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FAMILY FIRM PERFORMANCE OVER THE BUSINESS CYCLE: A META-ANALYSIS

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Abstract. The financial performance of family firms has been widely studied in the literature. Combining the results of 155 primary studies from 35 countries with data about business cycles, we investigate how family firm performance changes over the business cycle. Using meta-analytic estimation methods, we find that family firms outperform nonfamily firms in developed markets, irrespective of economic circumstances. This outperformance, although statistically significant, is very small and practically negligible. With regard to the business cycle, we find evidence for a procyclical effect in which the relative performance of family firms is lower in economically difficult times. Our study extends the literature on how family firm performance depends on macroeconomic factors.

Keywords. Business cycle; Family firms; Financial performance; Meta-analysis

1. Introduction

Research on business cycles and their impact on individuals, firms, and markets is a topic of high academic and practical relevance and has led to a significant number of publications (Bernanke and Gertler, 1989; Mascarenhas and Aaker, 1989; Malmendier and Nagel, 2011; Koellinger and Thurik, 2012; Giuliano and Spilimbergo, 2014). It has been shown that countries, industries, and firms differ in their sensitivity to (global) business cycles and economic shocks (Gertler and Gilchrist, 1994; Stock and Watson, 1999; Kose *et al.*, 2003; Braun and Larrain, 2005; Cerra and Saxena, 2008; Claessens *et al.*, 2010; Groot *et al.*, 2011). Our study is about the relationship between business cycles and family firms. In particular, we investigate in a meta-analysis how the performance of family firms changes over the business cycle. Even though family firms are the most widespread firm type around the world (La Porta *et al.*, 1999; Claessens *et al.*, 2000; Faccio and Lang, 2002; Aminadav and Papaioannou, 2020), knowledge on this relationship is limited and restricted to a few crisis periods such as the recent financial crisis (e.g., Baek *et al.*, 2004; Lins *et al.*, 2013; Minichilli *et al.*, 2016). A broader and more detailed understanding of how business cycles and family firm performance interact helps policy makers to predict the short- and long-term effects of recession and boom periods for the economy and further development of their country. For

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example, if it turns out that family firms compared to other firms are more strongly affected by business cycles, countries with a high proportion of family firms are also relatively stronger affected by recessions compared to other countries.

The performance of family firms is widely studied in the literature, and several meta-analyses have been devoted to this topic. O'Boyle *et al.* (2012) were the first to examine family firm performance with regard to methodical, conceptual, and cultural moderators in a univariate setting and find no relationship between family firms and financial performance. Wagner *et al.* (2015) and Hansen and Block (2020) replicate their study with a larger sample of studies and find a practically and economically negligible but statistically significant outperformance of family firms, especially for publicly listed and large firms. Taras *et al.* (2018) confirm the result of a positive family firm performance relationship in their meta-analysis on publicly listed firms. The same holds for the study of van Essen *et al.* (2015a), who concentrate solely on publicly listed U.S. firms. They methodically extend the previous studies further by conducting meta-regressions and meta-analytical structural equation modeling (Cheung and Chan, 2005). In the same manner, Carney *et al.* (2015) test the family firm performance relationship for private firms but find no outperformance. Finally, Wang and Shailer (2017) concentrate on family firm performance in emerging markets and find outperformance compared to nonfamily firms. Duran *et al.* (2019) deepen the understanding of this relationship and investigate the influence of varying formal and informal institutions across emerging markets. 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 (Lumpkin and Bingham, 2011; Kappes and Schmid, 2013), low debt levels (Mishra and McConaughy, 1999; Schmid, 2013), fast and flexible decision making (Anderson and Reeb, 2003a), and cautious investment strategies (Block, 2012; Chrisman and Patel, 2012). These characteristics place 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 *et al.*, 2015), dynastic control (Gómez-Mejía *et al.*, 2007), and family and firm reputation (Berone *et al.*, 2010; Deephouse and 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 (Block, 2010; Bassanini *et al.*, 2013; Bjuggren, 2015). Moreover, in some family firms, dominant (family) shareholders are in a strong position to extract private benefits of control through pyramid structures (Almeida and Wolfenzon, 2006), a separation of control and cash flow rights (Claessens *et al.*, 2000), and cross-shareholdings (Morck *et al.*, 2005). In crisis times, when 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 and Reeb, 2003b). Overall, these arguments would suggest a procyclical 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 conduct a meta-analysis covering 155 primary studies and 528 effect sizes from 35 countries. We further subdivide our sample according to OECD member status and a classification of worldwide governance systems to investigate a potential influence of the institutional setting. Based on univariate meta-analytic investigations, our results show a statistically significant but practically negligible positive relationship between family firms and firm performance in Anglo American and Continental European countries, but not in emerging markets. Moreover, our multivariate analyses reveal a positive impact of GDP growth on family firm performance, suggesting a procyclical effect of relatively stronger financial performance in economically good times and relatively weaker financial performance in economically difficult times. Further sensitivity analyses

show that this effect holds especially for accounting-based performance measures. We find also notable differences between different country types and governance systems. On the one hand, we find procyclical performance effects for Anglo American countries and emerging markets. On the other hand, we do not find any sensitivity of family firm performance with regard to the business cycle in Continental European countries. With these results, our study brings together ambiguous findings from previous primary studies and extends the literature on how family firm behavior and performance depend on macroeconomic factors such as business cycles (e.g., Lins *et al.*, 2013; Bjuggren, 2015).

The remainder of our study is structured as follows. Section 2 reviews the literature on family firm performance with regard to the macroeconomic environment. Section 3 introduces the sample and the methods and variables used in our study. Section 4 reports the results of our empirical analysis. Section 5 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. Literature Review

Several studies investigated the relative performance of family firms with regard to the overall macroeconomic environment, especially in times of economic distress compared to times of stability and growth (e.g., Baek *et al.*, 2004; Lins *et al.*, 2013; Minichilli *et al.*, 2016). In the last two decades, the Asian crisis in 1997/1998 and the Global Financial Crisis from 2007 to 2009 were two ideal settings for an empirical investigation. Typically, those studies compared the relative performance of family firms in times of the crises with a previous or subsequent period. However, no study to date has examined family firm performance with regard to macroeconomic circumstances over several business cycles. Furthermore, the findings of prior research on this topic are ambiguous.

The first studies investigating the performance of family firms with regard to the business cycle were conducted in the aftermath of the Asian crisis. Investigating 644 Korean firms in the Asian crisis 1997/1998, Baek *et al.* (2004) find that Chaebol firms with concentrated ownership by controlling family shareholders experience a larger drop in their equity value compared to firms with foreign investors or firms with a higher disclosure quality. Lemmon and Lins (2003) find a lower stock return by 12 percentage points during the East Asian financial crisis for firms in which managers and their families separate control and cash flow rights through pyramid ownership structures compared to other firms. In contrast, Allouche *et al.* (2008) find better performance in terms of profitability for family firms in Japan during the Asian crisis, and Amann and Jaussaud (2012) find that family firms resist the downturn better, recover faster, and continue to exhibit higher performance over time.

Those studies that find inferior performance of family firms during the Asian crises argue mainly about agency problems resulting from corporate governance characteristics inherent in those countries. Because the major part of the owner families' wealth, not only in Asia, is typically concentrated in the firm, they are less diversified than other investors, which makes them more vulnerable to profitability shocks (Anderson and Reeb, 2003b). In these situations, the survival of the family's economic interests becomes central and, as a result, family firms cut investments even in healthier group firms to ensure the survival of the whole empire, which in turn reinforces the lower overall performance even more (Lins *et al.*, 2013). Furthermore, Attig *et al.* (2016) show that family firms pay less dividends and that they use retained earnings mainly for the extraction of private benefits. Becoming aware of these expropriation activities, investors lose their confidence and adjust the amount of capital they are willing to provide (Johnson *et al.*, 2000). Consequently, they require a higher risk premium for capital provision after recession periods (Boubakri *et al.*, 2010). Although these agency problems during recession periods can lead to worse performance of family firms, and minority investors become aware of expropriation risks, Bae *et al.* (2012) find better performance for those firms during the recovery period. They argue that as the economy recovers, controlling shareholders can benefit more from profitable firm investments than from

expropriation strategies. With limited resources for investments because of a more severe asset diversion before the recovery period, those firms have to limit themselves to only the most profitable projects and therefore show better performance. This point holds for market measures and for accounting measures. In addition to the expropriation hypothesis, Bae *et al.* (2012) find additional although weaker evidence for explanations based on market overreactions and beta. They furthermore relate their results to the findings of Friedman *et al.* (2003), who state that family group firms not only can expropriate minority shareholders through tunneling but also can use their private resources to provide affiliated firms with capital quickly in economic upswings (“propping”). In the economically stable times before the Asian crisis, (especially international) investors potentially ignored the weaknesses of East Asian countries’ governance systems and provided capital to profitable investment opportunities in a liberalizing market (Rajan and Zingales, 1998).

In the same manner, Lins *et al.* (2013) find that family firms perform significantly worse compared to nonfamily firms in terms of stock returns in the last worldwide financial crisis 2008/2009. Similarly to Baek *et al.* (2004), they argue that the preservation of private benefits of control becomes central in economic crises and that these actions are at the cost of minority shareholders. Specifically, Lins *et al.* (2013) find that family-controlled firms reduce their investments more strongly than nonfamily firms do, which in turn negatively affects their stock prices. Furthermore, family business groups reduce investments in relatively healthy group firms to help firms hit strongly by the crisis.

On the other hand, van Essen *et al.* (2015b) observe outperformance of family firms in terms of stock prices during the crisis for a sample of European firms. Correspondingly, Minichilli *et al.* (2016) observe outperformance in terms of profitability for family firms in Italy during the crisis, but not before. While van Essen *et al.* (2015b) argue that the long-term orientation of family firms leads to relative outperformance during economic crises, Minichilli *et al.* (2016) posit that family firms become more risk-seeking when their social emotional wealth is at stake and make consistent use of their superior credit from outside stakeholders. Accordingly, Stacchini and Degasperi (2015) find that family firms benefit from a loan interest-rate discount during the financial crisis, especially in regions with a low level of interpersonal trust. Additionally, family firms become less subject to credit restrictions during crises (Crespí & Martín-Oliver, 2015; D’Aurizio *et al.*, 2015). In a recent study, Casillas *et al.* (2019) show furthermore that family firms increase the intensity of retrenchment strategies more than nonfamily firms do during economic downswings, and even more when their survival is threatened.

