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Family Firm Performance over the Business Cycle: A Meta-Analysis

Abstract The financial performance of family firms has been widely studied in the literature. Combining the results of 172 primary studies from 38 countries with data about business cycles, we investigated how family firm performance changes over the business cycle. Using meta-analytic estimation methods, we found that family firms slightly outperform nonfamily firms in both economically good and economically difficult times. For non-OECD countries, we found evidence for a countercyclical effect where the relative outperformance of family firms is higher in economically difficult times. No such cyclical effect was found for family firms in OECD countries. Our study extends the literature on how family firm performance depends on macroeconomic factors.

Keywords: family firms, financial performance, meta-analysis, business cycle

1 Introduction

The performance of family firms is widely studied in the literature. Several meta-analyses have been devoted to this topic (O'Boyle et al. 2012; Taras et al., 2018; Van Essen et al., 2015a; Wagner et al., 2015; Wang & Shailer, 2017). Our study sheds new light on this issue by conducting a meta-analysis investigating how family firm performance changes over the business cycle. This question is not trivial, as theory is unclear about the direction of business cycle effects on family firm performance.

On the one hand, family firms typically have a strong alignment of interests between shareholders and executives leading to a strong long-term orientation (Kappes & Schmid, 2013; Lumpkin & Bingham, 2011), low debt levels (Mishra & McConaughy, 1999; Schmid, 2013), fast and flexible decision-making (Anderson & Reeb, 2003a), and cautious investment strategies (Block, 2012; Chrisman & Patel, 2012). These characteristics put family firms in a good position to overcome external profitability shocks and would speak in favor of countercyclical effects where the relative performance of family versus nonfamily firms is stronger in economically difficult versus economically good times.

On the other hand, family firms are also shown to focus on noneconomic goals such as family tradition (Jaskiewicz, Combs, & Rau, 2015), dynastic control (Gómez-Mejía et al., 2007), and family and firm reputation (Berone et al., 2010; Deephouse & Jaskiewicz, 2013). Pursuing such noneconomic goals in crisis times can lead family firms to avoid the necessary job cuts and adjustments to their business model (Bjuggren, 2015; Bassanini et al., 2013; Block, 2010). Moreover, in some family firms, dominant (family) shareholders are in a strong position to extract private benefits of control through pyramid structures (Almeida & Wolfenzon, 2006), a separation of control and cash flow rights (Claessens et al., 2000), as well as cross-shareholdings (Morck et al., 2005). In crisis times, where the wealth of the business-owning family may be at stake, family owners may be tempted to extract resources from the firm harming firm performance. This situation becomes reinforced as the wealth of business-owning families is typically undiversified and highly concentrated in the firm (Anderson & Reeb, 2003b). Overall, these arguments would suggest a pro-cyclical effect where the relative performance of family versus nonfamily firms is stronger in economically good versus economically difficult times.

To investigate business cycle effects on family firm performance, we conducted a meta-analysis covering 176 primary studies and 840 effect sizes from 38 countries. Based on univariate and multivariate meta-analytic investigations, our results show that family firms slightly outperform nonfamily firms in both economically good and economically difficult times. For non-OECD countries, we found evidence for a countercyclical effect where the relative outperformance of family firms is higher in economically difficult times. No cyclical effect was found for family firms in OECD countries where relative family firm performance seems not to be influenced by business cycles. With these results, our study extends the literature on how family firm behavior and performance depends on macroeconomic factors such as business cycles (e.g., Bjuggren, 2015; Lins, Volpin, & Wagner, 2013).

The remainder of our study is structured as follows. Chapter 2 introduces the sample, as well as the methods and variables used in our study. Chapter 3 reports the results of our empirical analysis. Chapter 4 concludes with a discussion of our results with respect to previous findings in the academic literature and a reflection on potential limitations of our study.

2 Data and methods

2.1 Literature search and sample

Conducting our meta-analysis, we followed the reporting guidelines for meta-analyses in economics (Stanley et al., 2013). We followed five search strategies to build upon our study sample. First, we identified new or unrecognized primary studies by tracking recently published meta-analyses (Arregle et al., 2016; Carney et al., 2015; Duran et al., 2016; Van Essen et al., 2015a; Taras et al., 2018; Wang & Shailer, 2017). Second, we explored the electronic databases Google Scholar, JSTOR, EBSCOhost, and SSRN using various search terms and their combinations.[1] Third, we browsed notable journals, which publish articles in the research field of family businesses.[2] Fourth, we corresponded with authors who participated in a leading family business conference (The Annual Conference of the International Family Enterprise Research Academy in Zadar, Croatia 2017) and asked them to send us their working papers. Finally, we contacted authors whose articles include family firm variables and financial performance variables in an effort to fill in missing variables.

The literature search and coding resulted in a total sample of 1,280 primary studies measuring the focal effect between family firms and financial performance. We included articles published in scientific journals, working papers, doctoral dissertations and student

[1] These search terms are family, family firm, family business, family management, family ownership, family succession, financial performance, firm performance, corporate governance, block holder, ownership structure, corporate governance.
[2] These journals are Academy of Management Journal, Corporate Governance: An International Review, Entrepreneurship Theory & Practice, Family Business Review, Journal of Business Venturing, Journal of Corporate Finance, Journal of Family Business Strategy, Strategic Management Journal.

theses to address publication bias (Sutton, 2009). For a straightforward match of macroeconomic variables with yearly data, the final sample was limited to those studies that reported effect sizes for single years and single countries.[3] Excluding these studies led to a sample of 176 published articles, working papers, and theses with 888 effect sizes.

To be included in our sample, the primary studies had to report either correlation coefficients (*r*), statistics that can be transformed into *r*, or regression coefficients (O'Boyle et al., 2012; Van Essen et al., 2012). The main effect sizes were Pearson's correlation coefficient *r* and the partial correlation coefficient $r_{xy,z}$. We converted all effect sizes different from *r*, such as Cohen's d (Cohen, 1988) or t-test statistics, to *r* following Lipsey & Wilson (2001). Regression coefficients were converted to $r_{xy,z}$ (Stanley & Doucouliagos, 2012). We designed the coding protocol in such a way that we were able to depict as many characteristics of the effect sizes and the underlying samples as possible. We ran our analyses with the metafor package in R (Viechtbauer, 2010).

2.2 Outlier analysis and publication bias

Before running our analysis, we identified outliers and controlled for publication bias. Not excluding outlier observations can lead to a bias in mean effect sizes and standard errors. Following the recommendations of Viechtbauer & Cheung (2010) and the procedure of previous published meta-analyses (e.g., Klier et al., 2017; Wagner et al., 2015), we calculated studentized deleted residuals to identify outliers. We kept all observations with a corresponding z-statistics value in the range [-2,2]. Forty-three observations showed z-values outside this range and were therefore excluded from our analysis. This outcome left us with a final sample of 845 observations from 172 studies. Table 1 shows the distribution of studies and observations across the 38 countries included in the sample.

Insert Table 1 around here

Next to the outliers, publication bias can be a serious problem when conducting meta-analyses (Geyskens et al., 2009). Publication biases occur due to the preference of researchers to submit and the preference of editors and reviewers to accept preferentially studies for

[3] If primary studies use a panel dataset and report effect sizes for the entire observation period, we are not able to identify the yearly effect of the economic climate on family firm performance. Consequently, we exclude these studies. Calculating average values for the independent variables would be inappropriate since this procedure ignores fluctuations and postulates a constant relationship between economic climate and family firm performance. This problem becomes more severe with the length of the observed time period of the primary study and if the study contains years of extreme growth or recessions.

publication with significant findings, especially in top tier journals (Rosenthal, 1979; Stanley, 2005). Therefore, we included articles from journals of all impact levels, working papers, and PhD and student theses, including research articles written in English and other languages such as Chinese, German, or French (Sutton, 2009). A graphical way to detect publication bias is a funnel plot (Egger et al., 1997). Figure 1 shows the funnel plot for our model after the removal of outliers with Fisher's z transformed correlation coefficients on the x-axis and the respective standard errors on the y-axis. The graph shows a symmetrical distribution of effect sizes, which leads us to the assumption that our sample does not suffer from a publication bias (Sterne & Egger, 2001).

Insert Figure 1 around here

However, a purely visual testing can be prone to subjective perceptions (Fidrmuc & Korhonen, 2018). Therefore, we also ran a funnel plot asymmetry test (Egger et al., 1997). The result suggests that there is no funnel plot asymmetry either ($z = 0.74$, $p = 0.46$).

2.3 Methods used

In our study, we used two kinds of meta-analytical techniques. First, we used Hedges and Olkin meta-analysis (HOMA; Hedges & Olkin, 1985) to identify the overall and subgroup mean effect-sizes. Second, we applied meta-regression analysis (MRA) to examine all effects in a multivariate setting.

