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Summary n. 2/2022

Editorial

*Salvatore Esposito De Falco**

No abstract is available for this article

This issue is a continuation of Special Issue n.1/2022 on the relationship between sustainability and longevity in the family business. In this issue the authors analyzed the sustainability applied to firms, include family business.

The topic of sustainability, in part, rise versus a new humanistic vision to change the relationships firms-environmental, in which the firm is no longer influenced by the environment, but is oriented towards respect for all stakeholders.

The sensitivity towards these issues is such that an ever-growing number of listed firms is starting to put the vote on sustainability policies among the items on the agenda of the shareholders' meetings. An example are the so-called strategies of Say on Climate, which involve the main stakeholders of the firms, in particular institutional investors, who see compliance with the principles of environmental sustainability, not only as a social duty, but also as a determining factor for the creation of value in the medium-long term (Davi, 2022, 30).

All of this is confirmed in the recent Shareholder Rights Directive which, by amending and integrating Directive 2007/36/EC, stands alongside the shareholders and encourages their long-term control of the firm's sustainable activities. In this regard, the Business Roundtable should be mentioned with which, in 2019, 180 CEOs signed a document for the birth of sustainable capitalism.

Despite these undeniable trends, the literature still shows perplexities; e.g., Bebchuk & Tallarita (2022) believe that the vast majority of firms (84%) do not include the interests of stakeholders in the corporate purpose; likewise Apple, while orienting its governance guidelines towards sustainability,

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declares that: "The Board assures that the long-term interests of the shareholders are being served", without mentioning the interests of the stakeholders.

Part of literature, instead, introduced the concept of greenwashing strategy[1] (D'Angerio, 2022, 32-36; Kurnaz, 2021, 72-88): they argue that nothing substantial is changing in the firms. In fact, it is difficult to establish with certainty whether the firm speaks more and more often of sustainability because it believes in it or because it intends to appear in a certain way for convenience. The most critical therefore reveal a trade-off between utility and necessity, in which ethics, in absolute value, is not viable for the firm, except as a utilitarian ethics.

In my opinion, however, the phenomenon of industrial humanism (Marroni, 2022) - constituting the true strategic lever of the modern firm through which to consolidate the future of the economy with new parameters - has always been present in the Italian culture entrepreneurial. Just think of the extraordinary experience of Olivetti, in search of a factory on a human scale, or the Ferrero village for employees and family members, built in the 1950s (Esposito De Falco, 2012, 160-177).

Adriano Olivetti's lesson, in particular, was already very clear in the Fifties, when he stated that producing well-being, culture and beauty in the end does not exclude economic convenience, since the sustainable firm will thus gain in terms of values in the financial markets and in banking relationships (greater credit and/or less expensive debt).

All of this entails "a modernization of the traditional capitalist model which can translate into less shareholder capitalism and more participatory capitalism" (Serafeim, 2022). For this reason, there is more and more talk of corporate purpose as a lever of differentiation of the corporate brand compared to the competition.

In short, the Italian business world could be better than what is represented in the mass media. According to Calabrò (2022): "(...) the perception of public opinion is that the word "firm" is linked to the words business, speculation, exploitation, instead it should be accompanied by inclusion, sustainability, widespread wealth, welfare, work, innovation".

Therefore, a new inclusive humanism is needed, which values man, the person, more than the machine. This was also supported by Carlo Bonomi, President of Confindustria, at the Second Sustainability Forum, hoping for a more inclusive and sustainable corporate culture. Archbishop Dario Edoardo

[1] According to the European Commission, greenwashing means: "the practice of suggesting or giving the impression - in the context of commercial communication, marketing or advertising - that a product or service has a positive impact or is devoid of negative impact on the environment, when in reality this is not the case".

Viganò reinforces this statement by saying that the economic system will not be able to provide effective answers until it places man in the middle of the firm.

It is precisely through these explanatory keys of interpretation that the objectives of sustainability must be declined, whether they are economic, social and/or environmental. Sustainability goals shouldn't be just a marketing slogan; on the contrary, they must constitute the only possible dimension to continue to grow.

Having said that, the papers in this issue fall within the sphere of corporate sustainability, with some focus on financial sustainability.

Gallucci, Tipaldi and Santulli (Coming back to life: how business families revitalize "dead money" through family foundations) present an interesting sample survey (including 100 family foundations) which shows how entrepreneurial families revitalize "dead money" through family foundations, investing them in different sources of income (shares, bonds, liquidity) and managing, at the same time, to remain committed to philanthropy and to improve one's own reputation and that of one's companies. Ultimately, it is a clear example of success in achieving an objective of economic and social sustainability.

The contribution by **Nevi, Monsurrò, Dezi and Gregori** (Longevity Family Firm and Innovation: a matter of communication?) analyzes the relationship between longevity family firms and innovation, demonstrating how these firms, while remaining tied to tradition, manage to innovate. With a view to sustainability, these firms consider it important to communicate their innovations, both internally (to strengthen and share the corporate mission and vision), and externally (to confirm the quality of the products and the ability to satisfy the market to the main stakeholders). Furthermore, it is underlined that communication of product innovation prevails rather than of process or organisation.

Cerquetti, Montella and Sardanelli (Corporate museums as heritage vehicles: a comparative analysis between family and non-family businesses) address the issues of corporate sustainability by noting how, often, family businesses, more than non-family ones, adopt strategies of heritage marketing to communicate the corporate purpose, identified in the corporate history and identity. Specifically, it explores the use of a corporate museum to foster understanding and appreciation of the firm and its products. From this point of view, the identity values underlying the establishment of corporate museums are different, varying between family businesses and between these and non-family businesses.

The most frequent mistakes made by family firms during the generational transition are examined in depth in the contribution by **Alvino, Pisani and**

Pisano (Corporate Governance and generational succession in family firms: the M.A.P.E.I. S.p.A. case study), until a series of recurring practices are identified they can make generational succession more or less effective, avoiding the most common critical issues. The contribution identifies concrete replicable models for firms, classified according to company size, corporate and governance structure, which would allow for a sustainable, shared and non-conflictual generational transition.

De Nichilo (Audit Implosion in European Affairs: How to Govern the Dimension and Development of the European Paying Agencies? The Argea Case: a Qualitative Research of Audit Loops and Restatement) focuses instead on the importance of the accounting valuations of firms for the their social and economic credibility. Accounting information has a strong political significance and audit failure cases demonstrate that current valuation standards are not yet effective as the personal opinions of the evaluators still weigh heavily in financial audit procedures. The risk of loss of credibility thus extends not only to the firms, but to the same accountant and financial auditors and to all the players in the corporate accounting control process.

Coscia (Board gender diversity and family firms' corporate environmental responsibility: does "critical mass" matter?) addresses a typical corporate sustainability problem and presents a study on the impact of gender diversity on the Board and its ability to promote environmentally responsible policies. The author carries out a sample analysis focused on 171 family businesses and identifies a critical threshold for the proportion of women on boards (about 30%) beyond which the environmental commitment of family businesses becomes increasingly evident.

The empirical evidence confirms the results of the literature review, providing various and interesting insights for policy makers and the business and economic world, regarding the positive correlation between social inclusion objectives, environmental performance and corporate socio-emotional objectives. Finally, it should be underlined that Boards more inclined towards environmental policies are more in favor of social inclusion and the presence of women on Boards.

Finally, **Barile, La Sala and Bianco** (Management between crises and emergencies. Toward an "absential" approach) address a fundamental topic for the managerial decision-making process: the uncertainty and unpredictability of the results deriving from business decisions, as well as the complexity of the influence of the interactions of economic, political and social environments on business decisions. To this end, the authors propose a new approach to the decision-making process, based on precise mathematical demonstrations of the influence that the variety of information can have on the dynamics of human behavior and, more generally, on social phenomena.

The remarkable scientific and methodological rigor of this valuable study is such as to support (especially if further investigated) the decision-making process of individuals, organizations and social environments, directing it towards choices that are increasingly appropriate to the unpredictable dynamics of the current economic context.

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Coming back to life: how business families revitalize "dead money" through family foundations

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Abstract

This paper examines how business families use family foundations to revitalize "dead money" while increasing the reputation of the business family and its firms through charitable giving. The Wang & He (2018) model is applied from 2001 to 2019 to a sample of 100 US family foundations (two for each federal state) with about USD 1 million in assets. Results indicate that business families revitalize "dead money" through family foundations by investing it across different revenue sources, namely bonds, cash investments, and stocks, generating inflows in terms of dividends, interests, and net gains due to asset sales. However, family foundations hold much of these inflows as disposable net equity. Therefore, their administrative structure remains too basic, preventing operating margins from growing. Nonetheless, family foundations stay highly involved in charitable giving to do well to the reputation of the business family and its firms while doing good to society. Overall, we conclude that business families, through family foundations, partially succeed in revitalizing "dead money".

Keywords: dead money, family foundations, family wealth, financial health, longevity, long-lived family firms

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Sommario

L'articolo esamina come le famiglie imprenditoriali utilizzano le fondazioni di famiglia per rivitalizzare i "*dead money*" e migliorare la propria reputazione e quella delle proprie aziende tramite la filantropia. Si è applicato il modello di Wang & He (2018) per il periodo 2001-2019 ad un campione di 100 fondazioni di famiglia statunitensi (due per ogni stato federale) con *asset* pari a circa $ 1 Mln. I risultati suggeriscono che le famiglie imprenditoriali rivitalizzano i "*dead money*" attraverso le fondazioni di famiglia investendoli tra fonti di reddito differenziate (azioni, obbligazioni, liquidità), generando così ricavi in termini di dividendi, interessi e *net gains*. Tuttavia, le fondazioni di famiglia trattengono molti di questi ricavi sottoforma di patrimonio netto disponibile. Di conseguenza, la loro struttura amministrativa resta elementare, frenando così la crescita del margine operativo. Ciononostante, le fondazioni di famiglia restano impegnate nella filantropia, migliorando la propria reputazione e quella delle proprie aziende. In definitiva, si ritiene che le famiglie imprenditoriali riescano in parte a rivitalizzare i "*dead money*" attraverso le fondazioni di famiglia.

Parole chiave: dead money, fondazioni di famiglia, imprese familiari longeve, longevità, patrimonio familiare, salute finanziaria

1. Introduction

Family firms confront dramatic, disruptive, and threatening events differently (Smith, 2016). Although many fail in the endeavor (Ward, 1987), others survive by leveraging their entrepreneurial capabilities, creating transgenerational value, and becoming long-lived family firms (Zellweger *et al.*, 2012).

To date, long-lived family firms are grouped into business associations, such as "The Henokiens" (n.d.) and "I Centenari" (n.d.). Also, in the United States, where there is no one leading business association, long-lived family firms remain central to the economy, as companies like Ford (USD 127,1 billion revenues and 186.000 employees), Cargill (USD 114,6 billion revenues and 155.000 employees), and Comcast (USD 103,6 billion revenues and 168.000 employees) demonstrate (EY & University of St. Gallen 2021).

One of the main concerns of the business families owning long-lived family firms is the efficient allocation of the accumulated family wealth across generations (Rivo-López *et al.*, 2021). Business families fear that the substantial family wealth long-lived family firms have produced, now part of business families' estate, may sit idle and grow into a large pool of "dead money" (Carney *et al.*, 2014).

“Dead money” is a significant problem in the United States, where some of the wealthiest business families have lived for centuries (Dolan, 2020). Is there that the efficient allocation of “dead money” becomes a matter of private and public relevance. Business families have the right to dispose of “dead money” and the duty to give back some of it to society (Payton, 1990). For this reason, United States law allows business families to set up a tax-exempt charitable trust (IRS, 2022a) or a family foundation (IRS, 2021c) to transfer “dead money” only if they also support a charitable cause.

The extant literature examined the role of trusts in the transgenerational allocation of “dead money” (Carney *et al.*, 2014), but neglected family foundations (De Massis *et al.*, 2021). We argue that while providing tax benefits (Hayes & Adams, 1990), family foundations can also potentially solve business families’ “dead money” problem. This is because the family board of directors has complete control over the endowed “dead money” in a family foundation, which does not happen with trusts (Carney *et al.*, 2014). So, the business family (i.e., the family board of directors) has two options. First, it can choose to leave “dead money” as such, let them sit idle to reap the tax benefits in the short term, and be only marginally involved in charitable giving. Second, it can decide to revitalize “dead money”, grow them in a tax-advantaged environment in the long term, and use charitable giving on a large scale to increase its reputation and that of its firms while doing good to society. This second option is more in line with the primary goal of business families, namely the transgenerational and tax-efficient transfer of family wealth (Breton-Miller & Miller, 2018; Esposito De Falco & Vollero, 2015; Rivo-López *et al.*, 2021). Moreover, it allows the business family and its firms to benefit from society’s reputational rewards for those involved in philanthropy (Feliu & Botero, 2016).

To revitalize “dead money” and grow them in a tax-advantaged environment in the long term, family foundations must pursue longevity that, in financial terms, equates to long-term financial health. Over the years, the financial vulnerability literature has developed several models to assess the financial health of non-profit organizations. Still, the one that Tuckman & Chang (1991) developed for the US remains the most reliable one (Tevel *et al.*, 2015). According to Tuckman & Chang (1991), financially healthy non-profit organizations have highly diversified revenues, high administrative costs and operating margins, and high disposable net equity. Moreover, these financial health measures are strongly interconnected. For example, while providing services to their target populations (i.e., the recipients of charitable giving), non-profit organizations should invest contributions across different revenue sources (e.g., cash investments and corporate bonds and stocks). Then, it is beneficial to precautionary hold part of the inflows these revenue sources generate as disposable net equity. Finally, non-profit organizations must also reinvest a portion of disposable net equity to set up an administrative structure complex enough to manage multiple revenue streams that, hopefully, will cause operating margins to increase. The same considerations hold for family firms and their contributions (i.e., "dead money"), given that family foundations are, after all, only a category (albeit special) of private philanthropy (Gersick, 1990).

Recently, Wang & He (2018) relied on the financial health measures of Tuckman & Chang (1991) to develop a model that allows classifying foundations based on four financial health intervals. Compared to Tuckman & Chang (1991), the Wang & He (2018) model makes it possible to capture the less evident shifts in the financial health of foundations. Thus, we deem it an innovative yet sufficiently reliable model.

Therefore, this paper examines how business families use family foundations to revitalize "dead money" while increasing the reputation of the business family and its firms through charitable giving. Thus, we apply the Wang & He (2018) model from 2001 to 2019 to a sample of 100 US family foundations (two for each federal state) with about USD 1 million in assets, the most representative group of US family foundations (Forbes, 2019).

Results indicate that business families revitalize "dead money" through family foundations by investing it across different revenue sources, namely bonds, cash investments, and stocks, generating inflows in terms of dividends, interests, and net gains due to asset sales. However, family foundations hold much of these inflows as disposable net equity. Therefore, their administrative structure remains too basic, preventing operating margins from growing. Nonetheless, family foundations stay highly involved in charitable giving to do well to the reputation of the business family and its firms while doing good to society. Furthermore, the Mann–Whitney U test indicated that the median health score computed using both the book value and the fair value of assets was higher for family foundations with a large board (11 instead of 10).

Overall, we conclude that business families, through family foundations, partially succeed in revitalizing "dead money". Furthermore, we show that using the fair value instead of the book value of assets in the Wang & He (2018) model causes a shift in the financial health status of family foundations in 10 years on 19.

2. Literature review

2.1. Which tax benefits do family foundations grant?

There are two types of foundations in the US: private and public foundations. Both are tax-exempt organizations under section 501(c)(3) of the Internal Revenue Code (IRS, 2022b). The donations made to 501(c)(3) organizations are tax-deductible. While public foundations receive contributions from several sources, such as the public, private foundations receive them only from a single source (IRS, 2021b). Thus, family foundations are private foundations whose contributions come from a business family.

The business family members can endow the family foundation with "dead money" and get a tax deduction as high as the 30% of the donor's adjusted gross income (AGI). Moreover, the yearly tax deductions higher than 30% of the donor's AGI can be carried forward up to five years (Foundation Source, 2022b). Furthermore, the "dead money" endowed is excluded from the donor's estate (i.e., their net worth in terms of properties held at a given time) so that no federal tax is due. Last, family foundations can hire and pay staff, family members included. Overall, family foundations allow business families to reap several tax benefits on the "dead money" endowed (Foundation Source, 2022a).

2.2. Family foundations and longevity

One strand of the current literature on longevity examines how business families can transfer "dead money" across generations (Carr *et al.*, 2016). For example, in the United States, the law allows business families to set up a tax-exempt charitable trust (IRS, 2022a) or a family foundation (IRS, 2021c) to transfer "dead money" only if they also support a charitable cause. To date, scholars examined the role of trusts in the transgenerational allocation of the "dead money" (Carney *et al.*, 2014), but neglected family foundations (De Massis *et al.*, 2021).

On the other hand, the literature on family foundations discussed the tax savings a business family gets when it sets up a family foundation (Hayes & Adams, 1990) and the benefits of having a family board of directors controlling endowments (Danco & Ward, 1990). Other commentaries remarked how the focus of a family foundation on the tax-efficient allocation of the "dead money" is an imprint of the founder (Payton, 1990). However, this is true if the motto of "he who has the gold rules" holds. In other words, the modes of managing endowments change when second-generation family members, through the senior or the adjunct family board of directors (Hansen, 1990), have a say in the charitable giving and investment decisions (Gersick *et al.*, 1990).

Overall, the extant literature acknowledged that business families can: (i) set up a tax-exempt family foundation to transfer "dead money" across generations; (ii) get significant tax benefits in doing so; (iii) retain control of "dead money" through the family board of directors.

However, it is unclear how business families can use family foundations to revitalize "dead money" and grow them in a tax-advantaged environment while increasing the reputation of the business family and its firms through charitable giving.

Therefore, we attempt to fill this knowledge gap by assessing the financial health of 100 US family foundations (two for each federal state) from 2001 to 2019.

3. Methodology

We use the Wang & He (2018) model, which is based on that of Tuckman & Chang (1991), to assess the financial health of 100 US family foundations (two for each federal state) from 2001 to 2019. The Wang & He (2018) model uses four financial health measures, named DIVERS, ADMIN, MARGIN, and EQUITY (Tuckman & Chang, 1991), as inputs to calculate a foundation's yearly financial health score. Table 1 shows how we calculate DIVERS, ADMIN, MARGIN, and EQUITY.

Tab. 1 - *Financial health measures*

Measure	*Name*	*Formula*
Revenue diversification	DIVERS	$\sum \frac{(\text{Revenue source}_i)^2}{\text{Total revenue}}$
Administrative cost ratio	ADMIN	$\frac{\text{Administrative expenses}}{\text{Total expenses}}$
Operating margin	MARGIN	$\frac{\text{Total revenue} - \text{Total expenses}}{\text{Total expenses}}$
Adequacy of equity	EQUITY	$\frac{\text{Net assets}}{\text{Total revenue}}$

The four financial health measures are to interpret as follows (Tuckman & Chang, 1991):

- DIVERS measures how much a family foundation's revenue sources are diversified. Family foundations less dependent on any revenue stream are less financially vulnerable. The lower, the better.
- ADMIN measures how much a family foundation's expenses are administrative expenses. When revenues decline, family foundations with high administrative costs can reduce these instead of charitable contributions. The higher, the better.
- MARGIN measures the operating margin on which a family foundation can rely, especially during turbulent times. The higher, the better.
- EQUITY measures how much net equity a family foundation has. More equity means, albeit not exclusively, being able to grasp alternative investment opportunities when they arise. The higher, the better.

Unlike Wang & He (2018), we calculate the EQUITY measure using the book and fair value accounting data. We argue that, as family foundations grow larger and buy assets like corporate stocks, the fair value of these securities may differ markedly from their book value (IRS, 2021a).

As stated in the introduction, these financial health measures are strongly interconnected. To be financially healthy, family foundations should invest "dead money" across different revenue sources (e.g., cash investments and corporate bonds and stocks) while providing services to their target populations. Then, it is advisable to hold part of the inflows "dead money" generated as disposable net equity. Finally, non-profit organizations must reinvest a portion of disposable net equity to set up an administrative structure complex enough to manage multiple revenue streams that, hopefully, will cause operating margins to increase. By so doing, a family foundation can revitalize "dead money".

We use these four financial health measures to calculate a foundation's yearly financial health score. Each year, each financial health measure can fall into one of four ranges identified using its maximum, median, and minimum values and the third and first quartiles. Then, we assign some financial health points to each range (Wang & He, 2018). Therefore, each family foundation, each year, gets a financial health score equal to the sum of the financial health points it scored for each financial health measure.

We assign the following financial health points to DIVERS:

- If the value of DIVERS falls between the maximum value (included) and the third quartile (excluded), the family foundation scores 1 point;
- If the value of DIVERS falls between the third quartile (included) and the median (excluded), the family foundation scores 2 points;
- If the value of DIVERS falls between the median (included) and the first quartile (excluded), the family foundation scores 3 points;

- If the value of DIVERS falls between the first quartile (included) and the minimum value (included), the family foundation scores 4 points.

Conversely, we assign the following financial health points to ADMIN, MARGIN, and EQUITY:

- If the value of ADMIN, MARGIN, or EQUITY falls between the maximum value (included) and the third quartile (excluded), the family foundation scores 4 points;
- If the value of ADMIN, MARGIN, or EQUITY falls between the third quartile (included) and the median (excluded), the family foundation scores 3 points;
- If the value of ADMIN, MARGIN, or EQUITY falls between the median (included) and the first quartile (excluded), the family foundation scores 2 points;
- If the value of ADMIN, MARGIN, or EQUITY falls between the first quartile (included) and the minimum value (included), the family foundation scores 1 point.

Then we label a family foundation (Wang & He, 2018):

- "Very healthy", if its financial health equals 16, *with all the measures in the top quartile*;
- "Healthy", if its financial health score ranges from 8 to 15, *with no measure in the bottom quartile*;
- "Unhealthy", if its financial health score ranges from 5 to 13, *with one to three measures in the bottom quartile*;
- "Very unhealthy", if its financial health score equals 4, *with all the measures in the bottom quartile*.

3.1. Data collection

As per previous literature (Lungeanu & Ward, 2012), we collected the data for the analysis from family foundations' 990-PF forms. 990-PF forms are the yearly mandatory tax filings for private foundations and serve to report charitable activities and determine the tax due on investment income (IRS, 2022c). 990-PF forms are divided into several sections, but those relevant to our analysis were Part I and II. Part I details a family foundation's revenue and expenses. Part II shows the composition of a family foundation's assets and liabilities. 990-PF forms were collected from ProPublica, one of the leading data sources on US nonprofit organizations (Schwencke *et al.*, 2022). When the 990-PF forms were unavailable on ProPublica, the official database of the IRS was searched (IRS, 2020).

The final sample includes 76,183 observations from 2001 to 2019 on

100 US family foundations (two for each federal state) with about USD 1 million in assets, the most representative group of US private foundations (Forbes, 2019).

4. Results

4.1. Descriptive statistics

Table 2 presents the average values of revenues, expenses, disbursements, and assets.

Across all years, contributions and net gains due to asset sales remained the first and second most significant revenue sources. Dividends and interests from securities accounted for more than 10.00% of total revenues in all years except 2001 (6.43%), 2004 (8.33%), 2012 (4.53%), 2013 (3.79%), 2016 (4.28%), and 2017 (5.76%). Conversely, interests due on savings and temporary cash investments remained marginal, ranging from 0.20% to 8.81%. The difference between total revenues and total expenses remained significantly positive in 2012 (+153,046), 2013 (+204,221), and 2016 (+244,747), but not in 2008 (-42,122), 2009 (-41,037), 2010 (-21,955), 2015 (-43,782), and 2018 (-28,149).

The compensation of family members serving on the board of directors and the salaries and wages paid to employees remained a marginal expense. The first varied between 0.50% and 1.51% of disbursements, while the latter from 0.11% to 0.93%. Conversely, the fees paid to lawyers, accountants, and other professionals accounted, on average, for more than 5.00% of costs in 2001-2008 and 4.06% in 2009-2019. Relative to all expenses, taxes only ranged from 0.42% to 3.01%, while all other cost items remained negligible. In contrast, charitable contributions, gifts, and grants always exceeded 80.00% of expenses in all years.

The book value differed markedly from the fair value of assets. The fair value far exceeded the book value in almost all years, but particularly in 2012 (+80,784), 2013 (+154,575), 2014 (+139,701), 2015 (+107,423), 2016 (+189,897), 2017 (+264,840), 2018 (+291,123), and 2019 (+393,671), with the only exception of 2008 (-70,491).

4.2. Financial health

Tables 3 to 7 report the descriptive statistics relative to the DIVERS, ADMIN, MARGIN, EQUITY (book value), and EQUITY (fair value) measures.

Tab. 2 - *Descriptive statistics (amounts in USD)*

Average revenue	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Number of foundations	86	88	95	95	95	95	97	98	99	99
contributions, gifts, grants, etc. received	110.876	55.219	70.330	86.209	62.827	86.260	97.772	38.761	61.207	53.209
interest on savings and temporary cash investments	4.012	3.532	3.174	2.636	3.394	3.704	4.487	3.321	2.054	1.974
dividends and interest from securities	11.279	10.002	10.825	12.294	14.178	16.908	20.964	15.993	11.364	12.053
gross rents	41	146	140	384	516	491	267	277	562	663
net gain (or loss) from sale of assets	50.424	-26.129	-6.372	41.811	44.747	40.582	24.025	-9.990	-20.909	10.354
other income	-1.133	-2.673	2.454	4.323	3.546	2.971	5.623	1.936	745	1.017
total revenue	175.500	40.097	80.551	147.657	129.208	150.915	153.138	50.298	55.024	79.270
Average expenses and disbursements	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
compensation of officers, directors, trustees, etc.	684	535	802	1.240	1.290	909	1.194	1.326	1.109	971
other employee salaries and wages	460	557	645	544	229	647	877	861	848	869
pension plans, employee benefits	0	0	0	0	0	0	0	0	0	0
legal fees	945	397	475	280	175	150	240	282	187	195
accounting fees	1.169	1.223	1.702	1.570	1.597	1.703	1.872	1.983	2.027	1.904
other professional fees	2.552	2.721	2.665	2.431	3.008	3.476	3.229	2.656	1.982	2.399
interest	2	-45	-7	3	20	68	30	3	2	3
taxes	1.893	1.260	377	415	1.189	801	1.233	1.487	686	657
depreciation and depletion	81	229	281	336	344	348	301	354	346	369
occupancy	0	0	0	0	427	737	619	153	0	46
travel, conferences and meetings	86	439	73	276	559	221	668	236	564	91
printing and publications	113	51	203	230	12	3	11	78	195	14
other expenses	1.459	1.834	2.203	2.877	2.770	2.566	2.550	2.967	3.816	3.936
contributions, gifts, grants paid	53.432	54.909	65.623	71.732	81.959	83.495	93.646	80.035	84.299	89.772
total expenses and disbursements	62.876	64.108	75.043	81.934	93.578	95.123	106.471	92.420	96.061	101.225
Average assets	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
net assets (book value)	735.919	679.091	688.338	736.597	762.266	828.537	855.980	792.560	770.696	757.042
net assets (fair value)	772.834	675.456	766.402	840.414	846.536	950.671	982.338	722.069	792.241	826.034

Tab. 2 - *(continued)*

Average revenue	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Number of foundations	98	99	99	98	99	92	93	98	91
contributions, gifts, grants, etc. received	77.689	272.502	331.333	90.355	54.074	315.903	155.345	35.074	69.386
interest on savings and temporary cash investments	975	885	787	1.035	742	872	2.452	1.337	1.280
dividends and interest from securities	12.592	14.699	14.785	18.926	22.725	15.844	16.765	18.232	19.406
gross rents	693	693	757	671	633	683	937	969	1.034
net gain (or loss) from sale of assets	24.995	35.537	37.903	50.652	17.354	31.972	90.515	84.880	65.778
other income	2.961	505	4.086	1.914	1.227	4.871	25.005	569	1.795
total revenue	119.905	324.822	389.651	163.553	96.755	370.145	291.020	141.061	158.679
Average expenses and disbursements	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
compensation of officers, directors, trustees, etc.	925	938	929	964	931	979	1.933	1.726	2.000
other employee salaries and wages	867	834	869	685	557	399	586	1.241	153
pension plans, employee benefits	0	0	0	0	0	0	0	7.912	0
legal fees	233	137	244	303	219	96	187	255	212
accounting fees	1.913	2.023	2.138	1.875	2.153	1.911	2.085	2.315	2.451
other professional fees	2.501	2.621	3.638	4.261	4.266	4.708	3.894	3.891	3.851
interest	7	99	76	32	8	9	31	33	32
taxes	620	725	1.077	1.291	1.745	1.048	1.717	2.174	2.132
depreciation and depletion	349	366	336	333	379	370	400	376	403
occupancy	0	40	40	42	41	203	171	231	180
travel, conferences and meetings	100	126	136	97	84	153	136	218	692
printing and publications	12	211	1	1	0	0	0	0	0
other expenses	3.580	3.032	3.455	5.179	4.624	4.914	6.086	3.312	3.115
contributions, gifts, grants paid	95.120	160.623	172.491	136.209	125.532	110.608	204.722	153.358	128.113
total expenses and disbursements	106.226	171.776	185.430	151.273	140.538	125.398	221.949	169.210	143.334
Average assets	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
net assets (book value)	781.863	933.667	1.154.408	1.173.846	1.082.399	1.267.724	1.375.245	1.195.662	787.090
net assets (fair value)	819.055	1.014.451	1.308.984	1.313.547	1.189.823	1.457.622	1.640.086	1.486.785	1.180.762

Tab. 3 - *Key statistics of the DIVERS measure*

Year	Foundations	Mean	SD	Max	Third quartile	Median	First quartile	Min
2001	87	0,74	0,20	1,00	0,94	0,77	0,55	0,25
2002	88	0,73	0,21	1,00	0,93	0,73	0,57	0,31
2003	95	0,72	0,22	1,00	0,94	0,72	0,53	0,31
2004	95	0,69	0,22	1,00	0,91	0,65	0,50	0,34
2005	95	0,65	0,22	1,00	0,88	0,57	0,48	0,32
2006	95	0,64	0,21	1,00	0,80	0,56	0,49	0,34
2007	97	0,66	0,19	1,00	0,81	0,61	0,51	0,36
2008	98	0,65	0,20	1,00	0,81	0,59	0,49	0,32
2009	99	0,72	0,22	1,00	0,97	0,71	0,54	0,33
2010	99	0,69	0,22	1,00	0,92	0,63	0,51	0,31
2011	98	0,70	0,21	1,00	0,89	0,65	0,52	0,34
2012	99	0,70	0,20	1,00	0,90	0,63	0,53	0,34
2013	99	0,67	0,20	1,00	0,82	0,64	0,51	0,33
2014	98	0,64	0,19	1,00	0,77	0,58	0,49	0,31
2015	99	0,68	0,20	1,00	0,85	0,61	0,51	0,32
2016	92	0,68	0,19	1,00	0,85	0,64	0,51	0,37
2017	93	0,67	0,19	1,00	0,81	0,66	0,50	0,36
2018	98	0,65	0,19	1,00	0,77	0,58	0,52	0,36
2019	91	0,66	0,19	1,00	0,81	0,59	0,50	0,35

Tab. 4 - *Key statistics of the ADMIN measure.*

Year	Foundations	Mean	SD	Max	Third quartile	Median	First quartile	Min
2001	87	0,20	0,22	1,00	0,25	0,14	0,05	0,00
2002	88	0,22	0,27	1,00	0,26	0,12	0,03	0,00
2003	95	0,25	0,30	1,00	0,32	0,16	0,03	-0,01
2004	95	0,21	0,25	1,00	0,27	0,12	0,03	-0,03
2005	95	0,23	0,28	1,00	0,26	0,15	0,04	-0,09
2006	95	0,23	0,27	1,00	0,28	0,15	0,05	0,00
2007	97	0,23	0,24	1,00	0,28	0,16	0,06	0,00
2008	98	0,24	0,25	1,00	0,31	0,18	0,06	0,00
2009	99	0,23	0,27	1,00	0,26	0,14	0,06	0,00
2010	99	0,22	0,25	1,00	0,28	0,13	0,05	0,00
2011	98	0,19	0,21	1,00	0,24	0,13	0,05	0,00
2012	99	0,19	0,23	1,00	0,22	0,13	0,06	0,00
2013	99	0,17	0,17	1,00	0,21	0,14	0,06	0,00
2014	98	0,16	0,16	1,00	0,23	0,12	0,05	0,00
2015	99	0,18	0,18	1,00	0,23	0,15	0,06	0,00
2016	92	0,17	0,17	1,00	0,22	0,13	0,06	0,00
2017	93	0,17	0,17	1,00	0,23	0,13	0,06	0,00
2018	98	0,17	0,18	1,00	0,23	0,13	0,06	0,00
2019	91	0,19	0,18	1,00	0,24	0,14	0,07	0,00

