	(-1.35)	(-0.64)	(-1.23)
Dividends $_{(t-12)}$	0.046**	0.062***	0.048**
	(3.16)	(4.97)	(3.05)
Age $_{(t-12)}$	-0.038	-0.005	-0.009
	(-0.52)	(-0.05)	(-0.12)
Sales Growth $_{(t-12)}$	0.130***	0.147***	0.135***
	(4.80)	(8.01)	(4.63)
GDP per Capita $_{(t-12)}$	0.200	0.300	0.186
	(1.26)	(1.85)	(1.24)
GDP $Growth_{(t-12)}$	2.948*	3.328*	2.870*
	(2.00)	(2.16)	(1.98)
Change in Exchange Rate $_{(t-12)}$	-0.183	-0.184	-0.179
	(-1.30)	(-1.30)	(-1.29)
Firm Fixed Effects	Yes	Yes	Yes
Seasonality Dummies	Yes	Yes	Yes
Country-Year Fixed Effects	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes
Number of Observations	156,250	140,484	152,404
R-squared	0.288	0.297	0.284

Table 6
Channel Analysis

This table provides OLS regression results for average (columns 1, 3, 5) and FFF-dependent (columns 4 and 5) effects of the logarithm of yearly economic policy uncertainty ($YlnEEPUI^{07}$) on Full Investments (column 1 and 2), Capex (column 3 and 4) and R&D & Acquisition (column 5 and 6). Full Investments is defined as the sum of capital expenditures, research and development expenses and acquisitions divided by total assets. Capex is defined as capital expenditures divided by total assets. R&D & Acquisition is defined as the sum of research and development expenses and acquisitions divided by total assets. The time unit of this analysis is yearly. Yearly policy uncertainty ($YlnEEPUI^{07}$) is defined as the mean European policy uncertainty index by Baker, Bloom and Davis (2016) of the final six months of the prior fiscal year. Variables are defined as in Table 10. Yearly Independent variables, despite $YlnEEPUI^{07}$, FFF and Other Ultimate Owner are lagged by one period. All regression specifications include firm fixed effects. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	Full Investment	Full Investment	Capex	Capex	R&D & Acquisitions	R&D & Acquisitions
Specification	(1)	(2)	(3)	(4)	(5)	(6)
$YlnEEPUI^{07}_{(t-1)}$	-0.014**	-0.018**	-0.003***	-0.004***	-0.011**	-0.014**
	(-3.11)	(-2.95)	(-4.73)	(-5.16)	(-2.60)	(-2.44)
$FFF_{(t)}$	0.016	0.005	0.005***	0.004**	0.009	0.000
	(0.81)	(0.31)	(3.92)	(2.81)	(0.48)	(0.01)
$YlnEEPUI^{07}$ x FFF		0.014**		0.002**		0.012*
		(2.41)		(2.32)		(1.99)
Firm Size$_{(t-1)}$	-0.007	-0.007	-0.005**	-0.005**	-0.001	-0.001
	(-0.84)	(-0.91)	(-2.58)	(-2.56)	(-0.12)	(-0.17)
Profitability $_{(t-1)}$	0.057***	0.057***	0.028***	0.028***	0.025***	0.025***
	(5.85)	(5.73)	(4.02)	(4.01)	(4.66)	(4.56)
Leverage$_{(t-1)}$	-0.114*	-0.115*	-0.026***	-0.026***	-0.086	-0.087
	(-2.26)	(-2.27)	(-5.50)	(-5.50)	(-1.68)	(-1.69)
Tangibility $_{(t-1)}$	0.044*	0.042*	-0.010	-0.010	0.058**	0.057**
	(2.09)	(2.06)	(-0.85)	(-0.86)	(2.87)	(2.89)
Diversification$_{(t-1)}$	-0.003	-0.004	0.001	0.001	-0.004	-0.004
	(-0.82)	(-0.83)	(0.41)	(0.39)	(-1.41)	(-1.42)
Other Ultimate Owner$_{(t)}$	-0.002	-0.001	-0.002*	-0.002*	-0.001	-0.000
	(-0.83)	(-0.57)	(-2.14)	(-2.13)	(-0.43)	(-0.14)
Dividends$_{(t-1)}$	0.005	0.005	0.001**	0.001**	0.004	0.004
	(1.42)	(1.46)	(3.15)	(3.16)	(1.25)	(1.28)
Age$_{(t-1)}$	0.008	0.008	-0.006	-0.006	0.017***	0.017***
	(1.24)	(1.24)	(-1.84)	(-1.83)	(3.54)	(3.68)
Sales Growth$_{(t-1)}$	0.007***	0.007***	0.007***	0.007***	0.002	0.002
	(3.66)	(3.69)	(3.66)	(3.66)	(1.35)	(1.40)
MtB December $_{(t-1)}$	0.004*	0.004*	0.001***	0.001***	0.003	0.003
	(2.13)	(2.13)	(4.33)	(4.33)	(1.67)	(1.67)
Cash Holdings$_{(t-1)}$	0.120***	0.120***	0.033***	0.033***	0.079***	0.080***
	(6.01)	(6.02)	(6.45)	(6.47)	(3.78)	(3.79)
GDP per Capita yearly$_{(t-1)}$	0.070***	0.072***	0.043***	0.043***	0.024	0.026
	(4.15)	(4.56)	(3.52)	(3.47)	(0.88)	(1.01)
GDP Growth yearly$_{(t-1)}$	0.768*	0.790*	0.229**	0.232**	0.525	0.544
	(1.95)	(1.99)	(2.97)	(3.01)	(1.39)	(1.42)
Change in Ex. Rate yearly$_{(t-1)}$	-0.045	-0.051	-0.057**	-0.058**	0.012	0.007
	(-1.04)	(-1.18)	(-2.92)	(-3.02)	(0.36)	(0.18)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	12,990	12,990	12,990	12,990	13,008	13,008
R-squared	0.051	0.052	0.072	0.072	0.025	0.026