Following previous meta-analyses in management and economics (e.g., Duran et al., 2016; Marano et al., 2016), we included both Pearson's r and partial correlations $r_{xy,z}$ in the analysis. We transformed all raw (partial) correlations values by Fisher's Z transformation to correct for skewness in the effect size distribution (Fisher, 1921; Hedges & Olkin, 1985):

$$Z(r) = \frac{1}{2}\ln\left(\frac{1+r}{1-r}\right) \qquad (1)$$

If a study reports multiple effect sizes, for instance, different financial performance measures or different family variables, we include all of them in the models, as it leads to better results compared to selecting only one value or calculating average values (Bijmolt & Pieters, 2001).

With the HOMA model, we calculated the overall mean effect size for family firm performance for the whole sample and the mean effect sizes for different subgroups. We applied a random-effects model instead of a fixed-effects model because it allows for variation of the true effect size from study to study, which is a more plausible assumption in our case (Borenstein et al., 2010). The underlying assumption of random-effects models is that the study sample is a random draw from the overall population and that not every possible and explanatory moderating effect is included in the model (Gonzalez-Mulé & Aguinis, 2017). We used the inverse variance (w) to weigh the effect sizes (Hedges & Olkin, 1985) and to calculate the standard error, Z-statistic, and confidence interval of the mean effect size using the sum of these weights (Lipsey & Wilson, 2001). We estimated the between-study variance with the restricted maximum-likelihood (REML) estimator. The REML estimator has proven to be efficient and unbiased and is recommended for use in meta-analyses (Viechtbauer, 2005).

With the MRA, we checked for several moderating effects at the same time in a multivariate regression. The standard meta-regression model is described by

$$ES_i = \beta_0 + \sum_{k=1}^{K} \beta_k X_{ki} + u_i + e_i, \qquad (2)$$

where ES_i denotes the Z-transformed effect sizes extracted from the primary studies, β_k the meta-regression coefficient, and X_{ki} the value of the respective moderation variable. The error-terms u_i and e_i reflect the between and within variance of the effect sizes, respectively. The vector X_{ki} contains all independent business cycle and country control variables, as well as all dummy variables characterizing the effect size composition, the sample and the study specifications. Similar to the HOMA model, the observations are weighted by their inverse variance and the REML estimator is used to account for between-study variance.

In meta-analyses, datasets often have a hierarchical structure as for example one primary study might include several effect sizes or several primary studies might be conducted in the same country. By using a multilevel model (Raudenbush & Bryk, 2002), we are able to capture the layered structure of our data and control for the impact of multiple levels on the focal effect (Steenbergen & Jones, 2002). In our study, we relied on a three-level structure (Konstantopoulos, 2011; Van den Noortgate et al., 2013). On the first two levels, we controlled for the effect size and sample characteristics by using a set of independent and control variables. As our main interest is the impact of the economic climate of the respective country at the time of the effect size observation, we controlled for country effects on the third level by introducing random effects (Van Essen et al., 2012). Equation (2) can be then rewritten as

$$ES_{is} = \gamma_{00} + \sum_{q=1}^{Q} \gamma_{0q} W_{qc} + \sum_{k=1}^{K} \beta_{kc} X_{kic} + u_{ic} + e_{ic} + \vartheta_{0c}, \qquad (3)$$

where subscript c= $1, \ldots, C$ denotes each included country, W= $W_{1c}, \ldots, W_{Qc}$ are country-specific variables, and ϑ_{0c} is the level-3 random effect.

A likelihood ratio test between the two-level and three-level models reveals a significantly better fit of the three-level model (LRT = 95.92, p = 0.00). Lastly, we checked for multicollinearity issues in our model. No variable has a VIF weight above the critical value of 10.[4] Thus, we faced no multicollinearity problems in our model.

2.4 Variables

In meta-analyses, the dependent variables are the observed effect sizes from primary studies. In our case, these effect sizes reflect a relationship between family influence and financial performance. Thus, each effect size comprises a family and a financial performance component. We coded both components with dummy variables to characterize the effect sizes and control for heterogeneity due to differences in primary study specifications. Next to those variables defining the effect sizes, we merged several variables to control for the business cycle and the country's institutions as independent variables. Lastly, we controlled for characteristics of the study sample and the study itself.

Insert Table 2 around here

Business cycle variables: Our main independent variables of interest are those describing the overall economic climate in a country at the time of the primary study. We included three economic indicators to draw a picture of the state of the business cycle. We first included real GDP growth, measured as the percentage increase of a country's real GDP in a given year, as arguably most important indicator. Next, we took into account changes in a country's price level with the help of the consumer price inflation rate. Firms typically prefer low and stable inflation rates to make decisions in a tranquil environment. Lastly, we included the short-term interest rate to account for a potentially accommodative or restrictive monetary policy stance set by a country's or a monetary union's central bank. By combining these three variables, we could disentangle growth episodes that were accompanied by high inflation rates or low interest rates from those with modest inflation rates and a rather neutral monetary policy stance.

[4] The average VIF value is 1.76.

As our sample includes effect sizes from 38 different countries, we faced the problem of comparability of these three variables across countries. Emerging markets, for example, have higher GDP growth rates and higher inflation rates on average than developed countries. In addition, the average growth rates in developed countries have declined over the last decades. Hence, comparing the actual values of the macroeconomic indicators across countries and time could bias our results. To account for different average levels of these variables across countries and for country-specific nonlinear time trends, we constructed cyclical values for all three variables:[5]

$$Cycl.ECON_{c,t} = ECON_{c,t} - \frac{1}{5}\sum_{j=1}^{5} ECON_{c,t-j}, \qquad (4)$$

where countries are denoted by c and years by t. The cyclical values hence subtract the average of a given variable over the past five years from this year's value.[6] The procedure generates values fluctuating around zero, which also allows a straightforward interpretation. If, for instance, the cyclical value of GDP growth is positive in a given year, this implies above-average growth rates, whereas a negative value would indicate an economic slowdown or even a recession. Thus, we denote our three business cycle variables as *Cycl. GDP growth*, *Cycl. inflation rate*, and *Cycl. interest rate*. We lagged the cyclical values by one year in the analysis to prevent reverse causality.[7]

Country controls: Next to the business cycle variables, we controlled for the longer-term productivity and state of development of a country by including the natural logarithm of GDP per capita (*Ln GDP/capita*), measured in constant 2010 US Dollars. This variable, which also serves as a rough proxy of a country's capital stock, is also helpful to account for heterogeneity across countries beyond the random effects employed in the analysis.

Furthermore, we included the level of institutional development of a country. Those characteristics have shown to be crucial for the size and development of financial markets in different countries. Countries with stronger corporate governance and law systems show larger and more developed financial markets, higher firm valuations, higher growth rates, easier

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[5] A widely followed practice to construct cyclical values would suggest employing the Hodrick-Prescott filter with the standard smoothing parameter of 100. However, this assumes perfect knowledge of all future observations since it estimates the cyclical values based on a two-sided filter and is therefore not replicating the real-time situation of the firms' decision-makers.

[6] We choose five years to de-trend the variables since this roughly corresponds to the average length of a business cycle or monetary policy cycle.

[7] Note that investment shocks are considered as a potential cause of business cycles. By lagging all three variables by one period, we rule out the possibility of contemporaneous feedback between the performance measures and the business cycle.

access to external finance and less ownership concentration (La Porta et al., 1997, 2000; Rajan & Zingales, 1998). High ownership concentrations, especially by families and the state, are in contrast more prevalent in countries with weak corporate governance and law systems (Fogel, 2006; La Porta et al., 1999). Investors are typically aware of the risks related to weak corporate governance and legal systems and are more cautious with providing capital to large blockholder firms in these countries. Hence, there should be an effect on the performance of family firms. To characterize a country's governance and legal system, we used the Worldwide Governance Indicators (WGI) provided by the World Bank (Kaufmann et al., 2011). These measure a country's institutional quality along six dimensions, which are voice and accountability, political stability and the absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. Following the suggestion of Langbein & Knack (2010), we constructed an average value over all six dimensions (*Institutional development*). The six dimensions originally ranged from -2.5 to +2.5 with higher values indicating a better development. We rescaled the values from 0 to 5, so that we only have positive values. The indicators were surveyed every two years since 1996 and on a yearly basis since 2002. For observations before 1996, we used the value of 1996, as changes over time were small or even negligible (Kaufmann et al., 2011).

Family firm measure controls: To date, there is no unique definition for family firms in the academic literature (Astrachan et al., 2002). Villalonga & Amit (2006) and Miller et al. (2007) show that the performance of family firms compared to nonfamily firms depends strongly on the definition of family firms. In general, Astrachan et al. (2002) define three potential influences of a family: ownership, management, and supervisory control. Authors use those three influence types solely or in combination for family firm definitions in the academic literature. Accordingly, we coded five different definitions for family influence in a firm as dummy variables. The first variable, *Family ownership*, equals 1 if family influence in a study is measured by or a firm is defined as a family firm by ownership stake. In the primary studies, ownership can be measured either by a continuous variable (e.g., Joh, 2003; Connelly et al., 2012) or by dummy variables defined by several percentage thresholds (e.g., Anderson et al., 2003; Barth et al, 2005). The second variable, *Family management*, is equal to 1 if a family member serves as CEO of the firm or the family influence is measured as the ratio of family members in the management board or top management team. The third variable, *Family control*, is equal to 1 if a family member is member of the supervisory board or the family influence is measured as the ratio of family members in the supervisory board. The two last variables, *Strong family influence* and *Mixed family influence*, combine all three influence types. *Strong* *family influence* is equal to 1 if a definition requires at least two of the three categories to be prevalent in a firm (e.g., Andres, 2008; Chrisman et al., 2004), whereas *Mixed family influence* requires only anyone of the three (e.g., Miller et al., 2007; Villalonga & Amit, 2006).