For U.S. firms, Zhou *et al.* (2017) show that among S&P 500 firms, only founder firms have a higher profitability during the financial crisis, while later-generation family firms are not distinguishable from nonfamily firms. They argue that, when under financial pressure, founder firms invest less in risky projects and thus have higher short-term earnings during a crisis. Kashmiri and Mahajan (2014) compare the financial performance of family and nonfamily firms for seven recession periods in the United States between 1970 and 2008. They find that family firms have a higher Tobin’s Q in general and even higher during recessions; they argue that this positive effect stems *inter alia* from a more proactive marketing behavior during recessions. Finally, Villalonga and Amit (2010) find that U.S. family firms are less sensitive to positive and to negative profit shocks.

3. Data and Methods

3.1 Sample and Coding

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 (Carney *et al.*, 2015; Van Essen *et al.*, 2015a; Duran *et al.*, 2016; Arregle *et al.*, 2017; Wang and Shailer, 2017; Taras

Table 1. Sample Composition by Country.

	Number of study samples	Number of effect sizes		Number of study samples	Number of effect sizes
Anglo American governance system			Emerging/transition economies		
Australia ^{OECD}	3	6	Bangladesh	1	2
Canada ^{OECD}	1	4	Brazil	4	14
United States ^{OECD}	20	66	China	8	16
	24	76	Czech Republic ^{OECD}	2	20
			Egypt	1	1
Continental European governance system			Hong Kong	8	25
Austria ^{OECD}	1	2	Hungary ^{OECD}	1	2
Belgium ^{OECD}	7	35	India	6	9
Finland ^{OECD}	3	7	Indonesia	9	25
France ^{OECD}	5	10	Kuwait	1	2
Germany ^{OECD}	11	49	Malaysia	16	41
Italy ^{OECD}	10	31	Pakistan	1	10
Japan ^{OECD}	3	30	Poland ^{OECD}	1	4
Netherlands ^{OECD}	1	1	Singapore	1	3
Norway ^{OECD}	6	14	South Korea ^{OECD}	3	5
Portugal ^{OECD}	1	6	Sri Lanka	1	2
Spain ^{OECD}	11	42	Taiwan	3	20
Sweden ^{OECD}	3	4	Thailand	1	2
Switzerland ^{OECD}	2	9	Turkey ^{OECD}	2	9
	64	240		70	212

Note: This table reports the number of samples and effect sizes by country. Countries are divided by the respective governance system. Countries labeled with ^{OECD} are OECD member countries. The number of studies included and the number of study samples deviates due to the inclusion of multiple countries in some studies.

et al., 2018). Second, we explored the electronic databases Google Scholar, JSTOR, EBSCOhost, SSRN, and China National Knowledge Infrastructure (CNKI) using various search terms and their combinations.¹ Third, we browsed notable journals that publish articles in the research field of family businesses.² Fourth, we corresponded with authors who participated in leading family business conferences 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 1,458 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 theses to address publication bias (Sutton, 2009). Furthermore, we did not limit our sample to studies published in English; we also included studies published in Chinese, French, German, or Spanish.³ If two or more studies used the same data set, we ensured that they used different family firm definitions or financial performance measures to avoid double entries of the same effect size in our data set. 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.⁴ Excluding studies that reported effect sizes based on panel data sets led to a sample of 155 published articles, working papers, and theses with 528 effect sizes. Table 1 shows the distribution of studies and observations across the 35 countries included in the sample. The Appendix lists all studies included in the sample.

3.2 Effect Size Measure

Following previous meta-analyses in management, finance, and economics (e.g., Klier *et al.*, 2017; Fidrmuc and Korhonen, 2018; Pérez-Calero *et al.*, 2019), we included Pearson's r and statistics that can be transformed into r , such as descriptive statistics or t -test statistics (Lipsey and Wilson, 2001).⁵ We transformed all raw correlations by Fisher's Z transformation to correct for skewness in the effect size distribution (Fisher, 1921; Hedges and Olkin, 1985):

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

If a study reported multiple effect sizes, for instance, different financial performance measures or different family variables, we included all of them in the models, as doing so leads to better results compared to selecting only one value or calculating average values (Bijmolt and Pieters, 2001). It was furthermore common that primary studies reported effect sizes for multiple years. Thus, a limitation to only one effect size would decrease the level of information. We designed the coding protocol to allow the depiction of as many characteristics of the effect sizes and underlying samples as possible.

3.3 Publication Bias

Publication bias can be a serious problem when conducting meta-analyses (Geyskens *et al.*, 2009). It occurs due to the preference of researchers to submit and the preference of editors and reviewers to accept preferentially studies for 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, PhD and student theses, and articles written in languages other than English (Sutton, 2009). A graphical means of detecting publication bias is a funnel plot (Egger *et al.*, 1997). Figure 1 shows the funnel plot for our model 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 and Egger, 2001). Furthermore, the broad range reveals heterogeneity of effect size outcomes.

However, a purely visual testing can be prone to subjective perceptions (Terrin *et al.*, 2005). Therefore, we also ran a funnel plot asymmetry test as proposed by Stanley (2008). The weighted least square (WLS) model is defined as:

$$t_i = \frac{Z(r)_i}{SE_i} = \beta_0 + \beta_1 \left(\frac{1}{SE_i} \right) + v_i \quad (2)$$

Hence, equation (2) uses the inverse variance $1/SE^2$ as the weights and is estimated via least squares (Stanley and Doucouliagos, 2010). The results of the base model (Table 2, Model 1) suggest that there is indeed a publication bias, represented by the significant constant term ($t = -4.59$, $p \leq .01$). However, when including the control variables of the complete model, this effect becomes insignificant (Model 2). Furthermore, a rank correlation test (Begg and Mazumdar, 1994) also reveals no publication bias (Kendall's tau = 0.046, $p = 0.11$). Given these contradicting indications, and especially the results of the test with study control variables included, publication bias is not a major concern in our analysis.

3.4 Methods Used

In our study, we used two kinds of meta-analytical techniques. First, we used Hedges and Olkin meta-analysis (HOMA; Hedges and Olkin, 1985) to identify the overall mean correlation coefficient. Second, we applied meta-regression analysis (MRA; Lipsey and Wilson, 2001; Stanley and Jarrell, 2005) to examine all effects in a multivariate setting.

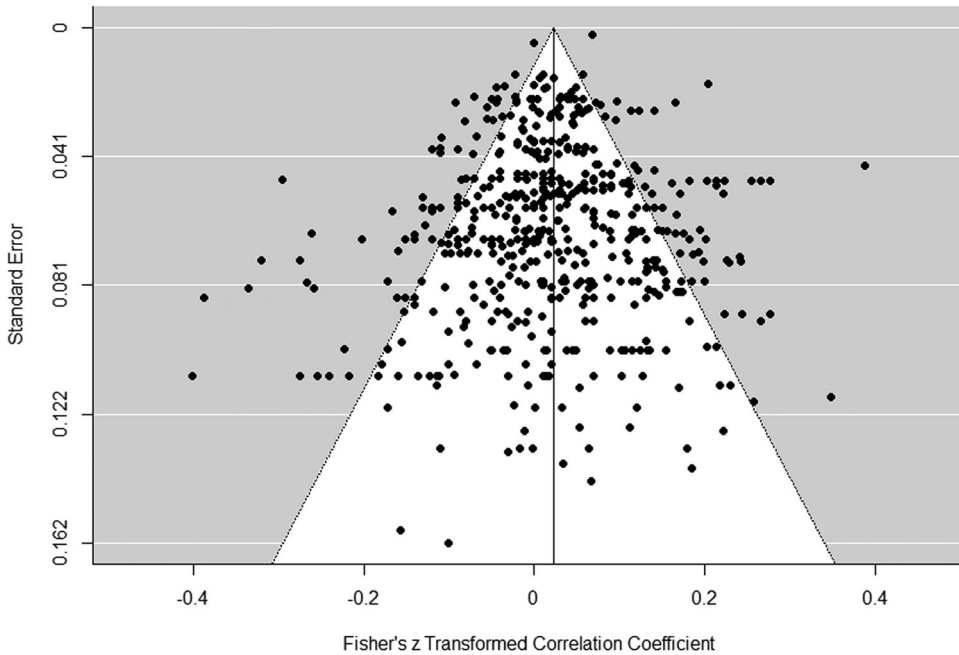


Figure 1. Funnel Plot of 528 Z-Transformed Effect Sizes with 95% Pseudo Confidence Interval.

Table 2. Funnel Plot Asymmetry Test.

	Model 1		Model 2	
	Coefficient	<i>T</i>	Coefficient	<i>t</i>
1/SE	0.049	(13.22) ^{***}	-0.017	(-0.35)
Constant	-0.516	(-4.59) ^{***}	-0.931	(-1.23)
Control variables	No		Yes	
<i>k</i> (number effect sizes)	528		528	
<i>N</i> (number studies)	155		155	
<i>R</i> ² (%)	3.85		71.08	

Note: This table reports the results of Stanley's (2008) FAT-PET test. Significance levels are denoted by asterisks, *** 1%, ** 5%, and * 10%.

With the univariate HOMA model, we calculated the overall mean effect size for the relationship between family firms and financial performance for the whole sample and different subgroups. In HOMA, one typically distinguishes between random- and fixed-effects models (Field, 2001). We applied a random-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 assumptions of random-effects models are 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 and Aguinis, 2018). We used the inverse variance (*w*) to weigh the effect sizes (Hedges and Olkin, 1985)⁶ and to calculate the overall

mean effect size, its standard error, Z-statistic, and confidence interval (Lipsey and Wilson, 2001).⁷ 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).

