Evaluation of the performance of Spanish family businesses portfolios

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Abstract

This study aims to assess the performance and risk of portfolios comprised of Spanish family businesses (FBs) when sustainability and quality factors are considered. To achieve this objective, several portfolios were considered, and their results were compared against the benchmark, estimating several GARCH models and the extended six-factor model of Fama and French for the period 2018-2023. The results demonstrated that investing in FB provides a higher return than the index, and that the portfolio that considers quality is the one that presents a better performance. However, the inclusion of sustainability negatively impacts the portfolio's performance. These results are relevant for investors, such as managers interested in creating portfolios or developing attractive financial products in terms of risk and return.

Keywords: family businesses, performance, risk, impact of sustainability and quality factor.

1. Introduction

In Spain, a very high percentage of the companies is made up of FBs. Specifically, according to the European Family Business, in 2021, this type of company exceeds 1.1 million, generates 67% of employment, and contributes 57.1% to the Gross Domestic Product (GDP) (European Family Businesses). Globally, according to the index made by Ernst & Young (EY) and the University of St. Gallen[1], FBs continue to grow in the economic field, and the 500 most important global FBs show profitability growth that doubles the growth of the world economy. As a result, these companies are able to generate income of more than eight billion dollars and more than 24.5 million jobs (Gaya, 2023).

Therefore, this type of companies may be attractive for their inclusion in investment portfolios due to the specific characteristics they exhibit. In particular, several studies have confirmed higher profitability compared to non-family firms (Corstjens *et al*., 2006; Fahlenbrach, 2009; Miralles *et al*., 2013). In the same vein, the study by Credit Suisse Research Institute (CSRI) estimated that an international selection of FBs would have contributed more than 200 basis points in the period 2006-2020 (Moreno-Mendieta, 2021). This is supported by the study conducted by EY in collaboration with the University of St. Gallen in Switzerland, which concludes that FBs offer better long-term performance (Ruiz-Roso, 2023). Higher profitability could be the result of higher inherent risk, however, there are arguments and studies that support the lower relative risk of investing in FBs (Faccio *et al*., 2001; Anderson and Reeb, 2003; Morck and Yeung, 2004; Lee *et al*., 2018).

Given that the investment in family businesses can be attractive due to the favorable risk-return profile they present, it is interesting to evaluate their performance and, based on this, create new indices that can serve investors and asset managers in the configuration of financial products that take family ownership into account. In Spain, there are currently no equivalent indices to those developed by Credit Suisse, such as the "CS Family 1,000," which is comprised of the world's 1,000 most relevant FBs nor the EY and University of St. Gallen Family Business Index (500 companies). This absence of specific indices may pose a challenge in comparatively assessing the performance of family businesses within the Spanish landscape. This index concludes that family

businesses demonstrate a stable and sustained growth over time (Credit Suisse, 2023). Another family business index is the "NBC Canadian Family Index", calculated by S&P Dow Jones Indices comparing the contribution of Canadian family businesses to the Canadian benchmark[2].

In addition to family ownership, it may also be interesting to consider sustainability and asset quality. The increased social awareness of ESG (Environmental, Social, and Governance) factors among investors has led to the inclusion of sustainability in family ownership portfolios to assess its impact on portfolio performance and the creation of sustainable family indices. By combining family ownership and sustainability ratings provided by Sustainalytics, the profitability series of the family-sustainable portfolio has been estimated.

On the other hand, quality is another factor that has been shown to contribute to a return premium and greater financial stability (Otero-González *et al*., 2023). In fact, the World Quality Index, which considers three variables: Return on Equity (ROE), stable growth (earnings variability), and low level of leverage (Debt to Equity ratio), provided 300 basis points in terms of annualized gross performance compared to the MSCI World index in the period between June 1994 and February 2021.

To the best of our knowledge, there have been no prior studies assessing the performance of FB portfolios, with a specific focus on sustainability and quality considerations. Existing research on FBs primarily concentrates on individual stock market performance (Miralles-Marcello *et al.,* 2013), explores how factors such as the firm's size and age may influence the relationship between family control and firm performance (Miralles-Marcello *et al.,* 2014) or investigates how FBs tend to outperform non-FBs during times of crisis due to increased financial flexibility and long-term decision-making (Jarchow *et al*., 2023). A study closely aligned with our objectives is the one conducted by Madaleno and Vieira (2018). They employed volatility models to analyze explanatory variables capable of elucidating returns, risk, and volatility in FBs. The variables considered included volume traded, market return proxy, turnover, volatility, market capitalization, and the number of zero trading days. Another relevant contribution is made by Teker *et al*. (2022), who delved into the excess stock returns

and risks of family firms among the world's 25 largest FBs. Their findings suggest that these firms consistently outperform their respective market indices.

Therefore, the aim of this paper is the evaluation of different portfolios taking into account family ownership, sustainability and quality, in order to evaluate the relative performance and provide a reference for investors interested in portfolios composed of FBs.

The rest of the document is structured as follows. The second section develops the theoretical framework and hypotheses, the third section presents the descriptive and empirical analysis. The fourth section establishes the methodology by analyzing the three portfolios in two possible situations, and the fifth section shows the results obtained in the study. And finally in the sixth and seventh sections are developed the discussion prior to the conclusions, and the main conclusions and contributions of the paper, respectively.

2. Previous Literature and Ownership Hypotheses

2.1. Family business and performance

The relationship between performance and family ownership has been extensively debated at both theoretical and empirical levels. There are several applicable theories with conflicting conclusions. Thus, from the perspective of *the long-term commitment theory* (Williamson, 1985), family businesses design long-term strategies, and give priority to business continuity and family legacy. Consequently, the profitability of FBs could be more stable but potentially lower than that of non-family ones. Linked to this is the *theory of interest conflicts*, where family conflicts could negatively impact the business, reducing its performance (Gómez-Mejía *et al*., 2001; Schulze *et al*., 2001, Schulze *et al*., 2003; Chrisman *et al*., 2004). However, *agency theories* (Jensen and Meckling, 1976) and *administration theories* (Corbetta and Salvato, 2004; Miller and Le Breton-Miller, 2006; Chrisman *et al*., 2007; Le Breton-Miller and Miller, 2009) support better performance based on lower agency costs and greater alignment of family interests with those of the company. Furthermore, the specific resources and capabilities of family businesses, such as market trust or reputation, knowledge

transmission, and intergenerational experience, would imply better performance and competitiveness for the company (Barreto, 2010; Peteraf *et al*., 2013; Di Stefano *et al*., 2014; Helfat and Peteraf, 2015; Fainshmidt *et al*., 2016).