Table 7
Alternative Definitions

This table provides OLS regression results of average (columns 1, 3, 5, 7) and FFF-dependent (columns 2, 4, 6, 8) effects of economic policy uncertainty on Tobin´s Q. Specifications 1 to 4 exhibit regression outcomes for alternative definitions of Tobin´s Q, specifications 5 and 6 for an alternative definition of economic policy uncertainty and specifications 7 and 8 for an alternative definition of the founding family firm status. lnQ2 is defined as the logarithm of the book value of total assets plus market value of equity minus book value of equity minus deferred taxes all scaled by the book value of total assets (Gompers et al., 2010). Transformed Q is defined as -1/Q (with Q defined as in section 3.2.3). lnEPUI local^{07} is defined as the logarithm of the standardized monthly country-specific policy uncertainty index by Baker, Bloom and Davis (2016). The standardization of lnEPUI local^{07} is based on the value of January 2007. Entrepreneurial FFF is defined as a dummy variable equal to one if there is no family involvement in management- or supervisory board throughout the sample period for a first generation FFF. FFFs, not classified as Entrepreneurial FFFs, are defined as Non-Entrepreneurial FFFs. Variables are defined as in Table 10. Independent variables, despite lnEEPUI^{07} (lnEPUI local^{07}), FFFs, Entrepreneurial FFFs, Non-Entrepreneurial FFFs and Other Ultimate Owner are lagged by τ-periods depending on the frequency of the respective variable. All regression specifications include firm fixed effects, seasonality dummies, country-year effects and a fiscal year control. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Alternative Definition Dependent variable	lnQ2		Transformed Q		lnEPUI local^{07} lnQ		(Non-) Entrepr. FFF lnQ	
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
lnEEPUI$^{07}_{(t)}$	-0.095***	-0.100***	-0.109***	-0.114***	-0.063***	-0.066***	-0.131***	-0.138***
	(-9.64)	(-10.99)	(-10.79)	(-10.94)	(-9.50)	(-9.50)	(-10.85)	(-12.06)
FFF$_{(t)}$	0.009	0.010	0.075*	0.076*	0.031	0.032		
	(0.20)	(0.22)	(2.13)	(2.16)	(0.64)	(0.64)		
lnEEPUI^{07} x FFF		0.019***		0.017***		0.010**		
		(7.84)		(4.17)		(3.08)		
Entrepreneurial FFF$_{(t)}$							0.046	0.044
							(0.69)	(0.67)
Non-Entrepreneurial FFF$_{(t)}$							0.019	0.024
							(0.36)	(0.46)
lnEEPUI^{07} x Entrepreneurial FFF								0.014
								(1.10)
lnEEPUI^{07} x Non-Entrepreneurial FFF								0.036***
								(3.41)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonality Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Observations	156,250	156,250	156,250	156,250	156,250	156,250	156,250	156,250
R^2_{adj}	0.288	0.288	0.226	0.226	0.284	0.284	0.287	0.287