To test the impact of the business cycle on the relationship between family firms and firm performance, we applied MRA (Lipsey and Wilson, 2001; Stanley and Jarrell, 2005). With the MRA, we checked for several moderating effects, including the business cycle, simultaneously in a multivariate setting. The standard meta-regression model is described by the following:

$$ES_i = \beta_0 + \beta_1' BC_i + \beta_2' X_i + u_i + e_i \quad (3)$$

where ES_i denotes the Z-transformed effect sizes extracted from the primary studies. BC_i denotes the vector of business-cycle variables and X_i the vector of control variables, including the choice of the family firm definition and financial performance measures. As we included multiple effect sizes per study if available, X_i also includes study fixed effects. The error terms u_i and e_i reflect the between and within variance of the effect sizes, respectively.

Our meta-regression model reflects a mixed-effects model. For mixed-effects models, the underlying assumption is that the variability in the effect size distribution is due to systematic between-study differences, subject-level sampling error, and an additional random component (Lipsey and Wilson, 2001). Similarly to the HOMA model, we weighted the observations by their inverse variance and used the REML estimator account for residual heterogeneity. Following the recommendation of Gonzalez-Mulé and Aguinis (2018), we applied the Knapp and Hartung (2003) method for testing boundary conditions. Viechtbauer *et al.* (2015) show that this method has lower Type 1 error rates when estimating the standard errors of regression coefficients compared to the standard Wald-type method. Additionally, we employed heteroscedasticity-robust standard errors. We ran our analyses with the metafor package in R (Viechtbauer, 2010).

3.5 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 firms and financial performance. To detect potential moderation effects of this relationship, we included several independent and control variables in our regression model. Table 3 lists all variables used in this study and reports their descriptive statistics.

3.5.1 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, and hence our main variable of interest. Next, we also 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.

As our sample includes effect sizes from 35 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

Table 3. Variable Definitions and Descriptive Statistics.

Variable name	Description	N	Mean	SD	Min	Max
Business cycle variables						
Cycl. GDP growth	Cyclical GDP growth in country c in year $t - 1$ (source: World Bank)	528	-0.002	0.024	-0.144	0.073
Cycl. Interest rate	Cyclical central bank rate in country c in year $t - 1$ (source: World Bank)	523	-0.007	0.023	-0.077	0.130
Cycl. Inflation rate	Cyclical consumer price inflation in country c in year $t - 1$ (source: World Bank)	528	-0.004	0.025	-0.241	0.060
Family firm measure controls						
Fam. Ownership	Binary variable = 1 if family influence is measured by ownership, either continuously or by cut-off dummies	528	0.407	0.492	0	1
Fam. Management	Binary variable = 1 if family influence is measured by management (e.g., family CEO)	528	0.110	0.313	0	1
Fam. control	Binary variable = 1 if family influence is measured by control function (e.g., family member on supervisory board)	528	0.133	0.339	0	1
Strong fam. influence	Binary variable = 1 if firms are defined as family firms, if at least two of the previous influences are prevalent	528	0.237	0.425	0	1
Mixed fam. influence	Binary variable = 1 if firms are defined as family firms, if either of the previous influences is prevalent	528	0.102	0.303	0	1
Founder involvement	Binary variable = 1 if the founder or first generation is active in the firm	528	0.025	0.155	0	1
Later generation	Binary variable = 1 if a firm is in the hands of a later generation	528	0.027	0.161	0	1
Financial measure controls						
Market measures						
Tobin's Q /MTB	Binary variable = 1 if financial performance is measured by Tobin's Q or the market-to-book ratio	528	0.167	0.373	0	1
Stock return	Binary variable = 1 if financial performance is measured by stock return	528	0.038	0.191	0	1

(Continued)

Table 3. Continued.

Variable name	Description	N	Mean	SD	Min	Max
Other market measure	Binary variable = 1 if financial performance is measured by other market measures than the before mentioned (e.g., PE ratio or Earning per share)	528	0.013	0.114	0	1
Accounting measures						
ROA	Binary variable = 1 if financial performance is measured by return on assets	528	0.384	0.487	0	1
ROE	Binary variable = 1 if financial performance is measured by return on equity	528	0.178	0.383	0	1
ROS/Profit margin	Binary variable = 1 if financial performance is measured by return on sales or profit margin	528	0.078	0.268	0	1
Sales growth	Binary variable = 1 if financial performance is measured by sales growth	528	0.062	0.242	0	1
Other acc. measure	Binary variable = 1 if financial performance is measured by other accounting measures than the before mentioned (e.g., ROI or ROCE)	528	0.080	0.271	0	1

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. For that purpose, we subtract the unweighted average of a given variable over the past five years from this year's value.⁸ 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.⁹ Hence, BC_i in equation (3) represents the cyclical macroeconomic conditions in the year before the calculation of the effect size ES_i in the studied country.

3.5.2 Family Firm Measure Controls

To date, there is no unique definition for family firms in the academic literature (see, e.g., Mazzi (2001) and Diaz-Moriana *et al.* (2019) for an overview). Villalonga and Amit (2006) and Miller *et al.* (2007) show that even the results of family firm performance studies depend strongly on the definition of family firms. Thus, we controlled for the used family firm definition in the primary studies. 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 the ownership stake of a family is used to define a family firm. In the primary studies, ownership is 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*, equals 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*, equals 1 if a family member is a member of the supervisory board or the family influence is measured as the ratio of family members on the supervisory board. The two last variables, *Strong family influence* and *Mixed family influence*, combine all three influence types. *Strong family influence* equals 1 if a definition requires at least two of the three categories to be prevalent in a firm (e.g., Chrisman *et al.*, 2004; Andres, 2008), whereas *Mixed family influence* requires only any one of the three (e.g., Villalonga and Amit, 2006; Miller *et al.*, 2007).

Additionally, we controlled for the generational stage of family firms. Prior studies highlight significant performance implications with regard to the generation in place (Miller *et al.*, 2007; Cucculelli and Micucci, 2008). 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.

3.5.3 Financial Performance Measure Controls

Different performance measures are commonly used in family firm performance studies. In coding them, we distinguished on the first level between market- and accounting-based performance measures. Both types differ with regard to the time perspective and to assessors (Demsetz and 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.

3.5.4 Fixed Effects

We included study fixed effects to control for dependencies of multiple effect sizes from the same study and account for study-specific characteristics.

4. Results

This section reports the results of our meta-analysis. The data that support the findings of this study are available from the corresponding author upon reasonable request.

4.1 The Family Firm Performance Effect

First, we run the HOMA model to investigate the overall family firm performance relationship. Table 4 shows the results of the HOMA model with 528 effect size observations from 155 studies with 487,692 firm observations included. We find an overall mean effect size of $ES = 0.0227$, which is statistically significant at the 1% level. This outcome indicates general outperformance of family firms compared to nonfamily firms, without controlling for moderator effects such as the family firm definition, the type of financial performance measure, or the economic conditions. The finding of statistically significant yet practically negligible outperformance of family firms is consistent with previous meta-analyses (e.g., Wagner *et al.*, 2015; Van Essen *et al.*, 2015a; Wang and Shailer, 2017; Hansen and Block, 2020). Although the mean effect size is very small and practically negligible from an economic point of view, it lies within the typical range of meta-analyses focusing on family firm performance or other ownership concentration performance relationships (e.g., Heugens *et al.*, 2009; Carney *et al.*, 2011; Wang and Shailer, 2015; O'Boyle *et al.*, 2016; Duran *et al.*, 2019). The Q -test indicates a high degree of heterogeneity ($Q = 2000.10$, $p = 0.00$) and thus a great variability in performance outcomes across the included studies as well as the presence of several moderators. According to the I^2 statistic, 81.43% of the total heterogeneity is due to variance between the observations. In what follows, we divide the sample according to the institutional environments to explore differences with regard to economic development and regulatory circumstances. We thereby use the countries' OECD membership status and their governance system to generate different subsamples.¹⁰

First, we divide our sample by the OECD membership status of the countries. The OECD states principles of good corporate governance that are adopted by its member states and should contribute to growth and financial stability by underpinning market confidence, financial market integrity, and economic efficiency (Jesover and Kirkpatrick, 2005). The results reveal that family firms' overall slight outperformance mainly stems from countries that are members of the OECD, whereas there is no outperformance on average for family firms in non-OECD countries. In OECD countries, family firms show significant outperformance (mean $ES = 0.0365$, $p = 0.00$) and strengthen the suggestion by Anderson and Reeb (2003a) that family firms can be an effective organizational structure in well-regulated and transparent markets. On the other hand, there is no performance effect for family firms on average in non-OECD countries (mean $ES = -0.0053$, $p = 0.45$).

However, even within the group of OECD countries, the institutional environments differ significantly. Whereas Anglo Saxon countries have strong investor protection and high financial market development, and are characterized by dispersed ownership, Continental European countries have weaker investor protection and less developed financial markets, and firms are predominantly owned by large investors

Table 4. HOMA Results for the Relationship Between Family Firms and Firm Performance.

	Mean ES	k	N	C	Y	Firms	SE	95% CI	p(Z)	Q-test	\hat{F}^2	Z-test
Complete sample	0.0227	528	155	35	30	487,692	0.0042	0.0145, 0.0310	(0.00)	2,000.10	(0.00)	81.43%
OECD countries	0.0365	355	94	21	29	412,257	0.0051	0.0265, 0.0465	(0.00)	1,398.34	(0.00)	83.36%
Non-OECD countries	-0.0053	172	61	14	21	75,435	0.0070	-0.0190, 0.0085	(0.45)	473.37	(0.00)	67.34%
Anglo-American countries	0.0635	76	24	3	25	52,681	0.0127	0.0386, 0.0883	(0.00)	413.19	(0.00)	86.43%
Continental Europe & Japan	0.0323	240	61	13	22	329,432	0.0060	0.0206, 0.0441	(0.00)	868.98	(0.00)	79.63%
Emerging market countries	-0.0017	212	70	19	22	105,579	0.0059	-0.0133, 0.0099	(0.78)	581.60	(0.00)	67.01%

Note: This table reports the results of the Hedges and Olkin meta-analysis for the family firm performance relationship for the complete sample and the subsamples based on the countries' OECD member status and governance system (see Table 1). *Mean ES* denotes the meta-analytic mean effect size, *k* denotes the number of effect sizes included, *N* denotes the number of study samples included, *C* denotes the number of countries included, *Y* denotes the number of years included, *Firms* denotes the number of firm observations, *SE* denotes the standard error of the meta-analytic mean effect size, *95% CI* denotes the 95% confidence interval limits, *p(Z)* denotes *p*-value for the significance test statistics of the mean effect size; *Q-test* denotes the Hedges and Olkin chi-square significance test of heterogeneity (*p*-value in parentheses), \hat{F}^2 denotes the ratio of between-study variance to total variance, *Z-test* denotes the significance test for mean effect size differences between two groups (*p*-value in parentheses).

and banks (Shleifer and Vishny, 1997; Franks *et al.*, 2012). These investors are often wealthy families or individuals who control a majority of the votes, often via pyramidal structures (La Porta *et al.*, 1999; Enriques and Vopin, 2007). Steier (2009) therefore distinguishes between four global patterns of corporate governance systems: Anglo American countries, Continental Europe and Japan, emerging markets, and transition economies. We adopt this categorization but group together emerging markets and transition economies, as they resemble one another in their characteristics (Steier, 2009). The results of the HOMA models show that family firms have the strongest outperformance in Anglo American countries (mean ES = 0.0635, $p = 0.00$), outperformance above the overall mean effect size in Continental European countries and Japan (mean ES = 0.0323, $p = 0.00$), and no outperformance in emerging markets or transition economies (mean ES = -0.0017 , $p = 0.95$). Similar to the overall relationship, we also find a high amount of heterogeneity within the subsamples.