Tab. 5 - *Key statistics of the MARGIN measure.*

Year	Foundations	Mean	SD	Max	Third quartile	Median	First quartile	Min
2001	86	0,60	2,14	3,81	0,99	0,96	0,76	-18,11
2002	88	1,02	4,16	37,58	1,02	0,97	0,67	-6,34
2003	95	-0,71	8,42	3,08	0,99	0,83	0,36	-76,73
2004	95	0,09	3,24	1,77	0,98	0,86	0,67	-26,78
2005	95	0,32	2,61	2,00	0,97	0,91	0,71	-18,35
2006	95	0,50	2,47	1,00	0,97	0,88	0,76	-22,88
2007	97	0,53	2,65	1,28	0,97	0,91	0,80	-24,96
2008	98	-0,45	7,77	10,64	1,00	0,92	0,71	-60,25
2009	99	-2,79	20,38	7,96	1,02	0,90	0,65	-130,17
2010	99	-4,41	43,82	39,98	0,98	0,87	0,61	-419,00
2011	98	0,80	1,08	10,62	0,95	0,86	0,58	-0,90
2012	99	-12,63	136,42	27,33	0,97	0,88	0,73	-1356,00
2013	99	0,61	6,08	46,64	0,95	0,83	0,59	-36,75
2014	98	0,67	0,74	1,00	0,96	0,85	0,66	-4,39
2015	99	0,44	4,90	33,70	0,95	0,84	0,55	-21,34
2016	92	0,70	1,08	6,10	0,96	0,83	0,60	-7,12
2017	93	-0,70	14,57	5,16	0,96	0,90	0,72	-139,55
2018	98	-10,81	113,80	2,40	0,95	0,83	0,61	-1125,86
2019	91	0,71	0,51	2,35	0,96	0,85	0,66	-2,07

Tab. 6 - *Key statistics of the EQUITY (book value) measure.*

Year	Foundations	Mean	SD	Max	Third quartile	Median	First quartile	Min
2001	86	26,39	134,54	1212,22	21,67	3,53	1,02	-112,71
2002	88	25,80	180,84	1430,55	27,20	3,62	-4,02	-777,15
2003	95	90,15	575,66	5599,12	42,04	16,63	2,25	-240,83
2004	95	37,54	77,95	476,16	30,30	11,44	3,39	-70,57
2005	95	31,64	95,14	780,87	26,02	13,40	4,17	-85,49
2006	95	19,16	51,63	482,41	16,76	9,54	4,70	0,14
2007	97	12,21	20,05	156,88	13,98	8,33	3,28	-5,28
2008	98	35,60	172,85	1369,95	20,66	8,37	0,12	-419,73
2009	99	136,88	782,45	7406,63	41,24	9,61	-1,82	-315,49
2010	99	104,04	977,75	9223,00	29,31	13,42	2,79	-2642,81
2011	98	28,38	74,09	626,44	27,33	14,37	4,57	-139,63
2012	99	23,93	200,65	1060,50	24,92	13,67	3,23	-1443,90
2013	99	86,82	453,31	3168,06	27,06	13,32	4,77	-1295,07
2014	98	63,76	405,08	4013,38	19,72	10,63	5,09	0,00
2015	99	112,47	792,97	7527,75	26,36	14,37	5,87	-1722,65
2016	92	19,60	94,93	646,80	28,84	13,48	3,13	-582,08
2017	93	141,31	1258,01	12139,15	18,67	7,93	4,71	-235,10
2018	98	19,63	59,73	319,72	22,66	11,01	5,46	-354,16
2019	91	15,82	25,49	146,34	18,80	10,51	5,50	-107,88

Tab. 7 - *Key statistics of the EQUITY (fair value) measure.*

Year	Foundations	Mean	SD	Max	Third quartile	Median	First quartile	Min
2001	86	26,65	140,95	1277,14	23,97	5,16	1,01	-109,82
2002	88	30,68	212,49	1802,18	27,02	4,18	-3,30	-726,88
2003	95	131,15	948,94	9254,82	42,59	18,81	2,38	-218,13
2004	95	40,09	79,60	476,16	31,80	13,94	4,16	-73,07
2005	95	33,07	95,92	780,87	27,68	15,73	4,16	-115,97
2006	95	21,44	51,86	482,41	20,59	12,05	5,26	0,00
2007	97	14,05	20,66	156,88	18,25	9,16	3,59	-5,18
2008	98	29,98	130,98	803,33	19,88	8,72	0,12	-376,73
2009	99	113,77	570,24	5102,66	45,40	12,00	-1,57	-369,19
2010	99	106,43	971,52	9223,00	34,41	14,05	3,36	-2405,53
2011	98	28,73	73,56	626,44	30,73	15,61	5,03	-166,45
2012	99	20,58	245,21	1060,50	29,32	15,58	3,53	-2000,92
2013	99	88,26	454,04	3168,06	35,47	17,48	6,56	-1359,08
2014	98	66,49	404,93	4013,38	24,96	13,29	6,35	0,00
2015	99	117,79	816,13	7527,75	32,21	16,82	7,26	-2181,22
2016	92	22,54	96,06	646,80	32,03	17,42	3,30	-587,73
2017	93	116,00	997,17	9619,00	21,50	10,35	5,95	-381,38
2018	98	21,77	57,37	255,31	26,15	12,31	6,50	-354,16
2019	91	20,92	30,28	162,02	26,50	13,86	7,51	-112,73

The mean value of DIVERS declined from 0,74 in 2001 to 0,66 in 2019, denoting that revenue has become more diversified. This trend encompassed all family foundations since mean and median values differ modestly. Corroborating this finding are also the differences between the third and first quartiles, which have become less significant from 2013 onwards.

Likewise, the mean value of ADMIN decreased from 0,20 in 2001 to 0,19 in 2019, implying that the administrative expenses that could be cut when needed are fewer. However, substantial differences exist in this case: ADMIN averages 0,25 for the third quartile and 0,05 for the bottom quartile.

Similarly, the median value of MARGIN dropped from 0,96 in 2001 to 0,85 in 2019, indicating that the operating margin on which to rely during turbulent times lowered. MARGIN, with few exceptions (e.g., 2012), experienced a decreasing trend from 2008 onwards.

Conversely, the median value of EQUITY (book value) increased from 3,53 in 2001 to 10,51 in 2019, suggesting that the disposable net equity increased. However, distinctions must be made again: EQUITY (book value) averages 25,45 for the third quartile and 3,06 for the bot-tom quartile.

Notably, EQUITY (fair value) makes differences more radical - the median value shifts from 5,16 in 2001 to 13,86 in 2019, while averages rise to 28,97 for the third quartile and 3,75 for the bottom quartile.

Tables 8 and 9 show the results of the Wang & He (2018) scoring methodology using EQUITY (book value) and EQUITY (fair value), respectively.

The mean health score calculated with EQUITY (book value) remained stable at around 9,99, with an average standard deviation of 0,01. However, since most family foundations had one to three measures in the bottom quartile, unhealthy family foundations outnumber healthy ones in all years.

However, using EQUITY (fair value) makes results remarkably diverse. Though the mean health score remained the same, several shifts occurred between quartiles, making unhealthy family foundations healthy and vice-versa. Several increases in the "unhealthy" group can be observed in 2014-2019.

Tab. 8 - *Scoring results (book value).*

EQUITY (book value)											
Year	**Foundations**	**Average health score**	**SD**	**Very healthy**		**Healthy**		**Unhealthy**		**Very unhealthy**	
2001	86	10,02	1,64	0,00	0,00%	21,00	24,42%	65,00	75,58%	0,00	0,00%
2002	88	10,00	1,70	0,00	0,00%	19,00	21,59%	69,00	78,41%	0,00	0,00%
2003	95	9,99	1,51	0,00	0,00%	30,00	31,58%	65,00	68,42%	0,00	0,00%
2004	95	9,99	1,61	0,00	0,00%	30,00	31,58%	65,00	68,42%	0,00	0,00%
2005	95	9,99	1,59	0,00	0,00%	33,00	34,74%	62,00	65,26%	0,00	0,00%
2006	95	9,99	1,60	0,00	0,00%	35,00	36,84%	60,00	63,16%	0,00	0,00%
2007	97	9,97	1,67	0,00	0,00%	35,00	36,08%	62,00	63,92%	0,00	0,00%
2008	98	10,00	1,51	0,00	0,00%	19,00	19,39%	79,00	80,61%	0,00	0,00%
2009	99	9,99	1,63	0,00	0,00%	24,00	24,24%	75,00	75,76%	0,00	0,00%
2010	99	9,99	1,66	0,00	0,00%	33,00	33,33%	66,00	66,67%	0,00	0,00%
2011	98	10,00	1,68	0,00	0,00%	31,00	31,63%	67,00	68,37%	0,00	0,00%
2012	99	9,99	1,62	0,00	0,00%	34,00	34,34%	65,00	65,66%	0,00	0,00%
2013	99	9,99	1,75	0,00	0,00%	36,00	36,36%	63,00	63,64%	0,00	0,00%
2014	98	10,00	1,87	0,00	0,00%	36,00	36,73%	62,00	63,27%	0,00	0,00%
2015	99	9,99	1,67	0,00	0,00%	38,00	38,38%	61,00	61,62%	0,00	0,00%
2016	92	10,00	1,84	0,00	0,00%	34,00	36,96%	58,00	63,04%	0,00	0,00%
2017	93	9,97	1,95	0,00	0,00%	34,00	36,56%	59,00	63,44%	0,00	0,00%
2018	98	10,00	1,72	0,00	0,00%	37,00	37,76%	61,00	62,24%	0,00	0,00%
2019	91	9,99	1,71	0,00	0,00%	32,00	35,16%	59,00	64,84%	0,00	0,00%

Tab. 9 - *Scoring results (fair value).*

EQUITY (fair value)											
Year	**Foundations**	**Average health score**	**SD**	**Very healthy**		**Healthy**		**Unhealthy**		**Very unhealthy**	
2001	86	10,02	1,65	0,00	0,00%	21,00	24,42%	65,00	75,58%	0,00	0,00%
2002	88	10,01	1,69	0,00	0,00%	18,00	20,45%	70,00	79,55%	0,00	0,00%
2003	95	9,99	1,51	0,00	0,00%	30,00	31,58%	65,00	68,42%	0,00	0,00%
2004	95	9,99	1,59	0,00	0,00%	32,00	33,68%	63,00	66,32%	0,00	0,00%
2005	95	9,99	1,54	0,00	0,00%	30,00	31,58%	65,00	68,42%	0,00	0,00%
2006	95	9,99	1,57	0,00	0,00%	35,00	36,84%	60,00	63,16%	0,00	0,00%
2007	97	9,97	1,63	0,00	0,00%	34,00	35,05%	63,00	64,95%	0,00	0,00%
2008	98	10,00	1,50	0,00	0,00%	19,00	19,39%	79,00	80,61%	0,00	0,00%
2009	99	9,99	1,63	0,00	0,00%	24,00	24,24%	75,00	75,76%	0,00	0,00%
2010	99	9,99	1,66	0,00	0,00%	33,00	33,33%	66,00	66,67%	0,00	0,00%
2011	98	10,00	1,73	0,00	0,00%	32,00	32,65%	66,00	67,35%	0,00	0,00%
2012	99	9,99	1,56	0,00	0,00%	34,00	34,34%	65,00	65,66%	0,00	0,00%
2013	99	9,99	1,71	0,00	0,00%	36,00	36,36%	63,00	63,64%	0,00	0,00%
2014	98	10,00	1,80	0,00	0,00%	34,00	34,69%	64,00	65,31%	0,00	0,00%
2015	99	9,99	1,64	0,00	0,00%	37,00	37,37%	62,00	62,63%	0,00	0,00%
2016	92	10,00	1,82	0,00	0,00%	33,00	35,87%	59,00	64,13%	0,00	0,00%
2017	93	9,97	1,91	0,00	0,00%	33,00	35,48%	60,00	64,52%	0,00	0,00%
2018	98	10,00	1,62	0,00	0,00%	33,00	33,67%	65,00	66,33%	0,00	0,00%
2019	91	9,99	1,68	0,00	0,00%	29,00	31,87%	62,00	68,13%	0,00	0,00%

4.3 Mann–Whitney U test

We collected data on the board size from 990-PF forms and classified family foundations as having a "small board" (less than ten directors) or a "large board" (more than ten directors) (Lungeanu & Ward, 2012). The yearly classification of family foundations based on the board size is reported in Table 10.

Tab. 10 - *The board size of sample family foundations.*

Year	**Large board**	**Small board**	**N**
2001	1	85	86
2002	1	87	88
2003	1	94	95
2004	1	94	95
2005	1	94	95
2006	1	94	95
2007	2	95	97
2008	2	96	98
2009	2	97	99
2010	2	97	99
2011	2	96	98
2012	2	97	99
2013	2	97	99
2014	3	95	98
2015	3	96	99
2016	3	89	92
2017	2	91	93
2018	2	96	98
2019	2	88	90
Total	**35**	**1778**	**1813**

Note: Data not available for one family foundation in 2019.

The results of the Shapiro-Wilk made us classify the distribution as non-normal, a finding later confirmed by the visual complement of the Q-Q plot. Thus, we performed the non-parametric Mann–Whitney U test to determine whether different groups of family foundations (i.e., those with a "small" and "large" board) had diverse median health scores.

The Mann–Whitney U test indicated that the median health score computed using both the book value and the fair value of assets was higher for family foundations with a large board (11 instead of 10) ($p < 0.01$), as per Figures 1 and 2.

Fig. 1 - *Box plot – Health scores computed using the book value of assets.*

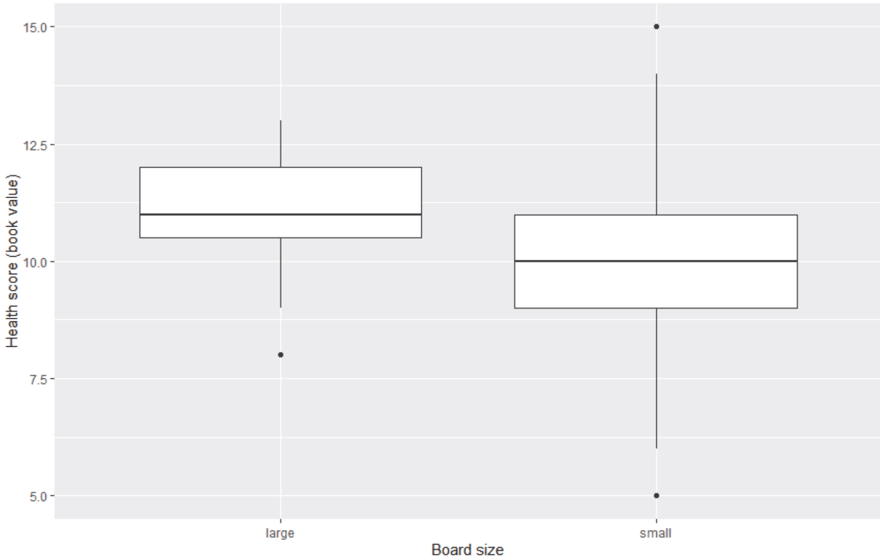
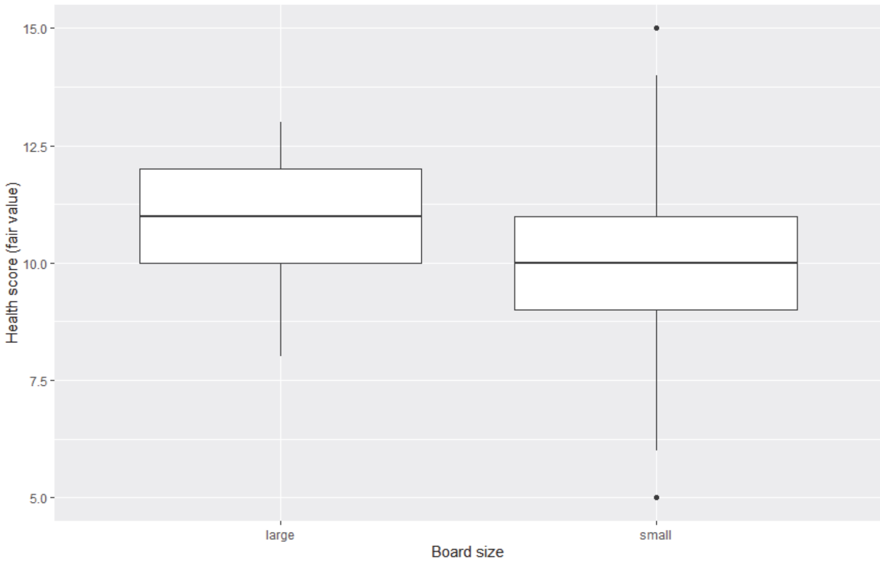


Fig. 2 - *Box plot – Health scores computed using the fair value of assets.*



Overall, we can conclude that family foundations with a larger board of directors consistently score one financial health point higher than their counterpart. However, as the left-hand box plot in Figure 2 suggests, they also experience more score variability when the fair value instead of the book value of assets is used.

5. Discussion

This paper examined how business families use family foundations to revitalize “dead money” while increasing the reputation of the business family and its firms through charitable giving. To do so, we applied the Wang & He (2018) model from 2001 to 2019 to a sample of 100 family foundations (two for each federal state) with about USD 1 million in assets, the most representative group of US family foundations (Forbes, 2019).

Results indicate that business families revitalize “dead money” through family foundations by investing it across different revenue sources, namely bonds, cash investments, and stocks, generating inflows in terms of dividends, interests, and net gains due to asset sales. However, family foundations hold much of these inflows as disposable net equity. Therefore, their administrative structure remains too basic, preventing operating margins from growing. We label as “unhealthy” more than two-thirds of family foundations each year for these reasons. Nonetheless, family foundations stay highly involved in charitable giving to do well to the reputation of the business family and its firms while doing good to society. Overall, we conclude that business families, through family foundations, partially succeed in revitalizing “dead money”.

This paper contributes to the extant literature on longevity because it shows that business families, through family foundations, can revitalize “dead money” and grow them in a tax-advantaged environment in the long term while using charitable giving to increase their reputation and that of their firms.

We believe this finding corroborates the intuition of Carney *et al.* (2014). They claimed that the “locus of control” of decisions on “dead money” must be sought not in the family firms but among the tax-efficient legal surrogates business families may use, such as family foundations and trusts. Moreover, the argument of Carney *et al.* (2014) is in line with that of Breton-Miller & Miller (2018), who asserted that business families deem the efficient transgenerational transfer of family wealth more important than any other endeavor, even their firms. Further substantiating Carney *et al.* (2014) is De Massis *et al.* (2021). They contend that business families administer family wealth through several family boundary organizations operating at the interface of the family and other systems, among which there are family foundations. Also, De Massis *et al.* (2021) suggest that the family foundation allows the business family to pursue its non-financial goals beyond their firm’s corporate social responsibility budget.

In this context, the limitations of this paper constitute promising avenues for future research. For example, we assumed that a business family transfers its “dead money” to the family foundation or trust. Nevertheless, a business family can establish a family foundation and a trust to transfer "dead money". If so, how does a business family decides to allocate "dead money" among different legal surrogates? Moreover, we said that "the business family" transfers its "dead money" to the family foundation. However, a business family comprises family members from different generations and with different roles. Then, which members of the business family transfer "dead money" to the family foundation? Finally, we posit that business families can increase their reputation and that of their firms via charitable giving through the family foundation. Unfortunately, we could not measure the reputational benefits of philanthropy (Feliu & Botero, 2016). Thus, how does the charitable giving of the family foundation improve the business family's reputation and, in turn, that of its firms? Moreover, is philanthropy incompatible with monetary returns, or are there ways in which a family foundation can "do good" financially while "doing well" to society (Gallucci *et al.*, 2021)?

This paper also contributes to the literature on the financial vulnerability of private foundations. We show that using the fair value instead of the book value of assets determines significant shifts in the financial health status of family foundations, causing them, in most cases, to move from the "healthy" to the "unhealthy" group. This issue is not trivial since the EQUITY measure is considered one of the most reliable predictors of financial distress among non-profits in the US (Hager, 2001). Therefore, we believe scholars should undertake further research to test whether our findings hold using a larger sample of family foundations and different methodologies to assess their financial health (e.g., Greenlee & Trussel, 2000; Trussel, 2002).

Furthermore, the Mann–Whitney U test indicated that the median health score computed using both the book value and the fair value of assets was higher for family foundations with a large board (11 instead of 10). This result opens up several future research avenues for corporate governance research in the nonprofit sector, particularly on the effects of board size and composition on financial distress (Garcia-Rodriguez *et al.*, 2021).

On a final note, two significant shortcomings remain unaddressed. First, the sample size is too small. As of 2021, there are 1,812,473 registered non-profits, and 7% of them are tax-exempt organizations under section 501(c)(3) of the Internal Revenue Code (Candid, 2021). However, family foundations have historically accounted for only half of all 501(c)(3) private foundations (Foundation Center, 2007), so this limitation becomes a bit less significant, albeit present.

Second, Wang & He (2018) use the financial health measures of Tuckman & Chang (1991), which are just some determinants of a non-profit organization's financial health (Prentice, 2016). Nonetheless, the Tuckman & Chang (1991) model still outperforms competing ones (Tevel *et al.*, 2015).

6. Conclusion

We applied the Wang & He (2018) model to a sample of 100 family foundations to provide evidence that business families partially revitalize "dead money" through family foundations by investing it across different revenue sources. However, family foundations hold much of the diversified revenue inflows as disposable net equity. Thus, their administrative structure remains too basic, preventing operating margins from growing. Furthermore, we show that using the fair value instead of the book value of assets in the Wang & He (2018) model causes significant shifts in the financial health status of family foundations.

Through methodological replication (Wang & He, 2018), in particular by examining a different sample (i.e., family foundations) from the same population (i.e., private foundations) (De Massis *et al.*, 2020), this study addresses a current problem in the scholarly literature on longevity: the efficient allocation of "dead money" across generations (Carney *et al.*, 2014).

Our sample size remains small, but this limitation affects much of the literature on family foundations to date (Irvin & Kavvas, 2019; Lungeanu & Ward, 2012). Nevertheless, more studies are needed to test the generalizability of the results obtained in the U.S. and worldwide.

Apart from that, several other questions remain unanswered. First, we suggested that business families use family foundations to revitalize "dead money" while increasing the reputation of the business family and its firms through charitable giving. However, it is still unclear how a better reputation affects the relationship with stakeholders, especially in the non-profit sector, where family foundations operate (Adinolfi & Esposito De Falco, 2014). Second, is it possible to identify analogies among business families that decide to use family foundations to revitalize "dead money"? Third, is it possible to identify financial health score drivers other than those of Wang & He (2018)? Fourth, are the choices a family foundation makes exclusively profit-driven? Last, can homogeneous clusters of family foundations be identified when studying wealth allocation strategies (Esposito De Falco *et al.*, 2020)?

The results of this paper also have one significant implication in terms of corporate governance research. Indeed, family foundations make the succession process smoother in two ways. First, they offer retiring entrepreneurs a new career path and the next generations of family members a chance to mature before leading the family business (Danco & Ward, 1990; Hansen, 1990). Second, they can give new life to otherwise "dead money" and favor the efficient allocation of family wealth (Carney *et al.*, 2014). However, these conditions imply that family governance can navigate the intricate tax landscape of private foundations while using the "dead money" endowed in a way that fosters longevity.

This paper also provided preliminary evidence on how board size affects the financial health of a family foundation. We believe this result opens several future research avenues for corporate governance research in the nonprofit sector, particularly on the effects of board size and composition on financial distress (Garcia-Rodriguez *et al.*, 2021).

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Longevity Family Firm and Innovation: a matter of communication?

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Sommario

Gli studi sulle imprese longeve e sull'innovazione sono limitati. Questo studio si propone di scoprire se e come le imprese familiari longeve sono in grado di comunicare l'innovazione e in grado di comunicare l'innovazione rispetto al loro essere tradizionali. Le nostre evidenze individuano come queste aziende adottano un approccio integrativo all'innovazione e la famiglia rimane più legata a temi della tradizione e della loro storia familiare, ma con un ruolo diverso e specifico nel rispetto delle peculiarità della singola impresa.

Parole chiave: Imprese longeve, Imprese familiari, Innovazione, Tradizione, Comunicazione strategica, Continuità aziendale

Abstract

Studies on longevity firms and innovation are limited. This study aims to discover if and how the longevity family firms are able to communicate innovation and able to communicate innovation concerning their being traditional. Our evidence individuated as longevity family firms adopt an integrative approach to innovation and the family remains more attached to tradition with a different role in the firms communication.

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Key words: Longevity firms, Family firms, Innovation, Tradition, Communication, Firms Continuity

1. Introduction

The enterprise as a viable system is called upon to survive and this is not possible if not adapting. In family firms this can happen with peaceful and balanced generational transitions or with tensions and struggles, periodic pruning of the family tree (Lambrecht, J., and Lievens, J., 2008), or profound restructuring of the entire ownership structure. Some businesses, however, seem to have found the elixir of life, persisting with success for centuries and in the face of changes and crises that are not unlike those of today: pandemics, famine, and conflicts. If apparently, such longevity could attract the attention of scholars, in reality, it was not so for a long time, and still today the studies on the subject of business longevity, with particular attention to family-run businesses, are numerous but not abundant, with gaps on several levels still to be filled, from the management of control governance and succession (Mitchell *et al.*, 2009), to the relationship between employees and family members (Woodfield *et al.*, 2021), to the links that family businesses have with the various stakeholders and with their territory which, for many of the longest-lived businesses, has constituted their purest wealth (Martinez-Sanchis *et al.*, 2022).

For companies to survive is not as easy as it used to be (Perez Fernandez and Raposo, 2007), in addition to the now complete globalization, the constant technological advances and the speed in the dissemination of information make it even more difficult to be able to continue to compete over time (Della Corte, 2013). Due to pandemic, in the last biennium family firms, despite a quiet optimism, in general, see a contraction in revenue. A KPMG study on 2.493 family firms in 75 countries refers that almost 69% in the world see a reduction, a negative impact that translates into cost-cutting measures and in a renegotiation of contracts in the second phase of the pandemic, a 76% access government support and about the 12% was forced to close business either permanently or temporary (TEP Project Global Consortium and KPMG Private Enterprise Global family business report: COVID-19 edition, 2021). If the survival rate to pandemic is not already predictable, due to the current situation so as the debt commitment for some family firms, the pandemic evidence the lack and gap where family firms need to prioritize for the next two years: expanding markets and clients; improving digital capabilities; introducing new products and/or services, increasing use of new technologies; rethink or adapt their business model (From trust to impact, PWC, 2021).

Today, the challenges for firms are more due to globalization and digitalization, but the objective is always one: continuity, survive and doing in the best way possible. But innovation is not an easy process and family firms are worried about innovation and technology (80%) but the 57% would invest in it (From trust to impact, PWC, 2021). The role of the family in guiding the firms in this fight to survive is fundamental to guaranteed survival over the centuries. If family firms have been investigated differently, however, it still demonstrates there are opportunities for other analyses and even more, as emerges from the analysis of the current literature, the application of the innovation's topic covers a truly marginal part of the studies present with recent attention only in recent years (Ahmad *et al.*, 2020) even more so for centenary companies is that of innovation.

According with the literature, innovation and how innovate, for companies is a matter of life or death (Bessant, 2019). Innovate enforce resilience, even more in the face of the challenges and opportunities opened up by covid-19 (Soluk *et al.*, 2021). The pandemic has raised new research questions: how and where these innovations have occurred (e.g., what level, sector), how and if they will be able to guarantee a competitive advantage even after the pandemic period (Shaker, 2021).

Studies on how long-lived family businesses are able to communicate innovation concerning their being traditional are even more limited. The goodness of this communication could be one of the ingredients of the long-life elixir. Thus, with the intention of contributing to the present theory on family firm innovation and tradition, so to enrich the knowledge on longevity family firms arise the follow research question: *how do centenary family businesses communicate innovation concerning their being traditional?*

In answering this question, it is used the methodology of the case studies presented in the third paragraph that follow the second in which was defined the theoretical background. The case study methodology is the most useful for understanding how these businesses communicate and thus answer the research question. Four long-lived companies in the textile sector associated with the Henokiens were selected but based on the selection criteria chosen, it could be possible to conduct the analysis of only two firms, the reasons are described in the fourth dedicated paragraph. The contribution aims to offer interesting practical and theoretical evaluations. As emerged from the analysis, exposed in the fifth paragraph dedicated to the discussion, the communication strategy in terms of innovation &

tradition most adopted by centenary companies is guided by adopting an approach of integrating tradition rather than segregation. Companies active on the market, respectful of their past, but that want to innovate will be able to consider adopting similar approach. These reflections on tradition and its relationship with the communication strategies of innovation broaden the knowledge on both associated fields.

2. Theoretical background on innovation and tradition

Innovation is a balance between tradition and renovation (Tàpies and Moya, 2012) if it is sure that firms need to innovate to remain strong and not lose their competitive advantage being able to balance these two thrusts is not at all easy. Contrary to what Tàpies and Moya, (2012) affirm, in literature, tradition and innovation have often been seen as opposites (Shoham, 2011) where the creative process requires the destruction of the past and habits. The two thrusts, preserving and modifying, are forced to collide so much that their coexistence is perceived as a paradox, where tradition cannot exist if there is innovation, change, and the past must give way to the future. Being able to manage and understand when to innovate and when to stay true to one's heritage is vital to avoid falling into decision-making paralysis (Ingram *et al.* 2016). Yet, the two thrusts feed themselves and as recognized in De Massis *et al.* (2016) and we can speak both of «innovation through tradition» and also, reversing the order, of «tradition through innovation» (Erdogan *et al.*, 2020, p.46). Innovation and tradition relate in a symbiotic way (Erdogan *et al.*, 2020), and through this coexistence, certainly not always easy but necessary, the company renews itself and seeks that resilience without which it cannot survive. Innovating and staying connected to the past is even more important for centenary companies although there are few studies to date.

Communication together with corporate behaviors and symbolism, is a defined expression of how companies manifest their identity to different stakeholders (Leuthesser and Kohli, 1997, Van Riel and Balmer, 1997), if behaviors and symbolisms are more difficult to identify and analyze, this is less valid for communication. As noted by Vangelisti (2004) it is through communication that families create mental models of family life and it is always through the act of communication that these models persist across generations, it is by understanding these models that it may be possible to better understand family businesses and their consistency over time. Studies on the communication of family firms have focused on communication on the identity and brand of the family firms (Botero *et al.* 2013, Craig *et al.*

2008, Dos Santos *et al.*, 2020, Nordqvist, 2005), on which characteristics of family firms, as dimension and income, could influence the way they communicate (Chen *et al.*, 2019), other studies focused on how family businesses communicate on social media (Obermayer *et al.*, 2022, Raman and Menon, 2018). One of the main studies on family business communication in relation to innovation is the study by Sciascia *et al.* (2013). They identify six patterns determined by orientation to either conversation or communication compliance in family businesses. However, the researchers do not investigate the role of family tradition. Micelotta and Raynard's (2011) studied the online communication of the oldest family business focusing on the different strategies that these companies adopt to communicate their corporate branding strategies. Researchers discover three different variations of communication: family preservation, family enrichment, and family subordination. If scholars have highlighted the importance of innovation and the role that tradition plays in these strategies in various points of the text, they have not investigated the possible relationship that exists between the two dimension. On the latter issue Erdogan *et al.* 2020, in their study of Turkish family businesses, answer the question: «How do family firms manage the paradox between tradition and innovation?» (p. 21). They found two approaches with which a company can react to innovation (Integration or Segregation) and similarly two approaches with which to manage tradition (Preservation or Revival). Considering present and absent studies, it is investigated if a macro-general approach to communication of innovation and tradition is adopted by longevity family firms. In doing this, the research question previously expressed was asked: how centenary family businesses communicate innovation concerning their being traditional. So far research has not considered how family firms communicate innovation to their consumers and none on centenary family firms. In answering this question, we started from the previous research question, as highlighted in the literature, family firms are very interested in communicating the involvement and legacy of the family both with analogic than with digital channels. These communications are also functional to communicate not only the legacy, but also to "craft mentality" (Hennart *et al.*, 2019) and quality (Ciravegna *et al.*, 2020, Pecot and Merchant, 2022).

3. Methodology

To answer our research question, we consider a qualitative approach as the most appropriate. We decide to conduct a multiple case analysis (Eisenhardt, 1989; Yin, 2003), this methodology is valid to apply to the studies of management because as referred by the Industrial Marketing Management it permits to «*fully adhere to a realistic paradigm and comprehend marketing phenomena*» (Editorial, 2021, 1) and frequently used in the analysis of firms and in particular for family firms (De Massis & Kotlar, 2014) but also fitting with studies that aim to explore the paradox between innovation and tradition (Vrontis *et al.*, 2016). In choosing what were the best firms to indagate we refer to "the Henokiens", an International Association of bicentenary family companies. The Association, born in 1981, could count on 50 different companies of different sectors all accomunated by longevity, an existence of almost 200 years; and permanence, a member of the family still manages the company or is a member of the board, where the family is the majority of shareholders (Le Henokiens: about). Companies all guided by solidity comes from a different sector, often changed and diversified over the years.

4. Case study selection

Most of the family businesses in their evolution became business families so we decide to indagate longevity family firms where the area of activity is still linked to the business from which they originated, their first entrepreneurial legacy. We decide to confine the analysis to only one sector, we choose the textile industry, the sector in past suffers from different challenges, from outsourcing practices to the arrival of big international companies, and is now attempted not only by low-cost labor but almost two big challenges, a first technological aimed for the new industry 4.0, and a second about sustainability in an industry that only in EU consumption is about from 2% to 10% of the environmental impact (European Parliament Think Tank, 2019). Hence, innovation in process, infrastructure, and mindsets is needed (Huang *et al.*, 2021). The textile industry globally suffers from slight contraction due to covid-19, but recovery and growth are already started and are coming to a pre-pandemic level (Euratext - European Apparel and Textile Confederation).

