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Journal of Economic Surveys

**Provided in Cooperation with:** John Wiley & Sons

*Suggested Citation:* Hansen, Christopher; Block, Joern; Neuenkirch, Matthias (2020) : FAMILY FIRM PERFORMANCE OVER THE BUSINESS CYCLE: A META-ANALYSIS, Journal of Economic Surveys, ISSN 1467-6419, Wiley, Hoboken, NJ, Vol. 34, Iss. 3, pp. 476-511, https://doi.org/10.1111/joes.12364

This Version is available at: https://hdl.handle.net/10419/233714

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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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Journal of Economic Surveys (2020) Vol. 34, No. 3, pp. 476–511

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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 amd 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

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

 Table 1. Sample Composition by Country.

*Note:* This table reports the number of samples and effect sizes by country. Countries are divided by the respective governance system. Countries labeled with <sup>OECD</sup> 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.<sup>1</sup> Third, we browsed notable journals that publish articles in the research field of family businesses.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> Excluding studies that reported 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).<sup>5</sup> 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):

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

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:

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

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,  $p \le .01$ ). 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 metaanalysis (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.

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Fisher's z Transformed Correlation Coefficient

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

	Moc	lel 1	Mode	el 2
	Coefficient	Т	Coefficient	t
1/SE	0.049	(13.22)***	-0.017	(-0.35)
Constant	-0.516	$(-4.59)^{***}$	-0.931	(-1.23)
Control variables	No		Yes	
k (number effect sizes)	528		528	
V (number studies)	155		155	
R <sup>2</sup> (%)	3.85		71.08	

Table 2.	Funnel	Plot Asy	vmmetrv	Test.
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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 randomeffects 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)<sup>6</sup> and to calculate the overall

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

$$ES_{i} = \beta_{0} + \beta_{1}' BC_{i} + \beta_{2}' X_{i} + u_{i} + e_{i}$$
(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	090.0
Family firm measure contro	slo					
Fam. Ownership	Binary variable = 1 if family influence is measured by ownership either continuously or by our off dummise	528	0.407	0.492	0	1
Fam. Management	Binary variable – I if family influence is measured by	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	528	0.133	0.339	0	1
Strong fam. influence	board) Binary variable $= 1$ if firms are defined as family firms, if at	528	0.237	0.425	0	-
	least two of the previous influences are prevalent					
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 <i>Q</i> /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	-
					(Ce	ntinued)

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	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	-
Accounting measures ROA	Binary variable $= 1$ if financial performance is measured by	528	0.384	0.487	0	-1
ROE	return on assets Binary variable = 1 if financial performance is measured by	528	0.178	0.383	0	1
ROS/Profit margin	return on equity Binary variable $= 1$ if financial performance is measured by	528	0.078	0.268	0	1
Sales growth	return on sales or profit margin Binary variable $= 1$ if financial performance is measured by	528	0.062	0.242	0	1
Other acc. measure	sales growth Binary variable = 1 if financial performance is measured by	528	0.080	0.271	0	1
	other accounting measures than the before mentioned (e.g., ROI or ROCE)					

# FAMILY FIRM PERFORMANCE OVER THE BUSINESS CYCLE

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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.<sup>8</sup> 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.<sup>9</sup> 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  $l^2$  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.<sup>10</sup>

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

								•						
	Mean ES	k	Ν	С	Y	Firms	SE	95% CI	p(Z)	Q-te	st	$I^2$	Ζ-	test
Complete sample	0.0227	528	155	35	30	487,692	0.0042	0.0145, 0.0310	(00.0)	2,000.10	(00.0)	81.43%		
<b>OECD</b> 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%	4.80	(<0.01)
Anglo-American countries	0.0635	76	24	б	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%	2.22	(0.03)
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%	4.65	(<0.01)
<i>Note</i> : This table reports the resu. OECD member status and govern samples included. <i>C</i> denotes the meta-analytic mean effect size. 9? Olkin chi-source sioniferance test.	Its of the Hed, nance system ( number of co 5% CI denotes	ges and see Tabl untries i the $95$ %	Olkin m le 1). <i>Me</i> ncluded. ő confide	eta-ana an ES Y deno snce inthe	lysis fo denotes otes the erval lii	r the family the multiplication the retarant the meta-ana number of y mits. $p(Z)$ der denotes the denotes the province t	firm perfori lytic mean ears includd iotes <i>p</i> -valu	nance relationship for t effect size. k denotes th ed. Firms denotes the n e for the significance te veen-study variance to	.he comple e number umber of st statistics total varia	of effect sizes firm observation s of the mean	d the subs s included. ions. <i>SE</i> d effect size	amples base N denotes th enotes the st ; Q-test dence	d on the c ne numbe andard er tes the Ho	countries' r of study ror of the edges and
- 0	0	2	-					•				0		

size differences between two groups (p-value in parentheses).