At the empirical level, the performance results offered that FBs compared to non-family businesses are mixed. According to Anderson and Reeb (2003), Barontini and Caprio (2006), and Martin-Reyna and Duran-Encalada (2012), the returns obtained by FBs are similar to non-family companies. However, the studies by Corstjens *et al*. (2006), Fahlenbrach (2009), Miralles-Marcelo *et al.* (2013) and Teker *et al.* (2022) show that FBs offer higher performance. Additionally, Jarchow *et al.* (2023) highlight that FBs tend to outperform non-FBs, particularly during times of crisis. Similarly, the study conducted by the Credit Suisse Research Institute (CSRI), on the basis of stock market performance, indicates that FBs contributed more than 200 basis points in the period 2006-2020 (Moreno-Mendieta, 2021). In line with this, the consulting firm EY, in collaboration with the University of St. Gallen in Switzerland, has been studying the behavior of listed or unlisted FBs for the past 6 years, reaching almost the same conclusion as Credit Suisse, namely, FBs offer better long-term performance (Ruiz-Roso, 2023). However, other authors such as Thomsen and Pedersen (2000), Anderson and Reeb (2003), Miguel de *et al*. (2004), Maury (2006), and Pindado *et al*. (2008) have established the existence of a negative relationship between performance and company ownership. In other words, in this case, having a lower concentration in the company will result in a positive outcome in its profitability.

Based on the above ideas, we will establish the following hypothesis:

Hypothesis 1: Investing in family-owned businesses provides higher stock market performance.

2.2. Family businesses and risk

The relationship between family equity and risk can be explained through theories, studies, and analyses conducted by several authors. Firstly, in FBs, family equity, profits, and potential losses are believed to influence the family's wealth. Moreover, according to the *theory of long-term commitment*, the primary objective of FBs is the transfer from

generation to generation of the company. Therefore, FBs attempt to diversify and reduce their risk, trying to make it lower compared to non-family ones (Schleifer and Vishny, 1997). In this regard, FBs carry less debt, and are self-finance, with the aim of investing in the long term and thus reducing risk (Fitzsimmons and Douglas, 2006; Croci *et al*., 2011), which depends on the percentage of participation in the company's capital (Eisenhardt, 1989; Palmer and Wiseman, 1999).

Empirically, several studies conclude that FBs assume less risk than non-family ones (Faccio *et al*., 2001; Anderson and Reeb, 2003; Morck and Yeung, 2004). In fact, according to Hall *et al*. (2001) and Habbershon and Pistrui (2002), FBs do not seize opportunities or assume any risks. According to Villalonga and Amit (2006), FBs seek to diversify the company in order to counteract the absence of personal diversification. Based on the actions of the executives of these companies, who are the owners themselves, they try to reduce risks (Schulze *et al*., 2001), even paying lower dividends, and reducing them during times of crisis. Additionally, FBs have lower debts and are more conservative (Welsh and Zellweger, 2010; González *et al*., 2012) and avoid short-term financing to reduce uncertainty (Mishra and McConaughy, 1999; Croci *et al*., 2011). Madaleno ana Vieira (2018) asset that FBs are more risk averse and more conservative than non-FBs. According to Vaknin's (2010) study, where risk is measured using the Altman Z-Score, FBs present a lower level of risk, explained by operational rather than financial aspects, and even exhibit a lower probability of bankruptcy than could be expected. In contrast, the study by Miralles-Marcelo *et al*. (2014) in the Portuguese market concluded that the level of risk depends on performance, size, and growth opportunities. However, Boubaker *et al*. (2016) through a sample of publicly traded FBs in the period 2003-2012, demonstrated that the increase in the number of shareholders causes the increase in risk. Furthermore, Lee *et al*. (2018) found a non-linear relationship between risk and family ownership. In this context, the paper of Otero-González *et al*. (2020) also shows that the degree of shareholding concentration influences the level of implementation of risk management systems in FBs.

Hypothesis 2: Investing in family companies is less risky.

2.3. Impact of sustainability considerations on performance and risk

The stakeholder theory (Freeman, 1984) is based on that companies focusing on sustainability will obtain a better reputation, leading to higher returns. However, those companies are not able to meet the needs of stakeholder may suffer reputational damage and consequently experience reduced returns (Cornell and Shapiro, 1987). Apart from this theory, it's essential to consider the positive synergy aligned with it (Waddock and Graves, 1997), which entails better company management and sustainability communication. However, Friedman (1970) presents the trade-off theory, suggesting that the different costs associated with implementing an ESG approach in the company result in lower profitability and, consequently, reduced competitiveness in the market. According to the study conducted by Pastor *et al.* (2021) investing in sustainable enterprises yields low expected returns when risk aversion is also low.

At the empirical level, various studies establish a mixed relationship, although those explaining the positive relationship between performance and sustainability prevail. Based on empirical evidence, Pava and Krausz (1996) conducted 21 studies, of which 12 showed a positive relationship, 1 negative, and 8 did not establish such a relationship. Similarly, Van Beurden and Gössling (2008) concluded that there is a positive relationship in 67% of the studies carried out between the company´s performance and sustainability, in 4% of these studies was found a negative relationship and in the remaining 29% would not exist. Recently, Busch and Friede (2018) analyzed 1,902 studies, evaluating them in 25 meta-analyses, concluding the existence of a positive and bidirectional relationship between performance and sustainability. In contrast, other research has not produced definitive results (Bruna and Lahouel, 2022).