The family firms born and still active in the textile industry as their core business in The Henokiens are four: Vitale Barberis Canonico VBC -1663; Nakagawa Masashichi Shoten -1716; Fratelli Piacenza -1733; Lanificio G.B. Conte -1757. We confined the research to the website, social channels and communications issued by individual family firms, selecting only the channels owned by the chosen companies (Chang *et al.*, 2018), as also done previously in the study by Lock and Arujo (2020) confined to visual analysis, allows to stay focused on the company itself and thus better grasp the communication strategies and themes they want to communicate. From an initial review of these channels, it was deemed necessary to remove the company Lanificio G.B Conte and Nakagawa Masashichi Shoten from the investigation. The first, Lanificio G. B. Conte, was acquired in recent years by Marzotto Spa and no longer communicates, rather it is communicated from time to time through the channels of the purchasing company. The second, although born as a textile company, is now more linked to the theme of the craftman and communication on these channels confirms this. The not full relevance to the textile sector and its logic, seasonality of the collections and different production models, led to its exclusion from the sample. The analysis of the site was conducted by investigating both its structure and the contents present, during the analysis particular attention was paid to analysing the presence or absence of contents that refer to the concept of Innovation, the concept of Tradition and Heritage, and then to their symbiosis. In the analysis of social media, we took as reference the time span from 01/09/2019 to 22/04/2022, a time horizon allows us to grasp the main contemporary innovations that have recently influenced the entire sector and collect data on 6 different fashion seasons.

It was decided to focus on a single Instagram channel, since from the analysis of Facebook it emerged that the posts published are mostly the same for both social networks, thus avoiding unnecessary duplication we have only selected Instagram. For the selection of the data we used a web scraping software, once the different posts were identified we proceeded to first manual coding and then to coding via MAXQDA software (Bazeley, 2006) identifying the key variables of this study: Innovation - Tradition - Innovation & Tradition; we decided to add variables that emerged from the initial analysis most relevant for the individual brands and by inserting a variable that concerns the “Fabrics” typical for this sector, from fabrics to yarns to the complete collections, and specific code regard the firms analyzed: Journey for Piacenza Cashemere and Internationality for VBC. The code tree is present in appendix 1. In the next paragraph, we aim to discuss the results of the analysis of the single cases selected.

5. Discussion

5.1 Case study 1: The Vitale Barberis Canonico

Italy is well noted for its attitude toward fashion and the textile industry plays a key role in the economy, for Cassa Depositi e Prestiti the fashion supply is the 8,5% of the turnover in Italy’s manufacturing sector. Twenty centuries, as long as the Biella's tradition in the textile industry, the city is also noted as the "*wool city*". Vitale Barberis Canonico is the most ancient family. Over 350 years of activity have been able to manage all stages of wool processing. A success exported in 100 countries that absorb more than 80% of their production and built not only on a strict selection of the wool but also on technology adaptation and innovation using highly innovative machinery and technology, new fabrics in natural and innovative blends without, as mentioned on The Henokiens family profile, elegance, and quality. Today the company has more than 400 employees, 40 agents globally, and a revenue of 87,9 million euros (2020) in line with the industry slightly down due to covid-19. Surviving toward industrial revolution and two worlds war the company go public in 1970. The two brothers Alberto and Luciano perfectly balanced and coordinated. Alberto manages the technical and technological side and recently signed a contract with Comau (Stellantis group) and Iuvo (Sant 'Anna University's Spinoff) introducing wearable exoskeletons, devices that support operators in handling and lifting loads, relieving their impact on joints and muscles. Luciano, on the export side, is involved in conquering export markets. Both defend and make big the prestigious family firm. With the aim to answer our research question, we start analyzing the website and social media channels.

The family's website is very traditional and in line with the brand's slogan: "*The Italian Fabric of elegance since 1663*". The name of the family and the company stands out at the top, like a banner, under which the year of foundation, 1663, is shown. The site is available in several languages: Italian, English, French, Japanese, Chinese and Korean. In the opening, the protagonists are the fabrics produced with the detail of the family name. The short video with the production of fabrics tells of fabrics designed with passion, masterly woven, where therefore it is the know-how, "*heritage and utmost quality*" that guides the company. The social media profile of the brand is on Instagram and Facebook, as explained in the methodology section we study only Instagram. As for the VBC Instagram channel, it has a total of 97.3 thousand followers and 176 followed profiles, the caption of the profile is the same as the website "*The Italian fabric of elegance since 1663*" thus highlighting its longevity, making clear reference to made in Italy and plays with the word "fabric" of elegance. The Facebook profile, on the other hand, can count on 151,335 "likes" and 153,224 "followers".

Proceeding with the results Innovation in VBC is not communicated as much as in reality the company could and so also the role of the family is woven more to heritage and tradition than to innovation. Innovation remains almost an element taken for granted, innovating is normal in order to continue to guarantee quality products, consequently, an integrated approach to innovation is adopted. The research shows that unlike other companies in the VBC sector, it communicates both product innovations and process innovations adopted. However, innovation and creativity remain largely communicated on the occasion of new collections or important events. Indicative as the term "innovation" appears rarely and more frequently is the term of rediscovery, interpretation. Thus, innovation is the result of a "*dedication of the Company to protecting humans and nature*". It is the "news" section of the site that more than all the other channels offer the best overview of the recent innovations and changes introduced by the company, from exoskeletons to environmental protection and enhancement, as their renewed first interest in the hydroelectric plants of Alto Adige, from which they purchase green energy which has allowed them to have almost 100% renewable electricity and certifications. An innovation which, as confirmed by the company itself, does not end with the introduction of a new process, machinery, or fabric, but becomes a choice, a commitment to continue to innovate this element over time and thus dynamically adapt to changes in the sector and to new discoveries:

"…the crystal clear water of our valleys. We use this precious water with greatest attention and respect: we purify 100% of our water waste by means of an in-house waste treatment plant built in 1987 and which is constantly updated".

In the case of VBC, innovation is communicated in union with style elements and at a very technical level, often more suited to experts and great amateurs of the textile and tailoring field than to a wider audience:

"Suggestion #3: Be stylish! VBC combines the look of denim with the soft handle of wool, thanks to a special spray dyeing technique. Vintage reinterprets classics with a touch of creative flair!"

"The quality of our products is the feather in our cap and the result of a virtuous value chain. We select the best natural raw materials and guarantee full traceability along the entire production chain. We proudly keep a vertical production 100% Made in Italy, investing in technology and innovation and stimulating creativity and research. Last but not least, we dedicate an accurate and punctual tailor-made service to our customers".

"In the Supersonic range, the stretch and resilience of the best wools are optimized by avant-garde production technology to give ideal performance and an impeccable look".

But quality is also very limited by having to submit to traditional techniques; therefore, this quality can be a double-edged sword that could confine innovation. In addition to quality, the company communicates its innovations in combination with another element, sustainability. The search for sustainable practices both at an environmental, social and ethical level has been pushing the company for some years to draw up social reports, and communicate them but even more to rethink itself. It is no coincidence that there are numerous posts where new innovations are the consequence of having introduced new, more sustainable practices for the environment:

“We are proud to have been able to reduce the noise in our weaving plant from 100 dB to 85 dB by introducing sound-proof cabins”.

Sustainability has an important link with tradition, innovating and being sustainable also means reviving old techniques from the past either because they are more sustainable than the current ones or because they have been reworked to reduce the impact on the environment and society and keep the tradition alive by offering a different product from the others. What emerged from the analysis of the posts is how by interviewing a company employee it would seem that innovation and the company’s ability to innovate is much more communicated internally than externally, involving its employees:

“*When I think of Vitale Barberis Canonico, the three words that come to mind are Tradition, Innovation, and Excellence”.*

Innovation, the textile tradition of which the company is an expression look to the future:

“Choosing a fabric is the salient moment in the creation of a garment. Doing this with awareness implies both attention and responsibility with regard to the future”.

However, tradition remains much more communicated and remains tied to the node of quality and style - class, whereas for VBC dressing becomes a choice of style and comfort. The recovery of the company’s history and tradition thus becomes an opportunity to tell the story of the company. For example, the museum of fabrics owned by the company becomes an opportunity to leverage the nostalgia of ancient times and an opportunity to narrate some salient passages from the past of the VBC family. Style and tradition are powerful levers that are exploited to communicate above all to different international customers who are involved by reposting the posts they publish citing the company and demonstrating that wearing a VBC garment remains synonymous with classicism, tradition, and love for the "Italian well dressed".

The desire to innovate but also to train resources who are aware of the tradition not so much familiar as fabrics and yarns is of primary importance for the company that has been carrying on the tradition of its Training School since the early twentieth century, a school where professional could learn the tailoring art and gets in touch with the company's centenary know-how and knowledge. Faced with this innovation and tradition, the family and the role it plays in the survival of the company remains linked more to tradition than to innovation and is, therefore, less communicated in the presence of innovations. It remains the guide and the opportunity to make more emotional communications.

In the case of longevity companies, it, therefore, appears interesting how innovation is communicated both in combination with a tradition and without, adopting the approach of communicating either only tradition or only innovation:

"We operate in harmony with the environment and our sorroundings. We manage natural resources with great care and attention, aiming at the least environmental impact possible (…). To do so, we apply state-of-the-art technology, constantly revise the infrastructure and production processes".

"Vitale Barberis Canonico is participating in the event of the 19th Week of Business Culture "The Phoenix Principle" with the podcast "Avere la stoffa" (Having the Stuff) curated by @valedepov and Promemoria Group. "The future is coming and there are many ways of welcoming it. Ever since 1663, the Vitale Barberis Canonico wool mill has approached the future by transforming the ordinary into the extraordinary. The "ordinary" raw material becomes the extraordinary fabric. Weaving has always been a noble activity and continues to develop this vision. The looms work for tomorrow and, tomorrow, there will always be a saia grisa (grey wool) and other perfect fabrics. Old Ajmo, the founder of the company, and all his descendants from the 1600s till the present cannot and will not be anything but proud of this. Click on the link in bio to listen to the podcast".

"*Guided by tradition and made with innovation*".

Unlike other companies, it also innovates in terms of channels, for example, it has created a compilation on Spotify, a Podcast and a series of stories involving the international boutiques with which it collaborates:

"Vitale Barberis Canonico and Man On the Boon presented a collection of garments created by the Korean brand using the mill's Original Woollen Flannel, Revenge Perennial and Vintage fabrics. These garments, where tradition meets

innovation in the name of classicism, will be available in the Korean brand's stores for Autumn/Winter 2019/2020. #VitaleBarberisCanonico #VBCfabrics #ManOnTheBoon #Seoul #OriginalWoollenFlannel #Revenge #Perennial".

The company appears so innovative and attentive to the present thanks to its know-how from the past that it would sacrifice to ensure the future of the company. VBC is very careful to innovate, they have a lot of opportunities but seem as if there is a lack in the communication strategy. Below is the word cloud that visually summarizes the major words that the company publishes on Instagram (Image 1), frequency and the percentage of codified segment for each firms node are presented in the Appendix 2. As we can read, the company and the brand are central, in accordance with the frequencies observed for the node of the fabrics (the composition: wool, flannel, 21 microns; colors). Interesting, as we will also observe for the second company analysed, is the theme of discovery, that is linked to the imposed need to innovate and think about new collections in the face of the new seasons but preserving elegance and style. Apparently, the theme of tradition and family is less present, but the word "Our", that is directly linked to the brand, highlights how communication aims to make the customer feel part of it and how much is important the creative process.

Image 1

5.2. Case study 2: Nakagawa Masashichi Shoten

Nakagawa Masashichi Shoten was established in 1716, but probably their origins are in the Kamakura period (1185- 1333). Their history is a story of progress and decline. The business started thanks to the bleaching technique that the family applied to realize samurai and Buddhist priest clothes, but in the 17th century, when the family was designated as suppliers deliver to the government the success began to arrive. But after the growth arrive the decline, with the abolition of the Samurai class, their business suffered a severe halt. This was the condition to *die or alive*, they choose the second so in 1910 they return to being a manufacturing wholesaler and focusing on an urban-based handicraft industry that is till now the core business. After the family moved the production bases overseas, in 1950, is at the beginning of the 2000s that the company began a process of great renewal: shifting from manufacturing wholesale to manufacturing retail, opening local stores. Thus, despite these transformations, Nakagawa Masashichi Shoten is still partially tied up to the textile industry, but the real core business remains the household goods and trade and enhancing Japan's craftsmanship also creating a consulting business dedicated to safeguarding craftsman's products and design. From the first selection and analyzing website and social media and realizing that the craftsman production is prevalent we decide to remove the company for our analysis. From the website, a site but also a real marketplace, emerge as the company is interested in gift - fashion - food – housing confirm also in the themes of the blogs centered on "*comfortable living*". Social media present are Facebook, Instagram Twitter, and Line, all social media are in Japanese, and as confirmed their claim is: "日本の工芸を元気にする！- Do energy to Japan craftsman's product!"

5.3. Case study 3: Fratelli Piacenza

As previously written Biella is the wool city and Fratelli Piacenza born near the city, especially in Pollone city. What makes a business flourish also territories and the family firm in is origins obtain from the council of Pollone to use the water of the city due to its finest quality for the processing of the wool. The company was founded in 1733 have the name, not of the city of Piacenza, but its first founder Pietro Francesco Piacenza. In 1800 Piacenza family was the first to introduce a new technique of fashioning wool decorated to exploit the first hydroelectric power plant based on the new turbine of Pierre – Simon Girard. In 1900 they confirm their technical attention by opening an ultramodern factory in Turin, but not only attention to tech innovation but also for organization and labor, Piacenza family founded *the Biella Industrial Union* and a School specialized in training the personnel. In the last century, the family firm continue their research of innovation introducing new types of textiles to replace wool fabrics, maintaining the attention to quality and selected raw materials where Merino wool comes from Australian farms, the Alpaca wool from Perú, and cashmere from Mongolia. A fine quality that reaches success also internationally: 70% of their production is sold abroad.

Till now the family firm, that is starting to introduce the fourteenth generation in the management, remains loyal to using natural teasel in product manufacturing and guarantees the highest quality. The firms could count on 240 employees and a revenue of 40 million euros, a little contraction due to the restriction of Covid-19. Guido Piacenza, the tenth generation, and now the guide of the firms refers to the secret for the longevity of the firm is in "*a word: tradition*" but "*keeping an eye on change, on innovation not only on the world of their products*". These words are truly expressed toward the firm's communication channels? As mentioned, we analyze the site and the social media channel, especially Instagram. On-site, opposite to VBC, there is the possibility to subscribe to the newsletter as the opportunity to access the e-boutique. The main values of the firm are people and then, as proof of how much innovation and tradition are in symbiosis, "*tradition and innovation*" are considered together where glue "*sensitivity*" are followed by the environment, quality again, and the family.

Before presenting the findings of the survey, we present some general information also on the social media profile. The Piacenza Brothers channel is PiacenzaCashmere1733, which currently has 9,948 followers and 1094 following, a good relationship. The channel, open since July 2015, in the description reports: "*Made consciously in Italy since 1733*" thus clearly emerges both the date of foundation, the relationship, and the strength to be able to count on made in Italy. The "made consciously" confirms the attention to tailor-made and to do it with a conscience. The Facebook profile can count on 9,468 "likes" and 9,830 "followers". The contents published on Facebook are the same as those published on Instagram, the only exception being a more frequent use of Italian and a more in-depth presentation of the company. The following codes emerged from the first coding: Innovation, Tradition, Innovation & Tradition, Fabrics, Style, Quality, Made in Italy, Sustainability, Journey, Family and the presence or absence of an Influencer or the activation of collaborations with other brands or tailors.

In the case of Piacenza Cashmere, innovation is communicated above all at the product level and new collections rather than to the family, an element already noted for VBC, and as the latter adopts an approach of integration to innovation rather than segregation.

The family remains more connected to heritage and tradition but in opposite to VBC appears to be more active in communicating in the first person and in name of the company also in both channels. The communication of innovation almost seems to happen in combination with the style and class of the fabrics and trying to keep them always "*timeless*" and as *must-have.* Seasonality and new lifestyles impose the need to constantly retransform, rework, innovate, combine and experiment with different fibers to meet the needs dictated by fashion:

"Resourcefulness and determination, curiosity and courage are the key values around which the Fall/Winter 22-23 Collection unfolds; inevitably guided by heritage, research and innovation.

Timeless classics reinterpreted with an elegant, relaxed and modern attitude".

The great interest in offering high quality products more than innovative is in the frequent posts that show the exact percentage of the different wools used in making fine quality fabrics:

"Spring Summer Jacket Silk And Cashmere Collection Ultra-fine cashmere and silk fabrics for a refined bespoke herringbone jacket to wear in a spring day in Venice, in the stunning San Marco square. gr.,200 - 92% Cashmere 8% Silk #NewFabricsCollection #Bespoke.

In this process the Heritage remains as a guide and know-how that confirms the quality of the consumer choice that as mentioned on the site quality is "*an obsession*":

"The world of knitwear is reinterpreted with heritage and rethought for the future. Explore the ultra - soft touches of #PiacenzaCashmere1733".

"Resourcefulness and determination, curiosity and courage are the key values around which the Fall/Winter 22-23 Collection unfolds; inevitably guided by heritage, research and innovation. Timeless classics reinterpreted with an elegant, relaxed and modern attitude".

"Guided by tradition and made with innovation. # Piacenza Cashmere1733".

The different collections almost force the company to innovate and keep up with the fashion and society dressed by the Family firm products.

However, innovation remains less communicated than the classicism and tradition of the company. Collaborations and the use of influencers are reduced for Piacenza Family in confront to VBC. Collaborations and influencers are not used to communicate innovativeness, but as a reconfirmation of the timelessness of the brand and to make use of the refinement of "Made in Italy", in fact, collaborations with historical brands prefer historical Italian brands such as Leone candies, the Fila sportswear b or the amaro Fernet Branca:

> "Tour and taste the cultural legacy. The latest #PiacenzaExperience takes the brand's special guests on a journey of the Italian senses beyond style territory at @ FernetBranca's #BrancaMusem. Exploring the legendary distillery together with discovering # PiacenzaCashmere1733's latest essence in reinterpreting the family's renowned garment making from an unconventional perspective. #BrancaDistillerie".

Peculiarity and interesting choice to communicate both the company and the role of the family for the company is the metaphor of the "Journey". The code is confined to the communication of the Piacenza Family. It tells the journey of the fourteenth generation at the helm of the group. Like their first descendants, they go to the places from which the wool that the company then processes come from, from lamas to vicuna so that, in time, the journey of the family becomes the journey of the wool itself and a now an infinite journey in search of quality in "*ancestral legacy*" but also "*a way to discover*" of the family:

> *"The Piacenza family has been nurturing across generations towards the search for the finest wools".*

Even for Piacenza cashmere, although communicated differently, sustainability is a very important element, since the best products can only be created from the best raw materials. If sustainability becomes an opportunity to renew not only one's products by providing eco-friendly fabrics, but also an opportunity to rethink internal processes. Sustainability is communicated in a different way to VBC both on the website and on the social channels. In the case of Piacenza Cashmere, sustainability has a much stronger link with tradition and preservation:

> *"Always attentive to its tradition, combined with contemporaneity and innovation, the selection of strictly natural raw materials and the use of eco-friendly production processes to conjure the new season's remarkable style for modern men who seek for extraordinary fineness. Discover#Piacenza Cashmere 1733 Spring Summer 2020 Collection via link in bio. #MadeInItaly".*

The growing interest in sustainability is reconfirmed also in the second section of the website and for the family is "*What we call environmental sustainability today is what we once called the feeling of being at one with nature*". Sustainability also becomes a priority over innovation and to analyzed in future research.

Below is the word cloud that visually summarizes the major words that the company publishes on Instagram (image 2). How could it read, everything revolves around the collections that the company creates and is called to periodically present for the spring summer and autumn winter seasons. These occasions become an opportunity and obligation to rethink and so "discover" that as previously mentioned is a guide theme common from both the firms analysed. In accordance with what has been noted in terms of node frequency, in appendix 2, the fabrics and style, devoted to elegance, made in Italy and timelessness, remain the main nodes. Family, heritage and attention to generations find a strong connection, while tradition remains more linked to the "collection". As we can read, the future and being new are very strongly connected to this last theme. This closeness reconfirms and answers our demand that longer-lived family businesses adopt an approach of integrating tradition in their communication of innovation. The two concepts are communicated by leveraging the identity elements that are the strengths of the company.

Image 2

5.4. Case study 4: Lanificio G.B. Conte

The Family Conte founded the homonymous company in 1757. The family has been able to lead the company for over 250 years and till now is one of the best known and most advanced in the processing of wool in Italy. The company achieved success not only with the industrial revolution but also from the union of the Veneto with the Kingdom of Italy. The family always tried to remain innovative and was one of the first firms to introduce electricity. It is with "*Alvise's Reign*" that the company found its great success. The case is a case in itself. In 2008 Lanificio G.B. Conte has become a division of the Marzotto Group. Searching online it was found a space on the Marzotto group site, divided into three different sections: "Collections" - "Research and development" - "Contacts".

In the collections, the link with tradition remains strong and the historical and centenary origins are enhanced, but the family entrepreneurship of the Conte disappears. Reference is made to both historical *savoir-faire* and "*constantly updated proposals, renewed and aligned with the most current moods, while maintaining its sophisticated identity*" (site). The brand and is subject to management and coordination by Marzotto Spa and it has no social channels so we could go more in deep with the analysis.

6. Conclusion

The study carried out has several implications. First evidence confirms that for companies active in the textile sector and even more in the fashion sector, innovation and creativity are necessary and forced by having new collections for the different seasons. However, these are mostly cases of marginal innovations than disruptive o incremental, these reinterpretations, as emerged, are communicated in an active way and adopting time to time different approaches to communicate innovation or the link with tradition.

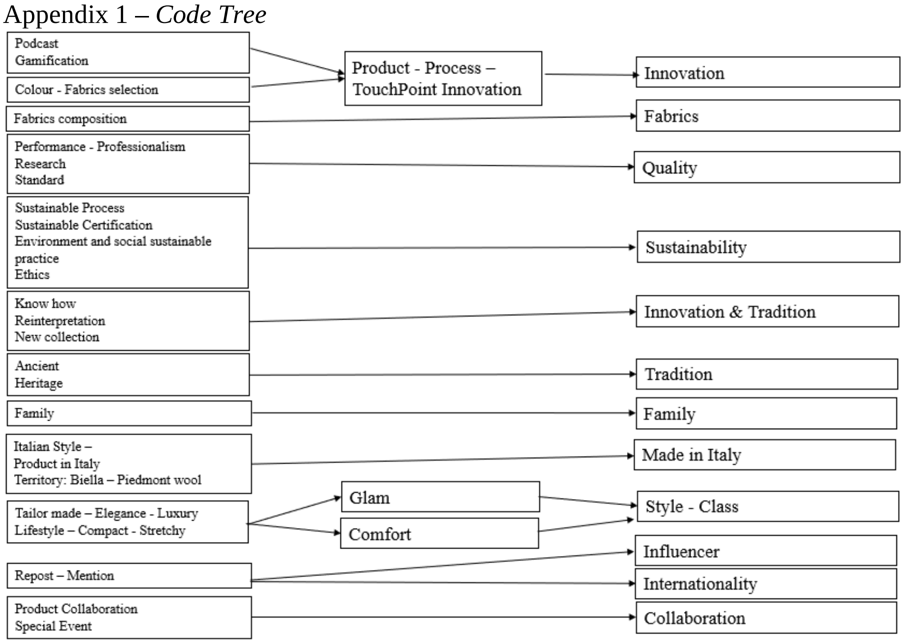
For Centenary family-run companies, communication is essential, both internally to strengthen and share the company's mission and vision, but also externally with the various stakeholders to confirm their quality and their always being in step with times and with the needs of their customers. These firms tend to communicate more product innovations than process or organizational innovations, future studies could validate whether incremental or disruptive ones are better communicated to different stakeholders, in particular employees, suppliers, and other partners and as these communications could impact the family, the company and its external perception. By expanding the knowledge on longevity family firms and integrating the studies on the communication's strategy about innovation of family firms considering the not investigated concept of tradition and how it is communicated with respect to innovation, it has been identified as, longevity family firms have a tendency to communicate tradition and innovation with an approach of "integration", aimed at maintaining the essence of the legacy or restoring the legacy (Erdogan *et al.*, 2020). A further implication, due to the analysis of more than two and a half years of publications on social media, is that family businesses, although they follow a general strategy, it is not excluded that in the tradition-innovation relationship, in particular cases, events or occasions, these firms adjust their strategy's approach without losing consistency. Future research can thus investigate what motivates this adoption and in front of what elements they choose to adopt one or when they consider other approach: there are different examinations and debate, or it happens in a "spontaneous" way, this is the result of that entrepreneurial legacy that is handed down and to which generations are educated, this could be interesting questions. Being able to maintain the link between innovation and the past is not easy, even more so for longevity companies that often indulge in traditionalist communication rather than innovation, this can be seen both at the level of communication channels and at the product level. The extreme knowledge of the business in which they operate has allowed centenarian family firms to remain resilient; however, today, in the face of contemporary challenges, being able to remain innovative, not to become or appear "dated" more than longevity are important challenges that longevity family firms are aware to deal.

At a managerial level, it is therefore important that the digital presence is strengthened, for example by inserting the sales channel directly on the website; the links with the various stakeholders have to be strengthened or by leveraging collaborations with companies similar for business but more into the mindset, so in exploiting active international relationships to create new opportunities for innovation or expansion of the customer base. Many century family firms become custodians not only of a family inheritance but often custodians and testimony of the evolution of entire sectors. This is an opportunity, but also a potential risk of resistance to change. At the managerial level, their passion and know-how of their products have to be managed carefully because the risk is to communicate more about the sector than the company and their products, all these themes could be used for communication more educational so to educate their clients which will choose the products could confirm their quality choice. Longevity family firms do not communicate themselves very often and when they do, this communication remains very linked to the business, on a particular occasion and with a more emotional tone, and where the legacy is a guarantee for the innovations they implement. Unlike other research, it emerges that these firms tend to communicate above all their contemporaneity, their attempt to be *timeless*. At a managerial level, it is important to maintain a coherent communication strategy, aimed at strengthening the consistency and continuity of the family firms as well as the product level, it is preferable to adopt an approach aimed at integrating innovation rather than segregating it.

At a family level, if communicating tradition and the link with the past remain a *must-have*, introducing and letting communicate new generations allow family businesses to strengthen ties, modernize and develop profiles.

An emergent theme to study in future is how sustainability practice and how this theme could guide the innovation as succession is recommended (Esposito and Mirone, 2019). The main limitations of this study consist in having confined the research to a single sector. Future research could make comparisons with other long-lived companies in different sectors or investigate the difference in communicating the traditional nature between business family and family business, two configurations present among the members of the "Henokiens", in this case, the communication strategies could differ a lot and even more, the communication of the family and of the tradition could be even less present or delegated to specific channels such as the website of the group, of the holding company or the family foundation. Future investigations could investigate whether in practice the different approaches and strategies to tradition and innovation adopted are able to communicate, if a timeless mentality and a process of continuous discovery, are also valid for non-family firms and even more so for longevity non-family firms.

Appendix 1 – *Code Tree*



Appendix 2 – *Occurrences for category and percentage of codified segment*

Vitale Barberis Canonico		
Code	Occurrence's for category	Percentage of codified segment
Collaboration	39	7%
Fabrics	67	12%
Family	21	3,7%
Influencer	30	5%
Innovation	24	4,3%
Innovation and Tradition	54	10%
Internationality	33	6%
Made in Italy	21	4%
Quality	63	12%
Style - Class - Comfort - Glam	86 19 8	20%
Sustainability	36	7%
Tradition	55	9%

Piacenza Cashmere		
Code	Occurrence's for category	Percentage of codified segment
Collaboration	22	4,6%
Fabrics	67	14%
Family	21	4,5%
Influencer	2	0,3%
Innovation	15	4%
Innovation and Tradition	41	8,5%
Journey	29	6%
Made in Italy	20	4%
Quality	71	15%
Style - Class	99	20%
Sustainability	48	10%
Tradition	44	9%

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Corporate museums as heritage vehicles: a comparative analysis between family and non-family businesses

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Abstract

The heritage marketing strategy often calls for the employment of a corporate museum to represent the firm's history in the eyes of internal and external observers. However, to date there has been no attempt to identify the distinctive values underlying the use of corporate museums by family firms – as opposed to non-family firms – for nurturing customers' understanding and appreciation of the company and its products. This paper aims to address this gap and investigate the identity values that drive the establishment of corporate museums by family firms and non-family firms. Using a comparative case-study (CCS) approach, the paper examines the values underlying two examples of corporate museums promoted by two different firms, one with a high level and one with a low level of family control. The study reveals differing distinctive values between family and non-family corporate museums.

Keywords: heritage marketing, corporate heritage, milieu, longevity, transgenerational outlook, family firms

Sommario

La strategia di *heritage marketing* richiede spesso l'impiego di un museo aziendale che rappresenti la storia dell'azienda agli occhi degli osservatori interni ed esterni. Tuttavia, ad oggi, non vi è alcun tentativo di identificare i valori distintivi

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alla base dell'utilizzo dei musei aziendali da parte delle aziende familiari, rispetto alle aziende non familiari, per favorire la comprensione e l'apprezzamento dell'azienda e dei suoi prodotti da parte dei clienti. Il presente contributo mira a colmare questa lacuna e ad indagare i valori identitari alla base dell'istituzione dei musei aziendali da parte delle imprese familiari e non familiari. Avvalendosi del confronto di due casi di studio, il contributo esamina i valori alla base dei musei aziendali promossi rispettivamente da imprese con un alto livello e un basso livello di controllo familiare. Lo studio rivela diversi valori guida distintivi tra i musei aziendali familiari e non familiari.

Parole chiave: heritage marketing, corporate heritage, milieu, longevità, prospettiva transgenerazionale, imprese familiari

1. Introduction

In the current context, cultural heritage is widely recognised as a *source* and a *resource*. On the one hand, it is evidence of the past, documents our origins, is «a shared source of remembrance, understanding, identity, cohesion and creativity» (Council of Europe, 2005, Article 3.a). On the other, it is a resource from which we can draw cultural, social and economic benefits for the future (Council of Europe, 2005, Preamble; Article 2.a; Article 7.c; but also Articles 1, 3 and 5).

More specifically, when focusing on the value of cultural heritage (Golinelli, 2015), we can also identify a *production value*, that can be drawn from cultural heritage (Montella, 2009). This kind of value refers to market uses flowing from cultural heritage and profit for businesses operating in different sectors, e.g. restoration, publishing, tourism, construction, real estate business, performing arts, etc. (Greffe, 2009). Moreover, if cultural heritage is stratified through time in a specific context, it can influence a firm's value creation and competitive advantage.

In the globalised world, this innovative framework opens up new opportunities for companies with a corporate heritage rooted in the local milieu, such as those using the Made-in-Italy brand (Montella, Silvestrelli, 2020). Indeed, *genius loci* and place-specific resources are becoming production factors that qualify output and strengthen corporate reliability (Macario, Santovito, 2016). While the scientific literature on the internal and external benefits of using corporate and local heritage as marketing tools has increased significantly in the last fifteen years, no attempt has been made to date to identify the distinctive values that underpin heritage marketing strategies.

To contribute to this debate, we first discuss the contribution of different heritage marketing tools, before focusing our analysis on corporate museums.

This is for two reasons. On the one hand, their specific role is not yet sufficiently explored in the international scientific literature. On the other hand, in the current globalised context, where consumers appreciate authenticity, corporate museums and corporate archives are essential tools for counteracting invented heritage strategies. Even if corporate heritage can be reinterpreted, idealised or invented, collecting and preserving a firm's tangible and intangible heritage can prevent and contain the risk of an invented past.

In this scenario, mindful of the gaps identified in the scientific debate on this matter, the research investigates the distinctive values underlying the use of corporate heritage by family firms, as opposed to non-family firms.

The paper adopts an exploratory theory-building comparative case-study (CCS) approach within the qualitative-inductive research tradition. We selected two cases from the food industry as a significant branch of the Made-in-Italy brand that leverages a long-standing tradition and rootedness in its environment. The analysis focuses on a family-owned corporate museum (Museo Pasta Cuomo) and a non-family corporate museum (Museo Storico Perugina).

The two selected companies have experienced significant changes during the twentieth century and represent different reactions to globalisation: Pasta Cuomo was founded in 1820 and stopped operating in 1939. In 2015, the latest generation of Cuomos revived the family tradition of pasta-making. Perugina was founded as a family business in 1907 and was bought by Nestlé in 1988.

This research aims to answer the following questions:

RQ1: What are the values underpinning heritage communication strategies?

RQ2: How do Museo Pasta Cuomo and Museo Storico Perugina communicate their heritage? What aspects do they strengthen?

RQ3: Are there any differences between the way family-owned and non-family businesses display their core values in corporate museums?