4.2 Meta-Regression Analysis

In the MRA, we test the sensitivity of the family firm performance relationship with regard to the business cycle while controlling for other systematic influence factors. Table 5 shows the results based on 523 effect sizes from 35 countries. Model 1 tests the model without study fixed effects, whereas they are included in Model 2. It reveals that the inclusion of study fixed effects turns the coefficient of the GDP growth variable positive and significant. However, the inclusion of study fixed effects decreases the amount of total heterogeneity (Q) and between-study heterogeneity (I^2) and increases the amount of heterogeneity accounted for ($Pseudo-R^2$) significantly.

The results of Model 2 reveal a positive and statistically significant impact of GDP growth on relative family firm performance ($p = 0.06$). In other words, family firms outperform especially in times of high economic growth, whereas the outperformance is negative in times of economic distress. However, the impact of business cycles on relative family firm performance is rather small from an economic point of view. On the other hand, none of the other economic variables has a significant impact on family firm performance in our model. Examining the used definitions of family firms and financial performance in the primary studies, we find a negative effect for family management compared to family ownership and a positive effect of accounting-based performance measures such as *ROA* or *ROS/Profit margin* compared to the reference category *Tobin's Q/MTB*.

4.3 Sensitivity Analyses

In the following, we divide our sample according to different characteristics that might affect the relationship between family firms and financial performance, especially in consideration of the business cycle influence. Furthermore, we conduct several robustness checks by testing our model with different business cycle variable constructions and a different regression method.

4.3.1 Country Institution Differences

First, we perform the same subsample analyses as in the HOMA model in a multivariate setting and investigate the impact of the institutional environment on the relationship between family firm performance and the business cycle. In Table 6, we divide the sample in a first step according to the OECD member status of the countries. In the sample of OECD countries (Model 1a), we find a statistically significant positive effect for our main independent variable *Cycl. GDP growth* ($p = 0.01$). This outcome indicates that family firms have a more pro-cyclical performance compared to nonfamily firms in these countries. Furthermore, we find a negative and significant impact of *Cycl. Interest rate* on family firm performance ($p = 0.04$). In the sample of non-OECD countries (Model 1b), we do not find a statistically significant

Table 5. Meta-Regression Analysis (MRA).

	Model 1: No FE	Model 2: Study FE
Business cycle variables		
Cycl. GDP growth	0.023 (0.193)	0.495 (0.266)*
Cycl. interest rate	0.202 (0.234)	-0.424 (0.467)
Cycl. inflation rate	-0.098 (0.208)	-0.266 (0.409)
Family firm controls (Ref.: Fam. ownership)		
Fam. management	-0.011 (0.016)	-0.033 (0.019)*
Fam. control	-0.029 (0.017)*	-0.024 (0.017)
Strong fam. infl.	0.039 (0.011)***	0.002 (0.019)
Mixed fam. infl.	0.020 (0.014)	-0.044 (0.028)
Founder involvement	0.054 (0.036)	0.052 (0.035)
Later generation	-0.037 (0.040)	0.003 (0.045)
Fin. measure controls (Ref.: Tobin's Q /MTB)		
Stock return	-0.014 (0.027)	-0.025 (0.024)
Other mar. measure	0.002 (0.038)	0.024 (0.029)
ROA	0.025 (0.015)*	0.046 (0.014)***
ROE	0.007 (0.015)	0.016 (0.016)
ROS / Profit marg.	0.004 (0.018)	0.043 (0.021)**
Sales growth	-0.020 (0.015)	-0.006 (0.019)
Other acc. measure	0.031 (0.022)	0.037 (0.022)*
Study FE	No	Yes
Constant	0.005 (0.013)	-0.067 (0.057)
k (number effect sizes)	523	523
N (number studies)	152	152
C (number countries)	35	35
Y (number years)	30	30
Q	1627.51***	557.58***
I^2 (%)	75.59	36.30
Pseudo- R^2 (%)	6.12	77.43
F	2.67***	3.76***
VIF <i>Cycl. GDP growth</i>	1.08	3.74
Max VIF	2.27	17.75

Note: This table shows the results of our main analysis. We perform a mixed-effects meta-regression with family firm performance as dependent variable. All variables are defined in Table 3. Regression coefficients are reported with heteroscedasticity-robust standard errors in parentheses. Significance levels are denoted by asterisks, *** 1%, ** 5%, and * 10%. Q denotes the weighted residual sum of squares between individual effect sizes and the mean effect size. I^2 denotes the amount of between-study heterogeneity to total heterogeneity. R^2 denotes the amount of heterogeneity accounted for. F denotes the test statistics of the test of moderators.

effect of *Cycl. GDP growth* on family firms' performance but do find a positive and statistically significant effect of *Cycl. Interest rate* ($p = 0.01$) and a negative and statistically significant effect of *Cycl. Inflation rate* ($p = 0.02$). This finding indicates that family firms perform relatively more strongly during phases of high interest rates and low inflation.

As an alternative to the distinction between OECD and non-OECD members, we divide our sample according to the three governance systems as described in Section 4.1. This alternative sample division

Table 6. MRA by OECD Member Status and Corporate Governance System.

	OECD membership status			Corporate governance system		
	Model 1a: OECD countries	Model 1b: Non-OECD countries	Model 2a: Anglo American countries	Model 2b: Continental Europe	Model 2c: Emerging markets	
Business cycle variables						
Cycl. GDP growth	0.657 (0.244) ^{***}	-0.668 (0.485)	2.379 (1.278) [*]	-0.502 (0.561)	0.603 (0.170) ^{***}	
Cycl. interest rate	-0.980 (0.478) ^{**}	2.580 (0.988) ^{**}	-1.282 (0.656) [*]	-0.340 (1.266)	0.933 (0.776)	
Cycl. inflation rate	-0.053 (0.388)	-2.906 (1.214) ^{**}	-2.973 (1.962)	-0.316 (0.787)	-0.215 (0.403)	
Family firm controls (Ref.: Fam. ownership)						
Fam. management	-0.036 (0.025)	-0.037 (0.028)	-0.134 (0.033) ^{***}	-0.019 (0.020)	-0.031 (0.029)	
Fam. control	-0.038 (0.025)	-0.012 (0.020)	0.015 (0.042)	-0.056 (0.023) ^{**}	-0.010 (0.021)	
Strong fam. influence	0.005 (0.036)	0.001 (0.020)	-0.106 (0.058) [*]	-0.033 (0.026)	0.002 (0.021)	
Mixed fam. influence	-0.040 (0.034)	-0.019 (0.071)	0.036 (0.020) [*]	-0.075 (0.033) ^{***}	-0.097 (0.087)	
Founder involvement	0.100 (0.045) ^{**}	-0.012 (0.046)	0.163 (0.043) ^{***}	0.115 (0.067) [*]	-0.012 (0.048)	
Later generation	0.011 (0.044)	—	0.210 (0.059) ^{***}	-0.053 (0.061)	—	
Fin. measure controls (Ref.: Tobin's Q/MTB)						
Stock return	-0.010 (0.032)	-0.060 (0.026) ^{**}	0.017 (0.041)	-0.034 (0.043)	-0.049 (0.026) [*]	
Other market measure	0.019 (0.043)	0.016 (0.033)	0.056 (0.038)	—	0.015 (0.031)	
ROA	0.043 (0.019) ^{**}	0.056 (0.021) ^{**}	0.092 (0.026) ^{***}	0.011 (0.026)	0.063 (0.020) ^{***}	
ROE	0.014 (0.022)	0.028 (0.019)	-0.085 (0.036) ^{**}	-0.013 (0.029)	0.040 (0.020) ^{**}	
ROS/Profit margin	0.036 (0.025)	0.106 (0.073) ^{**}	0.104 (0.071)	-0.025 (0.033)	0.087 (0.026) ^{***}	
Sales growth	0.001 (0.025)	-0.012 (0.026)	0.046 (0.036)	-0.031 (0.031)	-0.012 (0.026)	
Other acc. measure	0.058 (0.027) ^{**}	-0.016 (0.038)	0.125 (0.071)	0.022 (0.030)	-0.015 (0.039)	
Study FE	Yes	Yes	Yes	Yes	Yes	
Constant	-0.068 (0.060)	0.013 (0.033)	0.003 (0.049)	-0.005 (0.034)	-0.059 (0.052)	

(Continued)

Table 6. Continued.