There are several reasons why companies adopting sustainability policies are more profitable. According to Babajee *et al*. (2022), companies concerned with ESG factors present a better market image and higher employee motivation. Aguinis and Glavas (2012) also concluded that the risks to which companies are exposed decrease because of socio-environmental behaviors. On the other hand, Valdez-Juárez *et al*., (2018) affirm that "sustainability turns out to be one of the business actions in the last twenty years with more success", besides being essential for the company to survive. It also increases the competitiveness of companies in order to compete with others (Bai and Chang,

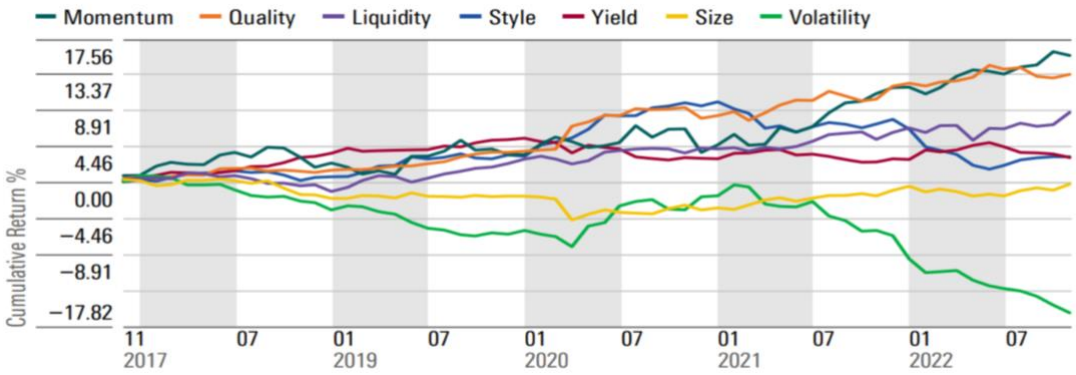
2015). Other authors have concluded that this relationship is positive between the two variables, supported by various studies, as ESG improves financial performance and helps achieve competitive advantages (McWilliams *et al*., 2006; Sousa *et al*., 2020).

Hypothesis 3: The consideration of sustainability increases performance.

2.4. Incorporating the quality

The investment in quality consists in selecting stocks from more solvent companies with lower risk based on a set of ratios, usually related to financial strength (Novy-Marx, 2013). Asness *et al*. (2019) defined quality stocks as those that were "safe, profitable, and growing," and even if investors are willing to pay a higher price for quality stocks, markets undervalue them. According to Hanson and Dhanuka (2015), quality companies have sustainable competitive advantages that can be increased in the future or maintained. Deming (1982) and Juran (1982) also support this idea, stating that quality is crucial for gaining such advantages. Based on this approach, several indices have been developed, such as the MSCI World Quality Index, which considers three variables: Return on Equity (ROE), stable growth (earnings variability), and a low level of indebtedness (Debt to Equity ratio). Based on the period from June 1994 to February 2021, there is a difference of 300 basis points in terms of annualized gross performance compared to the MSCI World, with a beta of 0.88. As we can see in *Figure 1*, exposure to quality companies provides one of the highest premiums, according to the risk factor model available at Morningstar Direct.

Figure 1: Accumulated returns by different asset characteristics



Source: Own elaboration using Morningstar Direct (2023)

Regarding empirical evidence, Piotroski (2000) proposed the F-Score, which represented an improvement in the design of value strategies and its usefulness has been confirmed in various studies (Piotroski and So, 2012; Ng and Shen, 2016, 2020; Walkshäusl, 2019, 2020). Another alternative proposed by Greenblatt (2010), known as "magic formula", which combines quality with value, has also been positively evaluated for the European market by Blackburn and Cakici (2017) and Iglesias-García *et al*. (2022). According to Otero-González *et al*. (2023), a greater profitability has been observed in the US quality stock market measured by the ROIC. As an alternative to these quality indicators, Novy-Marx (2013) used gross profitability, whose suitability was demonstrated by Hsu *et al*. (2017) for the U.S. market.

Hypothesis 4: Incorporating quality strategies improve the performance of family stocks porfolios.

3. Empirical Analysis

3.1. Data and sample selection

Initially, our sample comprised all companies listed on the Spanish stock market, using financial, economic and ownership data from the SABI database and weekly return data from Morningstar Direct for the period from January 2018 to February 2023. From the selected sample, which excluded the entire financial sector, we estimate the compound return series of family companies, sustainable family companies, and quality family companies. Out of the initially identified 97 companies, we ultimately focused on 40 family firms (41%), classifying them as such based on the criteria outlined in the Instituto de la Empresa Familiar proposal (2015), as summarized in *Table I.*

Table I: Descriptive analysis

Criteria used for the identification of family businesses.	- Most of the votes are in the hands of the family that created the company, or the person who has the share capital of the company as a result of the purchase. - Most votes may be direct or indirect. - The management or corporate governance of the company must be in the hands of a family member. - Being quoted, that its founder or descendants hold 25% of the voting rights on the share capital.
Process of selection of FBs:	- Filter companies that are listed in Spain (excluding those that are in bankruptcy or in a state of extinction). - Group 1: Apply the following filters to select those family companies with dispersion in the property structure: • Independence indicator A and B: Identify companies where no shareholder can hold more than 50% of the capital. • Companies that own more than 25% of the capital held by the family or a person. - Group 2: Apply the following filters to identify those family companies that have a concentrated ownership structure: • Independence indicator C and D: Identify companies in which a shareholder may have more than 50% of the capital. • Companies that own more than 50% of the capital held by the family or a person as a whole. - Group 3: Apply filter: U independence indicator to exclude those companies with an unknown property structure.

Source: Own elaboration

Based on the above criteria, the FBs portfolio consists of 40 companies, however, we have excluded 7 due to inconsistent data[3]. For the sustainability index, we considered ESG globes (Morningstar Sustainability Rating Methodology, 2021), distinguishing those that are rated with 4 or 5 globes called HIGH, and those that have 3 or 2 globes called LOW, leaving the sustainable portfolio with a total of 14 companies. Finally, the quality index has been formulated based on the level of quality of the companies, including those with a positive value in the Quality indicator calculated following the Morningstar Quality Index formulation:

$$Q = \frac{1}{3}\left(ROE + \frac{1}{VolROE} + \frac{1}{Apalancamiento}\right)$$

The latter portfolio comprises 12 companies.

Through *Table II* we observed on the one hand that the average in the variable Sust is 3.5 sustainability globes, being the maximum and the minimum of 5 and 2 globes respectively. In addition, the average in the Quality variable is -0.0041 with values ranging between a maximum of 1.363 and a minimum of -0.977.