The paper is structured as follows. Section 2 looks at the multi-dimensional value of corporate heritage by analysing heritage marketing as a strategic and integrated system and focusing on the specific role of corporate museums. Section 3 presents the research methodology and section 4 the research results. Section 5 discusses the main findings and suggests the theoretical and managerial implications. Finally, section 6 presents the limitations of the research and areas for further development.

2. Theoretical background

2.1. Heritage marketing as a strategic and integrated system

Although the concepts of corporate identity, corporate brand and corporate marketing date back to the end of the 1990s, it was only in 2006 that the notion of corporate heritage was formally introduced in marketing studies (Balmer *et al.*, 2006). More recently, the role of the past in marketing theory and practice has been the object of further investigation in the scientific literature (Martino, 2013; Balmer, Burghausen, 2019). Scholars have analysed the relationship between past and present, history and memory, tradition and innovation, and also tackled controversial issues, such as the invented past and heritage «to fit contemporary concerns» (Brunninge, Hartmann, 2019, p. 230).

To begin with, it is necessary to be aware of what is meant by corporate heritage. First, heritage refers to what is inherited, handed down over time in an object, place, memory or story. Thus, it has both material features (if visible and tangible: for example, a site, an artefact) and intangible features (for example, a dance, a tradition, a dialect, a myth). Moreover, it is characterised by a historical depth (since it was formed over a long time) and has a high cultural value (since it testifies to and explains the distinguishing traits of the organisation to which it belongs). Corporate heritage can be divided into *endogenous* resources, matured within the boundaries of the organisation and related to the company's history and products (firm-specific heritage), and *exogenous* resource s, built up within the territory in which the company has roots and is immersed (place-specific heritage). Thus, corporate heritage is different from corporate history (Wilson, 2018): whereas corporate history is retrospective and represents the past, corporate heritage values the past because of its contribution to the present and its role in the future.

Specifically, when looking at corporate heritage, scholars agree on recognising its strategic role in marketing activities and the importance of leveraging not only firm-specific but also place-specific heritage (Montemaggi, Severino, 2007; Napolitano, Marino, 2016; Napolitano *et al.*, 2018; Montella, 2018; Riviezzo *et al.*, 2021).

From an internal marketing perspective (organisational perspective), the promotion of corporate heritage influences the corporate climate positively and consolidates relational capital. Furthermore, it can strengthen corporate culture and build internal commitment and pride by increasing staff motivation and engagement in a firm's choices and decisions (Urde *et al.*, 2007; Seligson, 2010; Montella, 2014).

From the point of view of external marketing, historical know-how enriches a firm's output. Investment in the tangible and intangible assets that distinguish a company's history and production plays a central role in strengthening the basket of attributes that qualify the products (Montella, 2009). Moreover, a focus on firm- and place-specific heritage, including symbols and values, has a positive effect on corporate identity, image and reputation. It also contributes to company positioning and branding on national and international markets, increases brand awareness and helps build long-term customer relationships and customer loyalty (Rindell *et al.*, 2015; Balmer, Chen, 2017; Pulh *et al.*, 2019). Indeed, consumers are increasingly driven by symbolic needs and steadily assign greater value to the authenticity of products and services. Finally, investment in corporate heritage can create social cohesion, increase social capital and quality of life, and generate economic outcomes for the local context. As some authors argue (Napolitano, De Nisco, 2017; Wilson, 2018; Montemaggi, 2020), it could yield benefits for place branding and marketing. The preservation and promotion of place-specific resources can generate positive externalities for the tourism industry, thus improving quality of life and promoting sustainable local development (Bernardi *et al.*, 2021).

It is worth noting that, in his 18 reflections on corporate brand and corporate identity from 1995 to the present, Balmer (2017) highlights the increasing interest in corporate heritage organisations and corporate heritage brands and identities. However, as already mentioned, not all brands with a heritage are heritage brands: «to make heritage part of a brand's value proposition is a strategic decision» (Urde *et al.*, 2007, p. 5). Indeed, corporate heritage can become a source of competitive advantage in marketing strategies only if a strategic and holistic approach is adopted (Balmer, 2013; Burghausen, Balmer, 2014; Riviezzo *et al.*, 2016).

Calling for multi-modal and multi-sensory corporate identity systems that incorporate all implementation strategies (e.g. design, communication, behaviour) and sensory means (i.e. sight, sound, scent, taste, touch), Burghausen and Balmer (2014) proposed a model based on four strategies: (1) *narrating*, e.g. through press releases, annual reports, websites, etc.; (2) *visualising*, by using visual design elements, e.g. photographs and illustrations; (3) *performing*, actualising corporate heritage identity through traditions, rituals and customs; (4) *embodying*, through the manifestation of corporate identity in objects, spaces and people. Similarly, Riviezzo *et al.* (2016) suggested an interpretative framework of four categories of heritage marketing tools: *storytelling*, *branding*, *public relations* and *organisation units*. A few years later, the authors revised the model (Napolitano *et al.*, 2018; Garofano *et al.*, 2020) and introduced a heritage marketing mix based on four different categories of storytelling through: (1) *words, images and sounds*, e.g. corporate autobiographies, press releases, historical advertising, corporate videos, movies, brochures, websites, social networks, etc.; (2) *products and brands*, e.g. production processes, raw materials, distinctive competences, iconic products, heritage branding, visual identity, retro branding, packaging, merchandising, etc.; (3) *places*, archives, museums, foundations, factory tours, shops, etc.; (4) *celebrations and relations*, anniversary celebrations, temporary exhibitions, workshops, cultural events, etc. (tab. 1).

Tab. 1 – *The strategic and holistic approach to heritage marketing strategies and tools*

Sources	*Heritage marketing strategies/tools*
Burghausen and Balmer (2014)	1. Narrating 2. Visualising 3. Performing 4. Embodying
Riviezzo *et al.* (2016)	1. Storytelling 2. Branding 3. Public relations 4. Organisation units
Napolitano *et al.* (2018) Garofano *et al.* (2020)	1. Storytelling through words, images, sounds 2. Storytelling through products and brands 3. Storytelling through places 4. Storytelling through celebrations and relations

Source: *own elaboration*

Riviezzo *et al.* (2016) also pointed out that long-lived firms approach the single tools of heritage marketing experimentally and with no integrated vision, mainly focusing on storytelling via a website, social networks and corporate videos, or on public relations through events.

As stated in the introduction, the rest of the paper focuses on corporate museums as strategic marketing tools to counteract invented heritage, which have been insufficiently explored in the scientific literature.

2.2 Corporate museums as corporate heritage vehicles

Corporate museums have rapidly spread in industrialised countries, which has led to growing interest from scholars in various disciplines (Coleman, 1943; Danilov, 1991; Nissley, Casey, 2002; Montemaggi, Severino, 2007; Montella, 2018; Napolitano *et al.*, 2018; Iannone, 2020; Riviezzo *et al.*, 2021). Nonetheless, there is still no single shared definition for them. Therefore, a description of the phenomenon, its characteristics and objectives is warranted here.

Corporate museums can be defined as museums established, governed and financed by active companies, which preserve, exhibit, and promote material evidence from an organisation's past and present activities. Thus, the corporate museum has a mission to communicate all aspects of corporate heritage and explain its multi-dimensional value. In doing so, it aims to achieve global recognition for the company in the eyes of all possible stakeholders[1], and induce in them a positive image of the company that will influence their cognitive models and behaviours.

In specific terms, the role of the museum is to illustrate to the broadest possible audience a number of elements that are of primary importance in that they contribute extensively to defining the company's identity and determining its image and reputation: the history, type and quality of the products and production processes; the advertising campaigns and the successes obtained; the knowledge and values that shaped the company mission, strategies and activities; its symbolic essence; the positive externalities generated for a wide range of stakeholders; the idiosyncrasies of the social, economic and cultural context in which the objects were created (beginning with the needs, living conditions, values, available materials and known techniques of the reference community which, therefore, are represented by these products and the company itself); roots in the local area and the role played in the formation and evolution of the local social, economic and cultural context.

Hence, corporate museums are excellent storytelling tools (Fontana, 2013; Riviezzo *et al*., 2016).

2.2.1 Corporate heritage values

The many aspects mentioned above related to the firm- and place-specific heritage that a corporate museum can communicate to the public have a significant contribution to make to achieving a lasting competitive advantage. They can convey three specific values that identify and differentiate a company from others:
- longevity, that is, the company's historical depth, its know-how and products;
- transgenerational outlook, that is, a company's survival and development through different generations;
- rootedness in the local milieu, as both an expression and a creator of a place's culture.

[1] Owners, employees, customers, suppliers, competitors, government, influence groups, media, the general public, the local community, and the commercial and financial sectors.

In fact, a company's prestige and its products largely depend on the depth of its history. Longevity is an important differentiating and competitive advantage factor, since it testifies to the company's ability to establish virtuous long-term bonds with all types of stakeholders, move forward with balanced growth and keep space of the evolving needs of society (Giaretta, 2004; Riviezzo *et al.*, 2016).

At the same time, a transgenerational outlook is also a form of quality assurance for stakeholders, an added value. It is evidence of the ability of the company and its products to endure from generation to generation (Miller, Le Breton-Miller, 2005; Zellweger, Astrachan, 2008; De Falco, Vollero, 2015).

Finally, the company and its products can be seen as both an expression and a creator of the local milieu, which gives it an uncommon prestige and a strategic emotional charge (Bonti, 2014; Spielmann *et al.*, 2019)[2]. All this is especially critical in the current market, where consumers attribute increasing value to the authenticity of products and services (Goulding, 2000; Carù *et al.*, 2017) and the "glocal" paradigm dominates. Therefore, the chances of success increasingly depend on different local identities based on landscape diversity and historical and cultural heritage (Porter, 1985; Becattini, 1999; Iraldo, 2002). Furthermore, the inimitable competitive advantage of Italy's image is reflected in the companies that operate there (Bertoli, Resciniti, 2013; Fondazione Symbola-Unioncamere, 2014; Futurebrand 2014-2015; Montella, Cerquetti, 2016; Napolitano, Marino, 2016). Also, the country's diverse geographical identity is a crucial resource for responding to the growing demand for non-standardised products.

An assessment of the importance and weight of the specific identity values underpinning a firm's use of corporate museums may vary depending on the characteristics of the company (starting with the ownership structure of family and non-family firms).

On the basis of these considerations, we can argue that corporate museums are one of the most effective heritage marketing tools (§ 2.1). Indeed, they highlight a company's heritage identity values. Moreover, by strategically linking present, past and future, they contribute significantly to strengthening corporate identity, reputation, and customer retention (Balmer, 2017; Balmer, Burghausen, 2019; Brunninge, Hartmann, 2019; Moussa, Barnier, 2021).

[2] Consequently, a company and its products are the expression of the specific heritage of the local area, which in turn is deeply embedded in them. This interrelationship is difficult to replicate elsewhere.

2.2.2 Corporate museums in Italy

Italy has a large number of corporate museums, despite having developed more slowly than in other countries such as Germany, Austria, Great Britain, and the USA[3]. They began to spring up in the 1980s and 1990s and were recognised as a specific type of cultural institution in the late 1990s. They have spread widely in recent years.

Italian corporate museums are mostly set up by private companies with a long-standing tradition: a long history and many years of activity across several generations of the same family. Furthermore, these companies often have a leading brand in the sector, frequently linked to the family name, and a well-defined, medium-to-high-end market position. Often, they are also deeply embedded in the local context. Finally, these companies have had a profound impact on the history of social consumption, thanks to products with intense symbolic value which help to define and promote the identity of the reference territory and, in many cases, have become Made-in-Italy icons.

They are mainly distributed in northern Italy and especially in the "industrial triangle" of the North-East, which is indicative of the history of business in the country as a whole and the development of that area. Recent data (Montella, 2018) also suggest that Italian corporate museums are run by companies mainly in the S.p.a. (*Società per azioni*) category, although many are S.r.l. (*Società a responsabilità limitata*). Furthermore, most are opened by large companies, followed by small- and medium-sized enterprises and then micro-enterprises. Lastly, the industries[4] represented are manufacturing (more than 4 out of 5 or 84%), particularly automotive and transport (16.5%), followed by beverage (15%), food (14%), textiles and clothing (11%), furniture and design (10%)[5].

3. Research methodology

We adopted a comparative case study (CCS) to test the research questions. A case study involves an in-depth qualitative investigation of a contemporary phenomenon within its real-life context (Stake, 2008; Yin, 2003).

[3] The many early examples of corporate museums include Cadbury World in Birmingham, opened in 1990, the Clarks Village in Bath, opened in 1993, the Swarovski Kristallwelten, created in 1995 near Innsbruck, and the World of Coca-Cola, founded in Atlanta in 1990.

[4] See the Ateco 2007 Classification of Economic Activity, 2022 update.

[5] The above are followed by machinery and equipment (9%), non-metallic mineral processing (6.5%), metal products (4%), pharmaceuticals (2.5%), instruments and equipment for measuring, testing, navigation and watches (2.5%), chemicals (1%), and printing and reproduction of recorded media (1%), other (6.5%).

Case studies are particularly important to management research since they give access to a single setting through a variety of interpretive lenses, to reveal the multiple and sometimes contradictory facets of the phenomenon (De Massis, Kotlar, 2014). A CCS builds on this framework, by taking into consideration two or more examples of the same phenomenon and analysing similarities and differences across the cases. In this approach, researchers try to trace potential differences in the outcome variable among the cases back to differences in the explanatory variables. Thus, in qualitative empirical research, CCSs introduce the ability to study causal relationships among theoretical constructs. In addition, they also require the cases being examined to be comparable, in order to minimise the number of changing explanatory variables. As a consequence, cases are not randomly drawn from a population, but rather selected by researchers on the basis of the comparability requirement. However, cases need not be comparable (i.e. share the same values) in dimensions that do not affect the relationships under investigation (Kaarbo, Beasley, 1999). Indeed, researchers can tolerate cases with differing variables that have no relationship to the variables of interest.

3.1 Selection of cases

For our study, we selected two examples of corporate museums, one belonging to a family-run firm and one to a firm in which the family has only a small stake. The two cases selected were Museo Pasta Cuomo, a family-owned corporate museum, and Museo Storico Perugina, a non-family corporate museum.

Museo Pasta Cuomo belongs to Pasta Cuomo S.r.l., a pasta company located in Gragnano, near Naples, southern Italy, which began business in 1820. The other case study is Perugina, a famous chocolate manufacturer founded in Perugia in 1907, whose brand was acquired by the Nestlé Group in 1988. Both firms are important players in the food industry, however, they differ in size. Pasta Cuomo has only 3 employees and sales of around 62,000 euros at the end of 2020, whereas the Perugina factory has 613 employees.

Despite the differences in size, both brands are important representatives of the Made-in-Italy mark in the food industry.

3.2 Materials and procedures

For our analysis, we scrutinised the museums' publications, reports and online materials, such as websites[6] and videos (Tab. 2). We also collected visual data, such as pictures taken during visits to document the museum environments, heritage artefacts, and communication tools (Rose, 2007; Burghausen, Balmer, 2014).

Tab. 2 – *Materials*

Materials	**Museo della Pasta Cuomo**	**Museo Storico Perugina**
Publications	Book about the history of the firm	Not used
Videos	Museum VR tour	Museum video room
Online materials	Website, online articles	Website
Pictures	Pictures taken during the visit to the museum	Pictures taken during the visit to the museum
Communication tools	Advertising posters and bill-boards	Advertising posters and bill-boards, TV commercials

Source: *own elaboration*

Although the visits to both museums were similarly structured, they differed in certain respects. The tour of the Museo Pasta Cuomo started with a presentation by the researchers and the guides, Alfonso and Amelia Cuomo, the youngest generation of the Cuomo family, who are personally involved in the day-to-day running of their firm. On this occasion, Alfonso and Amelia also talked to the researchers about the origin of the firm, which dates back to 1820, and its development. Right from this first discussion, Alfonso and Amelia linked their firm's fortunes to the idiosyncrasies of the area in which the town of Gragnano is located. Following this introductory discussion, Alfonso and Amelia Cuomo invited the researchers to tour the museum, which is located in the same building as the ancient Pastificio Cuomo. During the visit, Alfonso and Amelia also explained that the refurbishment of the actual structure of the original factory and the historical information about the firm were made possible by the work of Silvio De Majo, Professor of Contemporary History and Economic History at Federico II University of Naples. Professor De Majo and Dr Francesca Caiazzo recovered much of the information used to document Cuomo's history. At the end of the visit, the researchers were able to explore the structure of the original factory more in depth through a VR sensor, which allowed them to view the original spaces and equipment used for pasta-making in the nineteenth century, accompanied by Antonino Cuomo's explanations. After this came a conversation between the researchers and the Cuomo siblings, discussing the remaining topics, such as

[6] The two firms' websites can be found at https://www.pastacuomo.com/ and https://www.perugina.com/.

their development plans for the firm and their cultural and philanthropic activities as representatives of their two-hundred-year-old brand.

The visit to Museo Storico Perugina was more structured. It began in the video room, where the researchers could view an exhibition of advertising posters and billboards designed by Seneca (corporate art director in the futurist tradition) and some of the main Perugina products. Following this, a specialist guide gave an oral presentation of the history of Perugina – in particular, the story of Luisa Spagnoli, one of the founders, and her partner Francesco Buitoni – and the company's products and manufacturing processes. The guide also explained how Perugina's progress helped develop the economy of local communities. After the oral presentation, a video presentation showed the company's story and core values (modernity, attention to detail, elegance), its target markets and audiences, the manufacturing process and the communication strategies. Visitors were then invited to taste some of the main Perugina products, view the permanent collection, and finally tour the different sections of the factory along a raised glass walkway.

4. Research results

Before inspecting the values underpinning a firm's use of the corporate museum as a heritage marketing tool, we look at the history of these corporate museums themselves.

4.1 Museo della Pasta Cuomo

Museo della Pasta Cuomo was set up in 2020 in the historic building of Pastificio Cuomo, in Via Roma, in the heart of Gragnano. This building now also houses a restaurant and a guest house. The location in Via Roma played a crucial role in the early days of the company, since it was strategically built to exploit wind flow for drying the wheat grains from which the pasta was produced. Gragnano, especially Via Roma, was home to all the local pasta makers, and Gragnano itself became the pasta capital of Italy and the world. Of the many pasta producers in Gragnano, the Cuomo family boasts a two-hundred-year history that makes them the oldest pasta makers in the world. However, the company stopped doing business in 1939, until the latest generation of Cuomos, siblings Amelia, Alfonso and Anna, decided in 2015 to reclaim their ancestors' tradition of pasta-making. Until then, they had had unrelated jobs, mostly as management consultants. They say their initial reason for returning home was so they could renovate the original Pastificio Cuomo building to leverage the financial value of the property. However, the experience they had gathered working abroad for years and their intuition prompted them to revive the Cuomo pasta brand and supplement this traditional activity with several auxiliary schemes to make the brand even stronger. The idea of setting up a museum to put on display the story of Pasta Cuomo came after the young siblings met Silvio De Majo, who offered to put together the information about the company, from its beginnings in 1820. Silvio De Majo, Professor Emeritus of History at Federico II University of Naples, had a purely academic curiosity about the events occurring in the Cuomos' history. He and Dr Francesca Caiazzo, a researcher at the same University, were able to collect a great deal of evidence about the Cuomo history and put together a narratively engaging book containing a selection of these events and documents. The valuable information found in the book gave the Cuomo siblings the idea of using it to create a corporate museum.

Museo della Pasta, along with a number of archaeological finds – such as grain funnels, window wells for ventilation and the only cylindrical mill and vertical steam pasta factory in the world – also has a space with VR visors for virtually exploring the ancient factory.

The museum also displays the communication strategies the brand has adopted in recent years. The Cuomo siblings proudly explain that, since their involvement in the family firm, they have made considerable use of irony and satire in their advertising messages, including as a means of tackling important social topics. They say they can afford to use sarcasm in their communication campaigns, because of the incredible longevity of their brand, which should speak for itself.

4.2 Museo Storico Perugina

Museo Storico Perugina is a museum with no independent legal status. It is an operational unit of Nestlé Italia S.p.a. and is managed by the Marketing – External Relations Unit.

This museum was established in the Nestlé Perugina plant in Perugia in 1997, in the 90th anniversary year of the company's founding. The museum underwent expansion and restyling in preparation for the centenary. Specifically, the exhibition was expanded to include the period since 1988, when Perugina was taken over by Nestlé and the museum was incorporated into the "Casa del Cioccolato", which also includes the chocolate factory, the Chocolate School and the Perugina Gift Shop.

The aim of the museum is to provide documentary evidence of the company's history, to enhance the appeal of Perugina products in the eyes of customers and other audiences. It also does this by underlining the evolution of Perugina brand products through the years and the changes in the socio-economic context: from luxurious gift items, distributed in polished packaging with an intrinsic artistic value and sold at prestigious pastry shops, to mass-produced goods carried by large retailers since the 1950s with modest, practical packaging.

The museum also focuses on the communication strategies adopted by the company throughout its history, underlining the pioneering nature of the initial advertising campaigns and the effectiveness of the design quality and TV commercials with innovative endorsements.

5. Discussion

The corporate museums of Cuomo and Perugina differ in several repects that reflect the different nature of the two companies. First, the museums differ in the focus placed on the entrepreneur. Much attention is devoted at Museo della Pasta Cuomo not only to the history of the firm, but also to the history of the family of entrepreneurs who have run the business over the years. One of the walls in the museum features the Cuomo family tree, starting from the oldest known ancestor, Gasparo Cuomo, born in 1699, down to the youngest generation represented by Amelia, Alfonso and Anna.

On the other hand, at Museo Storico Perugina, less space is devoted to the family of entrepreneurs after the first generation. The events concerning the foundation of the company by Luisa Spagnoli and Francesco Buitoni are described during tours of the museum. However, subsequent generations of the family who owned the company are not mentioned, nor is any space dedicated to them in the museum.

In the Cuomo museum, the tour mainly revolves around the production processes traditionally employed by the ancestors. Visitors are shown the original equipment and tools used to make pasta, and the virtual reality tour presents the structure of the original three-storey factory.

At the Perugina museum, historical videos illustrate the evolution of the production process and some of the machinery used in the past is on display. There is also a special section where it is possible to see inside different parts of the factory through a raised glass floor. However, most of the exhibition centres around the history of the company, the inspiring principles, the iconic products, and the communication campaigns.

According to the aim of this study, one of the differences between the cases stands out here, namely the nature and direction of the company's relationship with the local environment. Since their beginnings and up to the present day, the two companies have had different relationships with their respective local areas. More specifically, Pasta Cuomo has been heavily dependent on the surrounding environment, especially because of the favourable geographical conditions provided by the Gragnano area. As it is sheltered by the Lattari Mountains, Gragnano traps wind and conveys it in such a way as to favour the drying process of wheat used to produce pasta. This characteristic led to the development of the pasta industry, making Gragnano the pasta capital with numerous pasta businesses in the area. In these conditions, even a long-established pasta maker like Cuomo undeniably relies on its local area, not only because of the topology, but also because of the location-based competitive advantage (Dunning, 1988) created by being embedded in an industrial district specialised in making pasta (Claver-Cortés *et al.*, 2019). This regional cluster provides its constituent actors with improved know-how and organisational capabilities (Porter, 2000). Shared knowledge and physical closeness also enable rapid formal and informal communication to take place between firms, creating an ideal atmosphere for quickly reacting to changes and organisational and environmental issues (Cooke, 1999). The locational advantage also stems from social embeddedness and lower transaction costs due to relationships of trust among co-localised firms (Tallman *et al.*, 2004).

In the case of Perugina, exchanges with the environment flow in the opposite direction. Historically, it was the business activities of Perugina that generated positive local externalities for the entire area in which the original factory was located. Right from its beginnings, this company's operations and success contributed to the economic development of the surrounding area, probably in part because of the nature of chocolate making, which is essentially place-independent. As a consequence, it is more than likely that any random inhabitant of Perugia will have some kind of tie (by kinship, friendship, or other relationships) to the Perugina brand. Umbrian communities, which have traditionally been subject to more economic isolation than other more developed areas of the country, have benefited from the positive spillovers of Perugina's successful entrepreneurial activity, which has spread more capabilities and opportunities than any direct government investment would (Audretsch, Keilbach, 2008).

In light of these considerations, we can argue that the two corporate museums manifest in different ways the three values identified in § 2.2.1, namely, longevity, transgenerational outlook, and rootedness in the local milieu (Tab. 3).

This study shows that the values underpinning Cuomo's adoption of the corporate museum are mainly the firm's longevity and the continuity of family traditions over a long period of time. The museum stems from the efforts of the family's younger generations, who implicitly felt they had been vested by their ancestors with a duty to preserve the activity that is closely linked to the family's identity, while striving to innovate the tradition and switch towards a more professionalised and modern management of the business. The corporate museum is evidence of how the firm benefited and continues to benefit from its embeddedness in the local environment.

Tab. 3 – *Values underpinning corporate museums: display strategies*

Values	*Museo della Pasta Cuomo*	*Museo Storico Perugina*
Longevity	Focus on the continuity of family traditions over a long period of time (e.g. the production processes traditionally employed by their ancestors)	Focus on the evolution of production processes and the brand per se (e.g. iconic historic products, communication campaigns, etc.)
Transgenerational outlook	Keen focus on the history of the family of entrepreneurs	Little focus on the family of entrepreneurs after the first generation
Rootedness in the local milieu	From the local environment to the firm	From the firm to the local environment

Source: *own elaboration*

Museo Storico Perugina, on the other hand, demonstrates a greater focus on the strength of the brand per se, as an entity that is independent of the founding family's reputation. Although the brand was initially injected with vitality by dynamic entrepreneurs, who built a profitable company from nothing, Perugina soon took on a life of its own and outlived its creators, while nurturing the local environment with its successes. At the same time, the corporate museum is a way of displaying the array of iconic products that the brand has been able to elevate from the status of generic chocolates and sweets. The corporate museum also serves as a means of displaying the source of the light that the brand casts over the local environment.

A side-by-side analysis of these two cases allows us to connect these value differences to the amount of control the family has in the firms' ownership. Pasta Cuomo is controlled by the Cuomo family, whereas Perugina is currently just one brand within the portfolio of brands of Nestlé Italia Spa, a listed Italian company with a fragmented ownership structure and part of the Nestlé Group. According to our assumptions, the extent to which the firm is family-run is closely tied to the value differences underpinning adoption of a corporate museum. Family involvement in ownership and business activities has been linked in previous studies to a transgenerational outlook of family members (Zellweger *et al.*, 2012), and the strength of the bidirectional links between the firm's and the family's reputation (Deephouse, Jaskiewicz, 2013). More generally, in this type of firm, the entrepreneurs' focus on socioemotional wealth (SEW), i.e. the affective endowment of family owners (Gomez-Mejia *et al.*, 2011) often prevails over financial wealth (Berrone *et* *al.*, 2012; Swab *et al.*, 2020). With regards to this, Berrone *et al.* (2012, p. 260) said that «given its pivotal utility to family principals, any threat to SEW means that the family is in a "loss mode" and, therefore, will make strategic choices that will avoid these potential SEW losses even if achieving this objective might come at the expense of other principals (e.g., institutional investors) who do not share in these SEW utilities». This is an important distinction from non-family firms, in which managers care almost exclusively about avoiding financial losses, irrespective of considerations about SEW, which is a family firm-specific construct (Swab *et al.*, 2020). According to the authors, this premise helps explain the differences found in the values underpinning the adoption of corporate museums by Pasta Cuomo and Perugina, which exemplify the different perspectives triggering the use of the same marketing tool.

6. Conclusions

This study helps to clarify the extent to which the intentions behind heritage marketing strategies are essential to determining their implementation and potential effects. It provides progress on current knowledge about the use of corporate museums as value drivers of firms, beyond their role as a marketing tool (Lehman, Byrom, 2006) and promoter of brand authenticity (Carù *et al.*, 2017; Bertoli *et al.*, 2016). More specifically, we show that corporate museums can vary in terms of what values they express and to what degree they do so, and provide qualitative evidence about the manifestation of three possible value dimensions, which have so far never been analysed: the longevity of a firm, its transgenerational outlook, and its relationships with the local environment. In addition, our paper also contributes to the literature on family businesses (Teal *et al.*, 2003), by showing how the family nature of a firm can affect implementation of marketing strategies and the use of heritage marketing tools.

Further investigation is needed to investigate aspects that have been overlooked or given little space in this present research. First, future studies could complement this data with direct interviews with the representatives of firms or museum managers in order to determine their explicit motivations. In addition, further investigations could focus directly on the effects on customers of value differences in adoption, by using ad-hoc surveys to collect customers' perceptions through standardised scales. Furthermore, our study is limited to the food sector, which is a staple of the "Made in Italy" brand. In the future, this limitation could be overcome by studies conducted in different sectors or by cross-sectorial studies. An additional aspect we have not considered in this study is whether the phase in the brand life-cycle can influence the way in which firms adopt a corporate museum to display their history. For instance, in the case of Pasta Cuomo, adoption of the corporate museum may have been driven by the fact that the brand was in a phase of revival, with the younger generation striving to breathe new life into it after a hiatus of decades. In addition, our study focuses on value differences between the museums of family-run and non-family firms, while it places less emphasis on the role of corporate museums as marketing tools. Therefore, further investigation is warranted in order to explore the extent to which the expected benefits from corporate museums match the actual benefits gained. Finally, although the qualitative framework adopted in this research appeared more suited to scratching beneath the surface and inspecting the values expressed by specific marketing strategies, quantitative studies could expand on this seminal contribution by investigating value differences in a broader sample of firms randomly extracted from a population, in order to provide statistical evidence for our conclusions.

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Corporate Governance and generational succession in family firms: the M.A.P.E.I. S.p.A. case study

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Abstract

The generational succession in family firms is a typical and inevitable event in corporate evolution. In particular, the Italian production system must constantly reckon with generational succession as it affects about 80,000 companies annually. It is very important that this process is carefully managed because, in Italy, only 31% of family firms survive their founder and only 13% go on to the third generation.

The aim of this paper is to indicate the most frequent mistakes made by family firms during the generational transition, through the identification of best practices summarized in six building blocks collected from the literature. In order to substantiate the theoretical argumentations, the article analyzes a case study concerning the family firm Mapei S.p.A., which has recently faced its second generational handover through a virtuous process in all its aspects.

Keywords: family business, generational transition, management, best practices, family firms, case study, Mapei, succession planning

Sommario

Il passaggio generazionale nelle *family firms* è da considerare un evento tipico e inevitabile dell'evoluzione aziendale. In particolar modo il sistema produttivo italiano deve fare costantemente i conti con la successione generazionale in quanto interessa circa 80.000 imprese ogni anno. È molto importante che questo processo

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venga gestito con attenzione perché, in Italia, solo il 31% delle *family firms* sopravvive al proprio fondatore e solo il 13% arriva alla terza generazione.

Il presente articolo ha l'obiettivo di indicare gli errori più frequenti commessi dalle *family firms* durante il passaggio generazionale, attraverso l'individuazione di *best practices* riassunte in sei *building block* raccolte dalla letteratura scientifica. Per dare fondamento a quanto teoricamente esposto, si è analizzato un caso di studio riguardante la *family firm* Mapei S.p.A. che da poco ha dovuto affrontare il suo secondo passaggio generazionale attraverso un processo virtuoso in ogni suo aspetto.

Parole chiave: corporate governance, successione generazionale, imprese familiari, pianificazione della successione, best practices, case study, Mapei

1. Introduction

Family firms have always represented an extremely important sector of the Italian economy and beyond. As was pointed out during the last edition of the Family Business Festival - held in Genoa on 21 and 22 October 2021 - this corporate dimension has "a strong influence in many other countries, starting with our neighboring Germany, in which it has almost as much influence as Italy" (Sacchi, Corbetta, 2021).

In Italy – according to the latest edition of the Global Family Business Survey – 65% of companies are family-owned and these data put Italy on the seventh place among the Countries with the "world's top 500 family businesses" (Maglia, 2021).

It is not surprising that in the third millennium (La Porta et al., 1999, 471-517), beyond the Italian case, even at European and international level there is already a widespread awareness that family firm was the predominant form of business organization in the world and, therefore, a priority competitor for job creation (Maglia, 2021).

This prominence is also reflected in the production of studies on the topic: between 1998 and 2009, more than 250 scientific articles were published on family business, and between 2009 and 2021, more than 100 monographs were published (Yu *et al*., 2012, 33-57).

However, there is one fact that is considered cause for concern according to the EU, an entrepreneurial generation lasts about 29 years. This means that most European companies – and Italian in particular – are already dealing with issues relating to business continuity, or will have to do so in the coming years. Nevertheless, despite a recent increase in awareness, the majority of Italian entrepreneurs do not consider as a priority the problem of continuity/succession; instead of a strategic planning process, they expect to tackle the issue as it comes.

Several studies have shown that the main cause of the absolute or relative closure of many family firms is the failure of the succession process (Ferrari, 2021; Le Breton-Miller, 2004, 305-328.

It is worth noting that, according to the Association for the Prevention of Business Crises (ASCRI) (Albé, 2014) the most critical factors in the generational succession are: 1) the failure in establishing on time a written legal family pact setting out the legal rules, and 2) the overlapping roles of "shareholder", "leader" and "manager" in the transition phase among family members. The appointment of a *manager* to accompany this phase is considered to be extremely useful.

In this regard, it should be noted that the high number of family businesses and the low number of external *managers* make the generational succession a process that needs to be carefully managed, especially in light of the alarming fact that in Italy only 31% of companies survive their founder and only 13% arrives to the third generation.