Next to the type of family firm definition or family influence, respectively, we controlled for the generational stage of family firms. Prior studies highlight significant performance implications with regard to the generation in place (Cucculelli & Micucci, 2008; Miller et al., 2007). Some studies control for the so-called "founder effect" and distinguish between founder and later generations in their variables. *Founder involvement* is a dummy variable equal to 1 if the effect size in a primary study observes only active founders in any of the before-mentioned family variables. *Later generation* is a dummy variable equal to 1 if successors are in place. Observations with a value equal to 0 for both variables do not control for generational influence and use a mixed definition.

Financial performance measure controls: Different performance measures are commonly used in family firm performance studies. In coding them, we distinguished between market and accounting-based performance measures. Both types differ with regard to the time perspective and to assessors (Demsetz & Villalonga, 2001). The group of market measures includes *Tobin's Q*, *Stock return,* and *Other market measures* (such as price-equity ratio or earnings per share), and the group of accounting-based measures return on assets (*ROA*), return on equity (*ROE*), return on sales or profit margin (*ROS/Profit margin*), *Sales growth*, and *Other accounting measures* (e.g., ROI or ROCE). We coded each variable equal to 1 if the respective performance measure is used in the primary study to measure financial performance.

Sample controls: We included several variables to account for characteristics of the samples of the primary studies and the studies themselves. First, firm size is controlled for by the variable *SMEs,* which equals 1 if the study sample observes only small and medium sized firms and 0 if the study sample observes large firms. Furthermore, there are dummy variables that equal 1 if the primary sample consists only of publicly listed firms (*Listed firms*), manufacturing firms (*Manufacturing*), or high-tech firms (*High-tech*). If none of the variables is equal to 1, the sample is mixed with regard to industries or firm types. As we include only observations from cross-sectional data, the observation type can only be Pearson's correlation coefficient (*Correlation*) or a partial correlation derived from an OLS regression.

Study controls: With regard to the type of study, we distinguished between *Published article*, which equals 1 if the study is published in an academic journal, and unpublished articles, which include working papers, PhD theses and student theses. Furthermore, we controlled for the number of authors (*No. authors*), the language of the study (*Language*, equal to 1 for English articles and 0 for all others), and if the research focus of the study is firm performance (*Performance study*).

3 Results

3.1 HOMA

Table 3 shows the results of the HOMA model with all coded effect sizes included. We find an overall mean effect size of ES = 0.0329, which is statistically significant at the 1% level. This outcome indicates an overall outperformance of family firms compared to nonfamily firms, regardless of the family firm definition, the type of financial performance measure or the economic conditions. The finding of a general out-performance of family firms is well in line with previous meta-analyses (e.g., Van Essen et al., 2015a; Wagner et al., 2015; Wang & Shailer, 2017). The result is based on 845 effect size observations from 172 studies with 694,361 firm observations included. The Q-test indicates a high degree of heterogeneity (Q = 2,305.76, p = 0.00) and thus a great variability in the performance outcomes across the included studies. According to the I^2 statistic, 68.51% of the total heterogeneity is due to variance between the observations. In what follows, we split the sample according to our independent variables to explore differences in the mean effect sizes with regard to economic and institutional circumstances.

Insert Table 3 around here

For the analysis of our three economic variables *Cycl. GDP growth*, *Cycl. interest rate* and *Cycl. inflation rate*, we split up all observations into two groups (Panel A). One group contains all effect sizes if the variables take on a positive value and the other all effect sizes if the variables take on a negative value, respectively. The results for *Cycl. GDP growth* indicate that family firms outperform nonfamily firms on average during economically good times and economically more difficult times. However, the mean effect size is larger for observations with a negative value of *Cycl. GDP growth* (Mean ES = 0.0394) compared to observations with a positive value of *Cycl. GDP growth* (Mean ES = 0.0284). This suggests that family firms outperform relatively stronger in comparatively more difficult times of an economic slowdown or a recession. The difference between these two groups is significant (z = 2.02, p = 0.04). For the second economic variable, *Cycl. interest rate,* we find again a positive mean effect size for both situations. A cyclical value greater (smaller) than 0 indicates an increase (decrease) in the respective central bank discount rate and thus a higher (lower) lending interest rate compared to the years before. In both scenarios, the mean effect sizes are nearly the same. For *Cycl. inflation rate*, we find a significantly higher mean effect sizes for observations with a negative value (i.e., lower inflation compared to the previous years; Mean ES = 0.0378) than for observations with a positive value (i.e., higher inflation compared to the previous years; Mean ES = 0.0267).

Next, we created subsamples to investigate moderation effects between our main independent variable *Cycl. GDP growth* with regard to the country types. First, we split up the sample into *OECD countries* and *Non-OECD countries* and then again according to the value of *Cycl. GDP growth* (Panel B). In the group of *OECD countries*, both subgroups show positive mean effect sizes. The mean effect size of observations with a positive value of *Cycl. GDP growth* is slightly higher than the one of observations with a negative value, but this difference is not significant ($z = 0.23$, $p = 0.82$). In the group of non-OECD countries, there is only a significant performance effect for the group of negative values of *Cycl. GDP growth*, whereas the family firm performance effect for positive *Cycl. GDP growth* observations is not different from 0 (Mean ES = 0.0074). The difference between economically good and difficult times is significant at the 10% level. If we split the sample according to the type of performance measures, we see a similar pattern across accounting measures. For the group of market measures, however, the results indicate a strong outperformance for observations with a positive value of *Cycl. GDP growth* in OECD countries, whereas there is no significant performance effect for observations with a negative value. For non-OECD countries, we find exactly the opposite effect. Our results thus indicate the existence of different performance patterns between developed and emerging markets, especially in terms of stock market performance.

In Panel C, we split the total sample into the two main regions Asia and Western countries (including Europe and North America). Previous research shows that the characteristics of family firms in Asia differ from those in Europe and North America (Dinh & Calabrò, forthcoming; La Porta et al., 1999). Asian economies are dominated by large diversified business groups in the hand of owner families, such as the Korean Chaebols or the Japanese Keiretsu conglomerates, whereas ownership structures in Western countries are more atomistic (Franks et al., 2012; Khanna & Palepu, 2000; Morck et al., 2005). The results for the two regions are quite different in our analysis. For Asia, we find a strong outperformance in economically difficult times, while there is only a small but still significant outperformance in economically good times. The difference between both subsamples is highly significant (z = 3.85, p = 0.00). In Western countries, the outperformance is greater for economically good times. However, the difference between the two subsamples is not significant (z = 1.14, p = 0.25). If we divide the samples according to the type of performance measure, the effect directions are quite similar for accounting measures compared to the full sample. For Asian countries, we found a strong outperformance in economically difficult times and only a slight outperformance in economically good times, whereas there is no difference between both kinds of periods in Western countries. In the subsample of market measures, we again detect opposing effect directions. For Asian countries, we found a higher mean effect size in economically difficult times than in economically good times, whereas in Western countries, family firms outperform nonfamily firms (strongly) in economically good times but not during difficult times.

3.2 Meta-regression analysis

Table 4 shows the results of the MRA model with a stepwise inclusion of our independent variables (Model 1a – 1c). We use additional random effects on country-level in our model to control for correlated effect sizes. In total, there are 37 clusters in the complete model for each country in the sample.

Insert Table 4 around here

Contrary to the HOMA model, we found no significant impact of *GDP growth* on family firms' financial performance in the multivariate analysis when we control for other effect size characteristics at the same time. Regarding the other economic and country control variables, only *Cycl. inflation rate* and *institutional development* show significant effects. Whereas a higher inflation has a negative impact on relative family firm performance, the effect of institutional development on family firm performance is positive.

Insert Table 5 around here

We perform the same subsample analyses as in the HOMA model in a multivariate setting. In Table 5, we split up the sample in a first step according to the OECD member status of the countries and in a second step according to the type of performance measure. In the sample of OECD countries, we find no significant effects for our main independent variable *Cycl. GDP growth* and all other business cycle variables except for *Cycl. inflation rate*. The level of institutional development has a positive and highly significant impact in the subsample of market performance measures. Thus, the higher the level of corporate governance is in developed markets, the higher the outperformance of family firms.

In the sample of non-OECD countries, we found a negative and significant effect of *Cycl. GDP growth* on family firm performance. In accordance with the results from the HOMA analysis (Table 3, Panel B), this outcome indicates that family firms outperform more strongly in economically more difficult times. Furthermore, *Cycl. interest rate* and *Cycl. inflation rate* show highly significant effects. Whereas a comparably higher interest rate has a positive effect on family firms' relative performance, a higher inflation rate has a negative effect. Splitting up the sample according to the type of performance measure indicates that these effects are mainly driven by market measure observations. In the regression of accounting measures, the effect direction for the business cycle variables is the same but the effects are insignificant. Finally, *GDP/Capita* and *institutional development* do not show significant effects.