	OECD membership status		Corporate governance system		
	Model 1a: OECD countries	Model 1b: Non-OECD countries	Model 2a: Anglo American countries	Model 2b: Continental Europe	Model 2c: Emerging markets
k (number effect sizes)	356	167	76	240	207
N (number studies)	94	58	24	61	67
C (number countries)	21	14	3	13	19
Y (number years)	29	20	25	22	21
Q	370.92***	148.25***	56.26***	207.51***	187.33***
I^2 (%)	31.70	37.38	35.29	21.10	31.91
Pseudo- R^2 (%)	81.49	69.30	91.12	81.28	76.70
F	4.12***	2.94***	6.17***	3.86***	3.12***
VIF Cycl. GDP growth	2.56	26.34	7.36	4.58	3.27
Max VIF	23.63	57.48	20.58	31.08	26.22

Note: This table shows the results of a subsample analysis by the countries' OECD member status and the countries' corporate governance system. Table 1 shows the list of countries included in each subsample. We perform a mixed-effects meta-regression with family firm performance as dependent variable. All variables are defined in Table 3. Regression coefficients are reported with heteroscedasticity-robust standard errors in parentheses. Significance levels are denoted by asterisks, *** 1%, ** 5%, * 10%. Q denotes the weighted residual sum of squares between individual effect sizes and the mean effect size. I^2 denotes the amount of between-study heterogeneity to total heterogeneity. R^2 denotes the amount of heterogeneity accounted for. F denotes the test statistics of the test of moderators.

reveals differences between the Anglo American and Continental European samples, whose countries are all OECD members. In the Anglo American sample (Model 2a), we find a positive and weakly statistically significant impact of *Cycl. GDP growth* on relative family firm performance ($p = 0.07$). On the opposite, a higher interest rate ($p = 0.06$) has a negative impact. Thus, family firms perform relatively worse in these countries in economically difficult situations, such as years of low or negative economic growth, or high interest rates. For the sample of Continental European countries and Japan in contrast (Model 2b), we do not find statistically significant effects for any of our business cycle variables, indicating that family business performance is as sensitive to economic shocks as nonfamily firm performance. The results of the emerging markets subsample (Model 2c) indicates again a positive and statistically significant effect in terms of GDP growth ($p \leq 0.01$).

4.3.2 Type of Performance Measure

Next, we divide the data set according to the type of performance measure used in the primary studies. The two main groups, accounting-based and market-based performance measures, differ with regard to the time perspective and to assessors (Demsetz and Villalonga, 2001). Whereas accounting-based measures reflect a firm's performance based on annual report figures and are thus backward looking, market-based measures reflect investors' assessment of a firm's future performance. Models 1 and 2 in Table 7 show the regression results for accounting measures and market measures, respectively. The table shows that the positive effect of GDP growth on family firm performance in the overall data set mainly stems from the subsample of accounting measures ($p \leq 0.01$), whereas we do not find any systematic effect of GDP growth on family firms' market performance across all countries. Thus, family firms seem to have a procyclical performance behavior in terms of accounting performance measures, indicating a higher relative profitability in economically good times and a lower relative profitability in economically difficult times.

4.3.3 Alternative Business Cycle Measures

In the previous models, we used cyclical values of the economic indicators that compared the value of a given variable in year t with the average of the five preceding years. As an alternative to this backward-looking method, we also constructed a cyclical value based on the unweighted average of two lagged periods, the current period, and two lead periods, which thus also takes into account future economic development. Additionally, we used the cyclical component of the Hodrick–Prescott filter (Hodrick and Prescott, 1997) with the standard smoothing parameter for yearly observations of 100 to operationalize business cycle fluctuations for a given year. Table 8 reports the results. Whereas the coefficient of GDP growth turns insignificant in Model 1, it shows a positive and statistically significant effect on family firm performance when constructed with the Hodrick–Prescott filter ($p = 0.03$). Thus, our previous results are partially robust with regard to alternative variable constructions for business cycle variables.

4.3.4 Alternative Regression Method

As a further robustness check, we used an unrestricted WLS model instead of the standard mixed-effects model. Stanley and Doucouliagos (2015, 2017) showed that this method is superior to mixed-effects meta-regressions under the presence of publication bias. In this model, we used our standard cyclical variable construction for the business cycle variables as in the base model. Model 1 in Table 9 reports the regression results. Again, we find a positive and statistically significant effect of GDP growth on the family firm performance relationship as in the mixed-effects regression model. Furthermore, most other

Table 7. MRA Divided by Type of Performance Measure.

	Model 1: Accounting measures	Model 2: Market measures
Business cycle variables		
GDP growth	0.558 (0.212)***	0.780 (0.974)
Interest rate	-0.369 (0.456)	-3.433 (2.212)
Inflation rate	0.114 (0.322)	-4.962 (1.938)**
Family firm controls (Ref.: Fam. ownership)		
Fam. management	-0.020 (0.018)	-0.108 (0.052)**
Fam. control	-0.028 (0.018)	-0.013 (0.023)
Strong fam. influence	0.007 (0.019)	-0.006 (0.035)
Mixed fam. influence	-0.036 (0.026)	-0.063 (0.079)
Founder involvement	0.048 (0.038)	0.015 (0.018)
Later generation	0.021 (0.039)	-0.058 (0.058)
Fin. measure controls		
Tobin's Q /MTB	—	Ref.
Stock return	—	-0.027 (0.034)
Other market measure	—	0.035 (0.028)
ROA	Ref.	—
ROE	-0.028 (0.011)***	—
ROS/Profit margin	-0.004 (0.016)	—
Sales growth	-0.053 (0.013)***	—
Other acc. measure	-0.003 (0.018)	—
Study FE	Yes	Yes
Constant	0.050 (0.009)***	-0.288 (0.062)***
k (number effect sizes)	410	113
N (number studies)	146	50
C (number countries)	34	24
Y (number years)	26	25
Q	343.51***	51.37
I^2 (%)	27.80	0.47
Pseudo- R^2 (%)	86.16	99.64
F	4.50***	4.36***
VIF <i>Cycl. GDP growth</i>	3.37	8.16
Max VIF	32.25	70.31

Note: This table shows the results of our analysis divided by the type of performance measure. “Accounting measures” includes all effect sizes, where financial performance is measured by accounting-based performance measures, whereas “market measures” includes all effect sizes, where financial performance is measured by market-based performance measures. We perform a mixed-effects meta-regression with family firm performance as dependent variable. All variables are defined in Table 3. Regression coefficients are reported with heteroscedasticity-robust standard errors in parentheses. Significance levels are denoted by asterisks, *** 1%, ** 5%, and * 10%. Q denotes the weighted residual sum of squares between individual effect sizes and the mean effect size. I^2 denotes the amount of between-study heterogeneity to total heterogeneity. R^2 denotes the amount of heterogeneity accounted for. F denotes the test statistics of the test of moderators.

Table 8. MRA with Different Business Cycle Variable Constructions.

	Model 1: Cycl. variable with lags and leads	Model 2: Hodrick–Prescott filter
Business cycle variables		
GDP growth	0.501 (0.363)	0.651 (0.293)**
Interest rate	0.223 (0.752)	−0.463 (0.587)
Inflation rate	−0.687 (0.447)	−0.498 (0.321)
Family firm controls (Ref.: Fam. ownership)		
Fam. management	−0.033 (0.019)*	−0.032 (0.019)*
Fam. control	−0.024 (0.016)	−0.024 (0.017)
Strong fam. influence	0.002 (0.019)	0.002 (0.019)
Mixed fam. influence	−0.044 (0.028)	−0.044 (0.028)
Founder involvement	0.052 (0.035)	0.051 (0.035)
Later generation	0.003 (0.045)	0.004 (0.045)
Fin. measure controls (Ref.: Tobin's Q /MTB)		
Stock return	−0.025 (0.022)	−0.024 (0.022)
Other market measure	0.022 (0.028)	0.023 (0.029)
ROA	0.043 (0.014)***	0.045 (0.014)***
ROE	0.011 (0.016)	0.014 (0.016)
ROS/Profit margin	0.040 (0.021)*	0.042 (0.021)**
Sales growth	−0.007 (0.019)	−0.006 (0.019)
Other acc. measure	0.034 (0.022)	0.036 (0.022)*
Study FE	Yes	Yes
Constant	−0.061 (0.057)	−0.066 (0.057)
k (number effect sizes)	522	528
N (number studies)	152	155
C (number countries)	35	35
Y (number years)	29	30
Q	561.63***	555.47***
I^2 (%)	37.05	35.34
Pseudo- R^2 (%)	76.56	78.06
F	3.81***	3.81***
VIF Cycl. GDP growth	3.46	3.59
Max VIF	16.38	42.80

Note: This table shows the results of mixed-effects meta-regressions with different business cycle variable constructions as robustness checks. In Model 1, the business cycle variables are constructed as cyclical variables with two lag and two lead periods. In Model 2, the business cycle variables are constructed with the cyclical component of the Hodrick–Prescott filter with a smoothing parameter for yearly observations of 100. All variables are defined in Table 3. Regression coefficients are reported with heteroscedasticity-robust standard errors in parentheses. Significance levels are denoted by asterisks, *** 1%, ** 5%, and * 10%. Q denotes the weighted residual sum of squares between individual effect sizes and the mean effect size. I^2 denotes the amount of between-study heterogeneity to total heterogeneity. R^2 denotes the amount of heterogeneity accounted for. F denotes the test statistics of the test of moderators.

Table 9. MRA with Different Regression Method and Without Outlier Observations.