The aim of this study is to investigate the phenomenon of generational succession in family firms, highlighting the most common criticalities and, at the same time, representing a model of best practices developed by some authors. Then, we will investigate the case of Mapei S.p.A., in order to confirm the virtuous model described theoretically.

After an initial description of the defining aspects of family firms, the paper explores the extent of the phenomenon of generational succession in numerical terms and the related corporate governance profiles. In the second part, it is highlighted how much corporate governance is a conditioning element of the generational succession, as well as the most common critical elements and the steps that should be followed by a family firm that intends to carry out a virtuous generational succession. In the last part of the paper, after the description of the methodology used, we will analyze the case study and we will make some concluding remarks.

2. Family firms

2.1. Defining aspects

The lack of an unambiguous definition of family firm has not helped to clearly mark the boundaries between those that are and are not, in order to delimit the field of investigation. For example, in the ten-year period from 2003 to 2013, seven different definitions have been used by scholars to describe "family-owned" companies according to a management perspective. In 2003, they were defined as those companies that have an identifiable share of ownership in a family unit and have one or more generations leading it – a family had to own more than 50% of the share in a private company or more than 10% in a public company to be qualified as a family firm (Zahra, 2005, 499).

According to other authors, a firm belongs to a family when one or more members of the family occupy managerial positions (Fernandez, Nieto, 2005, 77-90). Others have argued that there are essentially two conditions to be fulfilled for a company to be considered a family firm: 1) there must be a family relationship between two or more directors; 2) family members must hold "a substantial block of voting" (Gomez-Mejia *et al*., 2007, 223-252).

In 2008, two criteria were suggested: a company is a family firm if one or more relatives own at least 50% of the shares of the company and the CEO perceived it as a family firm (Naldi, Norqvist, 2008).

Five years later other scholars provided three more definitions: according to Calabrò and Mussolino, family firms are defined as such if families have both voting control on the board of directors and the majority of ownership (more than 50%), as well as one or more family members in managerial positions (Calabrò, Mussolino, 2013). In another study, the same authors further specified that there is a family's involvement in the business essentially when: (a) the manager is a member of the owning family and (b) more than one generation is actively involved in the firm (Calabrò *et al*., 2013). Finally, other authors emphasized that what really matters is the percentage of the company's share held by the owning family – if it exceeds 20% and is divided between several relatives also sitting on the board, then the company is a "family firm" (Sciascia *et al*., 2013).

If, therefore, the definition of SME is now defined and consolidated, at least from the European point of view[1], that of "family firm" continues to differ: according to some, a family firm is one in which the family «controls the business through significant involvement in ownership and management positions» (Sciascia e Mazzola, 2008); according to others, they are those in which the CEO is a member of the family that owns the majority of the company shares (Anderson *et al*., 2004). In many other cases, however, it is preferred to rely on empirical evidence «from questionnaires in which there is a specific question directed to the entrepreneurs interviewed asking whether or not the business is controlled by the family» (Sestu e Maiocchi, 2018; 2020).

Although distinct and inspired by different theoretical frameworks, the contributions on the topic of the definition of family firms show a common

[1] Commission Recommendation concerning the definition of micro, small, and medium-sized enterprises, 2003/361/EC, del 6 maggio 2003, in *Official Journal of the European Union*, L 124/36, 20 may 2003.

feature that reaches up to the most recent ones: they all analyse the socio-cultural values and the economic-entrepreneurial relevance of the owner's control over the business.

From a management perspective, the term "family firm" refers to a typology in the vast universe of firms and is a category that cuts across the forms it can take from the legal point of view, the types of control it follows and is oriented to, its organizational size and its nationality.

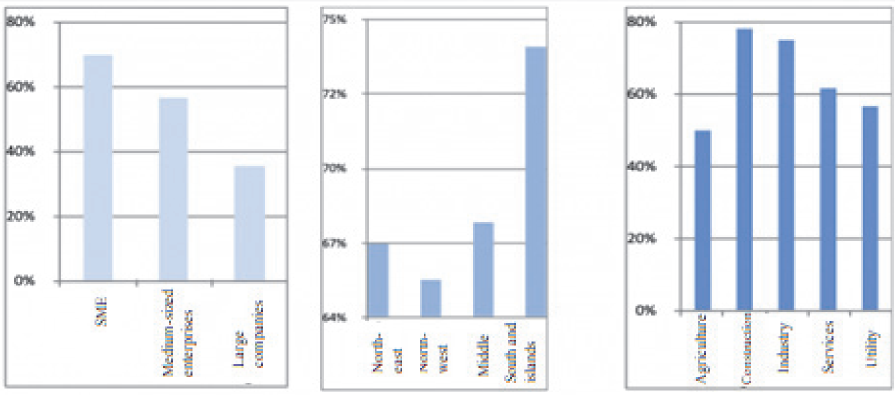
The family dimension, therefore, imposes itself as an organizational dimension defined by certain constants, such as family ties in governance and generational continuity in managerial management – which, depending on the way they are combined, can generate a high (or low) polymorphism of structures (Meyer *et al*., 1993). It is no coincidence that the families that run many of the firms «are becoming larger and more complex and can be shaken by unpredictable internal events such as departures, marriages, de facto ties, divorces or family disputes between different branches or between different generations» (Deloitte, 2019, 2).

2.2. Family Firm numbers

Families engaged in family firm are the foundation of all modern economies, and there is no economy today, at any stage of development, in which family firms do not play a significant role.

The latest Cerved surveys show that there are more than 100,000 family firms operating in Italy and that most of them, from a quantitative point of view and in terms of their incidence on the overall population of firms, fall in fact into the category of Small and Medium Enterprises (SMEs). Most of them are based in the South and on the islands, and they are mainly construction, industry and services companies, as shown in Fig. 1:

Fig. 1 - *Presence of family firms by size, geographical area and sector of activity: % of total*



Source: *Il Sole 24 Ore su dati Cerved, gennaio 2019*

A comparison with the various editions of the report edited by the AUB Observatory reveals an irrefutable trend: from 2007 to 2018, Italian family firms with a turnover of more than 50 million Euros rose from 4,251 (55.5%) to 5,086, which is equivalent to 61.6%. The growth has been constant, despite the fact that the quantitative data showed a downturn in the wake of the 2008 crisis. Although Italian family firms fell below the 4,000 limit in 2009, they still account for the majority of the total firms and increased by 1.6% compared to 2007. In terms of turnover under 20 million euros, the numbers of family firms are also impressive – the percentage exceeds the overall national value of 69.1%, as shown in Fig. 2:

Fig. 2 - *Ownership structures of Italian companies*

OWNERSHIP STRUCTURE	Small*		Medium-sized*		Total	
	N	%	N	%	N	%
Family members	6.721	69,1%	5.086	61,6%	11.807	65,6%
Branches of Foreign Companies	1.402	14,4%	1.809	21,9%	3.211	17,8%
Cooperatives and consortia	549	5,6%	402	4,9%	951	5,3%
Coalitions	563	5,8%	305	3,7%	868	4,8%
State/local Authorities	264	2,7%	335	4,1%	599	3,3%
Controlled by Public Equity (P.E.)	167	1,7%	237	2,9%	404	2,4%
Controlled by banks/insurance companies	41	0,4%	69	0,8%	110	0,6%
Controlled by foundations	13	0,1%	6	0,1%	19	0,1%
Public Companies	7	0,1%	6	0,1%	13	0,1%
Total	9.727	100,0%	8.255	100,0%	17.982	100,0%

Source: *AIDAF 2021*

Moreover, since 2014, the growth rates of family firms have steadily turned positive compared to other non-family firms: after overtaking them in 2013, the positive trend has been confirmed by all the annual reports: the cumulative growth rate of the Italian family firm has recorded positive values that, at least until 2019, have always shown better performance on an annual basis: + 1.2 in 2014, + 3.9 in 2015, + 4.1 in 2016, + 6.1 in 2017, + 6.6 in 2018 and + 4.8 in 2019 as shown in Fig. 3. The cumulative growth rate is compounded on a 100 basis – i.e. referring to the figure recorded in 2010 – and is calculated on sales revenue:

Fig. 3 - *Growth rate of Italian family firms compared to other firms*

Ownership structure	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
State/local Authorities	100	105,0	110,2	113,5	114,4	116,7	117,9	123,8	130,0	135,2
Controlled by PE	100	116,0	120,6	129,0	139,4	151,9	165,6	182,2	200,4	214,4
AUB's family businesses	100	112,0	114,2	120,0	128,3	139,9	149,7	166,2	179,5	181,2
Branches of foreign companies	100	110,6	112,8	117,3	124,3	133,0	142,3	156,6	167,5	170,9
Coalitions	100	110,0	115,5	123,5	133,4	145,4	160,0	176,0	193,6	197,5
Cooperatives and consortia	100	110,8	117,5	125,7	132,0	141,2	149,7	161,7	171,4	173,1

Source*: AIDAF 2021.*

It should also be noted that in the same period the Debt/Equity ratio of family firms fell by about 33%, the NFP/EBITDA ratio by 18% and the NFP/Equity ratio by 26%. At the same time, the percentage of family firms on the total number of companies is significant not only in Italy (where, as in Germany, it represents a significant percentage of the national business sector), but also in the other European countries considered in the survey, as shown in Fig. 4:

Fig. 4 - *Percentage of family firms out of the top 1000 firms in the national reference economies*

OWNERSHIP STRUCTURE	FRANCE		GERMANY		ITALY		SPAIN	
	N	%	N	%	N	%	N	%
Family businesses	283	28,3%	395	39,5%	437	43,7%	354	35,4%
Subsidiaries of multinationals	343	34,3%	306	30,6%	376	37,6%	367	36,7%
State-owned	73	7,3%	83	8,3%	48	4,8%	35	3,5%
Cooperatives and consortia	102	10,2%	39	3,9%	62	6,2%	42	4,2%
Coalitions	55	5,5%	63	6,3%	30	3,0%	105	10,5%
Controlled by Public Equiti (P. E.)	59	5,9%	12	1,2%	31	3,1%	33	3,3%
Controlled by banks/ insurance companies	25	2,5%	14	1,4%	12	1,2%	18	1,8%
Public Company	57	5,7%	34	3,4%	1	0,1%	31	3,1%
Foundations	3	0,3%	54	5,4%	2	0,2%	15	1,5%
Total	1000*	100,0%	1000*	100,0%	1000*	100%	1000*	100,0%

Source*: AIDAF 2021.*

3. Corporate governance profiles in family firms

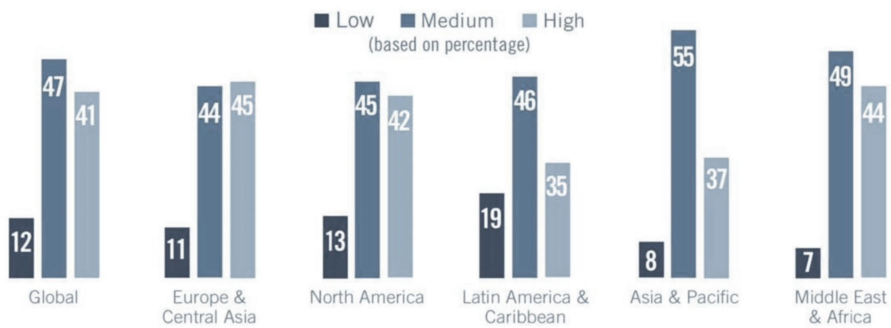
The third millennium globalization and the unification of the market in an international space of hyper-competition have drawn the attention of scholars to those companies led by family managers, with a special regard to the speed in the decision-making processes, an element that influences company performance today more than in the past (Pounder, 2015).

Family firms have always shown greater resilience and adaptability to economic changes than non-family firms – much more than one might think – and this factor gives them a competitive advantage (Miller and Le Breton-Miller, 2006). Family firms have often demonstrated a greater ability to regain «pre-crisis profitability and improve robustness, i.e. the ability to evolve and adapt to sudden changes in scenario that will certainly be needed now, in response to the Covid-19 pandemic» (Maglia, 2021).

For this reason, the choice of the suited governance structure for the family firm is of utmost importance for its long-term success: through processes and structures, it supports communication between family members and helps them to define who they are as a group and what they want to achieve.

The level of development of family governance is linked to the way family members identify with the company itself. This applies, in general, always at global level. It is not a coincidence that 41% of CEOs have a high level of family identification with the company, while 47% have an average level of this index, which falls to 34% in Latin America and the Caribbean and 37% in Asia and the Pacific, as shown in Fig. 5:

Fig. 5 - *Level of family membership compared to company size*



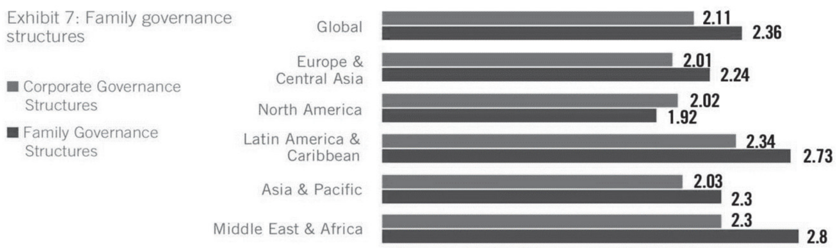
Source*: A. Calabrò, A. Valentino, 2019*

The value of family firm as an overall value driver lies in the level of family influence (Astrachan *et al.*, 2005) and the degree to which it manifests itself: it is through it that the family demonstrates its long-term commitment and ensures business continuity. Each family firm has its own specific philosophy that identifies the company because it is a direct emanation of the way the family "do business", of its values, traditions and convictions that, as a whole, constitute the company strategy (Holt *et al*., 2010).

Moreover, the management of a family firm is constantly oriented towards involving the family in the running of the company (Astrachan et al., 2005; Berrone et al., 2012) and, in order to avoid nepotistic drifts – which would deprive value to family management – the key to success lies in the fact that new recruits must be able to boast and have acquired a good business education and internalize the family values that guide the business (Chrisman et al., 2012).

In other words, an efficient family involvement is at the base of qualitative management control over the processes of the family firm, which is the only value driver that can guarantee long-term business performance. Obviously – as shown in Fig. 6 – the incidence of family involvement in the business varies according to the geographical culture in which the family firm operates (Sharma, Rao, 2000): «family firms in the Middle East & Africa and Latin America & the Caribbean adopted various tools, including having a family constitution, a family council and formal family meetings. Family firm leaders from North America reported using more corporate governance tools than family governance ones; it is the only world region to show this trend» (Calabrò, Valentino, 2019).

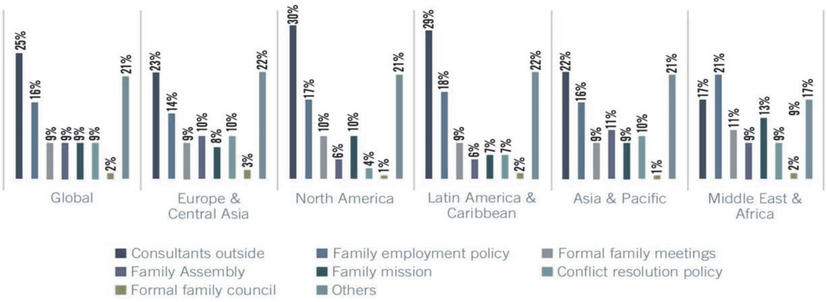
Fig. 6 - *Governance structures in family firms by geographical macro-areas*



Source*: Calabrò, Valentino,2019, 16.*

The global trend shows that 25% of family firms use professional consultants, followed by 'internal' employment policy (16%) and formal family meetings (9%). In the respective macro-areas, the trend is confirmed with some exceptions: for example, in the Middle East and Africa, the family employment policy is the most adopted tool, while in Asia and Pacific Area the family assembly is preferred over traditional "family meetings" (Fig. 7):

Fig. 7 - *Family firm governance tools by global macro-areas.*



Source*: Calabrò, Valentino, 2019, 17.*

The propensity to invest in specific family governance tools increases the sense of family, of members' identification with the company, but this only occurs when the family firm adopts more than one family governance tool. In other words, in order to increase the identification of family members with the company, it is necessary to use more than one family governance tool.

Moreover, family firms that adopt more than one family governance tool, compared to those adopting only one, also show higher levels of entrepreneurial orientation and business performance. Finally, those that borrow at least one of the following family governance instruments – formal family meetings, family constitution, family council, or family assembly – show higher levels of entrepreneurial orientation and performance than those that do not adopt any.

Fig. 8 - *Corporate governance tools on global macro-areas*

	Global	Europe & Central Asia	North America	Latin America & Caribbean	Asia & Pacific	Middle East & Africa
Women on the Board	31%	31%	34%	32%	24%	37%
Formal Succession Process	16%	17%	18%	13%	18%	17%
Formal Bylaws	16%	14%	21%	21%	12%	7%
Formal Board of Directors	11%	11%	8%	7%	13%	17%
Board of Advisors	7%	9%	5%	6%	6%	9%
Different Share Classes	6%	4%	8%	7%	8%	3%
Mandatory Retirement Age	6%	6%	1%	5%	9%	4%
External Directors on the Board	5%	4%	2%	6%	7%	6%
Majority of the Board Made Up of External Directors	3%	2%	3%	3%	3%	1%

Source*: Calabrò, Valentino, 2019, 18.*

As the 2019 Global Business Survey data shown in Fig. 8 highlights, in fact, «at a global level, 48% adopt only one corporate governance tool, 22% adopt two tools and 30% three or more tools. In contrast to the family governance tools, we do not observe any significant difference with business governance tools across world regions. The unique exception is Latin America & the Caribbean, where the percentage of family firms that use only one tool drops to 41%» (Okoroafo, 1999; Fernandez, Nieto, 2005; Graves, Thomas, 2006).

4. Generational succession in family firms and the role of corporate governance

4.1. The numbers of generational successions in Italy and worldwide

Generational succession in family firms is a typical event of their evolution. Economic dynamics – such as those in Europe and especially in Italy, where the weight of small and medium-sized enterprises is decisive for the stability of the economic system – are very often characterized by problems relating to generational succession.

According to data published by ISTAT, in 2020 the Italian production system came constantly to terms with the problem of generational succession, with obvious criticalities for the stability of the economic and production system. Companies controlled by entrepreneurial families account for about 75.2% of the total. In numerical terms, this data indicates that the generational changeover can be scheduled or can take place suddenly and affect about 80,000 companies every year (Rimini, 2020, 45ss). However, the issue of generational changeover is not only Italian, but it is an international issue: according to the 2020 Global Family Business Survey, in fact, «70% of current family firm leaders admit to not having a succession plan in place. This evidence stays constant and with similar percentages across world regions. Despite this, 47% of current family firm leaders report having an emergency plan for succession in case of unexpected events. This percentage goes up to 60% in North America and down to 37% in Latin America & the Caribbean».

Generally, the first transfer of ownership takes place after about 32 years (Rimini, 2020, 45ss) and the second after 21 years, underlining that the first generation changeover is the most difficult, troubled and unplanned one (De Rosa, Russo, 2021, 156ss.). This clearly occurs because the founders tend to identify completely with the organization they created and, therefore, tend to extend their time at the top of the business. In addition, the business formula and the various elements of the company's structure have been modelled on the founder's characteristics and a "founder absence test" has not yet been carried out.

Finally, many of the actors involved - especially family members - have never gone through generational change processes and, therefore, have no experience in this regard. Empirical evidence in the United States of America suggests that approximately only one-third of family firms survive the transition from founder to second generation (Rimini, 2020, 45ss.). Moreover, less than a tenth of family firms seem to be able to survive to a third generation transition.

4.1. Generational succession in family firms: best practices

Generational succession may occur for sudden reasons, it may depend on biological events (such as the death of the entrepreneur) or on his/her removal because he/she is reluctant to be replaced, which takes place by an act of force by the other members of the company, that can be the source or consequence of obvious conflicts. Where the succession occurs suddenly, the identification of the successor is not always clear and immediate. In the case of planned succession, on the other hand, there is a process whereby the entrepreneur endeavors to ensure that the transition takes place as smoothly and peacefully as possible in order to guarantee the continuity of the business (Sciarrino, 2019, 784). In order to avoid the most common mistakes and proceed to a virtuous generational succession, the scientific literature has identified some best practices summarized in six building blocks that cover various phases and aspects of the generational transition, as it follows.

1) First of all, preparatory activity is considered fundamental. More specifically, it is important to consider generational succession not as an event but as a process that has to be matured years beforehand and that has to follow certain steps, stages of adjustment, maturation and awareness on the part of both the successor and the *incumbent*.

2) Within this process, a key element is the preparation and training of the successor. According to some authors, anticipating the *incumbent's* entry into the company is a good step both to gain experience and for official recognition by the company itself, which begins to get runned to the presence of the future leader.

3) In the search for a new successor, it is essential to carry out in depth research as objective as possible, disconnecting from family influences and looking for a figure whose background and skills are as much in line with the role as possible. If necessary, third parties may be involved in the search during the transitional phases, using a team working approach.

4) Having a detailed generation transition plan is an excellent prerequisite, but it is crucial that the steps are followed and completed. Indeed, some

generational successions come to a halt at decisive moments and the most frequent case is when the *incumbent* has to definitively relinquish any role or position within the family firm. The formalization of the successor's responsibilities and tenure is therefore the final, but also the most delicate, stage in the transfer of leadership and can often take years to perfect, so much so that some authors suggest a period of top-down collaboration between both parties Miller *et al.,* 2003, 513-531).

5) In this succession process, the family component remains an extremely complex and sensitive issue, which needs to be managed with intense and timely communication and constructive dialogues, separating family and firm issues. On this point, some authors identify the holding of formal and informal meetings as an appropriate way to overcome or at least identify potential problems or discontent among family members.

6) Family firms, especially the less structured ones, tend to limit the entry of third parties into the management team, but for some authors it is important that the incumbent and the successor adopt an attitude of openness towards outsiders, who may have the necessary skills to lead the company to the end of this path (Chiesa *et al.,* 2007, 9-10).

In a globalized and connected world, the reaction time is key for success, as well as the decisions one has to take – the entrepreneurs in family firms very often think carefully about decisions or investments to make, and some scholars noticed that family firm governance and organizational leadership approaches in this sense create and are synonymous of long-term investment capacity (Zellweger, 2013, 229-248). This turns out to be a valuable perspective in a dynamic and uncertain environment such as that of the liquid society – using the words of the sociologist Zygmunt Baumann – which places family firms at an advantage position over others if they are in line with the necessary updating that the market requires.

However, safeguarding family unity is often considered more important than protecting the company's assets. The entrepreneur, therefore, prefers not to stir up family conflicts and ends up resting on the tranquility of established business practice and the security of customs. Planning the transition remains one of the key elements for the optimal management of a generational succession, and this often involves family members.

The involvement of family members, however, cannot be efficient without adequate training: the education of family members is the basis of their future roles in leadership positions. Understanding the objectives, the organization, the culture of the company, acting and following the family philosophy as well as collaborating with relatives, represents an important challenge for the whole family firm for the promotion, growth and success also in view of the possible diversification of the activity (Stough *et al*., 2015, 208-218).

The early involvement of family members, where necessary or desired, also helps the company to experience the succession process in a less traumatic way. At the same time, the inclusion of inactive family members in the entrepreneurial management influences the long-term strategy and the feasibility of performance (Brigham *et al.,* 2014, 72-88): the better the family knows the needs of its business, the easier and faster the decision-making process is.

The key performance indicators are firstly the family passion for the business. Secondly, the set of other factors including: the family governance policy, a strong emotional attachment of the family to the business, the willingness to transfer the business to the next generation, the research and the use of innovative tools to safeguard the family firm. To previous factors, it is necessary to add the experience, family influence and recognition among members of the company's mission (Hategan, 2019, 1715).

The result is that the level of family control determines the power of the influence the family exerts over the business. On the other hand, it is well known that the dimension of power is a direct instrument of the family's control over it (Astrachan *et al*., 2005). It is therefore not surprising to see the results of a number of studies on the topic, both at an international (Barontini, Caprio, 2006, 689-723) and national level (Sacristán-Navarro *et al*., 2011, 101-112): in both cases, it is shown how «the role of the family in the business influences the performance of the company» (García-Ramos, García-Olalla, 2011, 220-231).

The correlation between family involvement and the impact on a firm's performance has also been projected over time (Mazzi, 2011, 166-181), and is defined as the sum of four components: ownership, political governance, management and succession. The component of family inclusion in family firms, however, experiences some peculiarities, since – in terms of turnover and number of employees – as the size of the firm increases, there is a decrease in the presence of the weight of the family. In Italy, this tendency is very marked and persists even in the highest size segments.

Fig. 9 - *Control, management and generational handover, enterprises by employee class*

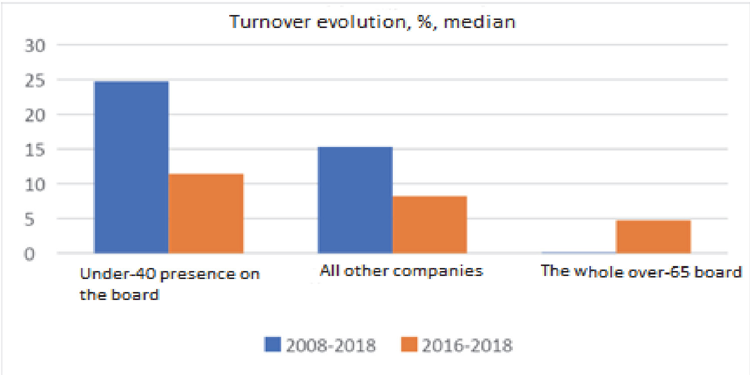
Employee classes	Enterprise total	Number	%	Enterprise management	Generational succession 2013-2018
3-9	821.341	642.069	78,2	-	8,0
10-49	187.734	123.239	65,6	2,6	12,1
50-249	21.101	10.772	51,0	9,2	14,7

250 +	3.561	1.318	37,0	21,2	14,6
Total	1.033.737	777.398	75,2	3,3	8,8

As the size of the company increases, the presence of individual and family control decreases, but it remains a very significant element even within very large size segments.

However, the real influence and strength of family firms is very obvious in the smaller size, with very specific and systemically value-generating productions. In light of the cited data in relation to the percentage of failure, the generational succession is first of all a survival issue of the firm itself, rather than a personal problem between its family members involved. Nevertheless the same data, specifically between the 2008-2018 decade, indicates that if generational passage goes through dynamically and it is oriented to include among its board members at least one person under the age of 40, the trend in its turnover as well as the EBITDA improves significantly, testifying the fact that if a younger component is able to work alongside one or those who take control of the company, it will produce better results.

Fig. 10 - *The evolution of sales and presence on the board of subjects of different ages*



Source: *ISID, CERVED 2020.*

Sales values reward companies that have organized, in the two time frames considered, a generational change by including within the management of the company a component who is younger than 40 years of age. This showed a positive effect on business growth for companies both in the decade 2008-2018 and in the period 2016-2018, with a figure that sees the historic companies able to produce a higher turnover compared to those with a board composed of members over sixty-five years old. This data refers to manufacturing companies, given that the sample analyzed by the study is focused on this sector, which in any case represents an important pillar at an economic and production level in Italy and in Europe, with specific reference to family firms. As stated previously, the first transfer of ownership occurs after about 32 years and the second after 21 years, underlining that the first generational transition is the most difficult, troubled and unplanned one. This occurs because the founders tend to identify themselves completely with the organization they gave rise to and, therefore, tend to extend the time spent at the top of the company. In addition, the entrepreneurial formula and various elements of the company structure have been modeled on the characteristics of the founder and a "founder's absence test" has not yet been carried out. Finally, many of the actors involved - especially family members - have never faced processes of generational change and, therefore, do not have any experience in this regard.

5. Research Methodology

The methodology used is the analysis of the single case study itself, considered suitable for giving answers and ideas about the most effective and practical way to make the generational succession. From a practical point of view, the use of the case study allows to identify the best practices that can be replicated by any family firm with similar dimensional characteristics and structure.

The identified case is Mapei SpA, a company operating in the production of chemical building materials since 1937 and in the hands of the Squinzi family since its birth. Because of its origins committed to initiatives concerning culture and society, the company has been linked to the Teatro alla Scala in Milan, in 1984 it signed the "supporter subscription" for the first time, subsequently becoming an active member in its restructuring and restoration.

Mapei is also a "founding member" of the National Academy of Santa Cecilia in Rome. The company has always distinguished itself in the social sector by integrating principles such as ethics, transparency and responsibility into its business model and, as such, it lends itself as an Italian reality and an emblematic case of success that combines a high commitment to social and environmental protection with excellent performance.

Historically the company has always been very solid, but has had a significant increase in sales and performance over the last ten years. In 2012, Mapei, with 2.1 billion euros in sales, was the third largest Italian chemical industry after Versalis and the Mossi & Ghisolfi Group. Located in over 58 factories in 28 countries with 7,500 employees. In 2017 they moved closer to 10,000 employees. In 2018, the consolidated turnover was 2.5 billion euros and had over 10,000 employees worldwide.

In 2017, on the company's 80th birthday, Giorgio Squinzi declared that, in its history, Mapei had never closed a loss-making financial statement, never resorted to layoffs, and never laid off due to a reduction in staff.

In 2019, Mapei S.p.A. had a consolidated turnover of 2.8 billion euros and 10,500 employees worldwide, divided into 75 plants and 27 countries.

5.1. Data Collection

The data comes from a collection of different types of sources allowing the orientation of information collected. The first phase involved the extrapolation of quantitative data from the AIDAF (Italian Association of Family Businesses) database and from the data reported by the AUB Observatory.

After a general overview, we moved on to gathering information regarding Mapei by consulting its website (www.mapei.com) in order to reconstruct the company's history and access press releases and internal documents. The company data was also derived from the consultation of the database of the economic newspaper Il Sole 24 ore (Database 24) and other accredited newspapers of national importance.

The last information, to validate what has already been acquired from other sources, was collected from the press releases present in the "Mapei reality" and "About us" sections on the company's website.

5.2. Data Analysis

In line with the research question, the data analysis was conducted with the aim of extrapolating the actions that Mapei has implemented to correctly complete the generational takeover, taking as a reference the best practices identified in literature and evaluating the performances following the transition, with this by also not neglecting the observation of family balances based on management interviews and press releases from the last five years. The analysis particularly sought to extrapolate evidence relating to the process of integrating successors into the company by analyzing the various stages of the transition. In addition, an investigation was carried out on the reasons behind the choice of successors and the roles covered by them.

The second phase of the analysis was concerned with understanding the evolution of internal relationships between family members following the transformation of the positions in management. To do this, we gathered information from reports, interview statements and newspaper articles of well-known newspapers.

The last analysis concerned the profile of external communication. In this last case, all the official documents and reports published on the website in the “news and events” and “projects” sections were analyzed.

6. Aspects of corporate governance in generational succession: case study

6.1. Mapei: company profile

In 1937 Rodolfo Squinzi founded MAPEI - Autarchic Materials for Building and Industry in Milan, dedicated to the production of paints. The historic site in Via Cafiero, which employed 7 employees at the time, now houses the Corporate Research Center in Milan, intended for research and development of new Mapei solutions. The first product ever made was a silicate paint. Subsequently, thanks to extensive research, the company’s DNA from the very beginning, Mapei dedicated itself to the production of adhesives and products for laying resilient materials. In the first half of the 1950s, Giorgio Squinzi, a young chemistry student, began working in the company and contributed to its success by inventing a series of innovative products at an international level, precursors of what would be revolutionary products in the world of ceramics.

The first phase of the company’s internationalization began in 1978 with the opening of the first plant in Canada, followed by France in 1984 and Mapei Corp. in the United States. In the same year, the process of the first generational succession took place: Giorgio Squinzi took over from his father Rodolfo at the business direction with the presence and support of his sister, the lawyer Laura Squinzi. Beside Giorgio, his wife Adriana Spazzoli took over the management of the marketing and communication activities of the Mapei Group.

Successively, it began a decade of important innovations that saw the expansion of the company in Spain, Germany, Australia, the Caribbean, Switzerland, Malaysia, Benelux and Venezuela. In 1993, the Mapei professional cycling team was born, for years at the top of the major international competitions.

In the second half of the 1990s the dawn of a new generational shift arose: the arrival of the son and daughter Marco and Veronica who took their first steps in the company, renewing Mapei’s commitments in the key sectors of the group: research & development and internationalization.

In 1997, Mapei Sport Service was born and, in 1998, the Mapei professional cycling team triumphed at Paris-Roubaix. In 2003, Mapei acquired the

U.S. Sassuolo Calcio and, in 2006, it was the lucky sponsor of the Italian national football team, which won the fourth World Cup in its history. The production successes of the company also continued and the firm soon confirmed itself as a leader in the cement and mortar sector.

As Mapei subsidiaries grew, so do their product lines. The Mediglia plant, in the province of Milan, hosted new plants and a laboratory for products dedicated to underground works and a new Itinerant Building Laboratory dedicated to additives was created. Mapei continued to focus on sustainability and formulated increasingly performing products, contributing to the circular economy: a commitment to the environment and health that is also expressed by establishments made of local and eco-sustainable materials.

In 2016 Mapei produced its first Sustainability Report to share the results achieved with the stakeholders: Mapei proved to be a solid but flexible company, capable of adapting to change efficiently while always remaining faithful to its history and corporate strategy, this also thanks to an extensive supply capable of satisfying all the needs of the building and manufacturing sector with particular attention to sustainability, durability and quality of the solutions.