Insert Table 6 around here

We found similar results if we split up the sample according to the continental regions (Table 6). We found significant effects for *Cycl. GDP growth* at the 10% level for the Asian subsample where most of the non-OECD countries in our sample are located (p=0.056). Again, this effect is driven by market performance measures. Similar to the previous analysis, *Cycl. interest rate* and *Cycl. inflation rate* are highly significant, too. For Europe and North America, we found only significant effects for *Cycl. inflation rate*. Finally, we observed a highly significant effect for the level of institutional development.

4 Discussion and conclusion

Our meta-analysis investigates how the performance of family firms changes over the business cycle. Combining the results of 172 primary studies (845 effect sizes) from 38 countries with data about business cycles, our results show that family firms slightly outperform nonfamily firms in both economically good and economically difficult times. This result is in line with prior meta-analyses on the performance of family firms (e.g., Taras et al., 2018; Wagner et al., 2015; Wang & Shailer, 2017). For Asian and non-OECD countries, we found evidence for a countercyclical effect where the relative outperformance of family firms is higher in economically difficult times. This finding supports those studies arguing for a strong resilience and outperformance of family firms in difficult times (Allouche et al., 2008; Amann & Jaussaud, 2012; Desender et al., 2009; Joe et al., 2018; Kashmiri, Mahajan, 2014; Leung & Horwitz, 2010; Minichilli et al., 2016; Van Essen et al., 2015b; Zhou et al., 2017) and disproves those studies arguing for the opposite to be the case (Bae et al., 2012; Baek et al. 2004; Lemmon & Lins, 2003; Lins et al., 2013). It should be noted that we did not find such a countercyclical effect for OECD countries where family firm performance seems not to be influenced by business cycles.

Why do the results of our meta-analysis differ from prior works on this topic, and why do they differ for OECD and non-OECD countries?

The first question can be answered in multiple ways. One possible reason lies in the very nature of a meta-analysis, which combines the results of a multitude of empirical studies and is therefore more robust against outliers resulting from specific country or industry contexts or time periods. Moreover, it corrects for publication bias. Another reason could be that in our meta-analysis we not only consider the performance of family firms in crisis or recession periods but base our evidence on studies from all phases or stages of the business cycle including both recession and recovery periods. Finally, our meta-analytical approach covering a broad range of countries allows us to control for many country-specific factors, such as the level of development or the strength of the corporate governance system.

The second question may have to do with the fact that family firms in emerging markets are different from family firms in developed markets. In emerging markets, family firms mostly appear in the form of a few large powerful and well diversified business groups in the hands of a few family dynasties (Almeida & Wolfenzon, 2006; Claessens et al., 2000; La Porta et al., 1999). Such family firms often have good networks and are closely intertwined with the state and the public sector (Bertrand & Schoar, 2006; Chen & Nowland, 2010; Morck et al., 1998). Such close ties may be particularly helpful in crisis times as they help to defend competition and constitute effective market entry barriers avoiding ruinous price competition (Johnson & Mitton, 2003; Li et al, 2008). Furthermore, strong networks and political connections provide good access to human, financial, and technological resources allowing family firms to better deal face the uncertainty arising from economically difficult times (Anderson et al., 2003; Dinh & Calabrò, forthcoming; Xu et al., 2013). Good networks with the financial sector avoid a situation of immediate cutbacks of credit provision during recession periods (Crespí & Martín-Oliver, 2015; D'Aurizio et al., 2015). Due to the often weak and ineffective corporate governance systems in emerging markets, powerful business families can be in a strong position to pursue family-related goals. While the prior literature has focused mainly on the dark sides of such powerful family shareholders referring to entrenchment (Claessens et al., 2002; Morck et al., 2005), nepotism (Bloom & van Reenen, 2007; Schulze et al., 2001) and minority shareholder exploitation (Morck & Yeung, 2003), our findings imply that there may also be positive aspects. In fact, by viewing their firms as their most important asset, large powerful and entrenched family shareholders may have a particularly strong interest and incentive to protect their firms from going bankrupt in economically difficult times. Owner families may not only use their powerful position to expropriate minority shareholders but also use their private wealth to prop up their firms with badly needed financial capital and other resources in difficult times (Friedman et al., 2003) to not lose transgenerational control. Finally, the fact that family firms or family business groups in emerging markets are often well diversified (Khanna & Palepu, 2000) gives them an additional buffer and possibility for cross-subsidizing which can be very helpful in times of crisis. As a sort of quasi-capital markets, they share risk (Khanna & Yafeh, 2005) and provide financial resources (Almeida & Wolfenzon, 2006) and thus compensate imperfect country capital and product markets. The fact that we do not find a business cycle effect on family firm performance in developed countries can also be interpreted as a sign that family firms have somewhat lost their 'familiness' and unique characteristics and have become more similar to nonfamily firms.

Our study has some limitations. First, a more balanced sample regarding the distribution of studies and effect sizes per country and years would be desirable. This is because early family business research had a strong US, European and East Asian focus. So far, few studies exist on family firms in Arab and African countries. Second, to create a match between business cycle data and family firm performance, we are mainly limited to single country single year studies. Studies with panel datasets spanning several countries and years can only be included in our dataset if the respective study reports effect sizes separately for each country and year. Due to this limitation, our estimation dataset reduced strongly as we had to exclude several studies from (top-tier) finance, management, and economics journals.

Literature

Allouche, J., Amann, B., Jaussaud, J., & Kurashina, T. (2008). The impact of family control on the performance and financial characteristics of family versus nonfamily businesses in Japan: A matched-pair investigation. *Family Business Review*, 21, 315-329.

Almeida, H. V., & Wolfenzon, D. (2006). A theory of pyramidal ownership and family business groups. *The Journal of Finance*, *61*(6), 2637-2680.

Amann, B., & Jaussaud, J. (2012). Family and non-family business resilience in an economic downturn. *Asia Pacific Business Review*, *18*(2), 203-223.

Anderson, R. C., Mansi, S. A., & Reeb, D. M. (2003). Founding family ownership and the agency cost of debt. *Journal of Financial Economics*, *68*(2), 263-285.

Anderson, R. C., & Reeb, D. M. (2003a). Founding-family ownership and firm performance: Evidence from the S&P 500. *The Journal of Finance*, *58*(3), 1301-1328.

Anderson, R. C., & Reeb, D. M. (2003b). Founding-family ownership, corporate diversification, and firm leverage. *The Journal of Law and Economics*, *46*(2), 653-684.

Andres, C. (2008). Large shareholders and firm performance—An empirical examination of founding-family ownership. *Journal of Corporate Finance*, *14*(4), 431-445.

Arregle, J. L., Duran, P., Hitt, M. A., & Essen, M. (2016). Why is family firms' internationalization unique? A meta-analysis. *Entrepreneurship Theory and Practice*.

Astrachan, J. H., Klein, S. B., & Smyrnios, K. X. (2002). The F-PEC scale of family influence: A proposal for solving the family business definition problem. *Family Business Review*, *15*(1), 45-58.

Bae, K. H., Baek, J. S., Kang, J. K., & Liu, W. L. (2012). Do controlling shareholders' expropriation incentives imply a link between corporate governance and firm value? Theory and evidence. *Journal of Financial Economics*, *105*(2), 412-435.

Baek, J.-S., Kang, J.-K., & Park, K. S. (2004). Corporate governance and firm value: Evidence from the Korean financial crisis. *Journal of Financial Economics*, 71, 265-313.

Barth, E., Gulbrandsen, T., & Schønea, P. (2005). Family ownership and productivity: The role of owner-management. *Journal of Corporate Finance*, *11*(1), 107-127.

Bassanini, A., Breda, T., Caroli, E., & Rebérioux, A. (2013). Working in family firms: Paid less but more secure? Evidence from French matched employer-employee data. *ILR Review*, *66*(2), 433-466.

Berrone, P., Cruz, C., Gomez-Mejia, L. R., & Larraza-Kintana, M. (2010). Socioemotional wealth and corporate responses to institutional pressures: Do family-controlled firms pollute less?. *Administrative Science Quarterly*, *55*(1), 82-113.

Bertrand, M., & Schoar, A. (2006). The role of family in family firms. *Journal of Economic Perspectives*, *20*(2), 73-96.

Bijmolt, T. H., & Pieters, R. G. (2001). Meta-analysis in marketing when studies contain multiple measurements. *Marketing Letters*, *12*(2), 157-169.

Bjuggren, C. M. (2015). Sensitivity to shocks and implicit employment protection in family firms. *Journal of Economic Behavior & Organization*, *119*, 18-31.

Block, J. H. (2010). Family management, family ownership, and downsizing: Evidence from S&P 500 firms. *Family Business Review*, *23*(2), 109-130.

Block, J. H. (2012). R&D investments in family and founder firms: An agency perspective. *Journal of Business Venturing*, *27*(2), 248-265.

Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. *The Quarterly Journal of Economics*, *122*(4), 1351-1408.