	Model 1: Unrestricted WLS model	Model 2: Mixed-effects MRA without outliers
Business cycle variables		
Cycl. GDP growth	0.693 (0.187) ^{***}	0.472 (0.224) ^{**}
Cycl. interest rate	-0.618 (0.342) [*]	0.296 (0.441)
Cycl. inflation rate	-0.126 (0.311)	-0.042 (0.307)
Family firm controls (Ref.: Fam. ownership)		
Fam. management	-0.012 (0.014)	-0.016 (0.017)
Fam. control	-0.020 (0.014)	-0.017 (0.016)
Strong fam. influence	0.011 (0.017)	0.004 (0.018)
Mixed fam. influence	-0.026 (0.021)	-0.045 (0.027)
Founder involvement	0.025 (0.024)	0.032 (0.040)
Later generation	0.034 (0.028)	0.026 (0.039)
Fin. measure controls (Ref.: Tobin's Q/MTB)		
Stock return	-0.020 (0.024)	-0.030 (0.021)
Other market measure	0.033 (0.033)	0.021 (0.028)
ROA	0.054 (0.011) ^{***}	0.049 (0.013) ^{***}
ROE	0.026 (0.013) [*]	0.021 (0.015)
ROS/Profit margin	0.056 (0.017) ^{***}	0.052 (0.019) ^{***}
Sales growth	-0.004 (0.014)	-0.002 (0.018)
Other acc. measure	0.042 (0.020) ^{**}	0.034 (0.021)
Study FE	Yes	Yes
Constant	-0.072 (0.037) ^{**}	-0.061 (0.054)
k (number effect sizes)	523	499
N (number studies)	152	146
C (number countries)	35	35
Y (number years)	30	29
Q		437.69 ^{***}
I^2 (%)		22.22
(Pseudo-) R^2 (%)	72.09	75.02
F	5.49 ^{***}	2.84 ^{***}
VIF Cycl. GDP growth	3.99	3.56
$Max VIF$	9.29	19.82

Note: This table shows the results of robustness checks with an alternative regression method and the results of a robustness check without outlier observations. In Model 1, we perform an unrestricted weighted least squares regression with family firm performance as dependent variable. Regression coefficients are reported with standard errors in parentheses. In Model 2, we perform a mixed-effects meta-regression after excluding 24 outlier observations. Regression coefficients are reported with heteroscedasticity-robust standard errors in parentheses. All variables are defined in Table 3. Significance levels are denoted by asterisks, *** 1%, ** 5%, and * 10%. Q denotes the weighted residual sum of squares between individual effect sizes and the mean effect size. I^2 denotes the amount of between-study heterogeneity to total heterogeneity. R^2 denotes the amount of heterogeneity accounted for. F denotes the test statistics of the test of moderators.

effects are similar to our base model. Thus, our results are also robust with regard to alternative regression methods.

4.3.5 Regression Without Outlier Observations

Finally, we controlled for the potential influence of outliers by calculating DFBETA values. DFBETA values examine the change in the overall effect size estimate when excluding each single effect size (Viechtbauer and Cheung, 2010). There are two common cutoff values to identify outliers: For small to medium data sets, one usually applies a cutoff value of 1, and for larger data sets, a size-adjusted cutoff is calculated by $2/\sqrt{n}$ (Belsley *et al.*, 1980; Kutner *et al.*, 2005). Applying the size-adjusted cutoff, we identified 24 influential outlier observations. We excluded those observations from the sample and ran our base model with the reduced sample. The results (Table 9, Model 2) show again the same effect size directions compared to the base model, indicating that our previous results were not biased by potential outliers.

5. Discussion and Conclusion

Our meta-analysis investigates how the performance of family firms changes over the business cycle. Combining the results of 155 primary studies (528 effect sizes) from 35 countries with data about business cycles, our univariate results indicate an overall statistically significant but practically negligible positive relationship between family firms and firm performance in Anglo American and Continental European countries. These results from the HOMA analysis are consistent with prior meta-analyses on the performance of family firms (e.g., Wagner *et al.*, 2015; van Essen *et al.*, 2015a). For emerging markets and non-OECD countries, we did not find general outperformance of family firms versus nonfamily firms. Starting with studies like Anderson and Reeb (2003a) and Villalonga and Amit (2006), a huge part of the early family business literature has concentrated on family firm performance. Similar to other research areas this literature has mostly focused on statistical significance and ignored the practical or economic significance of the results (Cohen, 1994; Schwab *et al.*, 2011). Effect sizes are rarely discussed and at the focus of family firm studies. Our meta-analysis results reveal that the overall mean effect of family firm status on firm performance is negligible and that family firms do not outperform by an economically meaningful margin on average. Prior family firm performance research has failed to distinguish between statistical significance and practical (or economical) significance and is an example how an overuse of null-hypothesis significance testing can produce a biased picture and lead an entire research field into researching a phenomenon of little research relevance. Accordingly, family firm research now calls increasingly for replications (Evert *et al.*, 2016) and the use of alternative statistical methods such as Bayesian analysis (Block *et al.*, 2014). Family firm scholars also call for more research exploring the heterogeneity of family firms by investigating important subgroups of family firms such as private family firms or multigeneration family firms instead of focusing on simplistic dichotomous comparisons of family and nonfamily firms (Dyer, 2018). Another avenue is to focus more on moderator effects investigating under what conditions and in which specific situations family firms achieve high performance (Dyer, 2018). Although our overall mean effect size in our HOMA analysis is small in economic terms, the Q statistic and the funnel plot reveal a large degree of heterogeneity in the effect sizes, which indicates the likely presence of moderator effects. Our meta-regression goes in this direction by asking the question how family firm performance and business cycles interact with each other.

Testing the impact of the business cycle on this family firm performance relationship, we find evidence for a procyclical performance behavior of family firms. This finding supports those studies arguing for weaker performance of family firms in difficult times (Lemmon and Lins, 2003; Baek *et al.* 2004; Bae *et al.*, 2012; Lins *et al.*, 2013). However, we observe these findings in various manifestations for different

country types and governance systems. As the appearance of family firms in emerging markets differs from that in developed markets (Steier, 2009), the underlying mechanisms of the observed business cycle performance effects might be different ones.

First, the procyclical effects for emerging markets support the findings of Baek *et al.* (2004) and Lemmon and Lins (2003), who find evidence for expropriation activities by controlling owner families in countries with weak corporate governance systems during the Asian crisis. 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 (La Porta *et al.*, 1999; Claessens *et al.*, 2000; Almeida and Wolfenzon, 2006). Control mechanisms such as pyramid structures (Almeida and Wolfenzon, 2006) and cross-shareholdings (Morck *et al.*, 2005) in these groups allow the controlling owners to protect their own private benefits. Due to a strong family wealth concentration in the firm (Anderson and Reeb, 2003b), the survival of the family's economic interests becomes central, even at the expense of minority shareholders (Lins *et al.*, 2013; Attig *et al.*, 2016). Examples are investment cuts, intragroup transactions from healthier to stricken group firms, or the tunneling of profits to firms where the family owns larger cash flow rights (Bertrand *et al.*, 2002; Masulis *et al.*, 2011; Lins *et al.*, 2013). These actions lower not only a firm's market valuation but also its profitability (Joh, 2003). However, apart from crisis times, family ownership of firms in less developed markets can also have benefits for minority shareholders that come to light in normal times (Khanna and Palepu, 2002). First, family firms often have good networks and are closely intertwined with the state and the public sector (Bertrand *et al.*, 2002; Bertrand and Schoar, 2006; Chen and Nowland, 2010). Such close ties may be particularly helpful in regions with weaker market institutions and weaker legal protection (Li *et al.*, 2008), as they provide good access to human, financial, and technological resources (Anderson *et al.*, 2003; Xu *et al.*, 2013; Dinh and Calabrò, 2019). Second, as a sort of quasi-capital market, they share risk (Khanna and Yafeh, 2005) and provide financial resources (Almeida and Wolfenzon, 2006), and thus compensate for imperfect country capital and product markets. Finally, owner families may use not only their powerful position to expropriate minority shareholders, but also their private wealth to prop up their firms with badly needed financial capital and other resources (Friedman *et al.*, 2003) to not lose transgenerational control. During recovery and growth periods, controlling shareholders can benefit more from profitable firm investments than from expropriation strategies and thereby also benefit minority shareholders (Friedman *et al.*, 2003; Bae *et al.*, 2012).

However, opportunities for expropriation activities are less likely in countries with a high level of regulation and thus not a plausible explanation for a cyclical performance behavior of family firms in countries such as the United States (Shleifer and Vishny, 1997; Masulis *et al.*, 2011). Previous research (Sraer and Thesmar, 2007; Block, 2010; Bassanini *et al.*, 2013; van Essen *et al.*, 2015b) showed that family firms have lower turnover rates in their workforce and lay off fewer employees even in recession periods. A mass layoff of employees often accompanies a loss in firm reputation, which attacks the owner family's socioemotional wealth (Gómez-Mejía *et al.*, 2007; Berrone *et al.*, 2010). In the short term, with a deterioration in orders during economic downturns, a constant workforce means relatively higher costs and therefore lower profitability. On the other hand, the firm faces lower turnover costs and keeps a well-running workforce intact. Furthermore, employees value the implicit job security and gain trust in the firm's interest in a long-term employment relationship (Wayne *et al.*, 1997). Consequently, they acquire firm-specific knowledge and demand even lower wages, which can lead to a competitive advantage for the firm in the long term (Le Breton-Miller and Miller, 2006; van Essen *et al.*, 2015b). Furthermore, Zellweger (2007) finds that family firms are more prevalent in cyclical industries and argues that these industries are more attractive for long-term-oriented family firms compared to more short-term-oriented investors. In this manner, the cyclical performance effect in our study would not only be a result of different business strategies but also due to industry effects. For the sample of Continental European countries and thus similar to the results of van Essen *et al.* (2013), we do not find any support for different performance of family firms with regard to the business cycle.

The results observed in our study do not confirm the results of those studies reporting outperformance of family firms in more difficult times (Allouche *et al.*, 2008; Desender *et al.*, 2008; Leung and Horwitz, 2010; Amann and Jaussaud, 2012; Kashmiri and Mahajan, 2014; Van Essen *et al.*, 2015b; Minichilli *et al.*, 2016; Zhou *et al.*, 2017; Joe *et al.*, 2019). Why do the results of our meta-analysis differ from prior works on this topic? The 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 also 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.

There are additional implications for further research. First, several influential studies used multicountry data sets and investigated family firm performance across several years (e.g., Ellul *et al.*, 2010; Masulis *et al.*, 2011). However, no study thus far has investigated the sensitivity of family firm performance over several business cycles. A large-scale study could therefore provide further evidence for the findings from our study. Furthermore, it would provide insights into strategic decisions of family firms over decades and thereby test attributed characteristics such as long-term orientation or noneconomic goals. In this sense, outcome variables aside from firm performance such as investment behavior would be of high interest. Second, a significant share of listed firms all over the world currently is owned by wealthy businesses families, especially in Continental Europe and in emerging markets (Aminadav and Papaioannou, 2020). As emerging markets in particular will be the driving forces of prospective worldwide growth, family firms in those countries will be responsible for a large share of economic expansion in upcoming years (Le Breton-Miller and Miller, 2018). Therefore, not only the sensitivity of family firms to business cycle developments but also the impact of family firm prevalence on countries' economic development and business cycle fluctuations are promising future research directions.

