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Impact of family influence in the business on the financial management process and the generation of value in the textile-apparel sector in the city of Medellín, Colombia, and its metropolitan area

Impacto de la influencia de la familia en el negocio, sobre el proceso de gestión financiera y la generación del valor en el sector textil-confección en la Ciudad de Medellín y su Área Metropolitana, Colombia

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Abstract

The purpose of this research was to measure the impact of the family influence on the financial management process and value generation in the textile-clothing sector in the Medellin metropolitan area. The former was measured with an advanced multivariate statistical method, canonical correlation, and the latter was measured with multiple regression, in a probabilistic sample of 100 companies. It was found that family-ownership had a positive impact on financial planning, financial control, investment decisions, working capital management and financing decisions. The impact on EVA was also positive, but weak.

JEL Code: M10, L21, G32
Keywords: family businesses; financial management; value generation; family influence

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Resumen

El propósito de esta investigación es medir el impacto de la Influencia de la familia sobre el proceso de gestión financiera y la generación de valor en las empresas del sector textil-confección en la Ciudad de Medellín y su área metropolitana. La primera relación se midió a través de un método avanzado de estadística multivariada, la correlación canónica y la segunda con una regresión múltiple, en una muestra probabilística de 100 empresas. Se encontró que la influencia de la familia impacta positivamente la planeación financiera, el control financiero, las decisiones de inversión, la gestión del capital de trabajo y las decisiones de financiamiento; el impacto causado sobre el EVA es positivo pero débil.

Código JEL: M10, L21, G32
Palabras clave: empresas familiares; gestión financiera; generación de valor; influencia de la familia

Introduction

Family businesses are defined as "Those organizations where a family owns at least 51% of the property, and some of its members are part of the management, with participation in management or executive positions, and have control of the company through their participation in governing bodies and the decision-making processes, with the aim of perpetuating the business" (Molina, 2017, p. 31). These organizations have demonstrated great difficulty in growing and perpetuating themselves because the process of ownership succession and financial management is not planned. Furthermore, the different ways families can influence corporate finance and decisions are unknown (González, Guzmán, Pombo, and Trujillo, 2014). Given that a significant number of companies at the international level are family-owned, it is necessary to replicate efforts to learn how their differentiating elements compared to non-family companies contribute to better or worse performance. The lack of homogeneity in the results of previous studies suggests that the relationships between family businesses and company performance are complex and most likely moderated or affected by factors that have not been included in these analyses.

The results obtained from the review of the studies carried out at the international level indicate that it is impossible to establish a direct relationship between the influence of the family in the business and its profitability.

The empirical evidence is contradictory, and there is no agreement among academics: there are studies that conclude that family businesses perform better than non-family businesses; for example, in Spain (Santana & Cabrera, 2001) and America (Villalonga & Amit, 2006; Anderson & Reeb, 2003), they find that family businesses perform better than non-family businesses and that this will be reflected in the future value of the company, especially when the founders work as managers. Others conclude that family businesses perform worse or are less efficient than non-family businesses due to ownership concentration

that reduces financial risk diversification and increases the cost of capital (Molina, Botero, & Montoya, 2007). These inefficiencies are also attributed to the different conflicts between different family members (Schulze et al., 2003). Finally, some studies conclude that there is no difference between the financial performance of both types of companies (Molina, Botero, & Montoya, 2017).

However, it is important to mention that the previous studies have been carried out in different geographical and cultural contexts and used different parameters to define family businesses, which may determine the results found.

Some of the studies reviewed demonstrate that family owners influence financial and strategic decisions in these businesses, impacting company performance, valuation, and financial structure (Poutziouris, 2001; Romano, Tanewski & Smyrnios, 2001; Gómez et al., 2012). However, few studies present the measurement of family influence on the financial management process, so the influence or impact of family involvement is far from clear in the financial literature and even more so in the decision-making process.

This study aims to determine the impact of family influence on the business, on the financial management process, and on the generation of value in family businesses in the textile-apparel sector in Medellín and its metropolitan area. For this purpose, a survey was conducted of financial decision-makers in 100 companies, and their EVA was calculated with figures extracted from their financial statements as of 2015.

This study has five sections. Section two develops the theoretical basis within the context of financial management and performance indicators. Section three discusses the empirical design of the data and methodology, while section four presents the main results. Finally, section five examines the findings and presents the conclusions while considering future research areas and the limitations of the study.

Theoretical framework and previous empirical literature

Performance and value generation in financial management

Performance is defined as the measure of the productivity of the resources committed to a business. It is important to guarantee its durability and growth and, therefore, the generation of value for investors (García, 2009). It is stated that companies seek to grow and perpetuate themselves, which is achievable if they manage to maintain or increase investor equity. Efforts are made to measure this through several financial indicators, some based on accounting information, others on market information, and indicators based on the value management methodology (Ittner & Larcker, 2003).

The performance of organizations is constantly being analyzed using different financial indicators of accounting origin. The most commonly used in the research reviewed are those of growth in sales, assets, and profits; those of efficiency (portfolio turnover, inventory turnover, operational asset turnover, and total asset turnover); those of efficacy (different profit margins and the EBITDA/sales ratio); and those of effectiveness or productivity (return on assets (ROA) and return on equity (ROE)) (Rivera & Ruiz, 2011). Most studies use the latter.

Growth indicators show the behavior of sales, assets, and profits over time, making it possible to analyze whether the company's size is increasing, decreasing, or stable. Efficiency indicators measure the capacity of a company to produce cash flows with the lowest investment in assets. Efficacy indicators measure the capacity of a company to produce profits by increasing sales in greater proportion to costs and expenses. The effectiveness or productivity indicators measure the capacity of a company to produce profits considering the number of assets, their nature (operating or total), and the property rights of the resources used (equity). To determine them, the operating profit is related to assets (ROA), which measures company performance, or net profit to equity (ROE), which measures the return for the owners (Rivera & Ruiz, 2011).