Table II: Descriptive analysis of the sustainability and quality variables

Variable	Obs	Mean	Max	Min	Medium	Std. dev
Sust	14	3.5	5	2	4	0.764
Quality	12	-0.0041	1.363	-0.977	-0.048	0.514

Source: Own elaboration

Regarding *Table III* the return offered by the different portfolios in comparison to the index, all family portfolios, even those incorporating sustainability and quality factors, surpass the benchmark, the IBEX-35, considering that the falls in these portfolios are also lower. In the case of the portfolio that considers quality and family, they present higher performance, with a return of 0.198% and 0.178%, respectively, whose volatilities are 3.469% and 3.049%, respectively. However, the portfolio that incorporates the quality effect has lower maximum increases, 11.88%, compared to Familysust, whose increases are 13.316%. Comparing these data with the benchmark, it is observed that the index presents returns of 0.081% and a volatility of 3.001%. In conclusion, the data

described corroborates that the portfolios of family companies show higher return with lower downturns compared to the IBEX-35.

Table III: Summary statistics of returns during the whole period

Variable	Obs	Mean	Std. dev.	Min	Max
Familyweighted	269	0.178%	3.049%	-20.985%	12.634%
Familysust	269	0.144%	3.032%	-20.007%	13.316%
FamilyQuality	269	0.198%	3.469%	-19.690%	11.880%
IBEX35NR	269	0.068%	3.000%	-20.846%	13.341%
IBEX35TR	269	0.081%	3.001%	-20.846%	13.353%

Source: Own elaboration. This table includes the descriptive data of the new variables incorporated in the analysis. The Familyweighted variable represents the returns of the portfolio, which includes those companies that we have chosen using the criteria described above, rebalanced with monthly values that have been put in relation to the capitalisation values of each asset that makes up the portfolio. With the variables Familysust and FamilyQuality the same procedure has been carried out as with the previous variable, but those companies that meet the criteria we use have been collected in these portfolios to be considered. IBEX35NR and IBEX35TR are stock indices that calculate the capitalisation of the shares taking into account the profitability per dividend, but in IBEX35TR the taxation of those dividends should be discounted.This table includes descriptive data of the Sust variables, including companies with 2 and 3 sustainability balloons called LOW, and with 4 and 5 balloons called HIGH; and Quality includes those companies that present a positive value in the quality indicator calculated through the Morningstar Quality Index.

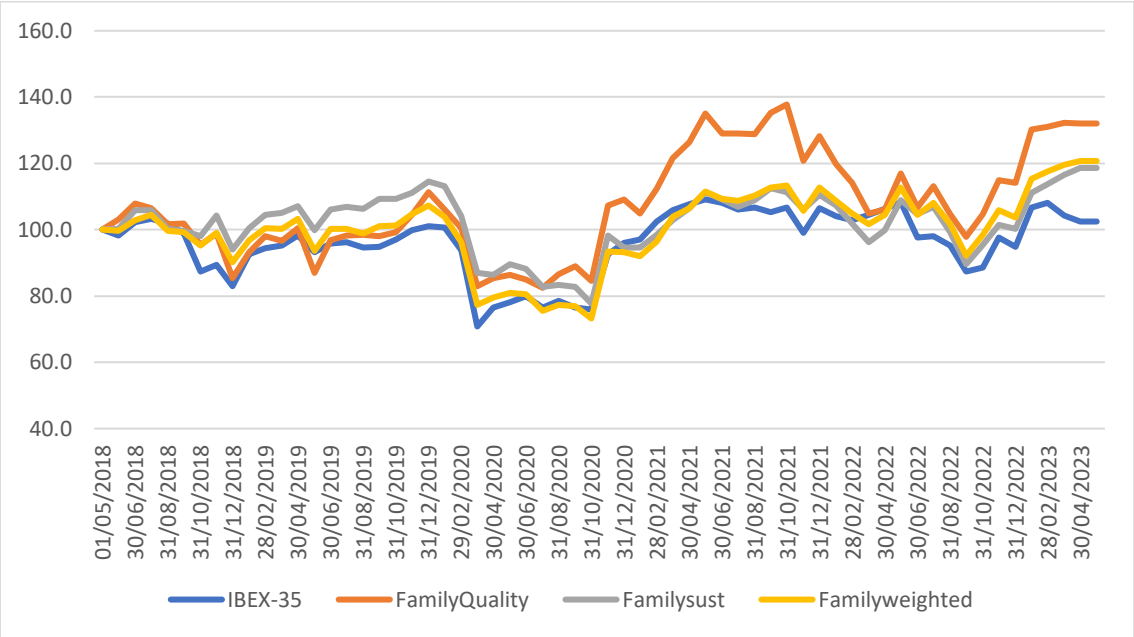
3.2. Return of Family Business Portfolios vs. the Index

The analysis of the investment behavior of family-owned portfolios was initially carried out using the Morningstar Direct portfolio tool. The analysis was performed with reference to the beginning of 2018, assuming a fixed portfolio composition throughout the analysis period because in this tool dynamic changes are not possible. Further analyses will show the results of considering changes in this composition by rebalancing the portfolios monthly.

Figure 2 shows the evolution of the returns obtained from FBs portfolios (Familyweighted), adding the sustainability factor (Familysust), and adding quality (FamilyQuality). With these three portfolios allow for comparisons of returns relative to the benchmark, in our case, the IBEX-35. Over the whole period analyzed, the weighted FBs portfolio has the second-best return. In the case of the FamilyQuality portfolio, it has the best evolution and therefore the highest relative profitability. However, almost throughout this period, the FBs portfolio that incorporates the sustainability factor has

the worst evolution and therefore offers lower returns compared to the index and the rest of the portfolios.

Figure 2: Return of family business portfolios compared to IBEX-35



Source: Own elaboration using Morningstar Direct (2023)

As we can see in *Table IV,* the accumulated returns presented by the FamilyQuality portfolio are higher over 1, 3, and 5 years compared to the rest of portfolios analyzed, and overall, the family portfolios beat the benchmark index.