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

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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*<sup>2</sup>) 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. ow	nership)	
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)
<i>k</i> (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 Cycl. GDP growth	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

		n    1	-		
	OECD me	embership status	Cor	porate governance systemet	em
	Model 1a: OECD	Model 1b: Non-OECD	Model 2a: Anglo	Model 2b:	Model 2c:
	countries	countries	American countries	Continental Europe	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 <i>Q/</i> 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)	$0.056 \ (0.038)$	Ι	$0.015 \ (0.031)$
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)

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

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FAMILY FIRM PERFORMANCE OVER THE BUSINESS CYCLE

	OECD m	embership status	Cor	rporate governance syst	em
	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	33	13	19
Y (number years)	29	20	25	22	21
6	$370.92^{***}$	$148.23^{***}$	$56.26^{***}$	$207.51^{***}$	$187.33^{***}$
$I^{2}$ (%)	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
<i>Note:</i> This table shows the rushows the list of countries in All variables are defined in T	esults of a subsample ana ncluded in each subsampl able 3. Regression coeffic	lysis by the countries' OECD le. We perform a mixed-effect vients are reported with heteros	member status and the cc ts meta-regression with fa scedasticity-robust standar	ountries' corporate gover amily firm performance rd errors in parentheses.	nance system. Table 1 as dependent variable. 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.

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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 ( $p \le 0.01$ ).

# 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 ( $p \le 0.01$ ), 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

	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.: Fai	n. 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
<i>Y</i> (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 Cycl. GDP growth	3.37	8.16
Max VIF	32.25	70.31

 Table 7. MRA Divided by Type of Performance Measure.

*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.

	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
<i>Y</i> (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

## Table 8. MRA with Different Business Cycle Variable Constructions.

*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.

	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. owners	hip)	
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/M	(TB)	
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

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

*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 Qstatistic 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 wellrunning 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

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

- 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:  $r = \frac{(X; -X; -2)/s_{pooled}}{\sqrt{((X; -1 X; -2)/s_{pooled})^2 + 1/p(1-p)}}$ , 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:  $w_i = \frac{1}{SE_i^2 + v_{\theta}}$ , where  $SE_i$  is the standard error of the effect size and calculated as follows:  $SE_i = \sqrt{\frac{1}{n_i 3}}$ , whereas  $v_{\theta}$  is the random effects variance component calculated as  $v_{\theta} = \frac{Q_T k 1}{\sum w_i (\sum w_i^2 / \sum w_i)}$  (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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	Year	Journal	Country	Observation period	Sample size
Authors					
Abdullah <i>et al</i> .	2015	AF	Malaysia	2008	221
Abdullah et al.	2012	WP	Malaysia	2008	841
Abdullah	2014	JMG	Malaysia	2007	100
Abdullah et al.	2011	COC	Malaysia	2007	100
Achmad	2007	PHD	Indonesia	2003	149
Ahluwalia et al.	2017	JSBS	USA	2011	43
Akhtaruddin et al.	2009	JAMAR	Malaysia	2002	105
Aldamen et al.	2011	WP	Australia	2008	656
Alfraih	2016	JFRC	Kuwait	2010	134
Ali et al.	2007	JAE	USA	2002	500
Allouche et al.	2008	FBR	Japan	1998, 2003	312
Amann and Jaussaud	2011	APBR	Japan	1998, 2003, 2007	190
Amit et al.	2015	JCF	China	2007	1453
Aragón-Sánchez and Sánchez-Marín	2005	JSBM	Spain	2000	776
Arosa et al.	2012	IC	Spain	2006	586

# Appendix A: List of Articles Included in This Study

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

Continued.

Continued.

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

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

Continued.

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

China

China

China

Pakistan

USA

USA

Continued.

(Continued)

229

958

1185

475

409

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2004

2015

2015

2014

1997

1997

2008

2018

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2003

2004

CJAR

TFSC

WP

**IJPPM** 

JBV

ETP

Xia

Zahra

Xiang et al.

Xiang et al.

Yasser et al.

Zahra and Hayton

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

Journals: ABA = ABACUS; AF = Accounting Forum; AJBE = Asian Journal of Business Ethics; AJBM = AfricanJournal 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 ScienceQuarterly; 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 Develpmental 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 francaise 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.