Borenstein, M., Hedges, L. V., Higgins, J., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods*, *1*(2), 97-111.

Carney, M., Van Essen, M., Gedajlovic, E. R., & Heugens, P. P. (2015). What do we know about private family firms? A meta-analytical review. *Entrepreneurship Theory and Practice*, *39*(3), 513-544.

Chen, E. T., & Nowland, J. (2010). Optimal board monitoring in family-owned companies: Evidence from Asia. *Corporate Governance: An International Review*, *18*(1), 3-17.

Chrisman, J. J., & Patel, P. C. (2012). Variations in R&D investments of family and nonfamily firms: Behavioral agency and myopic loss aversion perspectives. *Academy of Management Journal*, *55*(4), 976-997.

Chrisman, J. J., Chua, J. H., & Litz, R. A. (2004). Comparing the agency costs of family and non-family firms: Conceptual issues and exploratory evidence. *Entrepreneurship Theory and Practice*, *28*(4), 335-354.

Claessens, S., Djankov, S., Fan, J. P., & Lang, L. H. (2002). Disentangling the incentive and entrenchment effects of large shareholdings. *The Journal of Finance*, *57*(6), 2741-2771.

Claessens, S., Djankov, S., & Lang, L. H. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, *58*(1), 81-112.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hilsdale: Lawrence Earlbaum Associates.

Connelly, J. T., Limpaphayom, P., & Nagarajan, N. J. (2012). Form versus substance: The effect of ownership structure and corporate governance on firm value in Thailand. *Journal of Banking & Finance*, *36*(6), 1722-1743.

Crespí, R., & Martín-Oliver, A. (2015). Do family firms have better access to external finance during crises?. *Corporate Governance: An International Review*, *23*(3), 249-265.

Cucculelli, M., & Micucci, G. (2008). Family succession and firm performance: Evidence from Italian family firms. *Journal of Corporate Finance*, *14*(1), 17-31.

D'Aurizio, L., Oliviero, T., & Romano, L. (2015). Family firms, soft information and bank lending in a financial crisis. *Journal of Corporate Finance*, *33*, 279-292.

Deephouse, D. L., & Jaskiewicz, P. (2013). Do family firms have better reputations than non-family firms? An integration of socioemotional wealth and social identity theories. *Journal of Management Studies*, *50*(3), 337-360.

Demsetz, H., & Villalonga, B. (2001). Ownership structure and corporate performance. *Journal of Corporate Finance*, *7*(3), 209-233.

Desender, K. A., Cestona, M. A. G., & Cladera, R. C. (2009). Stock price performance and ownership structure during periods of stock market crisis: the Spanish case.

Dinh, T. Q., & Calabrò, A (forthcoming). Asian Family Firms through Corporate Governance and Institutions: A Systematic Review of the Literature and Agenda for Future Research. *International Journal of Management Reviews*.

Duran, P., Kammerlander, N., Van Essen, M., & Zellweger, T. (2016). Doing more with less: Innovation input and output in family firms. *Academy of Management Journal*, *59*(4), 1224-1264.

Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ*, *315*(7109), 629-634.

Fidrmuc, J., & Korhonen, I. (2018). Meta-analysis of Chinese business cycle correlation. *Pacific Economic Review*, *23*(3), 385-410.

Fisher, R. A. (1921). On the probable error of a coefficient of correlation deduced from a small sample. *Metron*, *1*, 3-32.

Fogel, K. (2006). Oligarchic family control, social economic outcomes, and the quality of government. *Journal of International Business Studies*, *37*(5), 603-622.

Franks, J., Mayer, C., Volpin, P., & Wagner, H. F. (2012). The life cycle of family ownership: International evidence. *The Review of Financial Studies*, *25*(6), 1675-1712.

Friedman, E., Johnson, S., & Mitton, T. (2003). Propping and tunneling. *Journal of Comparative Economics*, *31*(4), 732-750.

Geyskens, I., Krishnan, R., Steenkamp, J. B. E., & Cunha, P. V. (2009). A review and evaluation of meta-analysis practices in management research. *Journal of Management*, *35*(2), 393-419.

Gómez-Mejía, L. R., Haynes, K. T., Núñez-Nickel, M., Jacobson, K. J., & Moyano-Fuentes, J. (2007). Socioemotional wealth and business risks in family-controlled firms: Evidence from Spanish olive oil mills. *Administrative Science Quarterly*, 52(1), 106-137.

Gonzalez-Mulé, E., & Aguinis, H. (2017). Advancing theory by assessing boundary conditions with metaregression: A critical review and best-practice recommendations. *Journal of Management*, *44*(6), 2246-2273.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Orlando: Academic Press.

Jaskiewicz, P., Combs, J. G., & Rau, S. B. (2015). Entrepreneurial legacy: Toward a theory of how some family firms nurture transgenerational entrepreneurship. *Journal of Business Venturing*, *30*(1), 29-49.

Joe, D. Y., Jung, D., & Oh, F. D. (2018). Owner-managers and firm performance during the Asian and global financial crises: evidence from Korea. *Applied Economics*, 1-13.

Joh, S. W. (2003). Corporate governance and firm profitability: Evidence from Korea before the economic crisis. *Journal of Financial Economics*, *68*(2), 287-322.

Johnson, S., & Mitton, T. (2003). Cronyism and capital controls: evidence from Malaysia. *Journal of Financial Economics*, *67*(2), 351-382.

Kappes, I., & Schmid, T. (2013). The effect of family governance on corporate time horizons. *Corporate Governance: An International Review*, *21*(6), 547-566.

Kashmiri, S., & Mahajan, V. (2014). Beating the recession blues: Exploring the link between family ownership, strategic marketing behavior and firm performance during recessions. *International Journal of Research in Marketing*, *31*(1), 78-93.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: methodology and analytical issues. *Hague Journal on the Rule of Law*, *3*(2), 220-246.

Khanna, T., & Palepu, K. (2000). Is group affiliation profitable in emerging markets? An analysis of diversified Indian business groups. *The Journal of Finance*, *55*(2), 867-891.

Khanna, T., & Yafeh, Y. (2005). Business groups and risk sharing around the world. *The Journal of Business*, *78*(1), 301-340.

Klier, H., Schwens, C., Zapkau, F. B., & Dikova, D. (2017). Which resources matter how and where? A meta-analysis on firms' foreign establishment mode choice. *Journal of Management Studies*, *54*(3), 304-339.

Konstantopoulos, S. (2011). Fixed effects and variance components estimation in three-level meta-analysis. *Research Synthesis Methods*, *2*(1), 61-76.

Langbein, L., & Knack, S. (2010). The worldwide governance indicators: Six, one, or none?. *The Journal of Development Studies*, *46*(2), 350-370.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (1999). Corporate ownership around the world. *The Journal of Finance*, *54*(2), 471-517.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1997). Legal determinants of external finance. *The Journal of Finance*, *52*(3), 1131-1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, *58*(1), 3-27.

Lemmon, M. L., & Lins, K. V. (2003). Ownership structure, corporate governance, and firm value: Evidence from the East Asian financial crisis. *The Journal of Finance*, *58*(4), 1445-1468.

Leung, S., & Horwitz, B. (2010). Corporate governance and firm value during a financial crisis. *Review of Quantitative Finance and Accounting*, *34*(4), 459-481.

Li, H., Meng, L., Wang, Q., & Zhou, L. A. (2008). Political connections, financing and firm performance: Evidence from Chinese private firms. *Journal of Development Economics*, *87*(2), 283-299.

Lins, K. V., Volpin, P., & Wagner, H. F. (2013). Does family control matter? International evidence from the 2008-2009 financial crisis. *The Review of Financial Studies*, *26*(10), 2583-2619.

Lipsey, M. W. & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks: Sage publications.

Lumpkin, G. T., & Brigham, K. H. (2011). Long–term orientation and intertemporal choice in family firms. *Entrepreneurship Theory and Practice*, *35*(6), 1149-1169.

Marano, V., Arregle, J. L., Hitt, M. A., Spadafora, E., & Van Essen, M. (2016). Home country institutions and the internationalization-performance relationship: A meta-analytic review. *Journal of Management*, *42*(5), 1075-1110.

Miller, D., Le Breton-Miller, I., Lester, R. H., & Cannella, A. A. (2007). Are family firms really superior performers?. *Journal of Corporate Finance*, *13*(5), 829-858.

Minichilli, A., Brogi, M., & Calabrò, A. (2016). Weathering the storm: Family ownership, governance, and performance through the financial and economic crisis. *Corporate Governance: An International Review*, *24*(6), 552-568.

Mishra, C. S., & McConaughy, D. L. (1999). Founding family control and capital structure: The risk of loss of control and the aversion to debt. *Entrepreneurship: Theory and Practice*, *23*(4), 53-53.

Morck, R., Shleifer, A., & Vishny, R. W. (1988). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics*, *20*, 293-315.

Morck, R., Wolfenzon, D., & Yeung, B. (2005). Corporate governance, economic entrenchment, and growth. *Journal of Economic Literature*, *43*(3), 655-720.