Table IV: Cumulative returns of family business portfolios on the Ibex-35

Name	As of Date	Return Type	1Month	3Month	6Month	Year To Date	1Year	3Year	5Year
FamilyQuality	31/03/2023	Total	0.89	15.83	35.11	15.83	25.97	16.77	6.61
Familysust	31/03/2023	Total	2.36	16.14	29.98	16.14	21.08	10.21	3.83
Familyweighted	31/03/2023	Total	1.76	15.38	29.68	15.38	17.70	15.63	4.65
BME IBEX 35 NR EUR	31/03/2023	Total	-1.68	12.67	26.81	12.67	12.69	13.73	2.11

Source: Own elaboration. This table includes descriptive data of the new variables incorporated in the analysis. The Familyweighted variable represents the returns of the portfolio, consisting of companies chosen through the criteria described previously, without rebalancing with monthly values that have been related to the market capitalization values of each asset in the portfolio. The same procedure has been applied to the Familysust and FamilyQuality variables, but these portfolios include companies that meet the criteria we use for consideration. BME IBEX 35 NR EUR is the benchmark index that calculates the capitalization of stocks, taking into account the profitability per dividend.

3.3. Performance and risk measures of family portfolios

Table V provides a comparative analysis of several performance measures, provided by Morningstar, of portfolios consisting of family businesses in relation to the IBEX-35 index. The FamilyQuality portfolio is the one with the highest outperformance with respect to IBEX-35, with Alpha values of 3.09 and 3.82 points at 3 and 5 years, respectively, assuming a higher systematic risk with betas higher than 1. In contrast, the Familysust portfolio presents a negative Alpha (-1.04) when considering a three-year period. Considering the Sharpe Ratio, all portfolios present higher performance for the 3 years period, and specifically, the FamilyQuality portfolio is the best positioned, with a value of 0.47. Over the 5-year period, the metrics show a decline, yet overall, they still outperform the stock market index.

Table V: Performance measures of the portfolios of family businesses with respect to IBEX-35

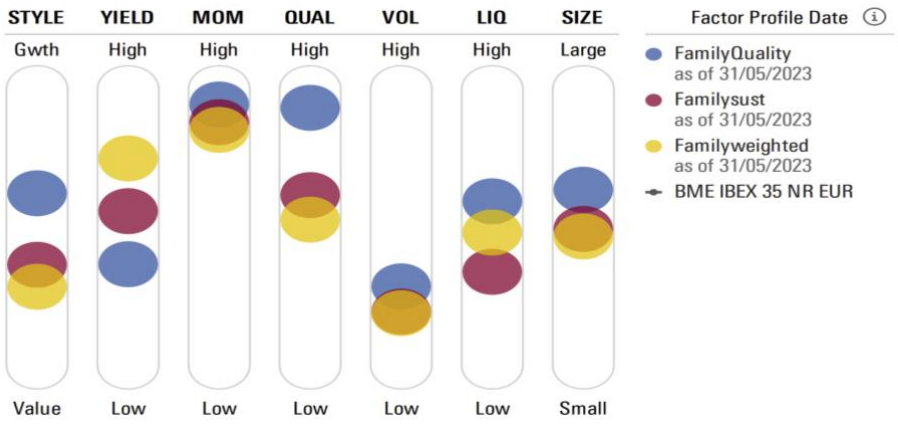
Name	3 Year							
	Return	**Alpha**	**Beta**	**Standard Deviation**	**R-Squared**	**Sharpe Ratio**	**Sortino Ratio**	**Tracking Error**
FamilyQuality	15.04	3.09	1.12	25.83	85.28	0.47	0.83	11.87
Familysust	9.70	-1.04	0.96	22.10	86.05	0.32	0.62	9.61
Familyweighted	13.77	2.07	1.03	22.78	92.55	0.46	0.89	7.28
BME IBEX 35 NR EUR	11.56	0.00	1.00	20.62	100.00	0.39	0.73	0.00
	5 Year							
	Return	**Alpha**	**Beta**	**Standard Deviation**	**R-Squared**	**Sharpe Ratio**	**Sortino Ratio**	**Tracking Error**
FamilyQuality	5.00	3.82	1.09	25.30	81.22	0.15	0.23	12.48
Familysust	3.35	1.32	0.93	21.01	85.29	0.07	0.12	9.23
Familyweighted	3.61	1.78	1.02	22.11	92.25	0.09	0.14	6.95
BME IBEX 35 NR EUR	2.07	0.00	1.00	20.54	100.00	0.02	0.03	0.00

Source: Own elaboration. This table includes descriptive data of the new variables incorporated in the analysis. The Familyweighted variable represents the returns of the portfolio, consisting of companies chosen through the criteria described previously, without rebalancing with monthly values that have been related to the market capitalization values of each asset in the portfolio. The same procedure has been applied to the Familysust and FamilyQuality variables, but these portfolios include companies that meet the criteria we use for consideration. BME IBEX 35 NR EUR is the benchmark index that calculates the capitalization of stocks, taking into account the profitability per dividend.

Analyzing the reasons that can explain the difference in performance, we examine the degree of exposure to explanatory factors. As can be seen in *Illustration 1*, the FamilyQuality portfolio has the highest level of exposure to momentum and quality

factors, which, as we have seen in *Figure 1*, were the factors that have contributed the most to the return in the period analyzed. Likewise, the low volatility has also contributed to avoiding the loss in the returns of the family portfolios.

Illustration 1: Family business portfolio factor profile for IBEX-35

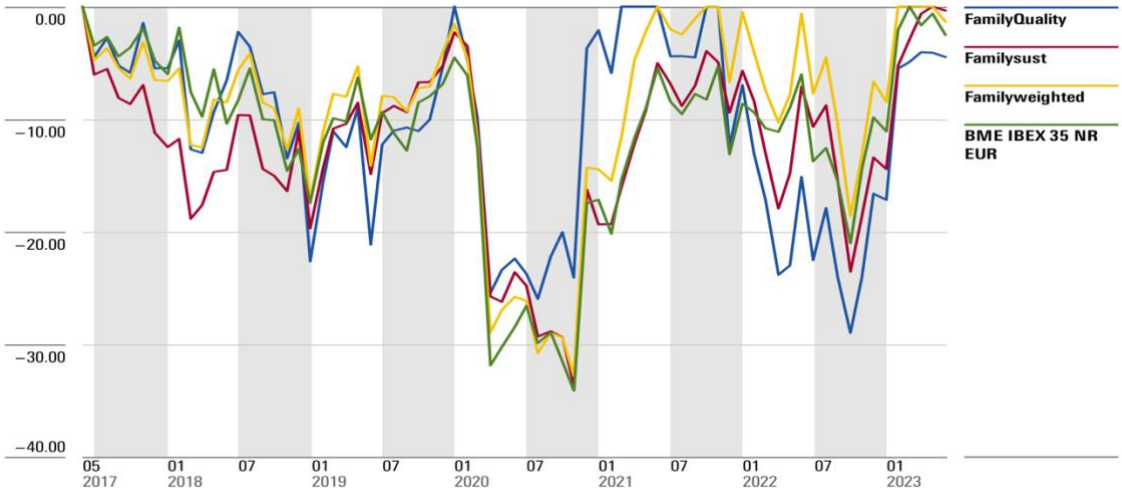


The above graph shows the level of portfolio exposure to different factors. STYLE: growth-value. YIELD: is dividend exposure. MOM: momentum. QUAL: quality. VOL: volatility. LIQ: liquidity. SIZE: size.