Among the financial performance indicators that use market information, Tobin's Q is the most widely used in the research reviewed. Although there are different methodologies to calculate it, it is usually done using the methodology proposed by Lang, Ofek, and Stulz (2996), which refers to the market value of common stock plus the book value of liabilities/book value of assets.

The most widely used indicator based on value management methodologies is Economic Value Added (EVA), which arises given the limitations attributed to account and market indicators. EVA is presented as a tool that allows financiers to calculate and evaluate the wealth generated by the company, considering optional risk (Stewart, 1991). It is calculated as the difference between the operating profit after tax (OPAT) and the cost of asset utilization (García, 2003).

Family influence in the business on value generation and financial management in family businesses: Overview

Research on the influence of family intervention on the performance of family businesses is growing, though the results are mixed, especially for unlisted companies (Sciascia & Mazzola, 2008). Several studies analyze the difference in the performance of family and non-family businesses. Agency theory in family businesses tries to explain why agency costs are lower in family businesses. It is based on the fact that since ownership and management are in the hands of the family, this leads to greater efficiency in the use of resources and, therefore, their performance (Esparza, García, & Duréndez, 2010; Maury, 2006;

Cabrera, De Saá-Pérez, & García, 2001). Active family control is associated with higher profitability than non-family businesses, while passive family control does not affect profitability. These results suggest that family control reduces the agency problem between owners and managers (Maury, 2006). Molina, Botero, and Montoya (2017) review the performance studies that have been conducted in family businesses and demonstrate the empirical contradiction in their results. They demonstrate that there is a group of authors who "point out that family businesses have lower agency costs between owners and agents due to having favorable distinctive characteristics and concentrated ownership and management; therefore, they achieve superior financial performance" (p. 81). Others conclude that "family businesses perform worse because their owners mismanage them due to a lack of professionalization, nepotism, lack of experience of the successors, and because the highly concentrated control of the business allows misuse of power and lack of openness to market trends" (p. 81). Finally, a third group of authors states that "family businesses perform as well as non-family businesses, given that the capital structure (ownership concentration), the type of manager, and financial policies do not directly affect performance. Additionally, inefficiencies generated by families balance the results. The form of ownership and management diminishes agency costs; however, other agency costs increase" (p. 81).

Given the above, the present author wanted to know how this type of relationship exists in Colombian companies in a specific sector, such as the textile-apparel sector in Medellín and its metropolitan area. In addition, it is important to highlight that there are few studies on the relationship between family influence in the business and the financial management process. For example, Filbeck and Lee (2000) explore the financial management techniques of family businesses. They examine family businesses to understand the extent to which they use capital budgeting techniques, risk measurement techniques, and working capital management techniques. They found that family businesses that are older, larger, and have an external board of directors or a non-family member in a financial decision-making role are more likely than their smaller counterparts to employ sophisticated financial management techniques.

Gallo, Tápies, and Cappuyns (2004) identified in their research significant differences between family businesses and non-family businesses. They compare the financial ratios or logics of the two types of companies. In general, when analyzing the financial policies in both types of companies, the differences found indicate that personal preferences regarding growth, risk, and ownership control may be the driving forces behind the "particular financial logic" of family businesses. The authors conclude that some of these companies lack a genuine long-term business policy or commitment to growth and evolution. If risk aversion and loss of control are due to the personal apprehensions or ambitions of the owner-manager, then that owner-manager, intentionally or unintentionally, spoils the chances for the company to compete in the future.

Esparza, García, and Duréndez (2010) sought to analyze the main differences in financial management between family and non-family micro, small, and medium-sized Mexican tourism companies, considering variables such as financing, indebtedness, profitability, growth, and use of accounting and financial information. The results demonstrate that family businesses obtained higher profitability and use accounting and financial information to a lesser extent than non-family businesses.

Of note is that these studies sought to compare the financial practices of family businesses with those of non-family businesses. These studies are descriptive, but none have sought to measure how the family influence in the business impacts the financial decision-making process, which is the objective of this study.

Research methodology

The sample elements were selected from the database provided by the Centro de Estudios Economicos de Fenalco Antioquia. According to this information, the target population consisted of 193 companies in the textile-apparel sector in Medellín and its metropolitan area. The value corresponding to the statistical sample size obtained by applying the following formula of the simple random sampling method (Torres, Paz, & Salazar, 2006) is $n = 97$ companies:

$$n = \frac{Z_{\alpha}^{2} p(1-p) N}{e^{2}(N-1) - Z_{\alpha}^{2} p(1-p)}$$

Theoretical framework of the variables used in the measurement

All the variables used in the measurement were extensively described in Molina (2017); however, some of the elements developed are highlighted below.

Influence of the family on the business variable. After analyzing 62 empirical studies, as evidenced in Table 1, this variable is measured using the F-PEC Scale proposed and validated by Klein et al. (2005), given the significant advantages presented by this scale compared to most of the methods used to operationalize the family influence construct (Molina, 2017).

This instrument assesses three family influence factors on a continuous scale rather than a categorical scale. These factors are power, experience, and culture. Power is understood as the influence that the family has on the governance and management of the company. Experience is the knowledge of information, judgment, and intuition that comes through successive generations. Finally, culture is the alignment of the family objectives with the company objectives.