Our study has limitations. First, as noted above, our effect sizes are small and the question of practical relevance remains unclear. Second, a more balanced sample regarding the distribution of studies and effect sizes per country and years would be desirable. Early family business research had a strong U.S. focus, but research on European and East Asian countries has grown steadily in recent years (Evert *et al.*, 2016). Thus far, only few empirical studies exist on family firms in Arab and African countries. Finally, 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 data sets spanning several countries and years can only be included in our data set if the respective study reports effect sizes separately for each country and year. Due to this limitation, our estimation data set had to be reduced significantly, as we had to exclude several studies from (top-tier) finance, management, and economics journals.

Notes

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*.

3. Members of the author team have language skills in German, French and/or Spanish. The studies published in the CNKI and in the Chinese language were searched and coded by a Chinese PhD student.
4. If primary studies use a panel data set 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.
5. Descriptive statistics can be transformed to r by the following: $r = \frac{(X_1^- - X_2^-)/s_{pooled}}{\sqrt{((X_1^- - X_2^-)/s_{pooled})^2 + 1/p(1-p)}}$, where X_1^- and X_2^- are the group means, s_{pooled} is the pooled standard deviation, and p is the proportion of the total sample in one of the two groups. T-tests can be transformed to r by the following: $r = \frac{t}{\sqrt{t^2 + n_1 + n_2 - 2}}$, where t is the t-test statistic, and n_1 and n_2 are the group sizes (Lipsey and Wilson, 2001, pp. 192f.).
6. The inverse variance w is calculated as follows: $w_i = \frac{1}{SE_i^2 + \nu_\theta}$, where SE_i is the standard error of the effect size and calculated as follows: $SE_i = \sqrt{\frac{1}{n_i - 3}}$, whereas ν_θ is the random effects variance component calculated as $\nu_\theta = \frac{Q_T - k - 1}{\sum w_i - (\sum w_i^2 / \sum w_i)}$ (Lipsey and Wilson, 2001, pp. 64, 119).
7. The mean effect size is calculated as follows: $\overline{ES} = \frac{\sum (w_i * ES_i)}{\sum w_i}$. Its standard error is calculated as $SE_{\overline{ES}} = \sqrt{\frac{1}{\sum w_i}}$, and the corresponding z-value is calculated as $z = \frac{\overline{ES}}{SE_{\overline{ES}}}$. The confidence intervals are calculated as follows: $\overline{ES}_{U/L} = \overline{ES} \pm z_{(1-\alpha)}(SE_{\overline{ES}})$ (Lipsey and Wilson, 2001, pp. 113ff.).
8. We choose five years to detrend the variables since this roughly corresponds to the average length of a business cycle or monetary policy cycle.
9. 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.
10. Table 1 shows the country classifications and the OECD membership status.

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Appendix A: List of Articles Included in This Study

Authors	Year	Journal	Country	Observation period	Sample size
Abdullah <i>et al.</i>	2015	<i>AF</i>	Malaysia	2008	221
Abdullah <i>et al.</i>	2012	<i>WP</i>	Malaysia	2008	841
Abdullah	2014	<i>JMG</i>	Malaysia	2007	100
Abdullah <i>et al.</i>	2011	<i>COC</i>	Malaysia	2007	100
Achmad	2007	<i>PHD</i>	Indonesia	2003	149
Ahluwalia <i>et al.</i>	2017	<i>JSBS</i>	USA	2011	43
Akhtaruddin <i>et al.</i>	2009	<i>JAMAR</i>	Malaysia	2002	105
Aldamen <i>et al.</i>	2011	<i>WP</i>	Australia	2008	656
Alfraih	2016	<i>JFRC</i>	Kuwait	2010	134
Ali <i>et al.</i>	2007	<i>JAE</i>	USA	2002	500
Allouche <i>et al.</i>	2008	<i>FBR</i>	Japan	1998, 2003	312
Amann and Jaussaud	2011	<i>APBR</i>	Japan	1998, 2003, 2007	190
Amit <i>et al.</i>	2015	<i>JCF</i>	China	2007	1453
Aragón-Sánchez and Sánchez-Marín	2005	<i>JSBM</i>	Spain	2000	776
Arosa <i>et al.</i>	2012	<i>IC</i>	Spain	2006	586

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Authors	Year	Journal	Country	Observation period	Sample size
Audretsch <i>et al.</i>	2013	<i>JFBS</i>	Germany	2004	386
Audretsch <i>et al.</i>	2010	<i>WP</i>	Germany	2006	386
Ayerbe <i>et al.</i>	2014	<i>EJFB</i>	Spain	2010	1916
Baek <i>et al.</i>	2004	<i>JFE</i>	Korea	1996	644
Bannò	2016	<i>JFBS</i>	Italy	2008	229
Barth <i>et al.</i>	2005	<i>JCF</i>	Norway	1996	438
Barua	2017	<i>STH</i>	USA	2010-2015	260
Bauweraerts and Colot	2013	<i>RSG</i>	Belgium	2005-2009	100
Beldi <i>et al.</i>	2014	<i>RdE</i>	France	2011	141
Bermiñi <i>et al.</i>	2014	<i>SIN</i>	Italy	2006, 2011	141
Bjuggren <i>et al.</i>	2018	<i>CGIJS</i>	Sweden	2008	817
Blanco-Mazagatos <i>et al.</i>	2007	<i>FBR</i>	Spain	2000	654
Block <i>et al.</i>	2015	<i>WP</i>	Germany	2013	714
Bornhäll <i>et al.</i>	2016	<i>JEPP</i>	Sweden	2012	1000
Bughin and Colot	2008	<i>RFG</i>	Belgium	2000-2003	66
Carney and Gedajlovic	2002	<i>JMS</i>	Hong Kong	1993	106
Carvalho and Cochrane	2011	<i>COC</i>	Brazil	2008	238
Cascino and Gassen	2010	<i>WP</i>	Germany, Italy	2006	252
Cavalluzzo and Sankaraguruswamy	2000	<i>WP</i>	USA	1993	1344
Cesaroni <i>et al.</i>	2017	<i>AJBM</i>	Italy	2007, 2009, 2014	128
Chang and Shin	2007	<i>PBFJ</i>	Korea	2000	240
Chau and Gray	2010	<i>JIAAT</i>	Hong Kong	2002	273
Chau and Leung	2006	<i>JIAAT</i>	Hong Kong	2002	397
Chen	2014	<i>WP</i>	China	2010, 2011	402
Chin <i>et al.</i>	2017	<i>WP</i>	Malaysia	2008	82
Choi <i>et al.</i>	2012	<i>CGIR</i>	Korea	2000	301
Chrisman <i>et al.</i>	2004	<i>ETP</i>	USA	1998	1141
Chung and Pruitt	1996	<i>JBF</i>	USA	1986	404
Coleman and Carsky	1999	<i>FBR</i>	USA	1993	2808
Colombo <i>et al.</i>	2014	<i>JSBM</i>	Italy	2007	288
Connelly and Limpaphayom	2012	<i>JBF</i>	Thailand	2005	216
Croci and Grassi	2014	<i>EFM</i>	Italy	2008	282
Darmadi	2013	<i>CGIJS</i>	Indonesia	2007	354
Darmadi	2013	<i>IJCM</i>	Indonesia	2007	160
Darmadi and Sodikin	2013	<i>ARA</i>	Indonesia	2010	304

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Authors	Year	Journal	Country	Observation period	Sample size
Das and Dey	2016	<i>AJBE</i>	India	2014	75
D'Aurizio <i>et al.</i>	2014	<i>JCF</i>	Italy	2007, 2009	2909
Davis and Stout	1992	<i>ASQ</i>	USA	1983	467
De Massis <i>et al.</i>	2014	<i>JSBM</i>	Italy	2009	787
De Massis <i>et al.</i>	2016	<i>ETP</i>	Italy	2000	294
Deman <i>et al.</i>	2018	<i>MD</i>	Belgium	2010	329
Desai <i>et al.</i>	2012	<i>JAEP</i>	India	2003	160
Desai <i>et al.</i>	2012	<i>JAEP</i>	India	2003	160
Dharmadasa <i>et al.</i>	2014	<i>JSAD</i>	Sri Lanka	2013	189
Dobja and Kravchenko	2017	<i>JMBACE</i>	Poland	2010, 2015	206
Dou <i>et al.</i>	2014	<i>FBR</i>	China	2008	2821
Ducassy and Prevot	2010	<i>JFBS</i>	France	2008	207
Ducassy and Montandrou	2015	<i>RIBF</i>	France	2010	41
Duygun <i>et al.</i>	2018	<i>EM</i>	Indonesia	2013	369
Ebrahim and Fattah	2015	<i>JIAAT</i>	Egypt	2007	116
Ehrhardt <i>et al.</i>	2006	<i>WP</i>	Germany	2003	124
Engel <i>et al.</i>	2019	<i>JBR</i>	Germany	2008, 2009	203
Ermel and Do Monte	2018	<i>RBE</i>	Brazil	2010-2013	224
Filatotchev <i>et al.</i>	2005	<i>APJM</i>	Taiwan	1999	228
Filatotchev <i>et al.</i>	2011	<i>APJM</i>	Hong Kong	2006	447
Firth <i>et al.</i>	1999	<i>OMEGA</i>	Hong Kong	1995	351
Galbreath	2017	<i>BSE</i>	Australia	2012	300
Ge and Micelotta	2019	<i>OST</i>	China	2009	3075
Ghazali and Weetman	2006	<i>JIAAT</i>	Malaysia	2001	87
Goes <i>et al.</i>	2017	<i>REGE</i>	Brazil	2013	251
Gonenc <i>et al.</i>	2007	<i>EMFT</i>	Turkey	2000	200
Gunduz and Tatoglu	2003	<i>EBR</i>	Turkey	1999	202
Hadani <i>et al.</i>	2007	<i>IJABW</i>	USA	2000	420
Hadani	2007	<i>BS</i>	USA	1998, 2000	430
Haji and Mubaraq	2015	<i>JAEE</i>	Malaysia	2006	92
Haniffa and Cooke	2002	<i>ABA</i>	Malaysia	1995	167
Hansson <i>et al.</i>	2011	<i>EJF</i>	Finland	2007	852
Haque <i>et al.</i>	2011	<i>RIBF</i>	Bangladesh	2005	101
Hashim and Devi	2007	<i>RAEE</i>	Malaysia	2004	280
Herrero	2018	<i>FBR</i>	Spain	2014	178
Hybrechts <i>et al.</i>	2013	<i>FBR</i>	Belgium	2001	740
Huybrechts	2011	<i>PHD</i>	Belgium	2001	771