We arrive at the year 2019, an unforgettable year for the top management of the company: Giorgio Squinzi, former president of Confindustria and pillar of Mapei S.p.A., passed away at the age of 76. Precisely on 2 October 2019, the date that forced the company to think about its future, and it is with that event specifically that the generational transition was perfected and formalized. After half a century at the top of the firm, the children Veronica and Marco succeeded their father Giorgio, taking over the management of the company as managing directors. In addition to them, the current board of directors sees the cousin Simona Giorgetta as a member and the lawyer Laura Squinzi as president.

6.2. Discussion

Giorgio Squinzi had not been caught unprepared because he planned the business succession for some time. Accordingly, taking the best practices mentioned as a reference, and in particular the first point of the six building blocks mentioned, the transition was planned considering the changeover not as an event but as a gradual process to be cultivated over the years, following phases of adaptation and maturation. In fact, both successors entered the company in 1997. More specifically, Marco, from 1997 to 2008, worked in the field of research and development, where he became director from 2008 to the fateful 2019; Veronica since 1997 and for about twenty years rose in the company ranks through in the field of global development, until she became manager of the sector concerning the strategic planning of the chemical giant.

Regarding the second mentioned building block Mapei followed the key element of preparing and training successors. In fact this path enabled greater awareness both for the incumbent and for the successors, and it ensured that there was an in-depth training of the successors who gained experience in the market sector of Mapei, but also managed to get to know the dynamics of the company reality for years. This generational change underwent a process of metabolism, also supported by public declarations by the owner of Mapei who in more than one interview, as early as 2006, stated that he had "full and total confidence" in the new generation.

There was a detailed succession plan even from a legal point of view. In fact, Mapei S.p.A. was controlled by the family holding firm Emme Esse Vi, which was created fifteen years ago, as it is written in its statute, "also in the perspective of the generational transition", with a specific purpose: "The conservation and administration in a unitary way of the represented by the ownership of the Mapei shares". From the corporate structure point of view, Giorgio and his sister Laura Squinzi transferred full ownership of the shares to their respective children and, currently, 32.66% of the share is owned by Giorgio's children, Marco and Veronica, and 34.68% to Simona, Laura's daughter, a successful lawyer who manages the legal aspects of the company. However, until before his passing, Giorgio Squinzi had retained the role of sole director for life which represented, in fact, more an honorary position than an actual acting one, showing a virtuous conduct also on this level while also adhering to the guidelines formulated by the scientific literature. In adhering to point four of the indicated best practices, although Giorgio Squinzi retained the role of sole director for life, the stages of generational succession had all been followed and completed without any particular setbacks. In fact, even the delicate formalization of roles and responsibilities went hand in hand with in-company training and was completed with a period of collaboration at the top between the incoming and outgoing generation. Therefore, also regarding points three and six of the best practices, it should be specified that the company's choice to keep management in the hands of family members is not due to a closed attitude towards the outside, but from a conscious choice. Proof of this can be found in the growth and training process mentioned above, which led to qualified and loyal managers. On this aspect, it can be acknowledged that the open attitude of the company nevertheless led to the choice of a successor who was a member of the family and, in this case, a partial completion of the step envisaged by the literature cited in point three and six of the building blocks. Despite its impressive size, the group always maintained a strict family management, and even the aforementioned holding statute leaves a warning to future generations. Therefore, it will be the responsibility of the successors to continue to manage the delicate family relationships in parallel with the business activity, as was done for the two previous generational transitions. This presence of a necessary family component could, at first sight, seem like a limitation on the part of the group to use external managers or more qualified third party operators. However, according to some authors, although it is true that more family members are included in the company, the more the possibility of having recourse to external managers decreases, it is also true that as the number of family members in management increases, the possibility of having more qualified and financially literate (Gallucci et al., 2017) CEOs also increases. Regarding corporate governance, the company has always presented the structure of the sole director. Giorgio Squinzi considered this ownership and managerial structure to be one of the keys to Mapei's success, as it allowed strategic decisions to be made quickly, avoiding conflicting relationships with members elected by other shareholders. In addition, as Giorgio pointed out in an interview with Sole 24 Ore in 2016, there is no shortage of informal family gatherings to talk about the company, avoiding the costs of a representative body of the shareholders. This component relating to family meetings aimed at comparing and sharing the management line goes along with what the literature considers as a virtuous way of managing family relationships within family firms More specifically, this conduct complies with point five of the above mentioned building blocks, concerning the necessary, intensive and timely constructive communication between family members about potential problems in the company and family dynamics. The latter element will also have to be re-proposed by the two newly elected CEOs with a view to continuity with the past vision.

6.3. Mapei's Generational Succession

The years immediately following the formal generational transition were undoubtedly the most delicate and the object of greatest interest even by scholars, because the intentions of the successors that were previously limited by the presence, even if only formal, of the incumbent are finally revealed. At this point, the already complex management of the phase following the passing of Squinzi senior was placed in a difficult scenario due to the Covid-19 pandemic, which led to the deconstruction of value chains and the blocking of client companies around the world.

These circumstances immediately put the management of the progenitor's children, Marco and Veronica Squinzi, in the eye of the storm, who promptly responded by bringing important results in 2020, such as 3.4 billion euros in revenues and 220 million in profits, all followed by a consolidation aimed at exploring new businesses and facing the challenge of global economic chaos in the era of price increases, inflation, the crisis in raw materials. This decisive response of the management was accompanied by a declaration by the new CEOs who, without hesitation, expressed their guidelines aimed at conducting the company "without disruption". The third generation in charge, after grandfather Rodolfo and father Giorgio, "has no ambitions different from those of his father and is supported, as explains a source close to the family, by a first line of managers who have grown up in the company and are of international standing".

Among the more delicate choices, management's intention to stay well away from the stock market is immediately clear. "The company has no need to be listed as it has significant margins, it does not need new resources, it does not need to open a shareholding structure or redistribute dividends between shareholders". A strategy that is totally in line with the old management's idea, a concept represented by the famous declaration of the original owner of Mapei: "Poor family, rich company". The company, in fact, under the management of Giorgio Squinzi has gone through years of non-distribution of dividends, but without ever closing financial statements at a loss and without layoffs for staff reasons. This new leadership, however, manifests its intention to diversify, innovate and bring those branches of business culture that had remained stuck in the 21st century. The existence, within the company, of different legacy corporate cultures, of uneven working methods and a myriad of structures and platforms, developed locally and which could not be standardized, was addressed with a large digitization project, thus respecting the need to centralize processes with the equally strong need to leave local offices with the autonomy and agility that brought value and knowledge of the customer base to the company. The approach and initiative of this new management represents a further virtuous element in the post-succession process. At this point, some authors identify behavioral models that presage critical issues in the medium-short term, but the management line of Giorgio Squinzi's heirs is not attributable to the indicators of immobility of the so-called "Conservative model", nor the desire to overturn the corporate structure of the so-called "Rebellious model" (Miller *et al*., 2003, 513-531). As confirmation of the above, Mapei is currently continuing to invest in new plants and new factories in order to gradually shift its core business towards that of a chemical company capable of carrying out research and development. At the same time, Giorgio's conviction of internalization remains strong, making a great contribution to performance in the last few years, bringing important visibility to the company. Still from an international point of view, among the latest projects subject to media coverage in which Mapei has contributed, there is the supply and development of materials for the walls and floor covering of the Museum of the Future in Dubai, an extraordinary building with a futuristic design described by some newspapers as "the most beautiful building in the world". This, as well as the contribution for the supply of products for the structural reinforcement of the well-known Santiago Bernabeu stadium. And for the supply, also in the United Arab Emirates, of materials for the construction of the buildings of Expo 2020, of the Sharjah Mosque, of the Abu Dhabi Presidential Palace and floor and wall coverings for the Dubai Festival City.

7. Concluding remarks

This paper has the finality to give guidelines on how family firms, a central reality in the Italian economic structure, can successfully face a generational transition or at least avoid what are considered the most common critical issues. The discussion of a best practices model helps scholars to orient within the macro-areas that can be found in the different stages of the conversion process. The research contributions presented in this work are unique in directing researchers and practitioners on a defined path, mainly aimed at considering the generational succession as a process and not as an event itself. Consequently, this process must have fundamental steps and phases such as: the progressive training of the successor or successors, the choice of the most appropriate managerial figures in the delicate phases of transition, the formalization of the succession process to conclude a path that sometimes does not reach its perfection.

Furthermore, the study focus on the component of familiness, the difficult management of family dynamics when intertwined with business and, among the most interesting interpretations found both by scholars and by the case examined, the importance of informal meetings aimed at comparing and limiting frictions and critical issues.

In the light of the case examined, it is therefore possible to find confirmation of what has been stated in the literature, to have further ideas for reflections and above all models that can be replicated by dimensionally similar companies, with a similar corporate structure and a similar governance structure.

Despite this, considering well-known limitations related to the possibility of generalizing the results obtained from a single case study, further analyzes of other family firms are necessary. In addition to disproving the results presented with larger samples, future research may continue on this research topic with further analyzes comparing other family firms in order to collect more data integrating quantitative methods and may find it useful to analyze data from interviews with managers of other family firms.

A further limitation is given by the same methodology. The case study approach has often been criticized due to its extreme subjectivity in the interpretation of the data collected and in the evaluation of the conclusions. Therefore, future research could use a particular sample of Italian family firms and apply quantitative methodologies.

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Audit Implosion in European Affairs: How to Govern the Dimension and Development of the European Paying Agencies? The Argea Case: a Qualitative Research of Audit Loops and Restatement

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Abstract

Accounting information has a strong political meaning, and cases of accounting failure demonstrate that the regulation and standard are far from saving accountants from making mistake and auditors from failing to recognize the errors. European financial report SoA (Statement of Assurance) offer guidelines for the proper depiction of an entity, but, in the settlement of the accounting practice, there is still plenty of room for the personal professional opinions of the prepares. So this paper use after a quantitative (descriptive and mathematical approach) a qualitative research: "Argea Case", to discuss a modification of organization settings of an Italian paying agencies, it's reflexes in efficiency and effectiveness of public spending. As a result, a high risk of losing accounting credibility affects all the participants in the preparation, reviewer and approval of the accounting data that are published and then restated; above all, it reduces the credibility of the paying agency releasing the official financial report affected by mistakes. All these aspects describe the audit implosion in European affairs and how future payments from EU policy are conditioned by the inability to formalize agreements and contracts between auditors, consultants and the government of paying agency; fueling uncertainty, risks and unpredictability events about the quality of EU public spending .

Keywords: Argea, Audit Implosion, European Affairs, Paying Agencies, Audit Restatement and Severity.

Sommario

Le informazioni contabili hanno un forte significato politico e i casi di fallimento contabile dimostrano che la regolamentazione e lo standard sono ben lungi dal salvare i contabili dal commettere errori e i revisori dal non riconoscere gli errori. La

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relazione finanziaria europea SoA (Statement of Assurance) offre linee guida per la corretta rappresentazione di un organismo pagatore, ma, nella definizione della pratica contabile, c'è ancora ampio spazio per le personali opinioni professionali. Quindi questo articolo utilizza dopo un approccio quantitativo (descrittivo e matematico) una ricerca qualitativa: "Caso Argea", per discutere una modifica delle impostazioni organizzative di un organismo pagatore italiano, i suoi riflessi in termini di efficienza ed efficacia della spesa pubblica. Di conseguenza, un elevato rischio di perdita di credibilità contabile grava su tutti i partecipanti alla redazione, revisione e approvazione dei dati contabili che vengono pubblicati e poi riclassificati; soprattutto, riduce la credibilità dell'organismo pagatore che rilascia il rendiconto finanziario ufficiale inficiato da errori. Tutti questi aspetti descrivono l'implosione dell'audit negli affari europei e come i pagamenti futuri della politica dell'UE siano condizionati dall'incapacità di formalizzare accordi e contratti tra revisori, consulenti e governo dell'organismo pagatore; alimentando eventi di incertezza, rischi e imprevedibilità sulla qualità della spesa pubblica dell'UE.

Parole chiave: Affari Europei, Argea, Implosione dell'Audit, Organismi Pagatori, Rideterminazioni e severità delle verifiche.

1. Introduction

The reduction of public debt assumed primary significance in the European political and economic debate in the last decades, and only recently European Union member states agreed to sign the Fiscal Compact (part of the Stability and Growth Pact) to pursue progressive reduction of their public-sector debt. The audit implosion of the paying agencies represents the main strategy that the European Union is pursuing to introduce the principle of dynamical economical accounting as a guiding criterion in the political-administrative choices taken by the governors of the paying agencies and their governmental coordination. All this is aimed at eliminating the "masks of European accountability" to introduce new services for assessment and optimizing resources to obtain effective and efficient outcomes. This paper use a quantitative and qualitative research, to discuss a modification of organization settings of European paying agencies to make a positive contribution in pursuing the dynamical economic and financial performance of the European paying agencies and a clear cut in the structural expectations of public debt growth (spending review). What actuarial gains or losses from the perspective of the European spending review?

The qualitative research is the presentation of a case of economic and political-administrative reorganization of the Argea paying agency. Argea is the paying agency of the Italian island region in Sardinia, the case proposes an audit and advisory intervention aimed at optimizing economic and financial resources in compliance with the European austerity rules (Cepiku and Mussari, 2010).

The most innovative services concern the choice of the governor of the paying agency towards the methodological, technical and contractual formulas typical of Non Audit Assurance Engagements NAAEs (Plumlee and Yohn, 2015).

The audit implosion concerns a change of organization settings of a European paying agency inevitably leads to accounting restatements, this is a real test to check the independence of the governors from economic and political-administrative interests. How to measure the relevance of the error in audit restatement in European paying agencies?

In this logic an accounting restatement of Argea paying agency is the consequence of an error, that is, a material omission or misstatement in accountability and payments. It might be a source of public administration misconduct, undermining the reputation of the restating and its managers' and director's professional image (Dechow and Sloan, 1991). In the aftermath of restatement paying agency might accused of adopting a poor-quality financial reporting policy, thus communicating to authority a perception that the paying agency has behaved unethically. Relevant environmental features affect the probability that a paying agency will engage in public administration misconduct, including the accounting misconduct represented in the restatement (Saulpic and Zarlowski, 2014).

However, the attempts to reduce the debt have been accompanied by harsh austerity policies whose negative consequences seemed not compatible with European's ideals of social justice, equity and solidarity (Bracci *et al.*, 2015) with the born of European paying agencies. Italy and other member countries with huge debts have been and still are forced into a trade-off between observing European strict financial rules and carrying out investments, which often results to relinquish the latter (Van de Ven and Ferry, 1980).

This paper deals with the Italian case of Argea paying agency because, given its considerable high public sector debt, the autonomy of local level (strong but fragmented) has been reduced by the governance at national state level as a result of its and membership at European Union (OECD, 2017). Huge and complex political interests dominate the world of European accounting regulatory frameworks, and every additional regulatory step towards transparency is welcomed by the public, ensuring better disclosure in the SOA (Statement of Assurance) (De Nichilo, 2021a). Nevertheless, the portrait will not be as fair as expected until ethics dominate the accounting profession because the threshold between fair and unfair accounting evaluation is slim and pale and the regulatory process itself could be dominated by political and economic interests (Desai, Hogan and Wilkins, 2006).

This paper examines the theory and practice behind restatements, which are one of the most noticeable indicators of accounting malpractices (Beneish, 1999). Restatements occur when an error affects the reliability of one (or more) European financial reports, which has (have) already been published and used by authorities to make their economic and financial evaluation of the paying agencies. Regulators in European context are differently disposed towards to need to disclose information when an error affects previously released financial reports, as the case of Argea paying agency. This unpleasant occurrence undermines the reliability of accounting information provided by the restating paying agencies in the financial statements released in the past years; moreover, it casts doubt on the truthfulness of future financial and accounting handouts (Akhigbe and Mandura, 2008).

This research documents the findings of previous studies that have identified some systematic characteristics that could be the antecedents of paying agencies involvement in accounting mistakes and restatements (Abbot, Parkers, Peters and Raghunandan, 2003a). Moreover, a data-based analysis lays out the most likely characteristics of restating paying agencies by studying the industry and year trends of the accounting restatements occurring in European countries between 2006 and 2014. Finally the institutional governance antecedents improving the probability of incurring financial misstatements are discussed (Farber, 2005).

The research questions are:

RQ1: *How to govern the dimension and development of European paying agencies with Contingency Theory?*

RQ2: *What is the procedure for the implementation of system process for assurance services in European paying agencies by the "Audit implosion"?*

The paper is structured as follow: section two concerns institutional settings and literature review, section tree and four presented research design and results; finally section five are discussion, conclusion and limitation of research.

2. Institutional settings and literature review

Implosion is the process in which objects are destroyed by collapsing on themselves; the opposite of explosion, implosion concentrates matter and energy (Jensen, Winthereik, 2017).

In the introduction to Audit Society, Michael Power began envisaging a shift in auditing practice that he designated "Audit Implosion": In the context of external financial auditing... it may be more appropriate to speak here of an "Audit Implosion" whereby organizations have become more 'reflexive' and where company directors have been forced to require responsibility for internal control systems and risk management (Power, 1997, xviii).

In later work, Power continued to emphasize this transformation, arguing that: "the growth of interest in internal control systems in the last ten years has accompanied an Audit Implosion meaning that auditing and inspection are now part of what organizations do to themselves" (2007, 162).

In a working paper entitled "Audit Implosion" (Power, 2000), he proposed to view the implosion of audit as involving "an ongoing contraction in the significance of the external audit as a force in corporate governance, as compared to internal mechanisms and agencies of control" (Power, 2000, 2).

Of course, Power's identification of "Audit Implosion" understood as a 'reflexive' internalization of audit practices exemplifies one "new principle of social organization".

As we continue to discuss, this transformation centers on the emergence of increasingly complex auditing loops, a notion we use to index mutually shaping interactions between auditors and auditees that cross organizational barriers in multiple directions, both "downstream" and "upstream."

In this situation, implosion characterizes a situation where both the epistemology and the form of audit are put under pressure, as external and internal modes of monitoring begin to work in tandem through such loops.

Assuming that none of the policies is absolutely appropriate (or inappropriate), this work adopts the "fit for purpose" perspective, based on the contingency theory (Freeman, 1973; Hofer, 1975; Khandwalla, 1977; Dewar and Hage, 1978; Otley, 1980; Van de Ven and Ferry, 1980; Marsh and Mannari, 1981; Schoonhoven, 1981; Drazin and Van de Ven, 1984, 1985; Donaldson, 2001; Chenhall, 2003, 2007; Otley, 2016). This theory assumes that there is no a best way to come to a decisions, but rather the "performance is a function of the fit or match between two or more factors" (Van de Ven and Drazin, 1985, p. 537), and therefore the optimal choice is contingent upon the existence of several feasible options. Contingency-based research in the accounting literature has been thoroughly reviewed firstly by Otley (1980) and then by Chenhall (2003, 2007) who identified its pros and cons: arguments in favor lead to think of this as a theory that exhibits an appropriate matching of specific aspects with certain defined circumstances; arguments against are based on the assumption that these specific aspects are so subjective to not have general applicative value. Actually, as Chenhall (2007) observed, "the term contingency means that something is true only under specified conditions. As such there is no contingency theory, rather a variety of theories may be used to explain and predict the conditions under which particular MCS (management control system) will be found or whether they will be associated with enhanced performance." (p. 191). However, "a contingency-based approach attempts to map variables and demonstrate potential relationships between variables, which may include power and politics, and indicate potential links with outcomes" (p. 194).

In contingency theory accounting restatement is a indubitable sign of failure of accounting quality as it implies financial misconduct due to negligence or managerial opportunism (Brown, Preiato and Tarca, 2014). As recognized overwhelmingly in the literature, a high quality of corporate governance could help to reduce the incidence of financial misconduct, including a reduction of the occurrence and magnitude of accounting restatements (De Nichilo, 2020b).

Corporate governance tools provide control mechanism, which should help paying agencies to achieve their financial and non-financial goals while preventing undesirable conflicts, including the agency conflict between the top manager team and the stakeholders (Ng and Tan, 2007). Instead, in the agency theory, principals, should protect themselves from the opportunistic behaviors of the corporate managers, who manage the firm to take private short-term advantage of corporate policies, including accounting policies, which could damage the paying agencies in the long term (Keune and Johnstone, 2012).

Several corporate governance mechanisms have same impact on the feasible quality of the corporate accounting system (Hennes, Leone and Miller 2008). Similar to the situation with other accounting irregularities, like earnings management or fraudulent financial reporting, ever the probability of accounting restatements seems to be affected by the occurrence of some corporate governance provisions, like chief executive officer duality, audit committee composition and activity, and the size and composition of the board of directors (Dechow, Ge and Schrand, 2010). Research has studied the topic widely, examining the fees and compensation system, the consulting services provided and the composition of the committee (De Nichilo, 2022).

Contingency theory derives from the study of organizational behavior, and implies that the design and function of organizations are influenced by contingent factors such as technology, culture and the external environment (Drazin and Van de Ven, 1984, 1985): its underlying assumption is that there is not a role model of organizational structure, but different solutions are equally acceptable. Van de Ven and Drazin (1984) have developed the key concept of fit in contingency theory on the basis of the selection, interaction, and systems approaches (Van de Ven and Drazin, 1984, p. 14). However, as Otley (2016) pointed out, "whereas initially it developed from the idea that no universal solution to the problems of control was feasible

[...] research over the past four decades has come up with an extended list of possibly significant contingencies that are faced by organizations, many of which suggest conflicting recommendations" (p. 46).

On the other hand, despite contingency theory has not so much been applied in public management literature, Otley (2016) highlighted that the public sector is suffering from the failure of alignment of contrasting systems with each other suggesting that even in this sector the theory could be usefully applied, and therefore the fit for purpose perspective has been recently introduced in the academic debate (Gauld and Mays, 2006; Osborne, 2010; Radnor and Osborne, 2013; Osborne *et al*., 2013; Radnor *et al*., 2014; Osborne *et al*., 2015; Hiedemann *et al*., 2017).

A review of the literature revealed that there is no single answer to the question of how restatements begin (Peterson, 2012). The difficulties for researcher and practitioners in distinguishing international from unintentional accounting errors, mainly due to limited paying agency disclosure and the fact that companies may attribute intentional restatements to ambiguity or complexity in applying accounting principles to their benefit, exacerbate this issue (Islam and Hu, 2012).

In relation to aggressive restatements, prior research has documented diverse reasons: there is pressure to meet analyst earnings expectation, avoid bad covenant violations and improve paying agency performance (Plumlee and Yohn, 2015). In the case of unintentional accounting errors (Gerdin and Greve, 2004; Cadez and Guilding, 2008), the problems are often related to accounting personnel expertise, ordinary book and record deficiencies and a lack of clarity or complexity in applying the standard accounting principles, so it is not possible to anticipate them by adopting earnings management detection tools (Chenhall, 2007, p. 194). This implies that the management had failed to perform effective controls over financial reporting and the auditor had not detected and corrected the errors before the financial statement's publication (Myers, Scholz and Sharpe, 2013).

Notwithstanding the reporting of the main drivers evidenced in the literature, an examination of the determinants of accounting restatements still represents fertile ground for future accounting research (Kravet and Shevlin, 2010).

3. Methodology

This analysis is based on a single paying agency variable (Gillespie and Dietz, 2009). Accounting restatement scholars have employed numerous measures that captured different features of the restatement severity (Mautz, Shoulders and Smit, 1996). Two suitable measures utilizable in this analysis are: the magnitude of market reaction to error announcement that, however, could be effected by the potential presence of adverse effects of confounding events, and the direction of restatement, which is limited in the usage for this analysis by the fact that it is binary in nature (Libby and Kinney, 2000).

Consequently, the amount of the errors that restating paying agencies had to disclose was collected to capture the size of restatements (Moroney and Trotman, 2016). Severity equals the absolute value of the amount of the error divided by the total of European funds payment at the first year-end before the announcement of the restatement multiplied by 100. The error amount compared with the total of European funds payments represents a relevant benchmark to asses the quantitative misstatement materiality (Table 1). A larger error amount implies a higher probability of intentional misstatements, resulting in greater punishments by market participants, and it indicates the extent to which the representation of the non-restated numbers, compared with the actual numbers, was inaccurate (Gleason, Jenkins and Johnson, 2008).

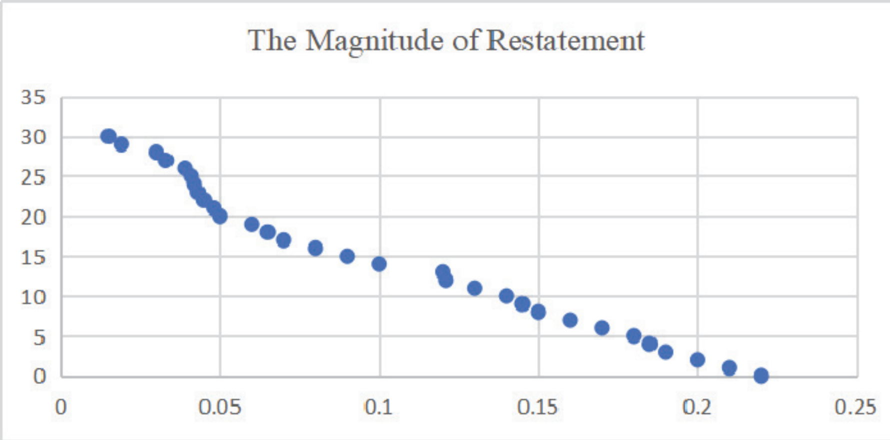
The histogram in figure 1 represent the distribution of the magnitude of accounting errors scaled by the lagged total payments.

Table 1 - *Magnitude of Restatement Template*

Observation Unit	The error amount compared with the total of European funds payments (independent variable). Frequency of misstatements (dependent variable).
Selection	Top 12 paying agencies according to the intensity of the error.
Time span	Observations between 2006 and 2014.
Audit Performance Materiality	Maximum 5% of annual payments
Tolerable misstatement	Minimum 0.5% of the annual expenditure
Number of Item performed	465

Source: Our elaboration with ACL

Figure 1 - *The Magnitude of Restatement*



Source: Our Elaboration ACL Data Sampling of European Paying Agencies

A relatively large amount of the restatements have a very small magnitude. The histogram is visibly skewed to the left, as the first bars are taller than the following bars, and it presents a growing number of gaps when approaching the maximum value of error magnitude. The data have been fitted by an exponential distribution (Libby and Brown, 2013). The parameter of the distribution has been estimated using the corresponding maximum likelihood estimator (the reciprocal of the mean of the accounting error's magnitude scaled by the lagged total payments), which has previously been adopted to study rare event (Li, Park and Wynn, 2018).

Data sampling methodology is Audit Command Language (ACL) (Ismanu, Putri and Haris, 2021). Effective decision-making depends on timely access to information. This information may be hidden within vast data files, scattered across multiple databases, or stored in a variety of data types on different platforms. Decision makers and data analysts need tools that can help them access various data types, process large files, and ask intelligent questions about the data.

Data analysis has long depended on statistical methods. (Pennington, Kelton, DeVries, 2006). While statistics allow us to make useful generalizations about data, they rely on sampling and analyze only a small percentage of the total records. The resulting conceptual and technological simplifications reduce not only the costs of auditing but the educational efforts required to train auditors as well. "Who audits the auditors?" is a frequently asked question.

ACL provides access to virtually any data source, in most cases without advance preparation or conversion. You can readily perform queries and data manipulation on files that would require extensive manual preparation and conversion with other analysis software (Table 2).

ACL also lets you combine data from dissimilar systems for conversion, reconciliation, and control. It can also be an integral component in systems integration. You can create a common view of data in different files and analyze it as though it existed in one file. In addition, ACL gives you powerful data cleansing and manipulation abilities and flexible reporting options. From the above data, it can be deduced that the mistake in question can be addressed by employing Audit Command Language (ACL) as a software tool for detecting fraud. In this case, if there is evidence of fraud, the auditor must report it. This research aims to learn more about the current condition of the information assurance system and the auditors' responsibilities in the context of fraud.

Table 2 - *ACL Audit Sampling Command*

Test of Operation	**Explanation**	**Commands**	**Appropriate Data Types**
Statistical Sampling	Draw samples from data populations and estimate the magnitude of errors.	Sample Size Evaluate	Record-based

Source: ACL Guidance

The analysis is based on three level of variables. First, we gathered information on the year(s) when the misstatement(s) occurred as restarting paying agencies could correct more than one previously published annual financial report. Second, we collected the amount of the error divided by the total payments at the first year-end before the announcement of the restatement multiplied by 100. Lastly, information relating to the source of the error was collected.

The table 3 presents the descriptive statistics for paying agencies observations between 2006 and 2014, including the minimum, mean, median, maximum, standard deviation, skewness and kurtosis of severity for European paying agencies. With regard to this analysis, data were not collected for restating paying agencies that:

a. reported accounting error(s) related to internal control weaknesses;
b. reported accounting error(s) related to European manipulation;
c. did not disclose the source of the accounting error(s);
d. corrected more than one accounting error.

Table 3 - *Severity of accounting misstatement by national paying agencies within European countries. Selection: top 12 paying agencies according to the intensity of the error*

Nations	Mean	Min	Medi-an	Max	Dev. St.	Skew.	Kurt.	Severity
BELGIUM	7.44	0.76	3.22	7.66	0.99	1.50	1.80	MEDI-UM
IRELAND	6.87	0.03	1.41	7.16	1.50	2.30	1.50	MEDI-UM
CZECH RE-PUBLIC	6.03	0.03	1.55	6.05	1.22	1.40	1.60	MEDI-UM
SWEDEN	5.94	0.30	1.22	6.00	0.88	1.22	1.55	LOW
DENMARK	5.91	0.03	0.84	6.41	0.93	1.22	1.64	LOW
NETHER-LANDS	5.36	0.20	1.36	6.62	3.26	1.33	1.45	MEDI-UM
HUNGARY	4.87	0.01	2.87	6.39	4.33	2.22	1.96	MEDI-UM
SPAIN	4.05	0.25	0.81	5.03	0.85	2.34	1.45	LOW
GREECE	3.99	0.02	0.65	4.61	1.45	1.96	4.06	HIGH
FRANCE	3.88	0.01	0.24	4.45	0.86	2.70	6.96	HIGH
GERMANY	3.78	0.01	0.91	46.32	7.90	4.51	21.25	HIGH
ITALY	3.25	0.01	1.15	30.17	8.15	3.28	11.23	HIGH

Source: Our Elaboration Data Sampling with ACL.

A key features of institutional settings that clarity influences the outcome is the institutional oversight system, namely the external auditing activities of financial statements and the degree of enforcement aimed at promoting compliance (Martinov and Roebuck, 1998).

Brown, Preiato and Tarca (2014) developed the audit and accounting enforcement indexes to assist empirical accounting researchers when studying the output of the financial reporting process.

Assessing the meaning of high or low average severity is challenging for researchers. On the one hand, paying agencies characterized by low restatement severity may have high-quality auditors and enforcements, which discourage from committing serious accounting mistakes, whereas a high mean restatement magnitude could indicate poor auditor quality and an inability to detect and correct accounting errors in the financial year in which they are committed. On the other hand, the interpretation of the phenomenon could be opposite and a low average severity mat signal that the auditors or enforcers rarely discover and force paying agencies to correct accounting error, evidencing poor auditor and enforcement quality.

Consequently, based on the results of this study and the scores proposed by Brown, Preiato and Tarca, the largest average severity that characterized the countries with higher total scores could be explained by the effective activities carried out by auditors and national enforcers, which, thanks to their effective inspections, discovered and force paying agencies to disclose serious accounting errors.

In conclusion, a country trend seems relevant, as the institutional features affect the auditing and enforcement effectiveness, thus mitigating or exacerbating the accounting attitudes, including the feasibility of restating financial reports by paying agencies operating in different institutional contexts.

4. Results: Argea Case a Qualitative Research

What is the audit restatement of a European paying agency in practice?

It is the expectation gap of a previous auditor which continues until it is impossible to express an opinion of a new auditor (De Nichilo, 2020a). All this results in the introduction in the institutional framework of a second auditor to ensure assurance, sustainability and independence of the audited public expenditure (De Nichilo, 2021b). An example is the ARGEA case.

ARGEA is recognized for the exercise of the functions of management, paying and control body in the field of financing of the Community agricultural policy. It performs functions delegated by the Region of Sardinia in the field of regional aid, inspection and control activities in the agricultural and fisheries fields and management activities delegated by the Management Authority in the field of common Agricultural Policy and other activities assigned by the Regional Council.

The mission of the Argea Agency is the disbursement of Community, national and regional funding, with the aim of bringing the important resources available to the agricultural sector. Argea also carries out inspection and control functions in agricultural matters.

It guarantees support to the regional administration in the field of agricultural, fishing, aquaculture policies and assigned functions. The strategic areas in which Argea operates are: the agricultural and livestock sector, the fishing and aquaculture sector, inspection and control activities, administrative and personnel activities, technical support and communication, other delegated activities.

With the directorial decree prot. n. 2803 of 14 May 2019, ARGEA was granted provisional recognition as a paying agency for the Sardinia Region starting from 16 October 2020. The activity carried out by ARGEA for compliance with the recognition criteria is was the subject of a specific supplementary pre-recognition review of referred to in art. 1, paragraph 3 of regulation (EU) no. 908/2014, whose assignment was entrusted to Mazars Italia S.p.A with directorate n. 9015316 of 21 July 2020 (Figure 2).