Table 1
Measures of family influence on business used in empirical studies

Studies	Components	Measure of family involvement in the business
Jacquemin and De Ghellinck (1980)	Ownership	Majority shareholders
Holderness and Sheehan (1988)	Ownership	Percentage of ownership interest
Chaganti and Damanpour (1991)	Ownership	Percentage of ownership interest
Daily and Dollinger (1992)	Ownership Management	Managers related to the owner
Galve and Salas (1996)	Ownership	Majority shareholders
Beehr et al. (1997)	Ownership Management Governance	Equity participation, management positions, general manager is a family member
McConaughy et al. (1998)	Management Succession	Managed by the founder or descendant of the founder
Lauterbach and Vaninsky (1999)	Ownership	Ownership structure
Smith and Amoako-Adu (1999)	Management Succession	Managed by the founder or descendant of the founder
McConaughy and Phillips (1999)	Ownership Management	The manager replied that the company was or was not family-owned
Chua et al. (1999)	Ownership Management Governance Succession	Percentage of business ownership by family members, number of managers who are family members, expectation that the future successor to the chairman will be a family member
Daily and Near (2000)	Ownership Management Governance	Participation in major operational decisions, leadership succession plans influenced by family members
Gomez-Mejia et al. (2001)	Ownership	Owner and publisher surnames
Schulze et al. (2001)	Ownership	Two or more family members with the same surname within the company
McConaughy, Matthews, and	Ownership	Percentage ownership

Fialko (2001)		
Faccio, Lang, and Young (2001)	Ownership Governance	Amount of voting power and capital controlled by the largest family
Astrachan et al. (2002)	Ownership Management Governance or Succession control	Percentage ownership, participation in the management and control of the company, family influence on experience and culture (F-PEC).
Chrisman, Chua, and Steier (2005)	Ownership Management Succession	Percentage ownership, family participation in the business, and intention of succession
Anderson and Reef (2003)	Ownership Governance	Fractional equity interest of the founding family or the presence of family members in management
Zahra (2003)	Ownership Management	Percentage of shares, family participation in the operations of the business
Cronqvist and Nilsson (2003)	Ownership Governance	Controlling interest (% of total voting rights)
Lee (2004)	Ownership Management Governance Succession	Single controlling family, family members active in senior management, family involved (2 generations)
Chua, Chrisman, and Chang (2004)	Ownership Management Governance Succession	Percentage ownership by family members, number of managers who are family members, expectation that the future chairman will be a family member
Chrisman et al. (2004)	Ownership Management Succession	Percentage family ownership, number of family members involved in management, family member as successor
Yammeesri and Lodh (2004)	Ownership	Majority shareholders
Klein et al. (2005)	Ownership Management Governance or Succession control	Percentage ownership, participation in management, control of the company, and family influence on experience and culture (F-PEC)
Jaskiewicz, González, Menéndez, and Schiereck (2005)	Ownership Governance	Percentage participation, participation in management, and family influence on power, experience, and culture (F-PEC)
Ng (2005)	Ownership Management	Percentage ownership of the executive

Chrisman et al. (2005)	Ownership Management Governance Succession	Power, experience, and culture (F-PEC)
Fernández and Nieto (2005)	Ownership Management Governance	Percentage family ownership, family members in management
Cliff and Jennings (2005)	Ownership Management Governance or Succession control	Family participation through power, experience, and culture (F-PEC)
Barontini and Caprio (2006)	Ownership Governance	Direct voting rights, rights to cash flow
Favero, Giglio, Honorati, and Panunzi (2006)	Ownership	The family is the largest shareholder
Maury (2006)	Ownership Management Governance	Voting rights (> 10%)
Lee (2006)	Ownership Management Governance Succession	Family founders or descendants hold shares in the company or are present on the board of directors.
Pérez-González (2006)	Management Succession	Family manager, new CEO was related by blood or marriage to: (a) the outgoing CEO; (b) the founder; or (c) a major shareholder.
Villalonga and Amit (2006)	Ownership Management Governance Succession	Founder or a member of their family, either by blood or marriage, is a director or shareholder.
Dyer (2006)	Ownership Management Governance	Percentage of ownership by the family or the number of family members in leadership or management positions.
Miller and LeBreton-Miller (2006)	Ownership Management Governance Succession	Family ownership (>30%), voting control (>20%), Family CEO, multiple generations in the business
Rutherford, Muse, and Oswald (2006)	Ownership	Two or more family members with the same last name.

Westhead and Howorth (2006)	Ownership	50% of shares owned by a single family, perception of the manager of a family-owned company.
Bennedsen et al. (2007)	Management Succession	Family manager, family succession
Chrisman, Chua, Kellermanns, and Chang (2007)	Ownership Management Governance Succession	Percentage of business ownership by family members, number of family managers, expectation that the successor to the chairman will be a family member.
Martínez, Stöhr, and Quiroga (2007)	Ownership	Family ownership (>50% family members on the board of directors).
Sraer and Thesmar (2007)	Ownership Governance	Founder or a family member is a blockholder of the company when the block represents more than 20% of the voting rights.
Naldi, Nordqvist, and Wiklund (2007)	Ownership Management	Percentage of family ownership and family members in senior management.
Braun and Sharma (2007)	Ownership	Percentage of family ownership.
López-Gracia and Sánchez-Andujar (2007)	Ownership	50% of the shares owned by one single family.
Miller et al. (2007)	Ownership Management Governance Succession	Family members are principal owners or managers (ownership level and voting control, management functions).
Chang et al. (2008)	Ownership Management Governance Succession	Percentage of ownership of the company by family members, the number of family members involved in management, the intention that the future chairman will be a family member.
Sciascia and Mazzola (2008)	Ownership Management	Percentage of family ownership and percentage of family members in senior management.
Allouche et al. (2008)	Ownership Management	Percentage of family ownership, family members in senior management.
Rutherford et al. (2008)	Ownership Management Governance Succession	Percentage of ownership, participation in management and control of the company, family influence on experience and culture (F-PEC).