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Authors	Year	Journal	Country	Observation period	Sample size
Iskander and Hassan	2017	<i>JP</i>	Malaysia	2014	74
Ismail and Sinnadurai	2012	<i>JBPR</i>	Malaysia	2007	185
Iyer and Lulseged	2013	<i>SAMPJ</i>	USA	2010	397
Jaffar <i>et al.</i>	2013	<i>JP</i>	Indonesia	2008	104
Jameson <i>et al.</i>	2014	<i>JCF</i>	India	2011	1796
Jaskiewicz	2006	<i>PHD</i>	France, Germany, Spain	2003	419
Kamardin	2014	<i>EGCC</i>	Malaysia	2006	112
Kamaruzaman <i>et al.</i>	2019	<i>IJMFA</i>	Malaysia	2014	156
Kaserer and Moldenhauer	2008	<i>RMS</i>	Germany	2003	247
Koch	2017	<i>STH</i>	Germany	2008-2015	160
Kortelainen	2007	<i>STH</i>	Norway	2005	1842
Laitinen	2008	<i>IJAF</i>	Finland	2003	116
Lam and Lee	2008	<i>CGIR</i>	Hong Kong	2003	128
Lee	2004	<i>SAM</i>	USA	2002	126
Leiber	2008	<i>PHD</i>	Germany	1999, 2004	515
Lengsfeld <i>et al.</i>	2016	<i>ZFKE</i>	Germany	2012	153
Leung <i>et al.</i>	2014	<i>JCAE</i>	Hong Kong	2006	487
Li and Zhu	2015	<i>JCS</i>	China	2010	2098
Lokman <i>et al.</i>	2012	<i>COC</i>	Malaysia	2007	275
Lopez-Delgado and Dieguez-Soto	2015	<i>JFBS</i>	Spain	2007	3890
Machek <i>et al.</i>	2015	<i>WP</i>	Czech Republic	2007, 2012	542
Machek and Hnilica	2015	<i>PE</i>	Czech Republic	2007-2012	1564
Mamede and Allouche	2018	<i>WP</i>	Portugal	2012, 2016	60
Margaritis and Psillaki	2010	<i>JBF</i>	France	2005	3253
Markin	2004	<i>STH</i>	Canada	2004	251
Martínez-Alonso <i>et al.</i>	2019	<i>EJInM</i>	Spain	2012	152
McConaughy <i>et al.</i>	2001	<i>JSBM</i>	USA	1986-1988	240
Menéndez-Requejo	2006	<i>BOOK</i>	Spain	2002	6094
Michiels	2012	<i>PHD</i>	Belgium	2011	246
Mishra <i>et al.</i>	2001	<i>JIFMA</i>	Norway	1996	120
Monteiro	2019	<i>STH</i>	Belgium	2017	102
Murphy <i>et al.</i>	2010	<i>WP</i>	Australia	2008	354
Németh and Németh	2015	<i>WP</i>	Hungary	2013	198
Ng	2012	<i>PHD</i>	Malaysia	2007, 2008	314
Nikolov	2017	<i>IIBEAJ</i>	USA	2001-2010	2000
Oreland	2007	<i>WP</i>	Sweden	2004	196

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Authors	Year	Journal	Country	Observation period	Sample size
Parikka	2017	<i>STH</i>	Finland	2013	636
Pinto and Leal	2013	<i>RAC</i>	Brazil	2008, 2009	315
Prabowo and Simpson	2011	<i>APEL</i>	Indonesia	2003	152
Prabowo and Simpson	2009	<i>WP</i>	Indonesia	2002	190
Rabbiosi and Stucchi	2012	<i>WP</i>	India	2009	2447
Ramaswamy <i>et al.</i>	2000	<i>MIR</i>	India	1992	150
Sacristán-Navarro and Gómez-Ansón	2006	<i>BOOK</i>	Spain	2002	86
Saito	2008	<i>JJIE</i>	Japan	1990	1818
Sandhu and Singh	2019	<i>JFRA</i>	India	2015	140
Sciascia <i>et al.</i>	2015	<i>JPIM</i>	Italy	2000	240
Svalland and Vangstein	2009	<i>WP</i>	Norway	2005	43606
Tan <i>et al.</i>	2001	<i>APJM</i>	Singapore	1995-1997	81
Teal <i>et al.</i>	2003	<i>JDE</i>	USA	1996	337
Testera Fuertes and Cabeza Garcia	2013	<i>InCap</i>	Spain	2007	109
Tinaikar	2014	<i>JMG</i>	USA	2001	420
Tsao <i>et al.</i>	2016	<i>IJHRM</i>	Taiwan	2009	218
Uhlaner <i>et al.</i>	2011	<i>WP</i>	Netherlands	2007	689
Villalonga and Amit	2010	<i>FM</i>	USA	2000	2110
Vintila and Gherghina	2012	<i>IBR</i>	USA	2011	155
Waelchli and Zeller	2012	<i>WP</i>	Switzerland	2006	694
Wahlqvist and Narula	2014	<i>STH</i>	Norway	2001	182913
Wahyuni and Prabowo	2012	<i>IJB</i>	Indonesia	2002	158
Wei and Tsao	2018	<i>CMS</i>	Taiwan	2011	119
Wiener-Fercherhofer	2017	<i>JFBM</i>	Austria	2015	440
Xia	2008	<i>CJAR</i>	China	2004	229
Xiang <i>et al.</i>	2018	<i>TFSC</i>	China	2015	958
Xiang <i>et al.</i>	.	<i>WP</i>	China	2015	1185
Yasser <i>et al.</i>	2017	<i>IJPPM</i>	Pakistan	2014	475
Zahra	2003	<i>JBV</i>	USA	1997	409
Zahra and Hayton	2004	<i>ETP</i>	USA	1997	536

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Authors	Year	Journal	Country	Observation period	Sample size
Zattoni <i>et al.</i>	2015	<i>JM</i>	Norway	2003	421
Zellweger	2007	<i>ZFKE</i>	Switzerland	2004	358
Zhang <i>et al.</i>	2015	<i>EJF</i>	Hong Kong	2006	447

Journals: ABA = ABACUS; AF = Accounting Forum; AJBE = Asian Journal of Business Ethics; AJBM = African Journal of Business Management; APBR = Asia Pacific Business Review; APEL = Asian Pacific Economic Literature; APJM = Asia Pacific Journal of Management; ARA = Asian Review of Accounting; ASQ = Administrative Science Quarterly; BOOK = Book Chapter; BS = Business & Society; BSE = Business Strategy and the Environment; CGIJBS = Corporate Governance = The international journal of business in society; CGIR = Corporate Governance = An International Review; CJAR = China Journal of Accounting Research; CMS = Chinese Management Studies; COC = Corporate Ownership and Control; EBR = European Business Review; EFM = European Financial Management; EGCC = Ethics, Governance and Corporate Crime = Challenges and Consequences; EJF = European Journal of Finance; EJFB = European Journal of Family Business; EJInM = European Journal of Innovation Management; EM = Economic Modelling; EMFT = Emerging Markets Finance & Trade; ETP = Entrepreneurship Theory and Practice; FBR = Family Business Review; FM = Financial Management; IBR = International Business Research; IC = Innova Ciencia; IIBEAJ = International Interdisciplinary Business-Economics Advancement Journal; IJABW = International Journal of the Academic Business World; IJAF = International Journal of Accounting and Finance; IJCM = International Journal of Commerce and Management; IJHRM = International Journal of Human Resource Management; IJMFA = International Journal of Managerial and Financial Accounting; IJPPM = International Journal of Productivity and Performance Management; IJRB = Interdisciplinary Journal of Research in Business; InCap = Intangible Capital; JAE = Journal of Accounting and Economics; JAEE = Journal of Accounting in Emerging Economies; JAEPP = Journal of Accounting, Ethics & Public Policy; JAMAR = Journal of Applied Management Accounting Research; JBF = Journal of Banking & Finance; JBPR = Journal of Business and Policy Research; JBR = Journal of Business Research; JBV = Journal of Business Venturing; JCAE = Journal of Contemporary Accounting & Economics; JCF = Journal of Corporate Finance; JCS = The Journal of Chinese Sociology; JDE = Journal of Developmental Entrepreneurship; JEPP = Journal of Entrepreneurship and Public Policy; JFBM = Journal of Family Business Management; JFBS = Journal of Family Business Strategy; JFE = Journal of Financial Economics; JFRA = Journal of Financial Reporting & Accounting; JFRC = Journal of Financial Regulation and Compliance; JIAAT = Journal of International Accounting, Auditing & Taxation; JIFMA = Journal of International Financial Management & Accounting; JJIE = Journal of The Japanese and International Economics; JM = Journal of Management; JMBACE = Journal of Management and Business Administration. Central Europe; JMG = Journal of Management and Governance; JMS = Journal of Management Studies; JZ = Jurnal Pengurusan (UKM Journal of Management); JPIM = Journal of Product Innovation Management; JSAD = Journal of South Asian Development; JSBM = Journal of Small Business Management; JSBS = Journal of Small Business Strategy; MD = Management Decision; MIR = Management International Review; OMEGA = Omega - The International Journal of Management Science; OST = Organization Studies; PBFJ = Pacific-Basin Finance Journal; PE = Politická ekonomie; PHD = PHD Thesis; RAC = Revista de Administração Contemporânea; RAEE = Research in Accounting in Emerging Economies; RBE = Revista Brasileira de Finanças; RdE = Revue de l'Entrepreneuriat; REGE = REGE - Revista de Gestão; RFG = Revue française de gestion; RIBF = Research in International Business and Finance; RMS = Review of Managerial Science; RSG = La Revue des Sciences de Gestion; SAM = SAM Advanced Management Journal; SAMPJ = Sustainability Accounting, Management and Policy Journal; SIN = Sinergie, Italian Journal of Management; STH = Student Thesis; TFSC = Technological Forecasting & Social Change; WP = Working Paper; ZFKE = Zeitschrift für KMU und Entrepreneurship.