In consideration of the assessments expressed by the Mazars Italia S.p.A in the report on the supplementary pre-recognition review of 17 September 2020 and following a complex investigation and monitoring activity carried out with directorial decree no. 9242481 of 15 October 2020, the recognition of ARGEA - Regional Agency for Agricultural Support - as a paying body for the autonomous region of Sardinia was confirmed as a definitive title. The previous deed determines the voluntary liquidation of the previous Arsea paying agency (Table 4).

Figure 2 - *Audit Implosion Set Up After Restatement*

Source: Our Elaboration

Table 4 - *Explanation of Audit Implosion in ARGEA*

Paying Agencies	**Pre-Restatement**	**Post-Restatement**
Argea	Sardinia Agency for Agricultural Support for only environmental advisory	Sardinia Paying Agency for payment and environmental advisory
Ex Arsea	Sardinia Paying Agency for only payments	Voluntary liquidation

Source: Paying Agencies Audit Restatement Procedures.

The result of "Audit Implosion" of ARGEA are presented as follow (Table 5):

Table 5 - *Actuarial Gain of Audit Implosion to reduce Magnitude of Errors of annual payments*

Projected Misstatement Before Restatement		4.23%
Estimated Misstatement After Restatement		0.98%
Audit Loops (Shock)		3.25%
Actuarial Savings of ARGEA		75%
Actuarial Profit for Non-Audit Assurance Engagements NAAEs		25%
Detail of Actuarial Savings of ARGEA after restatement	Total Effect of Spending Review: Cutting Expenditu-	Increased Efficiency of Controls: Re-engineering

	res	
Administrative checks	25%	Optimization of Advances
On-the-spot checks	50%	Reporting of Control Statistics
Ex-post checks	25%	Debt Restructuring
Detail of Actuarial Profit: NAAEs after restatement	Total Effect of Spending Review: Increasing Quality of Expenditures	Increased Effectiveness of Controls: Elimination Audit Risks
Research Papers	15%	Management Underestimated the Quality of Research
Management Issue Letters	5%	Management Underestimated the Issues
Confornt Letters	5%	Management Underestimated the Deficiencies of the Controls
Management Purpose Special Letters	5%	Management Override Audit Opinions
News	5%	Management Override Media Pressure
Up Grade Procedure Services	15%	Management Override Cash on Hand
Agreed Up-On Procedures Services	50%	Management Override the Controls

The conventional concepts of "Audit Implosion" of Italian paying agencies effectiveness and efficiency can be summarized as follows (Yoon and Pearce, 2021).

Table 6 - *Conceptual Framework of Audit implosion: Adequacy of Internal Controls*

Pillar I Effectiveness	Effectiveness is an indicator of the company system and its subsystems to achieve the planned objectives for a specific period of time. It is identified by calculating the relationship between expected objectives and actual achievements / results.
Pillar II Efficiency	Efficiency is an indicator of the company's ability to operate economically. Its fundamental indicators are represented by physical-technical returns and costs. Physical-technical performance can be related to the various production factors and production processes.

Source: Our Elaboration

5. Conclusion and Discussion

The paper considers the "Audit Implosion" as strategy to reduce public debt (Arthaud-Day, Certo, Dalton and Dalton 2006). The "Audit Implosion" has evoked interest as a means to cut down the sovereign debt (Table 7), not only in national governments but also at the supranational level

(Monfardini & Von Maravic, 2019). The "Audit Implosion" at the subnational level have not been previously studied, but in 2015 some Italian regions have engaged in the public spending review (Argea Case). The "Audit Implosion" have previously been analyzed within a narrow economic and financial perspective, whereas this paper adopts a broader analytical framework that posits that the balance between the pros and cons of the "Audit Implosion" depends upon the opportunity cost of citizens, not just to the financial market (Van de Ven and Drazin, 1984). This paper suggests that there may be other reasons, unacknowledged by preceding literature for legitimate the "Audit Implosion" in public finance (Ettredge, Fuerherm and Li, 2014). Our results demonstrate how new EU fiscal rules may legitimize the "Audit Implosion" in its current austerity context, and how the "Audit Implosion" might have a beneficial overall impact contrary to the negative characterization (Formula 1).

Formula 1 - *Audit Check After Restatement of Argea*

$$\text{Surplus/Deficit}^{\text{ex post}} = AG - AL + |AG\ MDg - AL\ MDl|\Delta i + (AG\ MCg - AL\ MCl)\frac{1}{2}\Delta i^2$$

AG = *Actual Gain*

AL = *Actual Loss*

MDg = *Modified Duration of Gain*

MDl = *Modified Duration of Loss*

MCg = *Modified Convexity of Gain*

MCl = *Modified Convexity of Loss*

Δ_i = *Audit Loops (Shock)*

Source: Our Elaboration of Argea Audit Restatement Report.

In this context the restatements are a rare event; nevertheless, like bankruptcy or fraud, they do not occur randomly but systematically involve same specific types of paying agencies more often than others (Desai, Hogan and Wilkins, 2006).

Moreover, in some period, the probability of committing more serious accounting errors was greater (Gerdin and Greve, 2004).

Table 7 - *Overall conclusion of Argea Audit implosion Template*

Indicator of Audit Restatement	Last Recalculation
Surplus/Deficit before restatement	- € 288.75 k
Surplus/Deficit after restatement	€ 192.5 k
Actual Gain on Audit Misstatement Rate and total payments for year	+2.02%
Actual Loss on Audit Misstatement Rate and total payments for year	-0.75%
Modified Duration of Gain	2.45
Modified Duration of Loss	1.02
Modified Convexity of Gain	0.88
Modified Convexity of Loss	0.11
Approximation error^{+}	0.01%
Approximation error^{-}	0.01%

Source: Our Elaboration of Argea Audit Restatement Report

European governance profile of the paying agency is a relevant issue in determining the attitude towards restatement (Dechow, Sloan and Sweeney, 1996). First, the way in which the managerial compensation is arranged might have an impact on the feasibility and magnitude of the mistake (Drazin and Van de Ven, 1985). Then, the audit board composition and activity might monitor the incurrence of mistakes and reduce the probability of an error being waived (Hennes, Leone and Miller, 2014). Finally, pressure from analysts and the public is felt by paying agency, which avoid misstatements when those stakeholders attribute a higher reputation to them (Lin, Li and Yang, 2006).

This paper aimed to contribute to the literature on accounting complexity by identifying the accounting issues that lead to restatements in selected sample (Ettredge, Scholz, Smith, and Sun, 2010). This field of research has been expanded through an empirical study highlighting the number and origins of misstatements of previously published financial report (Knapp, 1987). Additionally, for each source of implementation error, the average severity of misstatements was show (Cao, Myers, and Omer, 2012). This research might have relevant contributions and managerial and public policy implications (Huang and Scholz, 2012).

Considering that European Funds Authority, together with European national enforcers, sets enforcement priorities annually, based mainly on frequently recurring errors and the related advantages connected with improvements in the oversight of compliance with European Funds Guidelines (Archambeault, Dezoort, and Hermanson, 2008). To foster the rigorous application of the European Funds Guidelines, an effective enforcement system has been considered in the literature to be instrumental in determining the quality of financial reporting outcomes (Cadez and Guilding, 2008). One limitation of this study is that relies on paying agencies' disclosure, in relation to the nature of prior period error (Callen, Livnat and Segal, 2006). Given that, for the overwhelming majority of errors, paying agencies do not distinguish intentional from unintentional misstatements in the financial reporting notes and it is impossible to observe managerial intent, a small number of restatements that involved irregularities in the sample analyzed could have been misclassified as unintentional errors (Abbot, Parker and Peters, 2004).

In conclusion, taking a better look at the portrait of the restatement issue depicted in this paper, the matter of reputation of institutions should be raised (Abbot, Parker and Peters, 2004). The dominance of accounting mistakes in same geographic areas and industries could be help to support the idea that the institutional and cultural environment dominating the area impedes accounting compliance (Dezoort and Saltiero, 2001). Considering that political lobbying activity has been widely documented to affect reporting standards' preparation, a better outcome in terms of reporting quality could be obtained by also attributing the errors to the complexity and difficult applicability of the standards, thus somehow also charging the standard setters and threatening them with a risky position in their reputation (Cao, Myers, and Omer, 2012).

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Board gender diversity and family firms' corporate environmental responsibility: does "critical mass" matter?

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Sommario

Il presente studio analizza l'impatto della diversità di genere nel consiglio di amministrazione (CdA) sull'impegno delle imprese familiari nelle pratiche di responsabilità ambientale. Il ruolo della diversità di genere nei CdA riguardo le politiche di responsabilità ambientale d'impresa è stato esplorato alla luce della teoria della massa critica, identificando la soglia di quota femminile nel CdA che può influenzare l'impegno ambientale delle imprese familiari. Adottando un'analisi di regressione a effetti fissi su un campione globale di 171 imprese familiari, nel periodo di studio 2015-2020, i nostri risultati dimostrano che quando la diversità di genere nei CdA raggiunge una certa soglia, ossia la massa critica, l'impegno delle imprese familiari in materia di responsabilità ambientale aumenta. Queste evidenze fanno progredire la letteratura precedente sul legame tra diversità di genere nei CdA e responsabilità ambientale d'impresa, fornendo al contempo ulteriori indicazioni per i manager, i policy makers e le imprese familiari che cercano di ottenere migliori prestazioni ambientali.

Parole chiave: massa critica, diversità di genere nei consigli di amministrazione, responsabilità ambientale d'impresa, ricchezza socioemozionale (SEW), imprese familiari, obiettivi di sviluppo sostenibile (SDGs)

Abstract

The current study investigates the impact of board gender diversity (BGD) on family firms' (FFs) engagement in corporate environmental responsibility (CER) practices. The role of BGD in CER policies has been explored in light of the critical mass theory by identifying the threshold of women share on board that can influence

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the environmental commitment of FFs. By employing a fixed-effect (FE) regression analysis on a global sample of 171 FFs, over the 2015–2020 study period, our findings show that when BGD reaches a certain threshold, i.e. critical mass, the CER engagement of FFs increases. This evidence advance prior literature on the link between BGD and CER while providing additional indications for managers, policy makers and FFs seeking the best CER performance.

Key words: critical mass, board gender diversity, corporate environmental responsibility, SEW, family firms, SDGs

1. Introduction

The global warming, the climate change and scarcity of natural resources are important environmental challenges for society. The ecological crisis has indeed increased the need for CER integration into business logic of organizations (UNEP, 2021). In this scenario, the role of family businesses may be significant for the global economy since they encompass the 70-90 % of the annual global GDP and the 50-80% of the overall employment jobs (Deloitte, 2022).

The CER values are more likely to be nurtured within FFs due to their inclination to pursue socioemotional wealth (SEW) goals. The SEW distinguishes FFs from non-FFs as it relies on firms' non-financial aspects that meet the family's affective needs, such as the family's image, binding social ties and emotional attachment to the firm (Zellweger *et al*., 2012). In preserving SEW, FFs may be motivated to improve their environmental performance for several reasons. First, the FFs' image constitutes a matter of relevance to family members (Campopiano *et al*., 2019), and CER might contribute to the corporate reputation (Sanchez-Medina and Díaz-Pichardo, 2017). Second, family companies attribute high priority to social ties by strengthen collective social capital and trust among the stakeholders (Marques *et al*., 2014). From this perspective, this type of firms demonstrates a greater interest in pursuing welfare for the wider range of stakeholders (Berrone *et al*., 2012; Agostino and Ruberto, 2021). Third, family management may operate to pass the business on to next generation. Hence, the CER strategies should be adopted as they will favour the stability of the FFs (Delmas and Gergaud, 2014) reducing the company risk.

Consistent with previous studies (Graafland, 2020; Orazalin and Baydauletov, 2020), effective Corporate Governance (CG) mechanisms are driver of greater CER engagement. These mechanisms are mainly related to the board, and its characteristics, because boards play a determinant role in the effective promotion of CER policies. For instance, prior studies demonstrate that CG mechanisms such as the BGD can drive toward a higher CER performance (Lu and Herremans, 2019; Nadeem *et al*., 2020).

In European corporate boards, the Gender Diversity Index has improved from 0.56 in 2020 to 0.59 in 2021 (EWOB, 2021). This evidence indicates that, on average, the percentage of women on corporate boards is the 35%, suggesting that the year-on-year progress is slow and board composition remains largely male-dominated. Consequently, the European Commission has recently promoted equal gender opportunities in terms of board representation by introducing procedural requirements based on transparency and merit (10521/1/22 Directive). Despite FFs could constitute a favourable climate for CER orientation, the role of women on board and, consequently, its relevance as CER driver, still remains poorly investigated.

To fill this gap, we adopt both a theoretical and empirical approach. At theoretical level, we firstly discuss the role of female directors and their CER propensity in FFs. Then, drawing on the critical mass theory (Kanter, 1977), we argue that FFs need to achieve a critical mass of women on board in order to increase their CER.

At empirical level, we analyse the impact of the critical mass on CER engagement of FFs by identifying the needed threshold of women on board enough to exert influence on environmental business decisions. By employing a FE panel regression analysis, we focus on a sample of 171 worldwide FFs, gathered from the database provided by the Family Capital platform and observed for a 6 year-time-span (2015 to 2020), for a total of 1.614 firm-year observations.

Our findings highlight that, approximately, a 30% of women on board (critical mass) ensures a higher CER commitment in managerial practices. This empirical evidence sheds light on the percentage that BGD needs to reach in order to make the board minority group of women strong enough for enhancing the quality of board decision-making processes in terms of CER engagement.

The current study has a twofold contribution.

First, our study contributes to the research stream dealing with the role of BGD and its impact on CER engagement by testing the critical mass framework within FFs' context.

Second, our results corroborate the vision of female presence on board as an important human resource favouring CER engagement.

These findings provide important insights for both FFs and policymakers, indicating that FFs can find in greater female representation on board a driver of CER.

The remainder of the paper is structured as follows. Section 2 provides the theoretical background. Section 3 is dedicated to the methodology. Section 4 shows empirical results, and Section 5 includes discussion and conclusive remarks.

2. Theoretical Background

2.1. The women involvement in CG and CER in FFs

The role of women in FFs' top management positions has been affected by the past societal bias relying on the family owners' culture and traditions. Indeed, in some FFs, women have covered the role of "chief emotional officer" since they have taken care of the emotional needs and of the perpetuation of values, traditions and organizational culture of the founding families (KPMG, 2020). Furthermore, the female position in FFs have traditionally been conceived closer to the family (i.e. spouse, mother), whereas formal managerial position, such as CEO, have traditionally been more associated to male family members (Bjuggren *et al*., 2018).

The approach to family managerial issues differs between women and men due to several gender stereotype characteristics. Indeed, gender differences occur in the perception of ethical values and social claims (Glass *et al*., 2016; Kassinis *et al*., 2016). For instance, women are likely to show loyalty for family members, sensitivity to the social needs and better conflict-resolution capacity (Eagly, 1987), thus incorporating traits of a leadership style that may be useful for managing family business through the preservation of SEW. The SEW refers to the family's stock of social, emotional, and affective endowments vested in the firm, such as the opportunity to pass the business on to future family generations, reputational advantages from being associated with the firm, and the preservation of benevolent ties among family members and with other stakeholders (Gomez-Mejia *et al*., 2018). Due to the socially- and family orientation of women (Glass *et al*., 2016), the role of female directors may be relevant for family business corporate decisions. Indeed, the female managerial attitudes can allow the preservation of SEW as they help to strengthen the stakeholders' relationships and, at the same time, improve the family image (Garcìa-Meca and Santana Martin, 2022).

The board of directors is the main CG body where corporate sustainability practices are discussed (Naciti, 2019). The role of BGD, i.e. the equitable or fair representation of men and women on board (Nuber and Velte, 2021), has frequently been investigated with reference to the implementation of corporate social responsibility (CSR) policies (Amorelli and García-Sánchez, 2020; Orazalin and Baydauletov, 2020). Specifically, several CSR studies highlight the importance of women in the BOD for the achievement of high CER performance (Kassinis *et al*., 2016; Burkhardt et al., 2020). In this regard, several studies (Eagly, 1987; Nadeem *et al*., 2020; Nuber and Velte, 2021; Kassinis *et al*., 2016) confirm the existence of gender differences in approaching managerial issues, including CER ones. Indeed, prior evidence on females in top management positions shows that a greater BGD leads to higher CER engagement (Graafland, 2020; Orazalin and Baydauletov, 2020; Gangi et al., 2022), because women would be more stakeholder engaged and supportive regarding CER issues (Kassinis *et al*., 2016; Burkhardt et al., 2020). Moreover, female leadership style is associated to higher perception of environmental risks and pro-activism in meeting the environmental stakeholder needs (Nadeem *et al*., 2020; Nuber and Velte, 2021). Thus, as the board of directors acts as decision making body (Naciti, 2019), the eco-friendly behavioural traits of female directors can be reflected in the board discussion by orienting the board toward the adoption of CER-oriented decisions.

Therefore, due to the CER proactivity of female directors (Lu and Herremans, 2019; Gangi et al., 2022), FFs may support the presence of women on board for both CER and SEW goals. The CER of FFs may be increased as female directors may reflect their green attitude in managerial choices. In turn, this may foster FFs' SEW as CER engagement, thus strengthen relationships with stakeholders and accrue family intangible assets (Surroca *et al*., 2010), such as family reputation and identity (Gomez-Mejia *et al*., 2018).

According to gender studies (Birindelli *et al*., 2019; Joecks *et al*., 2013), the women behaviour can influence business decisions regarding environmental concerns when BGD reaches a certain threshold, or properly the "critical mass" (Kanter, 1977). Indeed, when BGD reaches the desired critical mass (Kramer *et al*., 2006; Konrad *et al*., 2008), women can affect FFs' board decisions, enriching the board discussion by adding their perspectives and opinions, and reflecting their green inclination in decision-making process.

2.2 The role of Critical Mass of women on board and CER in FFs

The critical mass theory (Kanter, 1977) represents a theoretical support to understand whether and to what extent a consistent proportion of women directors (critical mass) contribute to the level of FFs' CER engagement. Drawing on the tokenism theories, Kanter (1977) focuses on women behaviors in a male-dominated group and on how their actions may impact on the group dynamics. The theory predicts that when the size of the minority group reaches a certain threshold, its influence increases. Thus, if minorities of women are consistent, they can bring new perspectives, experience and skills to the group that, in turn, may significantly impact on group interactions and performance. Regarding the gender, the author does not establish a numerical threshold of critical mass, but identifies four different categories of groups based on the composition: (1) uniform group, which contains people sharing the same gender, thus all group members are either male or female; (2) skewed group, one gender (men) prevails over another (women), thus women represent of up to 20%; (3) titled group, providing less extreme distributions as it consists of 20-40% women; (4) balanced group, where women representation corresponds at least 40%.

At board level, prior studies (Kramer *et al*., 2006; Konrad *et al*., 2008) suggest that the critical mass of women is reached when the board includes "at least three women". In line with Torchia *et al*. (2011), when the number of female directors grows by reaching the "critical mass", women presence positively affects the firms' innovation level. Focusing on the banking sector, Birindelli *et al*. (2019) found that the reaching of the above numerical threshold is necessary to exert a significant power on board and to influence the board activity toward environmental issues. Under this theoretical basis, Joecks *et al*. (2013) advances on previous studies by identifying the critical mass threshold as 30% women on the board, beyond which the mixture of female and male attributes may take place and, in turn, induce successful discussions and can hence positively affect group performance.

Following the social identity theory (Tajfel, 1982), as complement to critical mass theory, individuals use demographic attributes (e.g., gender) to classify themselves into various social categories (e.g., female and male) and construct a social identity as group-members of a social category. By identifying themselves as members of a group, the behaviour of individuals may be influenced by their membership of the social categories with which they identify. This suggest that women on boards act following their female stereotype that they are more CER-oriented, emotional and empathic than men (Eagly, 1987), contributing different perspectives and heterogeneity to the decision-making process (Amorelli and Garcia-Sanchez, 2020). As consequence, when women constitute a cohesive and consistent minority, they can exert a social influence (Moscovici and Lage, 1976). Thus, when the "critical mass" board is realized, there is higher probability that the focus on sustainability practices will be stronger in board discussion.

Relative to board group interaction, the critical mass needs to be reached to make women active agents, able to boost change and affect the majority's knowledge and perceptions (Moscovici and Lage, 1976). Otherwise, their opinions and perspectives risk to be overshadowed by those of the majority (i.e. men). Drawing on previous studies (Bär *et al*., 2011; Mäs *et al*., 2014), the reaching or the lack of a critical mass may generate two opposite effects in the group interaction process that can regard CER issues: group shift and diversification of opinions. The critical mass on board can allow women to pursue enough visibility to share new ideas and different perspectives with board members (Sah and Stiglitz, 1988), fostering the diversification of opinions regarding CER practices. Conversely, when a critical mass is not reached, the group shift may prevail (Hogg *et al*., 1990). Specifically, as the women minority is inconsistent, the focus of board discussion risk to be shifted on the opinions of majority group. Thus, women could decrease their critical sense and may conform their thoughts to those of the majority (Kerr, 1992).

By approaching to Kanter theory, several authors test the effects of the critical mass of female directors on the level of CER. By analysing a sample of Canadian listed companies, Ben-Amar *et al*. (2017) found that the critical threshold women on boards increases the likelihood to provide public disclosures about climate change related risks and strategies. In support to critical mass theory, recent studies (He and Jiang, 2019; Cordeiro *et al*., 2020) reveal that when the number of female directors grows, the board of director exhibit a higher propensity towards CER innovative policies.

Accordingly, we posit the following hypothesis:

H1: The critical mass of women on board needs to be reached to increase FFs' CER engagement

3. Methodology

3.1 Data collection and sampling procedure

The empirical analysis refers to a sample of family-owned firms extracted from the World's Top 750 Family Businesses ranking surveyed by Family Capital Analytics, a company providing data on the family enterprise at global level. The sampling procedure started by selecting all the public FFs. In this way, we achieve an initial sample of 404 FFs. To test H1, we collected CER and corporate governance data from Refinitiv Asset4-ESG database. Thus, we proceeded by gathering the Refinitiv Identifier Code (RIC) for each FFs sampled and excluded the ones with a not available RIC, leading to a sample of 334 firms. Then, we collected firm-level financial performance and country-level data from Refinitiv Worldscope the World Bank databases, respectively. Consistent with the aim of the study, we consider only those companies for which Asset-4 reports data on CER for at least one fiscal year over the study period (2015 to 2020). Finally, by merging the different sources, we obtain a final data set of 171 FFs (1,614 firm-year observations).

3.2 Variable operationalization

To proxy FFs' CER, we adopt the overall environmental score (*CER*), measuring company impact on living and non-living environmental systems, including air, land and water. It reflects how effectively a firm uses managerial practices to avoid ecological risks and to capitalize on pro-environmental policies. This is a discrete quantitative variable that takes values between 0 and 100.

Following Kanter (1977), we rely on the approach of Joecks *et al*. (2013) to construct the independent variable. Indeed, we created four dummy variables reflecting the different measurement of BGD (i.e. the percentage of women on board): *Uniform*, equal to 1 if a board has no woman, 0 otherwise; *Skewed*, equal to 1 if a board has at least one woman but the value of the BGD is less than 20% women, 0 otherwise; *Tilted*, equal to 1 if BGD is at least 20%, but less than 40 %, 0 otherwise; *Balanced*, equal to 1 if the BGD is at least 40%, 0 otherwise. Furthermore, in our sample, none of the boards have 100% female representation. Specifically, there are not boards with more than 80% women.

To avoid model misspecification, we control for several variables that could influence the relationship between critical mass and CER. Following previous studies (Gangi *et al*., 2020; Reguera-Alvarado and Bravo, 2017), we rely on BOD characteristics, as board size (*Board size*) measured by the total number of board directors, and CEO separation (*CEO separation*) by introducing a dummy variable equal to 1 if the CEO simultaneously chairs the board or has been the chairman of the board, 0 otherwise. Furthermore, additional controls regard the ratio between capital expenditure on sales (*Capex on sales*); the firm's degree of indebtedness (*Debt on Equity*); the percentage of total shares in issue available to ordinary investors (*Free Float*); the per capita GDP indicator (*GDPper*); finally, years, measured as the time effect (*Year*) with six (n-1) dummy variables.

3.3 Empirical strategy

To test the effect of critical mass on CER, we employ a pooled ordinary least squares (OLS) analysis. The Hausman test reveals that the FE estimators were more adequate model compared to random effects ones to evaluate the impact of the independent variables on the dependent variable by controlling for unobserved variables. Moreover, the independent variables are lagged 1 year to mitigate reverse causality and simultaneous causation issues (Jo and Harjoto, 2012). The regression model can be expressed as follows:

$$CER_{i,t} = \alpha + \beta Critical\ Mass_{i,t-1} + \gamma X_{i,t-1} + \varepsilon \qquad (1)$$

where CER_t refers to the overall CER performance of family firm $_i$ at time $_t$, Critical Mass is the measure of critical mass of women on board of family firm $_i$ at time $_{t-1}$, X is the vector of control variables, and ε is a random error term. We estimate the Equation (1) four times, due to the adoption four critical mass measures (*Uniform*, *Skewed*, *Tilted* and *Balanced*).

4. Results

Table 1 provides the sample distribution by country. Based on the critical mass measures, Tables 2 shows the average degree of women representation on board across countries. In particular, relying on our sample, France (26.16%), Sweden (23.63%) and Luxembourg (21.1%) are the main countries where the BGD is more than 40% (balanced), while FFs belonging to Norway, South Africa and Turkey present, on average, tilted board (7.64%). Skewed board groups are mainly related to Brazil (9.95%), India (9.42%) and Malaysia (9.95%). Male-dominated boards primarily occur in countries such as Egypt (17.54%) and Singapore (12.46%).

Table 3 summarizes the descriptive statistics, while Table 4 reports the correlation and variance inflation factor (VIF) analysis. All variables have correlation coefficients below the conventional level of 0.70 (Ratner, 2009) and present an average VIFs (1.05) far from the threshold of 10 (McDonald and Moffitt, 1980). Thus, the study estimates are not biassed by multicollinearity.

Table 5 displays the estimates of the FE regression analysis. To test H1, we run four regressions with dummy variables and controls for Uniform, Skewed, Tilted and Balanced, from Model 1 to 4, respectively. The Uniform coefficient is negative and statistically significant at a confidence level of 95% (Model 1). This indicates that a 100% male board lead to a CER decreasing. Models 2 and 4 mirror that male-dominated skewed and gender balance board composition do not significantly affect the green orientation of FFs. Finally, the tilted groups positively impact on the FFs' CER engagement at the 5% significance level (Model 3). Thus, similar to Joecks *et al.* (2013), we find evidence that, in order to increase the CER engagement of FFs, the needed critical mass of women on board in tilted groups varies between 20 and 40 %, thus approximately 30%,.

Regarding control variables, Models 1-4 highlight that several CG mechanisms affect FFs' CER. Specifically, Board size and CEO separation are positive and significant predictors of FFs' environmental involvement. Regarding the firm characteristics, our results reveal that a higher free float predicts higher commitment in green practices by FFs (Models 1-4).

Overall, following our evidences, the undertaking of CER practices may depend on the presence of "critical mass" of female representatives on the FFs' board, which consists of approximately 30%. At the same time, the empirical analysis highlights that under the threshold of 20% of women on board, female directors do not significantly affect the board orientation toward CER issues. This evidence is supported by the group shift effect (Hogg et al., 1990). Indeed, in this case, women would represent an inconsistent minority and could be in situation of difficulty for exercising their voice rights. Hence, the board discussion could be dominated by the opinions of majority group (men), thus female directors' CER influence could be weakened, or even insignificant.

5. Discussion and Conclusion

The purpose of the current study is to provide a better understanding of the determinants CER in the FFs' context. Specifically, drawing on critical mass theory, our results show that reaching approximately the 30% of women on board (i.e. the critical mass), FFs would have a higher CER engagement. Moreover, the need for reaching the critical mass in FFs' board of directors is consistent with the EWOB (2021) evidence, which indicates 35% as the average of female representation on board at European level. From this perspective, in order to affect CER engagement, the further implementation of the increasing percentage of BGD, at least on average, would not be necessary in the family business context.

Our study provides several theoretical and practical implications. First, our evidences corroborate prior literature arguing that female directors show higher propensity on CER issues (Nadeem *et al*., 2020; Nuber and Velte, 2021; Kassinis *et al*., 2016). Furthermore, our results are consistent with the social identity theory, which suggest that female directors reflect their gender stereotype behaviours in board discussion. Hence, as women are more CER-oriented, emotional and empathic than men (Nadeem *et al*., 2020), the presence of critical mass of women on board can develop CER sensitivity in group debate.

Regarding practical aspects, FFs, by enhancing their CER standards, could promote gender equality on board. By increasing BGD, FFs can improve their image as more gender inclusive organizations. At the same time, the women inclusion in FFs' CG could improve the family reputation in the area of CER practices. Furthermore, as CER contributes to improve family image and social ties (Sanchez-Medina and Díaz-Pichardo, 2017; Marques *et al.*, 2014; Agostino and Ruberto, 2021), it can support the SEW preservation. Hence, by favouring the adoption of CER practices, the critical mass of female directors could provide an essential support in increasing the value of SEW. Furthermore, CER-oriented FFs could break the "glass ceiling", which limits the advancement of women the career progress of women compared to men. Accordingly, as women are obliged to overcome several psychological and sociological barriers to advance in their careers, the participation of women could be both a CER objective of family companies and an opportunity for women professional growth. At the same time, policymakers interested in CER issues could provide incentives supporting women in advancing their careers while removing invisible barriers and discrimination in the workplace, thus also improving the so-called internal CSR.

The current study has certain limitations. First, we focused on CER engagement without analysing its sub-pillars. Second, we do not consider contextual factors that can moderate the relationship between BGD and CER. Third, we gathered ESG information from the Asset4-ESG database, without considering the board members' perceptions of CER initiatives. Fourth, the current study focuses on specific clusters based on the percentage of women on board. Further empirical investigations could adopt other criteria for clustering the sample (e.g., percentage of women managers on board), as well as exploring the overall effect of BGD on CER engagement of FFs. Fifth, the findings show a positive effect between the presence of women on the board and CER policies from the perspective of critical mass theoretical framework. Further analyses could extend the current analysis observing women perceptions and gender differences regarding FFs' environmental policies in the context of family firms through appropriate methods. Hence, the aforementioned aspects may encourage to further clarify the topical theme of the link between women on board and CER in FFs' field.

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Appendix 1

Table 1. Sample distribution by country

Country	N	%
Australia	3	1.75
Austria	1	0.58
Belgium	7	4.09
Brazil	5	2.92
Canada	14	8.19
Chile	3	1.75
China	28	1.64
Egypt	2	1.17
Finland	1	0.58
France	10	5.85
Germany	16	9.36
Greece	3	1.75
Hong Kong	12	7.02
India	12	7.02
Indonesia	2	1.17
Israel	2	1.17
Italy	6	3.51
Japan	8	4.68
Luxembourg	2	1.17
Malaysia	2	1.17
Mexico	9	5.26
Norway	1	0.58
Portugal	3	1.75
Singapore	3	1.75
South Africa	1	0.58
Spain	3	1.75
Sweden	3	1.75
Switzerland	8	4.68
Turkey	1	0.58

Table 2. Women representation on board by country

	Uniform		Skewed		Tilted		Balanced	
Country	Mean	%	Mean	%	Mean	%	Mean	%
Australia	0.07	1.23	0.33	4.38	0.60	4.58	0	0
Austria	1	17.54	0	0	0	0	0	0
Belgium	0	0	0.17	2.25	0.77	5.88	0.06	2.53
Brazil	0.11	1.93	0.75	9.95	0.04	0.31	0.11	4.64
Canada	0.04	0.7	0.25	3.32	0.63	4.81	0.08	3.38
Chile	0.06	1.05	0.61	8.09	0.33	2.52	0	0
China	0.23	4.04	0.5	6.63	0.24	1.83	0.02	0.84
Egypt	1	17.54	0	0	0	0	0	0
Finland	0	0	0	0	0.83	6.34	0.17	7.17
France	0.02	0.35	0	0	0.35	2.67	0.62	26.16
Germany	0.11	1.93	0.15	1.99	0.66	5.04	0.08	3.38
Greece	0.33	5.79	0.33	4.38	0.33	2.52	0	0
Hong Kong	0.25	4.39	0.3	3.98	0.46	3.51	0	0
India	0	0	0.71	9.42	0	0	0	0
Indonesia	0.5	8.77	0	0	0.5	3.82	0	0
Israel	0	0	0.33	4.38	0.67	5.12	0	0
Italy	0	0	0	0	0.83	6.34	0.17	7.17
Japan	0.56	9.82	0.44	5.84	0	0	0	0
Luxembourg	0	0	0	0	0.5	3.82	0.5	21.1
Malaysia	0.17	2.98	0.75	9.95	0.08	0.61	0	0
Mexico	0.42	7.37	0.5	6.63	0.08	0.61	0	0
Norway	0	0	0	0	1	7.64	0	0
Portugal	0	0	0.27	3.58	0.73	5.58	0	0
Singapore	0.71	12.46	0.29	3.85	0	0	0	0
South Africa	0	0	0	0	1	7.64	0	0
Spain	0	0	0.35	4.64	0.65	4.97	0	0
Sweden	0	0	0	0	0.44	3.36	0.56	23.63
Switzerland	0.12	2.11	0.51	6.76	0.37	2.83	0	0
Turkey	0	0	0	0	1	7.64	0	0

Table 3. Descriptive statistics

Variable	Obs	Median	Mean	Std. Dev.
CER	1614	44.65	44.65	28.19
Uniform	1604	0.00	0.25	0.43
Skewed	1604	0.00	0.38	0.48
Tilted	1604	0.00	0.32	0.47
Balanced	1604	0.00	0.05	0.22
Board size	1612	11.00	11.52	4.05
CEO separation	1614	0.00	0.43	0.49
Debt on Equity	1614	0.72	2.61	55.72
Free Float	1611	53.00	57.08	23.88
Capex on Sales	1613	4.62	7.51	9.72
GDP per capita	1607	40113.06	34559.89	22654.07

Table 4. Correlation analysis and variance inflance factor (VIF).