Source: Own elaboration using Morningstar Direct (2023)

Figure 3 presents the temporal series of the historical drawdown throughout the time period considered. As it can be observed, all the portfolios evolve in practically the same way, however, we must emphasize that the FamilyQuality and Familysust portfolios are the two portfolios that present the maximum losses compared to the rest of the portfolios, depending on the period, with notable instances in 2018, the beginning of 2019, and mid-2020 and 2022.

Figure 3: Maximum loss of family business portfolios compared to IBEX-35



Source: Own elaboration using Morningstar Direct (2023)

4. Methodology

In this section, we show the methodology to analyze the behavior of the three portfolios in relation to the market index, differentiating between two possible situations. On the one hand, if the established hypotheses are met, where FBs are expected to achieve higher performance and containing the level of risk, it could act as a diversifier, which implies that the movements of family portfolios are similar to those of the market, but with less intensity. In this context, we aim to see the relationship between the returns of family portfolios and the market (measured through the IBEX 35), also considering moments when the market takes extreme values. The main difference in this case is that the profitability calculations were made by carrying out rebalances of the monthly portfolio, so that in each period more is invested in those shares that present a greater relative weight depending on their capitalization. This involves betting more on the shares that experience an increase in value, that is, betting on momentum.

To carry out the analysis, reference is made to the study developed by Pullen *et al*. (2014), which analyzes how different gold-related assets behave in the face of extreme market situations. The model used predicts from historical data what is the behavior of assets in different market situations. The model proposed by Pullen *et al*. (2014)

considers the characteristics of financial time series. In general, it is often observed that volatility tends to cluster in periods, forming clusters of volatility that combine moments of high volatility with others of low volatility. GARCH models consider these aspects, and in this initial analysis, we have chosen to use this modeling approach as in Pullen *et al*. (2014). The equation for the GARCH model is as follows:

$$Rt = \alpha + \left[\beta_0 + \beta_1 D_{q10} + \beta_2 D_{q5} + \beta_3 D_{q1}\right] * R_{mt} + \varepsilon_t$$

$$\varepsilon_t = \sigma_t z_t$$

$$\sigma_t^2 = \omega + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 \sigma_{t-1}^2$$

Where: Rt is the yield of the asset being analysed, Rmt is the yield of the index with which the asset is being compared, εt is the error of the model and α is the constant. The model also includes 3 fictitious variables that refer to the beta of the portfolios when the market falls above the 10, 5 and 1 percentiles. β_0 is the beta value under normal market conditions, that is when you are above 10% of the worst cases.

Given that ω, α_1 and β_1 are positive coefficients, and $\alpha_1 + \beta_1 < 1$, this model assumes that a high value of ε_{t-1}^2 results in increased variance in the following period. The term $\beta_1$implies that the variance changes with some inertia, leading to periods of higher variability.

To determine the behavior of the Family portfolios, it is necessary to analyze the coefficients. If β_0 is negative and statistically significant, the portfolio behaves as a hedge. In the case where β_0 is less than one and statistically significant positive, the portfolio is considered to have a diversifying effect. Moreover, the diversification effect increases when the values of the rest of the betas are negative.

In addition, we proceed to evaluate again the performance, initially calculating the performance of the portfolio with monthly rebalances and using the six-factor model by Fama and French. In this sense, we want to evaluate performance by controlling the different exposures to factors such as size, value, or momentum. In this way, we proceed to calculate the risk-adjusted returns using a multifactorial model. Through estimating each alpha for each portfolio of the respective monthly returns, we arrive at the following model:

$$\left(R_{i,t} - R_{f,t}\right) = \alpha_i + \beta_{i,1} Mkt_t + \beta_{i,2} SMB_t + \beta_{i,3} HML_t + \beta_{i,4} RMW_t + \beta_{i,5} CMA_t + \beta_{i,6} MOM_t + \varepsilon_{it}$$

- α_i: is the constant

- $R_{i,t}$: is the return obtained in month t for family portfolio i.
- $R_{f,t}$: is the return obtained in month t from the risk-free asset.
- Mkt_t: is the difference between the market return, measured by IBEX 35, and the risk-free rate.
- SMB_t: indicates the difference between the returns of portfolios of small and large-sized companies.
- HML_t: measures the difference between the returns of value and growth stocks, measured by the book-to-market ratio. It is expected that value companies yield a positive spread compared to growth companies.
- RMW_t: shows the difference between two portfolios of robust operating profitability and the average return of two portfolios with weak operating performance. A positive premium is expected for the former over the latter.
- CMA_t: indicates the difference between the returns of portfolios with conservative and aggressive values.
- MOM_t: captures the momentum factor, representing the difference in the average return of the portfolio with high prior returns versus that with low returns.
- ε_{it}: reflects the stochastic error.
- βj: is the sensitivity of excess return to each risk factor.

5. Results

5.1. *Analysis for the entire period* (2018-2023)

*Table VI s*hows the betas in relation to the indices, when the market is in a normal situation, and it also includes the betas when the market experiences falls in the 10th (IBEX10), 5th (IBEX5), and 1st (IBEX1) percentiles. As we can see, all portfolios present betas below the unit, showing a lower systematic risk and a diversifying effect. This situation does not seem to be affected by extreme falls, since parameters are not significant, except in the case of the FamilyQuality model, that with a negative value for the IBEX10 variable, it indicates that for falls greater than 10% the family and quality portfolio is better able to compensate for the downturns, in line with expectations according to the theoretical framework.