Andrés (2008)	Ownership Governance	Family members hold more than 25% of the voting shares or are represented on the executive or supervisory board.
Silva and Majluf (2008)	Ownership Governance	Ownership concentration, family members on the board of directors.
Randøy et al. (2009)	Ownership Governance Management	Founder of family leadership and founding family ownership.
Oswald, Muse, and Rutherford (2009)	Ownership Management	Percentage of family ownership, family members in senior management.
Bjuggren and Palmberg (2010)	Ownership Governance	Controlling rights (>20% of total voting rights), and the family is the largest owner.
Kowalewski, Talavera, and Stetsyuk (2010)	Ownership Management Governance	Share of voting rights of the family, the manager, and the president are family members.
Holt et al. (2010)	Ownership Management Governance Succession	Family participation through Power, Experience, and Culture (F-PEC).
Minichilli et al. (2010)	Ownership Management	Family ownership, family manager.
Ibrahim and Samad (2011)	Ownership	Fraction of shareholding of all family members, including blood and family relations according to the law (>20%).
Sacristán-Navarro, Gómez-Ansón, and Cabeza-García (2011)	Ownership Governance	The largest owner is a family or whoever holds more than 10% of the voting rights.

Source: created by the author

Financial Management Variable. The operationalization of this variable followed the theoretical review carried out in Chapter 3 of the doctoral thesis of Molina (2017), with an adaptation of three of the six dimensions proposed by Vera (2012) in "Methodology for the analysis of financial management in small and medium-sized enterprises (SMEs)," which was the product of their doctoral thesis. This adaptation included changes in the questions and, mainly, in the measuring scale. This study uses a Likert scale to determine the degree to which financial management is performed in an organization.

Value Generation Variable. Empirical literature demonstrates that accounting-based measures are the most frequently used to measure value generation; thus, they are a reference for this research (Rutheford et al., 2008; Dyer, 2006; Chrisman et al., 2012). However, this study used EVA to measure value creation as an indicator of competitive advantage, thus being based on the concept of "familiness" (Minichilli et al., 2010; Rutherford et al., 2008). It is also because this value includes ROA compared to

the company's cost of capital since not only must ROA be generated within the business, but it must be higher than its cost of capital to be able to talk about optimal performance. Regarding the data required for calculating this indicator, these were obtained from analyzing each of the companies' balance sheets and income statements in the sample for the year 2015.

Reliability, validity, and objectivity of the survey

This study used the Cronbach[1] method to measure reliability, where the instruments require only a single version and application, and which shows whether the responses to the items of the instrument are consistent. The result for this study was 0.941, which indicates a remarkably high reliability of the instruments.

Validity is the degree to which an instrument measures the variable it seeks to measure. There can be different types of evidence: content validity, criterion validity, construct validity, and expert validity (Hernández et al., 2010).

- The instrument designed guarantees content validity, given the extensive theoretical review developed in Chapters 1, 2, 3, and 4 of Molina (2017), to ensure the mastery of the variables and adequately measure all its dimensions (Hernández et al., 2010).
- Expert validity was also used, since academics specialized[2] in financial management and family businesses and statisticians reviewed the instrument, providing valuable observations regarding the measurement scale initially proposed and the content of the instrument, which were taken into account in the final version of the survey to ensure that the measurement instrument measures the variable in question.
- Criterion validity is unnecessary because there is no known external measurement instrument or criterion that purports to measure this.
- For construct validity (attributes used to explain a phenomenon), it was necessary to use factor analysis, a multivariate statistical method used to determine the number and nature of a group of underlying constructs in a set of measurements. In this analysis, artificial variables (called factors) are generated from the original variables and must be interpreted in accordance with them. This method is useful and widely used to measure construct validity (Hernández et al., 2010; Peña, 2004). Items with low loads (below 0.5) on all

[1] See "Research methodology" by Hernández et al., 2010, p. 300-304. This measure is the most commonly used and the one that best suited this research.
[2] 5 experts in finance and family businesses and 5 in statistics

factors should be discarded from the scale because they do not measure what is of interest (they affect construct validity).

Objectivity refers to the degree to which the instrument is permeable to the influence of the biases and tendencies of the researchers who administer, score, and interpret it (Hernández et al., 2010). In this case, standardization in the survey application and the evaluation of its results guarantees objectivity; the same instructions and conditions were given to all respondents. Furthermore, personnel with experience in data collection administered the instrument, having participated in other research and being adequately trained in the use of the instrument and the area.

Data collection

Databases such as those of the Medellín Chamber of Commerce, the Economic Research Center of Fenalco Antioquia, and the "Commercial and Credit Manager" provided by the National University of Colombia were used as secondary information sources to obtain the financial information of the companies participating in the study and thus be able to calculate the EVA, the value indicator used in this research. The primary data collection technique used was the survey, through a questionnaire with close-ended questions called "Impact of family influence in the business on the financial management process and the generation of value" (Molina, 2017), which met all the requirements of reliability, validity, and objectivity. The information collected was provided by the person (employee, manager, or owner) in charge of managing the company's financial resources. When there were several people responsible for this activity, the most senior one was selected.

Measurement of variables

The seven components presented in Table 2 define the family influence variable (independent variable).