Morck, R., & Yeung, B. (2003). Agency problems in large family business groups. *Entrepreneurship theory and practice*, *27*(4), 367-382.

O'Boyle Jr, E. H., Pollack, J. M., & Rutherford, M. W. (2012). Exploring the relation between family involvement and firms' financial performance: A meta-analysis of main and moderator effects. *Journal of Business Venturing*, *27*(1), 1-18.

Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *The American Economic Review*, *88*(3), 559-586.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks: Sage.

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin*, *86*(3), 638.

Schmid, T. (2013). Control considerations, creditor monitoring, and the capital structure of family firms. *Journal of Banking & Finance*, *37*(2), 257-272.

Schulze, W. S., Lubatkin, M. H., Dino, R. N., & Buchholtz, A. K. (2001). Agency relationships in family firms: Theory and evidence. *Organization Science*, *12*(2), 99-116.

Stanley, T. D. (2005). Beyond publication bias. *Journal of Economic Surveys*, *19*(3), 309-345.

Stanley, T. D., & Doucouliagos, H. (2012). *Meta-regression analysis in economics and business*. Oxford: Routledge.

Stanley, T. D., Doucouliagos, H., Giles, M., Heckemeyer, J. H., Johnston, R. J., Laroche, P., Nelson, J. P., Paldam, M., Poot, J., Pugh, G., Rosenberger, R. S. & Rost, K. (2013). Meta-analysis of economics research reporting guidelines. *Journal of Economic Surveys*, *27*(2), 390-394.

Steenbergen, M. R., & Jones, B. S. (2002). Modeling multilevel data structures. *American Journal of Political Science*, 218-237.

Sterne, J. A., & Egger, M. (2001). Funnel plots for detecting bias in meta-analysis: guidelines on choice of axis. *Journal of Clinical Epidemiology*, *54*(10), 1046-1055.

Sutton, A. J. (2009). Publication bias. *The Handbook of Research Synthesis and Meta-Analysis*, *2*, 435-452.

Taras, V., Memili, E., Wang, Z., & Harms, H. (2018). Family involvement in publicly traded firms and firm performance: a meta-analysis. *Management Research Review*, *41*(2), 225-251.

Van den Noortgate, W., López-López, J. A., Marín-Martínez, F., & Sánchez-Meca, J. (2013). Three-level meta-analysis of dependent effect sizes. *Behavior research methods*, *45*(2), 576-594.

Van Essen, M., Heugens, P. P., Otten, J., & van Oosterhout, J. H. (2012). An institution-based view of executive compensation: A multilevel meta-analytic test. *Journal of International Business Studies*, *43*(4), 396-423.

Van Essen, M., Carney, M., Gedajlovic, E. R., & Heugens, P. P. (2015a). How does family control influence firm strategy and performance? A meta-analysis of US publicly listed firms. *Corporate Governance: An International Review*, *23*(1), 3-24.

Van Essen, M., Strike, V. M., Carney, M., & Sapp, S. (2015b). The resilient family firm: Stakeholder outcomes and institutional effects. *Corporate Governance: An International Review*, *23*(3), 167-183.

Viechtbauer, W. (2005). Bias and efficiency of meta-analytic variance estimators in the random-effects model. *Journal of Educational and Behavioral Statistics*, *30*(3), 261-293.

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, *36*(3).

Viechtbauer, W., & Cheung, M. W. L. (2010). Outlier and influence diagnostics for meta-analysis. *Research Synthesis Methods*, *1*(2), 112-125.

Villalonga, B., & Amit, R. (2006). How do family ownership, control and management affect firm value?. *Journal of Financial Economics*, *80*(2), 385-417.

Wagner, D., Block, J. H., Miller, D., Schwens, C., & Xi, G. (2015). A meta-analysis of the financial performance of family firms: Another attempt. *Journal of Family Business Strategy*, *6*(1), 3-13.

Wang, K. T., & Shailer, G. (2017). Family ownership and financial performance relations in emerging markets. *International Review of Economics & Finance*, *51*, 82-98.

Xu, N., Xu, X., & Yuan, Q. (2013). Political connections, financing friction, and corporate investment: Evidence from Chinese listed family firms. *European Financial Management*, *19*(4), 675-702.

Zhou, H., He, F., & Wang, Y. (2017). Did family firms perform better during the financial crisis? New insights from the S&P 500 firms. *Global Finance Journal*, *33*, 88-103.

Appendix

Figure 1: *Funnel plot of 845 z-transformed effect sizes*

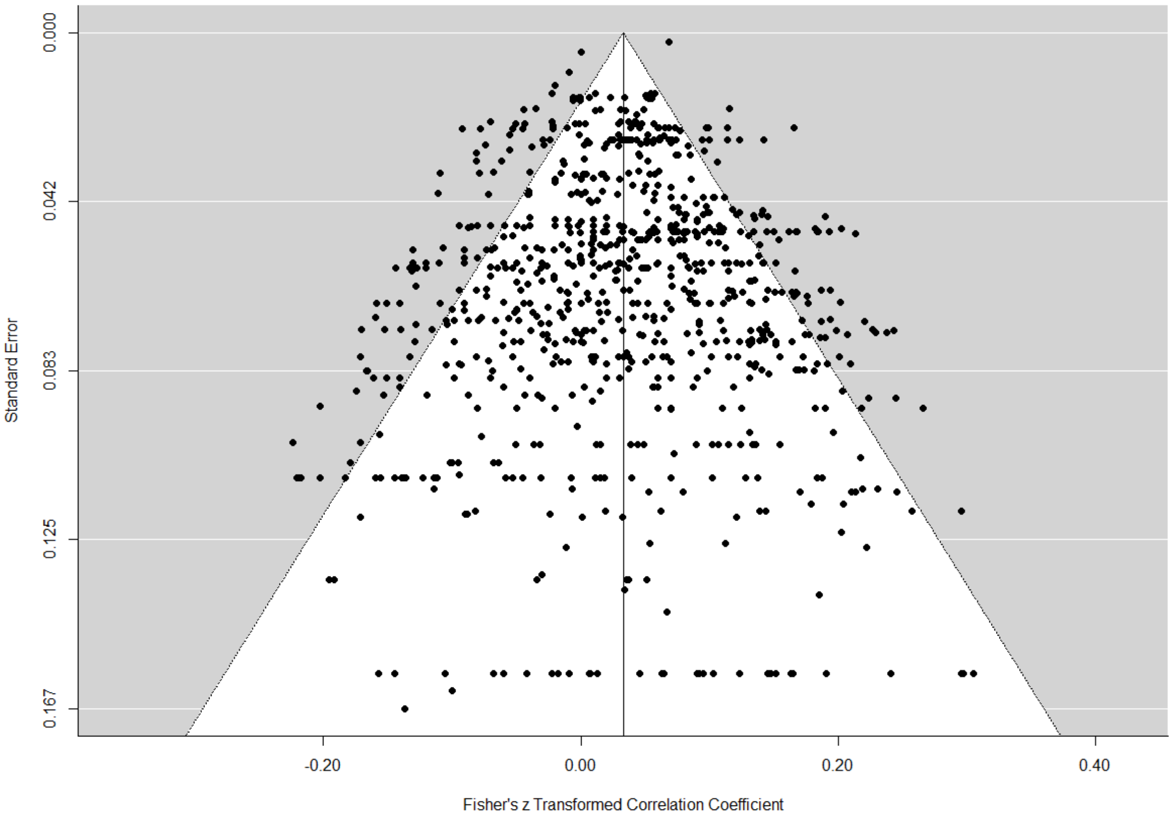

Table 1: *Sample statistics by country*

	Number of studies	Number of effect sizes		Number of studies	Number of effect sizes
Australia	3	7	Lebanon	1	1
Austria	2	3	Malaysia	14	48
Bangladesh	1	2	Netherlands	1	1
Belgium	6	31	Norway	8	42
Brazil	1	6	Pakistan	1	10
Canada	2	10	Poland	1	6
China	7	48	Saudi Arabia	1	5
Czech Republic	2	20	Singapore	1	8
Finland	2	6	South Korea	5	19
France	7	44	Spain	11	70
Germany	14	134	Sri Lanka	1	4
Hong Kong	8	30	Sweden	4	11
Hungary	1	2	Switzerland	2	7
India	9	27	Thailand	5	9
Indonesia	8	32	Turkey	3	26
Iran	1	1	Taiwan	3	29
Italy	10	32	United Kingdom	3	12
Japan	3	30	United States	23	69
Kuwait	1	2	Vietnam	1	1