Table VI: Model GARCH for the different portfolios

Variable	Familyweighted	Familysust	FamilyQuality
IBEX35TR	0.9262***	0.8620***	0.9442***
IBEX10	-0.0026	-0.002	-0.0123*
IBEX5	0.0007	0.0005	0.0084
IBEX1	-0.0023	-0.0128	-0.0008
_cons	0.0013	0.0011	0.002

Source: Own elaboration. This table shows the estimates of the GARCH model for the three portfolios we included in the analysis: Familyweighted, Familysust and FamilyQuality. IBEX35TR is the stock index that calculates the capitalisation of the shares taking into account the profitability per dividend. IBEX10 indicates the ability of each of the portfolios to compensate for market falls above 10%. IBEX5 indicates the ability of each of the portfolios to compensate for market falls above 5%. IBEX1 indicates the ability of each portfolio to compensate for market falls above 1%. _cons is the constant.

5.2. Analysis considering the COVID-19 pandemic (Period ending with pandemic)

In *Table VII,* the returns of the different portfolios analyzed in this paper, as well as the falls and both minimum and maximum return during the period starting in 2018 and ending in may 2020 with the COVID-19 pandemic[4]. As we can see, the portfolio that incorporates the quality effect is the only one that shows positive returns, at 0.09%, but this value is achieved as a consequence of the moderate falls that registers. Additionally, the maximum return in this portfolio is the lowest compared to the others and the benchmark. In contrast, the other portfolios analyzed present negative returns, for example, Familysust records a return of -0.16% with a fall of 20.01%. During extreme market conditions like the COVID-19 pandemic, obviously the returns of family portfolios and the market index decline. Yet, the quality-oriented portfolio emerges as an exception, showcasing positive returns and experiencing comparatively moderate declines against other portfolios and the market indices.

Table VII: Summary statistics considering the period ending with the pandemic.

Variable	Obs	Mean	Std. dev.	Min	Max
Familyweighted	52	-0.01%	5.23%	-20.99%	12.63%
Familysust	52	-0.16%	5.06%	-20.01%	13.32%
FamilyQuality	52	0.09%	5.31%	-19.69%	11.88%
IBEX35NR	52	-0.15%	5.28%	-20.85%	13.34%
IBEX35TR	52	-0.14%	5.28%	-20.85%	13.35%

Source: Own elaboration. This table includes the descriptive data of the new variables incorporated in the analysis. The Familyweighted variable represents the returns of the portfolio, which includes those companies that we have chosen using the criteria described above, rebalanced with monthly values that have been put in relation to the capitalisation values of each asset that makes up the portfolio. With the variables Familysust and FamilyQuality the

same procedure has been carried out as with the previous variable, but those companies that meet the criteria we use have been collected in these portfolios to be considered. IBEX35NR and IBEX35TR are stock indices, but in IBEX35TR the taxation of those dividends should be discounted.

As we can observe in *Table VIII,* all the analyzed models present values in the betas below one, so that this causes the risk assumed in these portfolios is reduced and as a result a diversifying effect occurs. Like the analysis of this model in a normal situation, as we see, the values recorded in the pandemic are similar, and we could even say that these are better. The FamilyQuality model is the only one that presents a negative but significant value for the IBEX10 variable before 10% falls, reaching to compensate better the declines. Therefore, through this analysis, we conclude that in crisis situations such as Covid-19, the portfolios of FBs and those that incorporate sustainability and quality factors present lower systematic risks, acting accordingly as diversifiers. Additionally, the level of market exposure is reduced, and as observed in this table, better results are achieved in terms of risk than in the benchmark.

Table VIII: Model GARCH considering the period ending with the pandemic.

Variable	Familyweighted	Familysust	FamilyQuality
IBEX35TR	0.8837***	0.8181***	0.8617***
IBEX10	-0.0122	-0.0129	-0.0163*
IBEX5	0.0034	0.0048	0.0038
IBEX1	-0.0123	-0.0168	-0.006
_cons	0.0033	0.0018	0.0049

Source: Own elaboration. This table shows the estimates of the GARCH model for the three portfolios included in the analysis: Familyweighted, Familysust and FamilyQuality. IBEX35TR is the stock index that calculates the capitalisation of the shares taking into account the profitability per dividend. IBEX10 indicates the ability of each of the portfolios to compensate for market falls above 10%. IBEX5 indicates the ability of each of the portfolios to compensate for market falls above 5%. IBEX1 indicates the ability of each portfolio to compensate for market falls above 1%. _cons is the constant.

5.3. Evaluation of Family Portfolios' Performance through a 6-Factor Model by Fama and French

As observed earlier, family portfolios have shown better performance, in general terms, than the benchmark. *Table IX* presents the estimates of the 6-factor Fama and French model described above for the portfolios of family companies' portfolios (weighted, sustainability, and quality). Though the coefficient of determination (R2) indicates a high

level of fit for all the models. On the other hand, to interpret the performance across all analyzed portfolios, we compare with the index values. From these values, FamilyQuality model displays the highest beta (1.14), maybe due to concentrated holdings. Other portfolios show betas below one, all remaining statistically significant. Two other factors that significantly explain returns in the various portfolios are HML (market to book) and MOM (Momentum), being the portfolio that incorporates the quality effect the most influenced by these factors.

Table IX: Results of the estimations of the extended 5-Factor Model by Fama and French

	WHOLE PERIOD			PERIOD ENDING WITH PANDEMIC		
	Familyweighted	**Familysust**	**FamilyQuality**	**Familyweighted**	**Familysust**	**FamilyQuality**
Ibex_rf	0.9794***	0.8801***	1.0892***	1.0020***	0.9668***	1.1411***
SMB	-0.1548	-0.3663	-0.2243	-0.1541	-0.5064*	0.0056
HML	-0.3963**	-0.4324*	-0.8404**	-0.6091**	-0.6880*	-1.6523***
RMW	0.2149	0.1149	-0.2184	0.5583	0.6077	0.2368
CMA	0.2585	0.3215	0.3515	0.4681	0.7336	1.2222
MoM	-0.2634***	-0.3271**	-0.3392*	-0.3784***	-0.3882**	-0.6226**
alpha	0.5920**	0.5054	0.756*	0.4234	0.4051	0.5118
N	64	64	64	37	37	37
r2	0.9142	0.8383	0.7878	0.943	0.8951	0.8273

Source: Own elaboration. This table shows the Fama-French model estimates of 6 factors. Ibex_rf (risk) being the benchmark minus the interest rate; SMB is the difference between the returns on equity portfolios of small and large companies; HML is the difference between the returns on equity value and growth, measured by the book-to-market ratio; RMW indicates the difference between two portfolios of robust operational profitability and the average return of two portfolios with weak operational performance; CMA is the difference between the returns of those portfolios that present conservative and aggressive values; MOM collects the momentum factor, being the difference in the average return of the portfolio with previous high return, compared to the low return; alpha is the risk adjusted performance; N indicates the sample size; and r2 is the coefficient of determination.As in the other section, the period ending with pandemic starts in 2018 and finishes in may 2020.