Table 2
Description of the "family influence" variable for the multiple regression

Variable	Explanation
P1	Family participation in the equity of the company
P2	Family participation in the board of directors of the company
P3	Family participation in the steering committee
P4	The current owner family aspires to remain the owner in the future
P5	The company manager is a member of the family with the largest ownership interest in the business
P6	Family participation in management positions
P7	Generation of the family that is part of the company

Source: created by the author

In this variable, the questions were measured with a ration scale, for example, the percentage of the family share in the company's equity. This scale had to be categorized and converted to Likert (ordinal scale) to calculate the canonical correlation in SPSS, as illustrated in Table 3:

Table 3
Categorization of the family influence variable

% participation (p)	Categorization	Interpretation
p<20%	1	Minimum participation
20%<=p<40%	2	Low participation
40%<=p<60%	3	Average participation
60%<=p<80%	4	High participation
80%<=p<=100%	5	Very high participation

Source: created by the author

Since the aim is to investigate the characteristics of the financial decision-making process of each company, the financial management variable has been schematized into the following components: financial planning, financial control, and financial parameters for short- and long-term decision-making. The components were divided into five dimensions: financial planning, financial control, investment decisions, financing decisions, and working capital management. This variable was measured using the Likert scale to determine the degree to which financial management is carried out in an organization. There were five response options or points on the scale, where 1 is that the process is not carried out and 5 is that it is carried out to a great extent.

Previous studies of family involvement in the business and financial performance or value generation have been based on market or accounting measures, whose results have been mixed. Some researchers have found positive, negative, and neutral relationships (Molina, Botero, & Montoya, 2017; Rutherford et al., 2008; Dyer, 2006; Schulze et al., 2003). This study used EVA as an indicator of competitive advantage to measure value generation.

Information processing: Statistical methodology

The questionnaire was administered to the sample in the period between February 9 and August 17, 1916. The data obtained through the designed instrument were coded in a matrix, analyzed through the execution of the SPSS program (Statistical Package for the social sciences), which was developed by the University of Chicago and is one of the most widely used in this type of research (Hernández et al., 2010). The following is a brief explanation of each of the analyses used to study the existing relationships between family influence in the business and its financial management processes and between family influence

and value generation. The study used canonical correlation analysis to measure the first relationship and multiple regression to measure the second relationship.

Canonical correlation analysis and multiple regression analysis

Canonical correlation analysis (CCA) or simply canonical analysis is one of the tools developed to study the relationships between two sets of variables. Multiple regression analysis measures the relationship between a set of variables called regressors and a response or dependent variable. Therefore, CCA is a generalization of the multiple regression model, which seeks to establish the relationship between a set of predictor variables and a set of response variables. With canonical correlation analysis, this study aims to determine the correlation between a linear combination of variables from one set and a linear combination of variables from another set. The strategy consists of returning to the classic case, where the correlation between pairs of variables is found, each of which is a combination of the variables of the respective sets (Díaz, 2002). The study uses the CCA to look for the linear combination U (measured by the first set of variables) and V (measured by the second set of variables), such that the correlation between U and V is as large as possible. These two variables are called canonical variables.

This study aims to determine whether the set of predictor variables "family influence in the business" affects or explains the set or response variables "financial management." It is worth mentioning that, in order to use optimal scaling in SPSS, the researcher must choose the scaling level of the variables before processing them. "…by subjecting a multivalent system to an optimal scaling process, the quantification of the categories is generated by transforming the variables. The type of transformations used to quantify a specific variable depends on the choice of the scaling level of that variable" (Correa, 2008, p. 33).

Each scaling level defines a family of allowable transformations. Linear transformations are for variables scaled at the numerical level, and monotonically ascending transformations are for variables scaled at the ordinal level. A linear transformation of variables consists of multiplying each of its values by a constant (weights). Then, the transformed values will be proportional to the original values. Consequently, when representing the original and transformed values on a Cartesian plane, these form a straight line.

In contrast to linear transformations, any transformation that generates transformed values that are not proportional to the original values is a non-linear transformation. Applying a non-linear transformation and plotting the original values against the transformed values on a Cartesian plane will not result in a straight line. Monotonically ascending transformations, applied when choosing the ordinal scaling level, are part of the non-linear transformations and are characterized by the fact that the order

statistics of the original variable coincide with the order statistics of the transformed variable (Correa, 2008). This study categorized all variables as ordinal; thus, SPSS, through OVERALS[3], performs a monotonically ascending transformation of the variables.

Abundant information, which will be described later, is obtained when estimating the canonical correlation between the different sets of variables. However, it is important to clarify that if there were a perfect relationship between the different components, the adjustment between the two sets of variables should be two because the study worked on two dimensions. When the value of the fit is close to two, it indicates that there is an adequate fit between the two sets of variables, that is, that there is a relationship between them, that the measurement scales were adequate, and that there was a good selection of these values. Therefore, before proceeding to calculate the canonical values, it is necessary to analyze the level of fit provided by SPSS.

In addition, it is essential to calculate intra-group correlations, i.e., to measure the level of correlation between the variables in each set to reduce statistical noise in the analysis.

Pearson correlation coefficient

It is a statistical test to analyze the relationship between two variables, symbolized by R. It relates the scores collected from one variable with the scores obtained for the other, with the same participants or cases (Hernández et al., 2010).

Linear regression

It is a statistical model to estimate the effect of one variable on another. It is associated with Pearson's R coefficient. It seeks to predict the scores of one variable by taking the scores of the other variable. The greater the correlation between the variables (covariation), the greater the predictive ability. The model considers one variable as independent and the other as dependent, which the researcher establishes through the theoretical framework (Hernández et al., 2010).

[3] In the doctoral thesis "Contributions to nonlinear multivariate analysis" by Professor Guillermo Correa Londoño, numeral 2.7, Overals or Nonlinear Canonical Correlation Analysis is formally defined

Inferential analysis for Pearson's R correlation coefficient

The correlation coefficient R can be seen as a numerical measure of how well a linear model represents the points of a scatter plot. However, the plot does not contain all possible points. R values can vary from sample to sample because R is calculated on a sample basis, which generates the R significance question: what is the probability that the random sample of points gives a strong correlation when the points in the population are not strongly correlated? (Nieves & Domínguez, 2009). This study uses ρ to represent the population parameter corresponding to R. With it, the significance of R will be treated through a hypothesis test of the ρ coefficient.