Table 2: *Variable definitions and descriptive statistics*

Variable name	Description	Mean	SD
Business cycle variables			
Cycl. GDP growth	Cyclical GDP growth in country c in year t-1 (source: World Bank)	0.0008	0.0247
Cycl. interest rate	Cyclical central bank rate in country c in year t-1 (source: World Bank)	-0.0070	0.0206
Cycl. inflation rate	Cyclical consumer price inflation in country c in year t-1 (source: World Bank)	-0.0033	0.0255
Country controls			
GDP/capita	Natural logarithm of GDP per capita in constant 2010 USD in country c in year t-1 (source: World Bank)	9.9223	1.1046
Institutional development	Country mean value of the six World Governance Indicators: Voice and accountability, Political stability and absence of violence/terrorism, Government effectiveness, Regulatory quality, Rule of law and Control of corruption (source: World Bank)	3.3766	0.7616
Family firm measure controls			
Fam. ownership	Dummy variable = 1 if family influence is measured by ownership, either continuously or by cut-off dummies	0.4509	
Fam. management	Dummy variable = 1 if family influence is measured by management (e.g. family CEO)	0.1799	
Fam. control	Dummy variable = 1 if family influence is measured by control function (e.g. family member on supervisory board)	0.1302	
Strong fam. influence	Dummy variable = 1 if firms are defined as family firms, if at least two of the previous influences are prevalent	0.1515	
Mixed fam. influence	Dummy variable = 1 if firms are defined as family firms, if either of the previous influences is prevalent	0.0805	
Founder involvement	Dummy variable = 1 if the founder or first generation is active in the firm	0.0438	
Later generation	Dummy variable = 1 if a firm is in the hands of a later generation	0.0509	
Financial performance measure controls			
Market measures			
Tobin's Q / MTB	Dummy variable = 1 if financial performance is measured by Tobin's Q or the market-to-book ratio	0.2450	
Stock return	Dummy variable = 1 if financial performance is measured by stock return	0.0284	
Other market measure	Dummy variable = 1 if financial performance is measured by other market measures than the before mentioned (e.g. PE ratio or Earning per share)	0.0071	
Accounting measures			
ROA	Dummy variable = 1 if financial performance is measured by return on assets	0.3740	
ROE	Dummy variable = 1 if financial performance is measured by return on equity	0.1751	
ROS / Profit margin	Dummy variable = 1 if financial performance is measured by return on sales or profit margin	0.0781	
Sales growth	Dummy variable = 1 if financial performance is measured by sales growth	0.0343	
Other acc. measure	Dummy variable = 1 if financial performance is measured by other accounting measures than the before mentioned (e.g. ROI or ROCE)	0.0580	
Sample controls			
SMEs	Dummy variable = 1 if the primary study observes only small- and medium-sized firms	0.0864	
Listed firms	Dummy variable = 1 if the primary study observes only listed firms	0.6935	
Manufacturing	Dummy variable = 1 if the primary study observes only manufacturing firms	0.0379	
High-tech	Dummy variable = 1 if the primary study observes only high-tech firms	0.0024	
Study controls			
Published article	Dummy variable = 1 if the primary study is published in an academic journal and 0 if the primary study is a working paper, PhD or student thesis	0.5657	
Performance study	Dummy variable = 1 if the primary study observes primarily firm performance	0.5609	
No. authors	Number of authors of the primary study	2.1077	
Language	Dummy variable = 1 if the primary study is written in English	0.8533	

Table 3: *HOMA results for the relationship between business cycle variables and family firm performance*

		Mean ES	k	n	firms	95% CI		p(Z)	Q-test		I^2	z-test	
Overall effect		0.0329	845	172	694,361	0.0276	0.0382	(0.00)	2,305.76	(0.00)	68.51 %		
Panel A: All countries													
Cycl. GDP growth ≥ 0		0.0284	462	114	340,637	0.0214	0.0354	(0.00)	1,269.97	(0.00)	68.32 %		
Cycl. GDP growth < 0		0.0394	383	84	353,724	0.0313	0.0474	(0.00)	896.85	(0.00)	63.36 %	2.02	(0.04)
Cycl. interest rate ≥ 0		0.0326	270	77	378,083	0.0235	0.0418	(0.00)	1,040.99	(0.00)	78.02 %		
Cycl. interest rate < 0		0.0334	569	111	314,872	0.0269	0.0399	(0.00)	1,201.98	(0.00)	57.76 %	0.13	(0.90)
Cycl. inflation rate ≥ 0		0.0277	403	88	432,922	0.0201	0.0352	(0.00)	1,247.76	(0.00)	70.96 %		
Cycl. inflation rate < 0		0.0377	442	108	261,439	0.0304	0.0451	(0.00)	1,028.69	(0.00)	62.32 %	1.87	(0.06)
Panel B: OECD vs. Non-OECD countries													
All performance measures													
OECD	Cycl. GDP growth ≥ 0	0.0430	273	72	226,317	0.0346	0.0513	(0.00)	644.95	(0.00)	62.51 %		
	Cycl. GDP growth < 0	0.0416	309	60	333,477	0.0328	0.0503	(0.00)	766.97	(0.00)	65.78 %	0.23	(0.82)
Non-OECD	Cycl. GDP growth ≥ 0	0.0074	189	43	114,320	-0.0040	0.0187	(0.20)	598.79	(0.00)	68.25 %		
	Cycl. GDP growth < 0	0.0276	74	25	20,247	0.0072	0.0479	(0.01)	120.10	(0.00)	40.92 %	1.70	(0.09)
Accounting measures													
OECD	Cycl. GDP growth ≥ 0	0.0414	222	68	214,678	0.0329	0.0500	(0.00)	534.83	(0.00)	62.26 %		
	Cycl. GDP growth < 0	0.0467	243	56	320,073	0.0372	0.0562	(0.00)	660.42	(0.00)	69.40 %	0.80	(0.42)
Non-OECD	Cycl. GDP growth ≥ 0	0.0071	94	38	49,145	-0.0097	0.0238	(0.41)	263.51	(0.00)	65.35 %		
	Cycl. GDP growth < 0	0.0216	49	21	16,438	-0.0013	0.0445	(0.06)	76.75	(0.01)	40.70 %	1.01	(0.31)
Market measures													
OECD	Cycl. GDP growth ≥ 0	0.0575	51	19	11,639	0.0278	0.0873	(0.00)	106.79	(0.00)	55.39 %		
	Cycl. GDP growth < 0	0.0135	66	21	13,404	-0.0087	0.0356	(0.23)	91.92	(0.02)	32.54 %	2.33	(0.02)
Non-OECD	Cycl. GDP growth ≥ 0	0.0076	95	28	65,175	-0.0081	0.0232	(0.34)	335.06	(0.00)	70.87 %		
	Cycl. GDP growth < 0	0.0480	25	11	3,809	0.0035	0.0926	(0.03)	42.85	(0.01)	43.51 %	1.68	(0.09)

Table 3 (continued)

		Mean ES	k	n	firms	95% CI		p(Z)	Q-test		I²	z-test	
Panel C: Asia vs. Europe & North America													
All performance measures													
Asia	Cycl. GDP growth ≥ 0	0.0133	198	47	129,180	0.0018	0.0247	(0.02)	696.94	(0.00)	72.14 %		
	Cycl. GDP growth < 0	0.0538	99	26	37,387	0.0366	0.0709	(0.00)	189.81	(0.00)	51.76 %	3.85	(0.00)
Eur. & North Am.	Cycl. GDP growth ≥ 0	0.0422	250	62	206,654	0.0338	0.0507	(0.00)	547.21	(0.00)	58.85 %		
	Cycl. GDP growth < 0	0.0349	274	53	312,397	0.0257	0.0442	(0.00)	691.29	(0.00)	65.00 %	1.14	(0.25)
Accounting measures													
Asia	Cycl. GDP growth ≥ 0	0.0199	102	43	61,619	0.0032	0.0366	(0.02)	335.61	(0.00)	71.91 %		
	Cycl. GDP growth < 0	0.0571	77	23	33,803	0.0387	0.0756	(0.00)	151.78	(0.00)	53.23 %	2.93	(0.00)
Eur. & North Am.	Cycl. GDP growth ≥ 0	0.0390	204	58	198,863	0.0304	0.0477	(0.00)	455.79	(0.00)	59.32 %		
	Cycl. GDP growth < 0	0.0397	210	50	300,672	0.0296	0.0498	(0.00)	585.74	(0.00)	68.73 %	0.10	(0.92)
Market measures													
Asia	Cycl. GDP growth ≥ 0	0.0069	96	30	67,561	-0.0088	0.0225	(0.39)	351.56	(0.00)	72.14 %		
	Cycl. GDP growth < 0	0.0383	22	10	3,584	-0.0069	0.0835	(0.10)	37.18	(0.02)	42.15 %	1.29	(0.20)
Eur. & North Am.	Cycl. GDP growth ≥ 0	0.0700	46	15	7,791	0.0387	0.1013	(0.00)	80.71	(0.00)	45.59 %		
	Cycl. GDP growth < 0	0.0100	64	19	11,725	-0.0131	0.0332	(0.40)	88.98	(0.02)	32.04 %	3.02	(0.00)

Notes: Variables are defined in Table 2; *Mean ES* = meta-analytic mean effect size; *k* = number of effect sizes; *n* = number of studies; *firms* = number of firm observations; *95% CI* = 95% confidence interval limits; *p(Z)* = p-value for the test statistics of the coefficient; *Q-test* = Hedges and Olkin chi-square significance test of heterogeneity (p-value in parantheses); I^2 = ratio of between-study variance to total variance; *z-test* = significance test for group mean ES difference (p-value in parantheses).