As shown in the values of the variable alpha in *Table IX,* taking the whole analysis period, positive values are recorded for the alphas. In addition, it should be noted that higher values are shown for the portfolio that considers the quality factor and it indicates that the presence of quality assets in the family portfolios leads to higher returns over the analyzed period. In conclusion, compared to the stock index, quality portfolios provide a positive alpha once the various risk factors are adjusted. However, for a more comprehensive performance assessment, costs should be taken into account. Despite this, the results demonstrate that family portfolios exhibit positive alphas in the Spanish market during the analyzed period. To enhance this analysis, considerations such as a

longer time frame, alternative quality measures, or the calculation of portfolios considering ESG factors, and their temporal variation could be explored.

6. Discussion

Descriptive analysis of the 3- and 5-year performance of family portfolios reveals that these portfolios outperform the market index, particularly FamilyQuality and FamilyWeighted portfolios, showcasing a high exposure to momentum and low volatility. Throughout the pandemic-induced crisis period, family portfolios returns were negative, with the exception of the quality portfolio, which exhibited moderate positive ones.

Table X summarizes the results of the study in relation to the established hypotheses. Our findings strongly support Hypothesis 1, as our study indicate that family-owned companies constitute a better portfolio than the market index IBEX35 in terms of returns and alpha, and also exhibiting lower declines. This aligns with Fahlenbrach (2009) and Miralles-Marcelo *et al*., (2013) and contrary to Maury (2006) and Pindado *et al*., (2008). Regarding Hypothesis 2, family businesses show lower systematic risk with estimated betas below unity, indicating significantly reduced risks and better performance during crises such as the COVID-19 pandemic (Jarchow et al., 2023). It is important to note that portfolios incorporating the quality effect display higher betas, which are mitigated by significant reductions during market downturns. Betas below one imply a diversification effect, reducing market exposure levels and achieving better risk-adjusted results compared to the benchmark. This trend appears unaffected by extreme market downturns, except in the case of the FamilyQuality portfolio, where it is better able to offset downturns exceeding 10%, potentially serving as a hedge. These findings persist throughout the entire period, including the pandemic-induced crisis, indicating that the FamilyQuality portfolio acted as a diversifier during such times.

However, our analysis contradicts Hypothesis 3, as the sustainable family portfolio displays the poorest performance and lowest returns and lower systematic risk. This challenges the assumed positive relationship between sustainability and performance. Nevertheless, the sustainable family portfolio consistently maintains a positive alpha even during the pandemic period. These results could mean that in equilibrium,

sustainable assets have low expected returns because investors enjoy holding them and because hedge against ESG risks (Pastor et al., 2021).

Finally, portfolios integrating the quality factor show the highest returns, adjusted and unadjusted for risk, along with the greatest return premium. Notably, these portfolios exhibit lower losses during extreme situations (such as COVID-19), confirming Hypothesis 4. Despite having the highest systematic risk, they demonstrate the most favorable evolution throughout the analyzed period. This result highlights the importance of quality analysis in investment decisions in line with Otero-González *et al*. (2023).

The evaluation of family portfolios' performance through a 6-factor model by Fama and French highlights that HML (market to book) and MOM (momentum) are risk factors explaining the returns of family portfolios, emphasizing the relevance of factor investing in managing these portfolios.

Table X: Summary and results

Hypothesis	Actual Result
H1: Family businesses offer a return premium	YES
H2: Family businesses assume less risk than non-family businesses.	YES
H3: The most sustainable family businesses obtain a return premium for performance.	NO
H4: Incorporating quality strategies improves the performance of family stocks portfolios.	YES

Source: Own elaboration

7. Conclusions

This study analyzed the returns and risks of Investing in a portfolio of Spanish family business stocks, including sustainability and quality factors. The results from 2018 to February 2023 are compared to the market index (IBEX35). This allowed us to understand how these portfolios perform in normal market situations but also during crises like the Covid-19 pandemic. Our empirical analyses revealed that investing solely in FBs yields higher performance. Additionally, these investments pose lower risks and

perform better during extreme situations. While initially expecting sustainability-integrated FBs to enhance performance, our study indicates lower returns and higher maximum losses compared to other portfolios. Ultimately, we found that family ownership coupled with quality enhances returns significantly compared to other options.

The implications of these findings extend to both individual and institutional investors, as well as fund managers who have typically shied away from investments in family firms. This holds true even at the institutional level, influencing the development of new products (mutual funds, ETFs, Indices, etc) in terms of return and risk that take family ownership into account. These results are especially pertinent for shaping passive strategies, drawing attention due to their cost-effectiveness. Furthermore, these insights are valuable for active investors engaging in factor investing, where systematic and transparent rules, implemented at a low cost, offer a means to surpass market performance. In the academic realm, the relevance of our findings is underscored by the scarcity of studies examining the performance of investment portfolios within the context of family businesses, emphasizing the need for further exploration, and understanding in this domain.

Limitations include the focus solely on Spanish companies and the restricted five-year analysis, due to limited availability in the SABI database of ownership time series data.

Future research could enhance the robustness of these results by expanding the sample internationality, another possible enhancement would be to create additional indices that consider the level of control by FBs, the generation or presence of other major shareholders in the capital. Finally, we propose extending the analysis to the analysis of funds that invest in family businesses.

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[1] See: https://www.ey.com/en_gl/family-enterprise/family-business-index
[2] See: https://nbfm.ca/assets/media/FinancialMarkets/PDF/family_advantages/en/TheFamilyAdvantage_2023_E_Digital_V6.pdf
[3] In the period considered the quotations are not available.
[4] According to the World Health Organization the Covid-19 period begins on March 11, 2020, therefore, in our study we have considered the period 2018- may 2020, without taking into account post-covid recovery. See: https://www.sanidad.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov/documentos/ITCoronavirus.pdf