Ho: $\rho = 0$

H1: $\rho \neq 0$

The study used the Student t-test statistic to perform this test, for an α of 0.05. Therefore, if $p < 0.05$, Ho is rejected, and R is reliable or significant.

Results

Impact of family influence on the financial management process. Canonical correlation analysis

The variables were refined through the bivariate correlation analysis, whose exclusion criterion was "values of the sample correlation coefficient greater than 0.7 or less than -0.7 for two independent variables, it is a general rule that warns about potential multicollinearity problems" (Anderson, Sweeney, & Williams, 2012, p. 662). Then followed the canonical correlation analysis to determine the impact that family influence has on each dimension of Financial Management. Therefore, the reduction of highly correlated variables with others within the subset improved the conditions of multicollinearity.

Subsequently, the study proceeded to calculate the canonical variables for each pair of study variables, the product of weights and non-linear transformations obtained through the SPSS software, and evaluate the fit of the model to determine whether this canonical correlation technique fits the data evaluated. Table 4 below presents the resulting canonical equations for each pair and their respective fit.

Family influence vs. financial planning

$$U_{11} = -0.388X_1 - 0.265X_2 - 0.455X_3 + 0.792X_4 - 0.532X_5 - 0.430X_6 - 0.472X_7 \quad (1)$$

$$V_{11} = 0.692Y_1 + 0.369Y_2 - 0.598Y_3 - 0.108Y_4 - 0.183Y_5 - 0.049Y_6 + 0.219Y_7 - 0.005Y_8 + 0.105Y_9 - 0.978Y_{10} + 0.376Y_{11} - 0.128Y_{12} \quad (2)$$

Where:

Xi: are the transformed variables that comprise family influence, with i = 1, 2, … 7

Yi: are the transformed variables that comprise the financial planning dimension, with i = 1, 2, … 12

Family influence vs. financial control

$$U_{12} = 0.517X_1 + 0.692X_2 + 0.258X_3 - 0.585X_4 + 0.517X_5 + 0.141X_6 - 0.377X_7 \quad (3)$$

$$V_{12} = 0.114Y_1 - 0.39Y_2 + 0.554Y_3 - 0.07Y_4 + 0.546Y_5 - 0.357Y_6 - 0.042Y_7 - 0.001Y_8 - 0.446Y_9 - 0.239Y_{10} + 0.162Y_{11} - 0.36Y_{12} + 0.225Y_{13} - 0.332Y_{14} + 0.293Y_{15} + 0.093Y_{16} + 0.354Y_{17} - 0.178Y_{18} + 0.245Y_{19} + 0.373Y_{20} + 0.096Y_{21} - 0.0003Y_{22} \quad (4)$$

Where:

Xi: are the transformed variables that comprise family influence, with i = 1, 2, … 7

Yi: are the transformed variables that comprise the financial control dimension, with i = 1, 2, … 22

Family influence vs. investment decisions

$$U_{13} = -0.314X_1 + 0.186X_2 - 0.288X_3 + 0.288X_4 + 0.092X_5 + 0.645X_6 + 0.405X_7 \quad (5)$$

$$V_{13} = 0.21Y_1 - 0.953Y_2 + 0.659Y_3 + 0.405Y_4 - 0.634Y_5 + 0.231Y_6 - 0.113Y_7 - 0.456Y_8 + 0.28Y_9 + 0.1Y_{10} + 0.37Y_{11} + 0.259Y_{12} \quad (6)$$

Where:

Xi: are the transformed variables that comprise family influence, with i = 1, 2, … 7

Yi: are the transformed variables that comprise the investment decisions dimension, with i= 1, 2,…12

Family influence vs. financing decisions

$$U_{14} = 0.405X_1 + 0.115X_2 + 0.218X_3 + 0.601X_4 + 0.287X_5 - 0.319X_6 - 0.415X_7 \quad (7)$$

$$V_{14} = 0.369Y_1 - 0.6Y_2 + 0.392Y_3 - 0.595Y_4 + 0.116Y_5 + 0.05Y_6 - 0.121Y_7 + 0.166Y_8 - 0.241Y_9 - 0.296Y_{10} + 0.522Y_{11} - 0.075Y_{12} + 0.071Y_{13} + 0.302Y_{14} + 0.043Y_{15} - 0.139Y_{16} + 0.326Y_{17} - 0.162Y_{18} \quad (8)$$

Where:

Xi: are the transformed variables that comprise family influence, with i = 1, 2, … 7

Yi: are the transformed variables that comprise the investment decisions dimension, with i= 1, 2,…18

Family influence vs. working capital management

$$U_{15} = 0.006X_1 - 0.583X_2 - 0.229X_3 - 0.164X_4 - 0.258X_5 + 0.848X_6 - 0.018X_7 \quad (9)$$

$$V_{15} = -0.715Y_1 + 0.337Y_2 + 0.218Y_3 - 0.378Y_4 + 0.074Y_5 - 0.172Y_6 + 0.302Y_7 + 0.296Y_8 + 0.028Y_9 - 0.401Y_{10} + 0.218Y_{11} + 0.745Y_{12} - 0.293Y_{13} \quad (10)$$

Where:

Xi: are the transformed variables that comprise family influence, with i = 1, 2, … 7

Yi: are the transformed variables that comprise the investment decisions dimension, with i= 1, 2,…13

Table 4
Summary of analysis/level adjustment

Variables	Family influence	
	Adjustment	Loss of information
Financial planning	1.669	.331
Financial control	1.722	.278
Investment decisions	1.685	.315
Financing decisions	1.741	.259
Working capital management	1.636	.364

Source: created by the author with data obtained in SPSS

It can be concluded based on Table 4 that family influence in the business has a good fit with each of the dimensions of financial management, indicating that the selection of the scales for each variable was adequate, the canonical correlation model fitted the data correction, and the loss of information when doing the linear combination is small.