Table 4: *MRA stepwise regression*

		Model 1a		**Model 1b**		**Model 1c**	
	Constant	0.0121		0.0180		-0.0110	
		(0.0172)		(0.0178)		(0.0737)	
Business cycle variables	Cycl. GDP growth	-0.0861		-0.0530		-0.0490	
		(0.1145)		(0.1152)		(0.1153)	
	Cycl. interest rate			0.1337		0.1173	
				(0.1451)		(0.1452)	
	Cycl. inflation rate			-0.2407	**	-0.2609	**
				(0.1156)		(0.1167)	
Country controls	Ln GDP/capita					-0.0078	
						(0.0105)	
	Institutional dev.					0.0325	**
						(0.0151)	
Family firm controls (Ref.: Fam. ownership)	Fam. management	-0.0177	**	-0.0177	**	-0.0192	**
		(0.0075)		(0.0075)		(0.0076)	
	Fam. control	-0.0092		-0.0079		-0.0071	
		(0.0085)		(0.0086)		(0.0086)	
	Strong fam. influence	0.0180	*	0.0164	*	0.0138	
		(0.0098)		(0.0099)		(0.0099)	
	Mixed fam. influence	0.0102		0.0065		0.0054	
		(0.0100)		(0.0102)		(0.0102)	
	Founder involvement	0.0229	*	0.0253	*	0.0272	**
		(0.0134)		(0.0134)		(0.0136)	
	Later generation	0.0021		0.0032		0.0035	
		(0.0117)		(0.0118)		(0.0118)	
Fin. measure controls (Ref.: Tobin's Q / MTB)	Stock return	-0.0016		-0.0029		-0.0021	
		(0.0162)		(0.0166)		(0.0166)	
	Other market measure	0.0334		0.0295		0.0327	
		(0.0327)		(0.0328)		(0.0328)	
	ROA	0.0199	***	0.0189	***	0.0196	***
		(0.0073)		(0.0073)		(0.0073)	
	ROE	0.0163	*	0.0158	*	0.0150	
		(0.0094)		(0.0095)		(0.0095)	
	ROS / Profit margin	0.0051		0.0057		0.0048	
		(0.0119)		(0.0120)		(0.0120)	
	Sales growth	-0.0054		-0.0045		-0.0051	
		(0.0128)		(0.0129)		(0.0129)	
	Other acc. measure	0.0295	**	0.0287	**	0.0272	**
		(0.0132)		(0.0133)		(0.0133)	
Sample controls	SMEs	-0.0148		-0.0145		-0.0169	*
		(0.0100)		(0.0101)		(0.0101)	
	Listed firms	0.0117		0.0116		0.0121	
		(0.0086)		(0.0086)		(0.0087)	
	High-tech	-0.0077		-0.0110		-0.0078	
		(0.0441)		(0.0441)		(0.0442)	
	Manufacturing	0.0309	**	0.0318	**	0.0323	**
		(0.0131)		(0.0131)		(0.0131)	
	Correlation	-0.0117	*	-0.0109	*	-0.0104	*
		0.0062		(0.0062)		(0.0062)	
Study controls	Published	-0.0087		-0.0105	*	-0.0099	
		(0.0063)		(0.0064)		(0.0063)	
	Performance study	0.0080		0.0066		0.0054	
		(0.0072)		(0.0072)		(0.0072)	
	No. authors	-0.0043		-0.0041		-0.0037	
		(0.0033)		(0.0033)		(0.0033)	
	Language	0.0086		0.0046		0.0023	
		(0.0108)		(0.0112)		(0.0113)	

Table 4 (continued)

	Model 1a	Model 1b	Model 1c
N observations	845	839	839
N studies	172	169	169
N countries	38	37	37
Sigma^2 1	0.0017	0.0015	0.0017
Sigma^2 2	0.0015	0.0015	0.0015
Log Lik.	932.32	925.03	926.57
AIC	-1,812.70	-1,794.07	-1,793.15
ICC	0.54	0.54	0.54

Notes: Variables are defined in Table 2; standard errors are in parentheses; *, ** and *** denote significance at the 10, 5 and 1% level, respectively; Sigma2 1 denotes the between-country heterogeneity; Sigma2 2 denotes the within-country heterogeneity; Log Lik. denotes the log-likelihood of the model; AIC denotes the Akaike information criterion of the model; ICC denotes the intraclass correlation coefficient.

Table 5: *MRA Country type and Performance measure split*

		OECD countries			Non-OECD countries		
		All	**Account**	**Market**	**All**	**Account**	**Market**
Business cycle variables	Cycl. GDP growth	0.0693	0.0532	0.1654	-0.5336 *	-0.2264	-1.3617 **
		(0.1273)	(0.1314)	(0.4510)	(0.3216)	(0.3831)	(0.5313)
	Cycl. interest rate	-0.0436	0.1302	0.5450	1.3322 ***	1.0520	3.1692 ***
		(0.1566)	(0.1751)	(0.4658)	(0.5035)	(0.6396)	(0.8560)
	Cycl. inflation rate	-0.2457 *	-0.2498	-0.6101 *	-0.6502 **	-0.4541	-1.7106 ***
		(0.1473)	(0.1758)	(0.3395)	(0.2658)	(0.3693)	(0.4213)
Country controls	Ln GDP/capita	-0.0031	0.0187	-0.0137	0.0023	-0.0010	0.0223
		(0.0183)	(0.0202)	(0.0446)	(0.0201)	(0.0246)	(0.0265)
	Institutional dev.	0.0163	-0.0096	0.1341 ***	0.0389	0.0196	-0.0196
		(0.0192)	(0.0211)	(0.0401)	(0.0332)	(0.0407)	(0.0408)
Family firm controls		Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Fin. measure controls		Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Sample controls		Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Study controls		Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
	N observations	582	465	117	257	139	118
	N studies	109	101	34	61	54	35
	N countries	21	21	14	16	14	11
	$Sigma^2$ 1	0.0013	0.0017	0.0009	0.0055	0.0028	0.0046
	$Sigma^2$ 2	0.0012	0.0011	0.0012	0.0014	0.0022	0.0001
	Log Lik.	652.14	550.98	98.53	262.34	123.96	130.18
	AIC	-1244.28	-1047.96	-153.06	-464.69	-195.92	-220.36
	ICC	0.51	0.61	0.33	0.80	0.56	0.97

Notes: Variables are defined in Table 2; standard errors are in parentheses; *, ** and *** denote significance at the 10, 5 and 1% level, respectively; Sigma2 1 denotes the between-country heterogeneity; Sigma2 2 denotes the within-country heterogeneity; Log Lik. denotes the log-likelihood of the model; AIC denotes the Akaike information criterion of the model; ICC denotes the intraclass correlation coefficient.

Table 6: *Continental split*

		Asia						Europe & North America					
		All		**Account**		**Market**		**All**		**Account**		**Market**	
Business cycle variables	Cycl. GDP growth	-0.4828	*	-0.3476		-1.2854	**	0.1517		0.1029		0.2932	
		(0.2497)		(0.2759)		(0.6118)		(0.1443)		(0.1516)		(0.4664)	
	Cycl. interest rate	1.1229	**	0.8724		3.2949	***	-0.0289		0.1228		0.6016	
		(0.5235)		(0.6202)		(0.9549)		(0.1584)		(0.1782)		(0.4952)	
	Cycl. inflation rate	-0.5003	**	-0.2279		-1.7860	***	-0.3395	**	-0.3561	*	-0.7479	**
		(0.2538)		(0.3157)		(0.4633)		(0.1549)		(0.1889)		(0.3428)	
Country controls	Ln GDP/capita	0.0230		0.0460	*	0.0188		0.0025		0.0242		-0.0306	
		(0.0224)		(0.0249)		(0.0311)		(0.0188)		(0.0212)		(0.0471)	
	Institutional dev.	0.0207		-0.0367		-0.0181		0.0208		-0.0043		0.1560	***
		(0.0363)		(0.0430)		(0.0506)		(0.0183)		(0.0207)		(0.0384)	
Family firm controls		Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
Fin. measure controls		Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
Sample controls		Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
Study controls		Incl.		Incl.		Incl.		Incl.		Incl.		Incl.	
	N observations	292		176		116		524		414		110	
	N studies	65		59		37		96		89		28	
	N countries	14		13		12		18		18		11	
	$Sigma^2$ 1	0.0046		0.0024		0.0066		0.0008		0.0011		0.0005	
	$Sigma^2$ 2	0.0016		0.0018		0.0002		0.0012		0.0011		0.0016	
	Log Lik.	306.07		171.78		126.86		578.78		484.11		91.64	
	AIC	-552.14		-291.56		-211.71		-1097.56		-914.22		-139.29	
	ICC	0.75		0.56		0.97		0.39		0.50		0.26	

Notes: Variables are defined in Table 2; standard errors are in parentheses; *, ** and *** denote significance at the 10, 5 and 1% level, respectively; Sigma2 1 denotes the between-country heterogeneity; Sigma2 2 denotes the within-country heterogeneity; Log Lik. denotes the log-likelihood of the model; AIC denotes the Akaike information criterion of the model; ICC denotes the intraclass correlation coefficient.