Table 8
Alternative Country-level Explanations

This table provides OLS regression results of average (columns 1, 3, 5) and FFF-dependent (columns 2, 4, 6) effects of the logarithm of the standardized European policy uncertainty index by Baker, Bloom and Davis (2016) ($lnEEPUI^{07}$) on the logarithm of Tobin´s Q (lnQ). The standardization is based on the value of January 2007. In this analysis, we additional control for investment opportunities (column 1 and 2), economic uncertainty (column 3 and 4) and investment opportunities and economic uncertainty (column 5 and 6) as alternative country-level explanations. The variable $lnEEPUI^{07}$ as well as the measures for investment opportunities and economic uncertainty are centered by the sample mean. In column 7, we integrate country-year-month effects, controlling for all time-variant country-level variables, absorbing the baseline $lnEEPUI^{07}$ effect. Investment opportunities are measured using GDP Growth, Expected GDP Growth, the Customer Leading Indicator (CLI) and the Consumer Confidence Indicator (CCI). Economic Uncertainty is measured using GDP Forecast Dispersion, Inter Question Dispersion, Standard Deviation of Profit Growth (Profit growth SD) and Macroeconomic Uncertainty. Variables are defined as in Table 10. Independent variables, despite $lnEEPUI^{07}$, FFF and Other Ultimate Owner, with non-monthly frequency are lagged by τ-periods depending on the frequency of the respective variable. All regression specifications include firm fixed effects, seasonality dummies, country-year effects and a fiscal year control. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable				lnQ			
Specification	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$lnEEPUI^{07}_{(t)}$	-0.084***	-0.092***	-0.147***	-0.154***	-0.090***	-0.099***	
	(-11.26)	(-15.44)	(-11.74)	(-12.30)	(-9.17)	(-12.22)	
$FFF_{(t)}$	0.031	0.034	0.032	0.033	0.032	0.034	0.033
	(0.65)	(0.70)	(0.65)	(0.68)	(0.65)	(0.72)	(0.68)
$lnEEPUI^{07}$ x FFF		0.030***		0.026***		0.033***	0.024***
		(6.49)		(5.93)		(9.26)	(5.39)
GDP $Growth_{(t-3)}$	0.507	0.705			0.531	0.643	
	(0.53)	(0.65)			(0.76)	(0.83)	
GDP Growth x FFF		-0.894				-0.567	
		(-1.33)				(-1.42)	
Exp. GDP $Growth_{(t-3)}$	1.644**	1.559*			-0.759	-1.024	
	(2.37)	(2.27)			(-0.99)	(-1.28)	
Exp. GDP Growth x FFF		0.185				0.845	
		(0.46)				(1.22)	
$CLI_{(t)}$	0.011*	0.010*			0.013**	0.012**	
	(2.23)	(2.07)			(2.63)	(2.46)	
CLI x FFF		0.004*				0.004*	
		(2.06)				(2.19)	
$CCI_{(t)}$	0.046***	0.045***			0.029***	0.027***	
	(6.75)	(6.52)			(3.93)	(3.70)	
CCI x FFF		0.006				0.007*	
		(1.27)				(2.03)	
GDP Forecast Disp. $_{(t-3)}$			0.023**	0.025**	-0.007	-0.006	
			(2.55)	(2.85)	(-1.61)	(-1.04)	
GDP Forecast Disp. x FFF				-0.010		-0.003	
				(-1.09)		(-0.40)	
Inter-Question Disp. $_{(t-3)}$			-0.015**	-0.015**	-0.008*	-0.009**	
			(-3.21)	(-3.15)	(-2.26)	(-2.32)	
Inter-Question Disp. x FFF				0.001		0.003	
				(0.48)		(1.17)	
Profit Growth $SD_{(t)}$			0.061***	0.064***	0.045***	0.048***	
			(8.11)	(9.77)	(7.40)	(7.71)	
Profit Growth SD x FFF				-0.009		-0.010	
				(-1.74)		(-1.46)	
Macro $Uncertainty_{(t-3)}$			0.003	-0.004	0.090***	0.079***	
			(0.23)	(-0.20)	(5.99)	(3.46)	
Macro Uncertainty x FFF				0.027		0.039	
				(0.86)		(1.48)	
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonality Dummies	Yes	Yes	Yes	Yes	Yes	Yes	No
Country-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	No
Country-Year-Month Fixed Effects	No	No	No	No	No	No	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	156,250	156,250	156,250	156,250	156,250	156,250	156,250
R-squared	0.298	0.298	0.295	0.295	0.303	0.303	0.320