The above makes it possible to continue with the next step of this methodology, which consists of taking the canonical variables and performing the corresponding Pearson correlation analysis for each pair through linear regression, where family influence is the independent variable, and each dimension of financial management is a dependent variable. Furthermore, the coefficient of Determination R^2 was calculated to estimate how family influence in the business affects the dimensions of financial management, the results of which can be found in Table 5. Additionally, the hypothesis tests were performed to test the significance of R.

Table 5
Summary of correlation coefficients and coefficients of determination "family influence vs. financial management"

Independent variable	Dependent variables	R	R2
Family influence	Financial planning	0.687	0.473
	Financial control	0.671	0.45
	Investment decisions	0.695	0.483
	Financing decisions	0.778	0.606
	Working capital management	0.657	0.432

Source: created by the author based on results obtained in SPSS

Table 5 presents an average positive relationship (0.687) between family influence and financial planning. In addition, the coefficient of determination R^2 indicates that family influence explains 47.3% of the variation in the financial planning of a company, leaving a pending value (52.7%) to be explained with other study variables.

The above demonstrates that business planning also depends on other factors external to the family. It could be asserted that other relevant elements such as the professionalization of those in charge

of planning the business and its organizational culture have an influence. What prevails is the vision and future projections for the company.

There is also a mean positive relationship between family influence and the company's financial control (0.671), i.e., the first variable explains 45% of the financial control. It is logical to think that the greater the participation of the family in the business, the greater the control exercised by them; however, other types of elements explain 55% of the financial control. No matter how much effort family members make to control the business financially, there will be situations that are out of their hands; for example, ensuring that external managers make transparent use of confidential information for the business, that external factors such as competition and customers are considered within the indicators to be measured, and that they devote enough time to the planning of the company, as an essential step when managing it. Therefore, these variables will explain 55% of the financial control, a percentage that is not explained by family influence.

It is demonstrated that family influence in the business has a 0.695 impact on the investment decisions subdimension, i.e., there is a mean positive relationship between these groups of variables. The R^2 indicates that the first variable explains 48.3% of the second variable.

This study demonstrated that the use of financial tools for making investment decisions and for their subsequent evaluation is at a low mean level (rating between 2.01 and 3). Furthermore, it demonstrated that the tool most used by managers to make these types of decisions is their intuition and experience in the business, factors that do not depend on the owner family as such, but rather on the lack of financial education of the decision-makers. In the field work, it was noted that financial theory for investment decision-making, taught in universities, is little applied in most businesses. This element could help to explain the 51.7% that remains to understand the investment decisions subdimension fully.

It is possible to infer from Table 5 that there is a considerable positive relationship between family influence in the business and financing decision making since the correlation coefficient between these two variables is 0.778, and its level of explanation is 60.6%.

There are factors in this type of decision that the influence of the family cannot control. Examples are the offering of credit with easy payment terms by financial institutions for this type of business, as well as the lack of culture within the organizations for the use of financing alternatives that deviate from the traditional ones, such as loans and self-financing with the company’s resources. There is also very little use of tools for calculating and using the cost of equity and capital for decision making, which would lead one to think that this can be explained in part by the lack of financial education of decision-makers. These elements could explain the 39.4% of financing decisions that cannot be explained by family influence.

The correlation coefficient for the variables family influence and working capital management is 0.657, and the R^2 is 43.2%. The remaining 56.8% of the variable can be explained by external factors that affect this type of management and that very possibly are not influenced by the participation of the family in the business, such as the negotiating capacity with the supplier (dominant position of the latter), and certain market conditions that set the pattern of inventory, accounts receivable, and cash management, situations that sometimes lead to the insolvency of the business and affect its behavior. Furthermore, it is essential to know the management techniques that contribute to the efficient management of KT, a deficiency detected in the companies in the sample, most of which do not manage cash properly.

Significance tests were performed for all Rs, and since P was always less than 0.05 (α), it is inferred that there is sufficient evidence to reject the null hypothesis. Therefore, the correlation coefficients are significant and reliable.

Impact of family influence on value generation. Multiple regression analysis

A multiple regression analysis was necessary to estimate the correlation between the variables "family influence in the business" and "EVA." This analysis used the variables presented in Table 3, where P is the variables that comprise family influence (independent variables) and EVA is the dependent variable.

A Multiple Regression model was run using the "Backward" method to observe the significance of each independent variable P_i in the total relationship of the model. This method introduces all the variables initially and removes the less significant variables based on a P-value higher than 0.05. As a statistical criterion to remove non-significant variables from the model, the F-test was used with a significance level of 10 percent, leaving only P5 and P6 as significant variables, i.e., the family manager is a member of the family with the greatest participation in the ownership of the business and the participation of the family in management positions.

Table 6 presents the evolution of the correlation coefficient as the non-significant variables were removed. It also demonstrates that in the sixth iteration, the R was 0.425, which indicates a weak correlation close to the mean (Hernández et al., 2010, p. 312). Additionally, the corrected coefficient of determination R^2 indicates an explanation of EVA of only 15.3%. The above demonstrates that the regression model obtained from the relationship of EVA with the family influence in the business is not significant to predict the behavior of EVA since there remains 85% of the information of this variable that cannot be explained by the significant variables P5 and P6. This is a motivation to open an area of research focused on determining which other variables explain the 85% of the EVA behavior that could not be estimated in this model.

Table 6
Evolution of the Multiple Regression Correlation Coefficient, Family Influence variables vs. EVA

Model summary[g]						
Model		R	R squared	Corrected R squared	Standard error of the estimation	Durbin-Watson
dimen sion0	1	.455[a]	.207	.105	$5.041E8	
	2	.455[b]	.207	.121	$4.995E8	
	3	.454[c]	.206	.135	$4.955E8	
	4	.452[d]	.204	.148	$4.916E8	
	5	.447[e]	.199	.158	$4.888E8	
	6	.425[f]	.180	.153	$4.904E8	2.288

a. Predictive variables: (Constant), P7, P2, P1, P6, P3, P5, P4
b. Predictive variables: (Constant), P7, P2, P1, P6, P3, P5
c. Predictive variables: (Constant), P7, P2, P6, P3, P5
d. Predictive variables: (Constant), P2, P6, P3, P5
e. Predictive variables: (Constant), P2, P6, P5
f. Predictive variables: (Constant), P6, P5
g. Dependent variable: EVA

Source: created by the author based on results obtained in SPSS

Finally, it can be concluded based on the data in Table 7 that within the 15% explained by the resulting model in iteration 6 (adjusted R^2) that it is evident that variable P5 has an inverse effect on EVA, i.e. when the manager is part of the owner family, the value of EVA decreases. The opposite is the case with the effect of variable P6, which has a direct relationship with EVA; thus, it is beneficial for EVA if the owner family participates in the managerial positions of the business. The above makes it possible to infer that in family businesses, the presence of family members in management positions is advisable to increase the generation of value, with the caveat that the Manager should not be a member of the family.

Table 7
Coefficients of the significant model

Coefficients		
Model		Non-standardized coefficients B
6	(Constant)	-234706836.178
	P5	-323217875.220
	P6	567971401.176

Source: created by the author in SPSS

Conclusions

This study used an advanced multivariate statistical method, canonical correlation, to measure the impact of family influence on each of the dimensions of financial management. It found that family influence in the business has a positive impact at a medium level on four dimensions of financial management:

financial planning, financial control, investment decisions, and working capital management, giving them an explanation ranging from 42.3% to 47.3%. Financing decisions are the dimension that has the greatest impact on family influence since this variable explains 60.6% of this type of decision, and there is a considerable correlation between them.

Additionally, this study used multiple regression to measure the impact of family influence on value generation. It found that the impact caused by family influence on EVA is positive but weak, and its explanation of the variable is only 15.3%. It is important to highlight that, according to these results, the presence of family members in management positions is advisable to increase the generation of value, with the caveat that the Manager should not be a family member.

This study found that most companies in the textile and apparel sector in Medellín and its metropolitan area do not generate economic value for their investors; on the contrary, they destroy it. This is contrary to the findings of different authors such as Santana and Cabrera, 2001; McConaughy et al., 2001; Miller and Le Breton, 2006; Anderson and Reeb, 2003; Barontini and Caprio, 2006; Maury, 2006; Lee, 2006; Chrisman, Chua, Kellermanns, and Chang, 2007; Martínez, Stohr, and Quiroga, 2007; Sraer and Thesmar, 2007; Silva and Majluf, 2008; Andrés, 2008; Allouche, Amann, Jaussaud, and Kurashina, 2008; Randøy, Dibrell, and Craig; 2009; Bjuggren and Palmberg, 2010; Esparza et al., 2010; González et al., 2012. The foregoing point out in their studies that family businesses, because they have favorable distinctive characteristics and concentrated ownership and management, have lower agency costs between owners and agents, thus obtaining superior financial performance.

The above can be explained by the fact that in the Colombian context and in Latin American economies in general, due to their idiosyncrasy, in addition to not having the conditions for agency theory between agent and owner to be fulfilled, the companies do not possess some of the characteristics described in previous studies carried out in other contexts, such as: family members make better investment and dividend distribution decisions; they have better motivations and economic incentives for managers and owners and lower levels of contractual costs (Kotey, 2005).

The results of this study seem to reinforce the findings of authors such as Westhead and Howorth, 2006; Sacristán, Gómez, and Cabeza, 2011; Schulze, Lubatkin, and Dino, 2003; Jaskiewicz, González, Menéndez, and Schiereck, 2005; Minichilli, Corbetta, and MacMillan, 2010; Chrisman, Chua, and Litz, 2004; Braun and Sharma, 2007; Laitinen, 2008; Miller, Le Breton, Lester, and Cannella, 2007. These authors claim that there is no difference in the financial performance of family and non-family businesses since ownership concentration and manager type do not directly affect performance. Inefficiencies generated by families balance the results, and while agency costs between owners and agents are diminished, other agency costs are increased. Moreover, the logic of value creation in family businesses differs from that of non-family businesses.

Future research in this field should focus on those studies that resolve some of the limitations of this study, such as including metric analysis of the review by countries or regions where the research is carried out, by languages, by years or by periods of publication, among other statistical data that may be of interest to have a complete overview of this type of organization and understand their trends. In addition, consolidated empirical analyses should be carried out that recognize the characteristics of family businesses according to other variables, such as the size of the companies, comparisons between industries, and the generation of new and different financial indicators that account for the potential of family businesses.

Other fundamental elements to consider in the analysis of financial decisions are environmental conditions and the professional training of the decision-makers. It is suggested that the higher the academic background and knowledge of the market, the better the level of management in these companies. However, since there is no empirical evidence in this regard, this relationship could be a future area of research. New academic proposals help enrich the literature on these companies, given their complexity and changing environment.

It is recommended to develop research that identifies the other factors that explain the dimensions of financial management and explain in depth the generation of value in these organizations, not only considering the accounting and financial variables, but also the conception that these organizations have of this variable.

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