Table 9
Excluding countries

This table provides OLS regression results of average (columns 1, 3, 5) and FFF-dependent (columns 2, 4, 6) effects of the logarithm of the standardized European policy uncertainty index by Baker, Bloom and Davis (2016) ($\ln EEPUI^{07}$) on the logarithm of Tobin´s Q (lnQ). The standardization is based on the value of January 2007. Specification 1 and 2, excludes firms headquartered in the United Kingdom. Specification 3 and 4 excludes firms headquartered in France. Variables are defined as in Table 10. Independent variables, despite $\ln EEPUI^{07}$, FFF and Other Ultimate Owner are lagged by τ-periods depending on the frequency of the respective variable. All regression specifications include firm fixed effects, seasonality dummies, country-year effects and a fiscal year control. The t-statistics in parentheses are based on robust standard errors, clustered at the country-level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent Variable	lnQ			
Sample	Excluding UK	Excluding UK	Excluding FR	Excluding FR
Specification	(1)	(2)	(3)	(4)
$\ln EEPUI^{07}_{(t)}$	-0.131***	-0.140***	-0.136***	-0.142***
	(-8.77)	(-9.92)	(-10.21)	(-11.51)
$FFF_{(t)}$	0.087**	0.088**	0.031	0.032
	(2.57)	(2.64)	(0.44)	(0.46)
$\ln EEPUI^{07}$ x FFF		0.027***		0.030***
		(6.84)		(5.08)
Firm $Size_{(t-12)}$	-0.048*	-0.049*	-0.112**	-0.113**
	(-2.21)	(-2.31)	(-3.43)	(-3.49)
Profitability $_{(t-12)}$	0.778***	0.778***	0.746***	0.746***
	(14.11)	(14.05)	(18.82)	(18.76)
$Leverage_{(t-12)}$	-0.113	-0.113	-0.203	-0.203
	(-0.94)	(-0.93)	(-1.81)	(-1.80)
Tangibility $_{(t-12)}$	-0.179*	-0.180*	-0.431**	-0.432**
	(-2.14)	(-2.17)	(-2.46)	(-2.46)
$Capex_{(t-12)}$	0.581**	0.581**	0.715***	0.716***
	(3.41)	(3.41)	(5.69)	(5.71)
$R\&D_{(t-12)}$	-0.047	-0.049	0.165	0.161
	(-0.13)	(-0.13)	(0.43)	(0.41)
$Diversification_{(t-12)}$	-0.014	-0.014	-0.007	-0.007
	(-0.57)	(-0.58)	(-0.28)	(-0.28)
Other Ultimate $Owner_{(t)}$	-0.006	-0.005	-0.026	-0.025
	(-0.55)	(-0.46)	(-1.48)	(-1.42)
$Dividends_{(t-12)}$	0.036**	0.036**	0.046**	0.046**
	(2.37)	(2.39)	(2.64)	(2.65)
$Age_{(t-12)}$	0.088*	0.088*	-0.059	-0.061
	(2.24)	(2.22)	(-0.80)	(-0.83)
Sales $Growth_{(t-12)}$	0.091***	0.091***	0.123***	0.123***
	(3.56)	(3.56)	(3.89)	(3.89)
GDP per $Capita_{(t-3)}$	0.247	0.254	0.156	0.160
	(1.42)	(1.47)	(0.95)	(0.99)
GDP $Growth_{(t-3)}$	0.018*	0.018*	0.028	0.028
	(2.18)	(2.17)	(1.87)	(1.87)
Change in Exchange Rate $_{(t-3)}$	-0.349***	-0.350***	-0.125	-0.126
	(-5.11)	(-5.18)	(-0.79)	(-0.79)
Firm Fixed Effects	Yes	Yes	Yes	Yes
Seasonality Dummies	Yes	Yes	Yes	Yes
Country-Year Fixed Effects	Yes	Yes	Yes	Yes
Clustered Standard Errors	Yes	Yes	Yes	Yes
Number of Observations	109,909	109,909	126,414	126,414
R-squared	0.302	0.302	0.288	0.289

Table 10
Definition of variables

This table provides definitions for variables on firm-level (Panel A), country-level (Panel B) and used for additional analyses (Panel C). Ownership variables are downloaded from the OSIRIS database. Balance sheet items are downloaded from Datastream/Worldscope.

Variables	**Definition**	**Frequency**
Panel A: Firm-level variables		
lnQ	Logarithm of Q, defined as the sum of market value of equity and book value of total debt, divided by the sum of total shareholder's equity and the book value of total debt. Market value of equity consists of all share classes, with non-listed shares valued at listed prices.	Monthly
Family Firm Dummy (FFF)	Indicator variable equal to one for firm year observations in which an individual or a family controls at least 25% of voting rights and is related by blood or marriage to the founder of the firm, zero otherwise..	Yearly
Firm Size	Logarithm of the book value total assets (in EUR).	Yearly
Profitability	Earnings before depreciation, interests, taxes, depreciation and amortization (EBITDA), divided by the book value of total assets.	Yearly
Leverage	Total debt divided by the book value of total assets.	Yearly
Tangibility	Property plant and equipment divided by the book value of total assets.	Yearly
Capex	Capital expenditures divided by the book value of total assets	Yearly
R&D	Research and development expenses (zero if missing) divided by the book value of total assets.	Yearly
Diversification	Entropy measure based on Palepu (1985) referring to product segment sales.	Yearly
Other Ultimate Owner	Indicator variable equal to one for firm year observations in which a blockholder controls at least 25% of voting rights which is not defined as founding family firm, zero otherwise..	Yearly
Dividends	Indicator variable equal to one in case the firm payed cash dividends in the previous fiscal year, zero otherwise.	Yearly
Firm Age	Logarithm of firm age in years. Age is defined as the difference between the current calendar year and the year of foundation (hand-collected or from Refinitiv).	Yearly
Sales Growth	Logarithm of net sales or revenues divided by last net sales or revenues from previous fiscal year.	Yearly
Panel B: Country-level controls		
$lnEEPUI^{07}$	Logarithm of the standardized monthly European policy uncertainty index by Baker, Bloom and Davis (2016). The standardization is based on the value of January 2007.	Monthly
lnEPUI $local^{07}$	Logarithm of the monthly country-specific policy uncertainty index by Baker, Bloom and Davis (2016) for France, Germany, Italy, Spain and the United Kingdom; Fountas, Karatasi and Tzika (2018) for Greece; Zalla (2016) for Ireland; Kok, Kroese and Parlevliet (2015) for the Netherlands and Armelius, Hull, and Köhler (2017) for Sweden. The standardization is based on the value of January 2007.	Monthly
GDP Growth	Quarterly GDP growth (in units) from OECD.	Quarterly
GDP per Capita	Logarithm of quarterly GDP per Capita from OECD.	Quarterly
Change in Exchange Rate	Quarterly change of domestic exchange rate to USD divided by last quarter domestic exchange rate to USD, data from Refinitiv Datastream.	Quarterly
Panel C: Additional variables		
FFF-Proportion	Sum of all family firm observations within a given country and industry (Fama-French 48) minus the observation´s FFF-status, all divided by the total number of observations in the corresponding country and industry (Fama-French 48) minus one.	Yearly

Early Foundation	Indicator variable equal to one if the foundation year of the firm is prior to 1955, following Fahlenbrach (2009), zero otherwise.	Time constant
Localness	Indicator variable equal to one, if the fraction of local assets (two-year-average) to total assets (two-year-average) is within the fourth quartile of a given country, industry (Fama-French 48) year, zero otherwise. Local assets are defined as total assets minus international assets.	Yearly
Inflexibility	Indicator variable equal to one, if real option intensity is below median of a given country, industry (Fama-French 48) year, zero otherwise.	Yearly
Financial constraints	Indicator variable equal to one, if the five year rolling cash-to-cash flow sensitivity (Almeida et al., 2004) lies within the third tercile of the corresponding industry (Fama-French 48) year, zero otherwise.	Yearly
Full investment	Sum of capital expenditures, research and development expenses and acquisitions divided by the book value of total assets.	Yearly
R&D & Acquisitions	sum of research and development expenses and acquisitions divided by the book value of total assets	Yearly
MtB December	Market value of equity at the end of December divided by the book value of total assets. Market value of equity consists of all share classes, with non-listed shares valued at listed prices.	Yearly
Cash Holdings	Cash and short-term investments divided by the book value of total assets.	Yearly
GDP per Capita yearly	Average of quarterly GDP per Capita in a given year.	Yearly
GDP Growth yearly	Average of quarterly GDP Growth in a given year.	Yearly
Change in Exchange Rate yearly	Average of quarterly Change in Exchange Rate in a given year.	Yearly
lnQ2	Logarithm of Q2, defined as the sum of book value of total assets, market value of equity minus total shareholder's equity and deferred taxes all divided by the book value of total assets. Market value of equity consists of all share classes, with non-listed shares valued at listed prices.	Monthly
Transformed Q	Minus one divided by Q, following Gompers et al. (2010).	Monthly
Entrepreneurial FFF	Indicator variable equal to one if there is no family involvement in management- or supervisory board throughout the sample period for a first generation founding family firm, zero otherwise.	Yearly
Non-Entrepreneurial FFF	Indicator variable equal to one if a founding family firm observations is not defined as entrepreneurial FFF.	Yearly
Expected GDP Growth	Expected GDP growth rate by Country from OECD.	Quarterly
Customer Leading Indicator (CLI)	Customer leading indicator from OECD.	Monthly
Consumer Confidence Indicator (CCI)	Consumer confidence indicator from OECD.	Monthly
GDP Forecast Dispersion	Logarithm of quarterly GDP forecast dispersion from OECD.	Quarterly
Inter Question Dispersion	Inter question dispersion based on Claeys and Vašíček (2017) and Girardi and Reuter (2017), using data from the European business and consumer survey.	Quarterly
Standard Deviation of Profit Growth	Logarithm of the monthly cross-sectional standard deviation of growth in earnings before interests and taxes.	Monthly
Macroeconomic Uncertainty	Quarterly macroeconomic uncertainty measure from (Rossi and Sekhposyan, 2015, 2017).	Quarterly