		1	2	3	4	5	6	7	8	9	10	VIF
1	Uniform	1.00										1.07
2	Skewed	-0.45***	1.00									1.07
3	Tilted	-0.40***	-0.53***	1.00								1.02
4	Balanced	-0.13***	-0.18***	-0.16***	1.00							1.03
5	Board size	-0.23***	0.20***	0.02	-0.03	1.00						1.05
6	CEO separation	0.09**	-0.06**	-0.06**	0.07**	-0.03	1.00					1.01
7	Debt on Equity	-0.02	-0.01	0.04	-0.01	0.05*	0.03	1.00				1.00
8	Free Float	-0.03	-0.03	0.07**	0.01	0.18***	0.04	-0.02	1.00			1.13
9	Capex on Sales	-0.06**	0.08**	-0.00	-0.05*	0.07**	-0.02	0.00	-0.07**	1.00		1.02
10	GDP per capita	-0.04*	-0.15***	0.13***	0.13***	-0.02	0.09**	-0.01	0.29***	-0.09**	1.00	1.12

Note: *, ** and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Fixed effects regression analysis

Variables	(1) CER(t)	(2) CER(t)	(3) CER(t)	(4) CER(t)
Uniform (t-1)	-3.76**			
	(-2.78)			
Skewed (t-1)		-0.08		
		(-0.08)		
Tilted (t-1)			2.24**	
			(2.02)	
Balanced (t-1)				2.18
				(0.84)
Board size (t-1)	1.05***	1.21***	1.19***	1.19***
	(4.63)	(5.42)	(5.38)	(5.41)
CEO separation (t-1)	3.91***	3.89***	3.74**	3.91***
	(3.65)	(3.62)	(3.48)	(3.64)
Debt on Equity (t-1)	-0.00	-0.00	-0.00	-0.00
	(-0.61)	(-0.60)	(-0.64)	(-0.60)
Free Float (t-1)	0.09**	0.08**	0.08**	0.08**
	(2.24)	(2.16)	(2.03)	(2.14)
Capex on Sales (t-1)	0.09	0.09	0.09	0.09
	(1.60)	(1.49)	(1.59)	(1.45)
GDP per capita (t-1)	0.00***	0.00**	0.00***	0.00***
	(15.02)	(15.41)	(15.19)	(15.43)
_cons	-15.67***	-19.38***	-18.88***	-19.33***
	(-3.74)	(-4.86)	(-4.74)	(-4.85)
Year	Yes	Yes	Yes	Yes
No. of Obs.	1617	1617	1617	1617
R-squared	0.39	0.39	0.39	0.39

This table shows the coefficients of the estimates from the fixed effects regression analysis for the independent variables Uniform, Skewed, Tilted and Balanced and dependent CER variable over a period from 2015 to 2020. The regression includes several control variables regarding corporate governance mechanisms, financial performance and country-level data.. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6. Description of variables

Variables	Description	Source
CER	Corporate Environmental Responsibility. It is a company score based on self-reported information in the environmental pillar.	Asset4 ESG Refinitiv
Uniform, Skewed, Tilted, Balanced	Four dummy variables, where (1) indicates no one woman; at least one woman but less than 20% women; at least 20%, but less than 40% women; at least 40% women on the board of directors, and (0) otherwise.	Asset4 ESG Refinitiv
Board Size	The total number of board members	Asset4 ESG Refinitiv
CEO separation	Dummy variable equal to 1 if a CEO chairs the board or if the chairperson of the board has been the CEO of the company	Asset4 ESG Refinitiv
Debt on Equity	Total debt divided by total equity	Worldscope Refinitiv
Free Float	The percentage of total shares in issue available to ordinary investors (i.e., the total number of shares less the strategic holdings).	Worldscope Refinitiv
Capex on Sales	Capital expenditures divided by total sales	Worldscope Refinitiv
GDP per capita	Gross Domestic Product based on current price/population	The World Bank

Management between crises and emergencies. Toward an "absential" approach

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I felt a cleaving in my mind
As if my brain had split;
I tried to match it, seam by seam,
But could not make them fit.
The thought behind I strove to join
Unto the thought before,
But sequence ravelled out of reach
Like balls upon a floor.
Emily Dickinson

Abstract

The aim of this study is to propose a new approach to decision making based on information variety endowment and configuration. The research adopts an exploratory methodology and a qualitative approach, deepening and analyzing both academic and non-academic studies. The study found the existence of general characteristics in the dynamics of human behavior and in that of social phenomena, characters that lead to specific paths of decision and action based on information variety endowment of decision makers.

The developed conceptualization needs verification through appropriate tools and tested in empirical settings. The study can support the decision-making process of individuals, organizations, and whole societies – understood as viable systems – in the current dynamic and unpredictable context. This is the first work to propose an absential approach for the framing of managerial problems, recognizing that current methodologies are not capable of effectively responding to uncertainty and unpredictability of the melted result of economic, political, and social environments interaction. Eventually, this is the first work to engage in a mathematical demonstration of decision-making essentiality.

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Sommario

L'obiettivo di questo studio è proporre un nuovo approccio al processo decisionale basato sulla configurazione della varietà informativa. La ricerca adotta una metodologia esplorativa e un approccio qualitativo, analizzando e approfondendo studi accademici e non accademici. Lo studio ha rilevato l'esistenza di caratteristiche generali nella dinamica del comportamento umano e in quella dei fenomeni sociali, caratteri che portano a specifici percorsi di decisione e azione.

La concettualizzazione sviluppata dovrà essere verificata con strumenti adeguati e testata in contesti empirici. Lo studio può supportare il processo decisionale di individui, organizzazioni e intere società - intese come sistemi vitali - nell'attuale contesto socioeconomico, dinamico e imprevedibile. L'approccio assenziale per l'inquadramento dei problemi manageriali, ancora embrionale, riconosce che le attuali metodologie d'indagine dei fenomeni sociali e d'impresa non sono in grado di rispondere efficacemente all'incertezza e all'imprevedibilità dell'interazione tra ambiente economico, politico e sociale. Si tratta del primo lavoro che si impegna in una dimostrazione matematica dell'assenzialità del processo decisionale.

Parole chiave: management assenziale, emozioni, processo decisionale, varietà informativa

1. Introduction

The above verses explain the unease that every decision-maker feels when the rational framework at disposal appears inadequate. Similarly, only in apparent contradiction, it happens that even those who do not have the required knowledge begin to discuss issues and topics considered not simple. The emergence of such behavioral patterns leads to believe that management is experiencing a crisis regarding principles and main theories that have characterized the discipline from its inception. There are many cultural areas in which such a dynamic is taking place.

Every type of organisation (public or private, profit or non-profit, political or financial), is experiencing the progressive inadequacy of its interpretative schemes. The unifying dimension of this trend can certainly be found in the increasingly overcoming of the articulated palimpsest of consolidated managerial processes. Regardless of any classification of scope and perspective, what we find is an increasing difficulty for any type of organisation, be it a firm or an institution, to be able to identify choice procedures (decision making) appropriate to the nature of the problems to be faced. It is central to understand that these difficulties are not connected to project management procedures (problem solving) but they are traced back to the inability to circumstantiate a problem and to hypothesize adequate solution strategies. This is becoming more and more evident in managerial disciplines and, in general, it is happening in any social/entrepreneurial decision-making process (Rullani, 2020). It is not difficult to see that most of these disciplines end up concentrating 'deterministically' on the analysis of factors relating to previous case histories, often even considering a limited number of them, and thus trying to derive general laws of behaviour to be biunivocally associated with specific problems (Barile *et al*., 2018).

It is becoming clear that concentrating on the search for formal planning methodologies, basing on the analysis of past performance, entails the risk of limiting the elements to be considered in the problem analysis, accepting the unverified principle that every current problem can be traced back to a case history that has already been tested. Based on such a premise, there is little point in admitting that strategies must be systemic and multidimensional in nature. The countless attempts to take the 'context' into account by imagining that such an intention can be limited to including new variables, which can also be derived objectively and therefore in a 'formalizable' manner, qualifies the flaw in the origin of the consolidated approach (Denrell *et al*., 2004).

The fideistic expectation that has led even enthusiastic managers to believe that most of the crises encountered in the strategic-operational dynamics of contemporary organisations can be traced back to a case history that is in any case homologous in its established approach is increasingly improbable. Decision-makers motivational sphere and their perspective, the gradient of significance with which the environment is analyzed by extracting a 'context' from it, become a priority.

Although it is undoubtedly of intellectual and cultural interest to reflect on why such evidence comes to the fore in the present era, and whether it has become detectable as a result of specific socio-economic factors, it must be borne in mind that such speculation is beyond the scope of this paper. What is of interest here is the central role assumed by the aforementioned 'motivational sphere', and how the compendium of factors connected to this descriptive sphere can contribute to designing new and more opportune paths of 'decision management'.

Essentially, the intention is to develop a reflection on the progressive loss of efficiency of interpretative schemes: due to the dynamics of context change underway, it is necessary, rather than thinking about adapting tools and techniques, to proceed to the realization of a refunding of the principles underlying the approach from which those techniques and tools, which are today inadequate, were generated.

The paper is organized as follows: after a first introduction, the work focuses on setting the theoretical background (Sec. 2) of this research. Accordingly, the paper focuses on the role of information variety in balancing rationality and emotions (Sec. 2.1), shading light on how it learns and varies (Sec. 2.2). Then, a new approach to knowledge is presented (Sec.3) and discussed (Sec. 4). Implications and conclusions are presented in section 5.

2. Theoretical background

2.1 Between rationality and emotions: the role of information variety

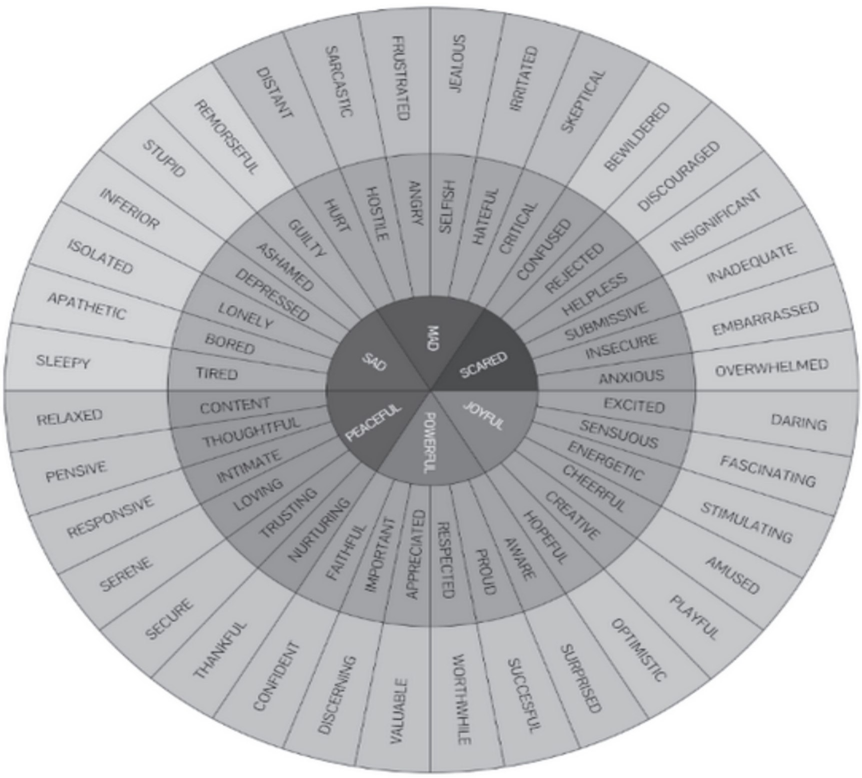
In recent times, in many disciplines, particularly in neuroscience and computer science, but also in philosophy and anthropology, there has been an intensified effort to better understand nature, function and role of components underlying human behaviour, decision and action. This is an exciting challenge that requires a broad interdisciplinary approach, having to consider research on both human brain and human mind, perceptions and cognitions, feelings, and emotions, as well as the entire value system, including morals and ethics, ideality, and faith: in essence the entire scenario ascribable to our consciousness.

The need to probe consciousness, understood as the awareness of our potentialities beyond the rational, registers the commitment of many scholars of the highest standing. Prospects for problem analysis are innumerable, ranging from brand imaging studies aimed at understanding the systems distributed in the cerebral hemispheres, to philosophical analyses aimed at identifying the mental seat to which the formation of moral judgement and ethical behaviour can be traced. Therefore, intervening in such a scientific dialectic requires caution and, above all, a premise of objective modesty regarding the contribution to be made. As already mentioned, there are many giants of research on whose shoulders it is necessary to stand, but in the reflection carried out in this contribution, a founding role must be attributed to the work of Paul Ekman, the author of the "neuro-cultural theory" which, drawing on Darwin's considerations regarding facial expressions and emotions, provides empirical evidence in support of the universality of emotions and their link with facial expressions (Darwin, 1872). Ekman's studies hypothesize that there is a strong correlation between facial expressions and the emotions experienced in certain situations, and that the possible facial expressions have a universal character. Furthermore, in addition to the universality of emotional expressions, the author argues that there are social rules for the expression of emotions, consolidated in the cultural paradigm of different ethnic groups, which determine the control and modification of emotional expressions according to social circumstances (Ekman, 2007). Another prodromal reference to the reflections that follow is constituted by the research ascribable to the so-called Yerkes-Dodson law that postulates the empirical relationship between emotional tension and behaviour, distinguishing between 'Eustress' (or positive emotional tension) and 'Distress' (or negative emotional tension). In addition to the considerations that the authors expound on the relationship between emotional tension and the individual's performance, what is relevant for our purposes derives from the highlighted correlation between emotional condition and the complex of psycho-physical factors referable to problem-solving processes (Nickerson, 2021). Also important is the contribution offered by the French philosopher Henry Bergson, who considers intuition not as a method of approaching decision-making necessarily contaminated by a halo of error, but rather as an indispensable perspective for the expansion of knowledge, in symbiosis with the rational dimension (Bergson, 1889). Considering decision-making methods based on rationality as opposed to those based on emotion (impulsivity, intuition, the unconscious in Bergson's considerations) predisposes to a perspective error in the study of human behaviour. Another indispensable contribution comes from the studies of Robert Plutchik (1980), an American psychologist, known for the theory that traces the genesis and derivation of every other possible human emotion to eight primary emotions (Fig. 1).

All this being said, with the assumption that emotions and their control are inseparably linked to the decision-making dynamics of organisations and that the feelings that emotions generate contribute to the definition of the context in which choices are made by the decision-maker, in wishing to deal with social phenomena and hence mental phenomena, and in line with the possibility of intervening on the paradigmatic hypothesis in which the context is represented, it is necessary to define some elements, so to speak 'primitive', capable of characterizing the context itself. The aim of this contribution is to identify the conceptual grid to which the need for preparatory change can be traced, through which to operate the modification of the patterns of approach to the solution, providing general schemes for rethinking the approach to decision making.

There is a need to identify a group of principles useful for describing all phenomena, and perhaps understand the laws that determine their results (Deacon, 2012).

Fig. 1 - *Plutchik's wheel of emotions*



Source: Plutchik (1980).

Knowledge, interconnected with other concepts such as those of learning and reasoning, can (and should) be understood as a cyclical process in which perception, action of the intellect, storage, and processing of information (reasoning), create a virtuous path that results in an ever-increasing endowment of "known things".

We emphasize that the concept of knowledge useful for this discussion, an ongoing and continuous process, must necessarily recover a possible static, discrete description (a snapshot), i.e. an endowment of things known at a given moment. Although much literature prefers to assimilate knowledge to a process, to a continuous elaboration, rather than to an accumulation of information, for our purposes, while sharing the idea of knowledge as a continuous progression, we believe it cannot be denied that the comparison between two temporally distinct moments t_1 and t_2, lead to highlight that the knowledge possessed at the moment t_1 is to be considered necessarily different from the knowledge possessed at the time t_2.

It is precisely this endowment of knowledge - fixed at a certain time $\boldsymbol{t_j}$ - that we qualify as the 'primary object' of our discussion. We use the term Information Variety at time $\boldsymbol{t_j}$: Var inf $\boldsymbol{t_j}$ (understood as the stock of information resources possessed by a mind, and stored via a brain, at that precise moment $\boldsymbol{t_j}$). It is evident that if knowledge as a process must also include the dynamic action of the intellect, then the concept of wealth of information resources possessed at a certain instant must be understood as including the wealth possessed by the mind as determined by the effect of cognitive activity as a whole. This cognitive activity, aimed at learning and understanding, is carried out through both exo-perception and endo-perception (reflection), the latter understood as the autonomous self-determination (internal circularity) of new cognitions. In some of our contributions we have investigated the socio-behavioural dynamics concerning the endowment of information variety (the wealth of information resources) possessed by a subject engaged in decision-making (Maggioni, 2014; Baldinelli, 2012).

The investigation requires first of all that we represent information variety through three dimensions that can be expressed in a coherent measurement system:

$$\boldsymbol{V_{inf}(k)} = (\boldsymbol{SDe_{def}(k)}, \boldsymbol{SSp_{spec}(k)}, \boldsymbol{CSg_{val+ScheGen}(k)})$$

Dove:

- $\boldsymbol{V_{inf}(k)}$ = Information variety of the Viable System K;
- $\boldsymbol{SDe_{def}(k)}$ = Definite Schemes of the Viable System K;
- $\boldsymbol{SSp_{spec}(k)}$ = Specific Schemes of the Viable System K;
- $\boldsymbol{CSg_{val+ScheGen}(k)}$ = Value Categories and General Schemes of the Viable System K;

Elements $\boldsymbol{SDe_{def}}, \boldsymbol{SSp_{spec}}, \boldsymbol{CSg_{val+ScheGen}}$, which, as mentioned above, characterise the wealth of information resources of the variety $\boldsymbol{V_{inf}}$, are to be understood both in dimensional terms; that is, they explain the proportions of the information variety with respect to orthogonal dimensions such as those of height, depth and breadth, which are typical expressions of the spatial representation of material bodies, and rather they are to be understood as expressive quantities of specific properties possessed by each information variety, and consequently as factors capable of conditioning the evolutionary dynamics of knowledge. Specifically, we can assume that the three factors are representative of the following characteristics:

- $\boldsymbol{SDe_{def}}$ breadth of perspectives, shapes of knowledge (possible representations);
- $\boldsymbol{SSp_{spec}}$ specificity, detail of knowledge (final unitary elements);
- $\boldsymbol{CSg_{val+ScheGen}}$ general overview, but also resistance that possessed knowledge opposes to change (information variety inertia).

The decisive aspect to be introduced at this point concerns the unit of measurement, and thus in functional terms the independent variable that substantiates the entire representation. The entire conceptual framework is based on the verified isomorphism existing between the flow of the time variable, and the corresponding flow of perceptions typical of a human mind. Due to the already stated correspondence between perceptions, data and information, which we will explain in more detail shortly, in what follows we will use the expression $\boldsymbol{u_i}$ to indicate the unitary element of information. Therefore, it makes sense to imagine that the size of the information variety is dependent on the quantity of information units (Barile, 2013; Barile, 2015, 2016b):

$\boldsymbol{SDe_{def}(u_i)}$, $\boldsymbol{SSp_{spec}(u_i)}$, $\boldsymbol{CSg_{val+ScheGen}(u_i)}$.

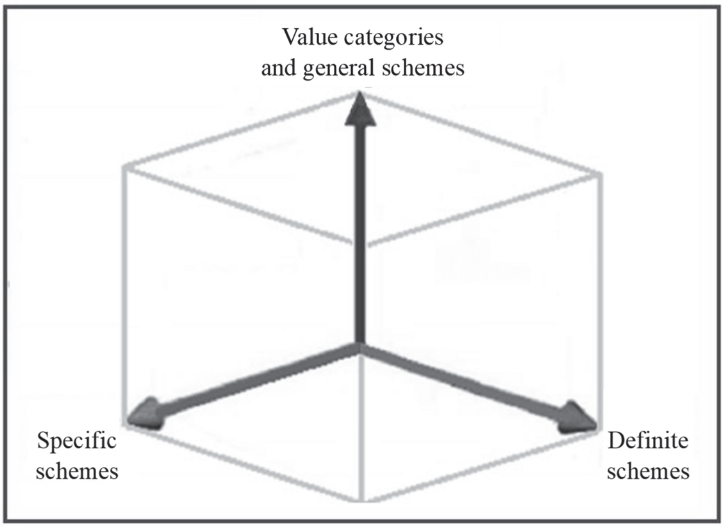
2.2 Information Variety: learning mode and variation

The learning phenomenon from a viable systems perspective consists essentially of the variation of an information variety from an initial configuration perceived by an observer (self-observation is also to be understood in this definition).

Above, it was specified that an information variety can be traced back to three components:
- value categories and general schemes;
- interpretative schemes (definite and specific).

The value categories and general schemes, which are strongly based on values and inspired by general laws felt as true by the subject and - in general - by the community to which a decision-maker belongs, make up the dimension of the deepest interpretative sensitivity of any phenomenal.

Fig. 2 - *Information variety components*



Source: our elaboration.

Interpretive schemes, composed of definite and specific schemes, are understood as the contextualization of value categories and general schemes. In the same way that a ‘genotype’ interacting with the environment develops ‘phenotypic’ characteristics, value categories and general schemes, interacting with the environment develop definite and specific interpretative schemes.

The definite schemes, directly derived from the general schemes, could be defined as the contextualized transposition of the former, they pertain to a rational dimension but are generally not “rationalized”, they constitute an endowment of tacit knowledge, they are of a qualitative level, they are essentially linked to the actor’s motivations being based on the actor’s own experiences, and therefore referable to the specific systemic context. They are patterns that the individual retrieves from active training, from action related to doing.

Finally, the specific scheme, although of more immediate reference than the concept of ‘information’, are always referable to a specific systemic context and correspond to an essentially quantitative level, they are explicit knowledge which can be manualized, and therefore subject to the logic of representation proper to the theory of communication (Shannon, 1949).

It is interesting to note that the three dimensions of the variety of information, find correspondence and resonance in reference to specific linguistic terms, the semantics of which, although they circumstantiate a very broad epistemological 'space', in terms of explanatory constructs essentially lead back to the conceptual syntheses mentioned above, and which make it possible to identify logical spaces that are interdependent.

3. Reframing knowledge: an issue of time or perception?

Before proceeding, it is necessary to substantiate a fundamental premise that brings the dynamics of social behaviour closer to the established laws of the physics of matter. Regardless of the position that the writer and those reading this may hold regarding the objective existence of reality, it is arguable that reality finds meaning in the succession of perceptual sequences that are detected by sentient entities (human beings in particular) (Barile *et al.*, 2016a). Therefore, it becomes permissible to argue, echoing Ernst Mach, that the progressive order of time, even in the most basic sensations, is connected with the images produced by the memories of those sensations (Mach, 1903).

Thus, it is possible to qualify 'sensation' and the resulting 'perception' as a factor in the detection of the flow of time. Each moment $\boldsymbol{t_i}$ ends up being biunivocally identified by a pair of perceptions $\boldsymbol{p_{i-1}}\ \boldsymbol{e}\ \boldsymbol{p_i}$ which unambiguously define the instant $\boldsymbol{t_i}$ as the temporal distance between the realisation of the first perception and the occurrence of the second. Therefore, where the variety of information relating to a specific endowment of knowledge qualifies the 'position' of a mind (or group of minds), the number of elementary data deriving from perceptions, even the result of self-processing, present in it, defines its seniority.

In this meaning, perception, whether internal or external to the sentient subject, qualifies as an independent flowing factor, endowed with a single positive direction in the normality of the learning process. It follows that the 'structural' composition of knowledge, is given by the quantitative endowment of Interpretive Schemes $\boldsymbol{SDe_{def}(k) + SSp_{spec}(k)}$, owned by a viable system $\boldsymbol{k}$. Basically, everything that has been perceived through the five senses (and which is not overlooked due to lack of interpretative schemes) or further perceptions that come about as a result of subsequent processing. They derive from that composite set of data that aspire to contribute to the formation of elements of an accomplished thought and to fit into the experiencer's own pathway so that he or she can process them, transforming them into information relating to defined knowledge processes (Pessa and Penna, 1994).

In what follows, after listing some of the main terms (and their meanings) useful for outlining the characteristics, modalities, as well as the assumptions, constraints, and dynamics of interaction proper to that something we could synthesize with the locution "mental sphere", evidence is provided that the entire set of terms proposed can be traced back to that essential synthesis defined by the components of an informative variety.

The color used for the classification of the different terms refers to the components of the information variety. We will use green for value categories and general schemes, yellow for definite or synthesis schemes, and light blue for specific schemes (Tab. 1a, b, c)[1]:

Tab. 1a – *Value categories and general schemes*

VALUE CATEGORIES/GENERAL SCHEMES (GREEN)
Subjectivity refers to an unchanging concept of essentiality, to a well-determined and certain 'objectivity'. Subsequently, the meaning is turned upside down, taking on the value of what is apparently true in the realm of individual subjectivity. The Latin term translates the Greek *ὑποκείμενον* (*hypokeimenon*), which means 'that which lies beneath', that which according to ancient thought is hidden within the perceptible thing as its ontological foundation.
Psyche refers instead to the mind as a whole, i.e. including the irrational dimension, i.e. instincts and the dimension of the deep (unconscious).
Awareness, in psychology, is qualified as the perception and cognitive reaction of an animal to the occurrence of a certain condition or event. Awareness does not necessarily imply understanding.
Self-awareness is the knowledge and ability to identify relationships between oneself and one's surroundings.
Introspection is an act of thought that consists of direct observation and analysis of one's interiority represented by feelings, desires, products of thought itself, as well as a person's sense of identity. It is opposed to the process known in English as extrospection, which consists of the observation of that which is external to one's self.
Brain is responsible, together with the endocrine system, for part of the regulation of vital functions and is the seat of homeostatic regulation and higher brain functions. In humans, brain activity, studied by neuroscience, gives rise to the mind with its higher cognitive functions and, more generally, to the psyche with its psychic functions, studied in the field of psychology.
Consciousness (in the Freudian formulation, German *bewusstsein*) is a quality of mind that usually includes other qualities such as subjectivity. The term derives from the Latin *conscientia*, i.e., 'to be aware, to know' and indicates the awareness that a person has of mental contents.
Mind is commonly used to describe all the higher functions of the brain and those of which one can be subjectively aware such as sensation, thought, intuition, reason, memory, will. Thought is the activity of the mind.
Memory is the brain's capacity to retain information, i.e., that psychic or mental function aimed at the assimilation, retention and recall, in the form of recollection, of information learned during experience or by sensory means.
Cognition is a term used in different meanings by different disciplines but is generally accepted to refer to thinking and the way awareness is achieved.
Idea (from the ancient Greek ἰδέα, from the theme of ἰδεῖν, to see) is a term used since the dawn of philosophy, originally indicating a primordial and substantial essence, but which today has taken on a narrower meaning in common language, generally referring to a representation or 'drawing' of the mind.
Cognition is a term used in different meanings by different disciplines but is generally accepted to refer to thinking and the way awareness is achieved.

[1] Definitions have been adapted from www.treccani.it.

Tab. 1b – Definite/synthesis schemes

DEFINITE/SYNTHESIS SCHEMES (YELLOW)
Judgement In philosophy, is a cognitive mental function or operation that links subjects to gnoseologically significant predicates.
Intuition In philosophy means that kind of immediate knowledge that does not make use of reasoning or sensible knowledge;
Imagination It means the capacity to represent things which are not present to the sensation.
Wisdom The virtue of prudence in distinguishing good from evil and useful from harmful.
Will is the factual and intentional determination of a person to undertake one or more actions aimed at achieving a specific purpose. The will thus consists of the end, or ends, that the human spirit sets out to achieve in its life, or specifically also in its simple, everyday actions.
Learning is the acquisition or modification of knowledge, behaviour, skills, values or preferences. Humans, animals, plants and some machines possess this capacity. The evolution of behaviour over time follows a learning curve. Both adaptive and maladaptive behaviour can be learnt.
Behaviour is the manner of acting and reacting of an object or organism placed in relation or interaction with other objects, organisms or more generally with the environment. It is therefore the actuation of a potentiality that, in turn, is based on an idea or belief, more or less realistic, even a prejudice. Human behaviour can be conscious or unconscious, voluntary or involuntary, and is closely linked to the individual's personality type or model.
Understanding (from Latin *comprehensio, -onis*) is the act and capacity to understand, i.e. to 'grasp' a cognitive content.
Experience is the direct knowledge, personally acquired through observation, use or practice, of a certain sphere of reality.
Skill is the ability to perform a particular activity. In pedagogy, it is understood as the acquired ability to exercise certain faculties and perform certain tasks.

Tab. 1c – Specific schemes

SPECIFIC SCHEMES (LIGHT BLUE)
Sapientia (from Latin *sapientia*) translates the Greek word σοφία (sofia). Until Plato, it was understood to mean not only the possession of rational knowledge but also the related technical skill in putting that knowledge into action.
Value is understood as a concept of the desirable, explicit or implicit, which distinguishes an individual or characterizes a group, which influences the selection between possible ways, means and ends of action.
Meaning is a concept expressed through signs that may be graphic, verbal-oral, or through nods and gestures. Meaning makes it possible to understand or express the meaning, value or content of the sign.
Sensation, from a physiological point of view, can be defined as the modification of the state of our neurological system due to contact with the environment through the sense organs. Stimuli offered by the environment are captured by our sense organs.
Rationality, in philosophy, is the faculty by means of which thought is exercised, especially thought directed towards abstract subjects; it is considered by most philosophers to be a universal faculty, such that it is shared as much by humans as, theoretically, by animals or artificial intelligences that would use rationality understood as the capacity to calculate.
Depiction is a representation, reproduction, description, figure, image, illustration, portrait, effigy, iconography, a symbol, personification, embodiment, emblem, allegory.
Perception is the psychic process that operates the synthesis of sensory data into forms with meaning. Assumptions to the study of perception vary according to theories and historical moments.
Notion is made of elementary data, referable to the informative or systematic moment of a specific knowledge, fundamental cognition comparable, or identifiable, with the idea or concept.

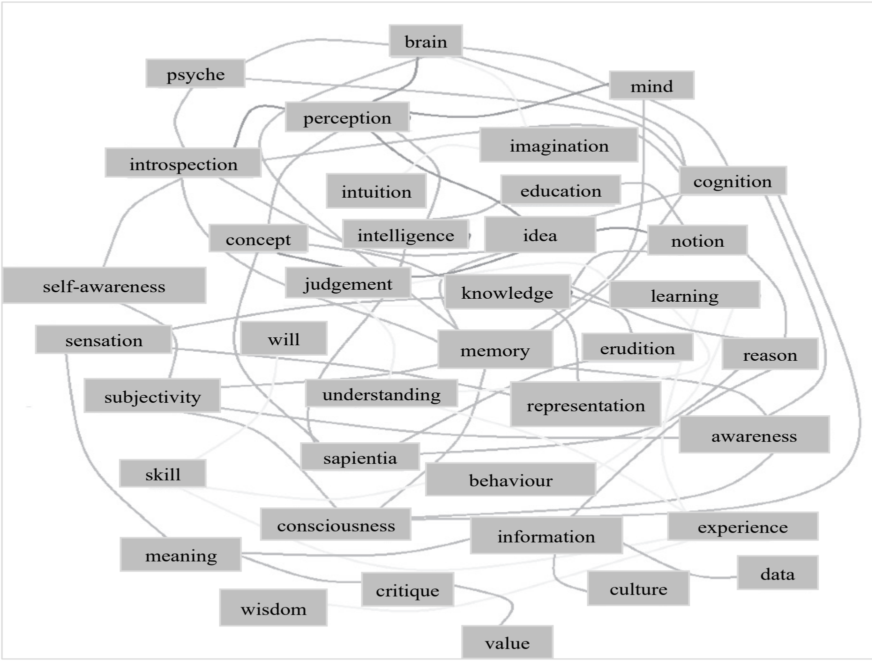
Intelligence can be identified as the capacity of an agent to face and successfully solve new or unknown situations and problems; in the case of man and animals, intelligence also seems to be identifiable as the complex of all those faculties of a cognitive or emotional type that concur or would concur to such capacity.
Information is an exchange of knowledge between two or more persons, within a community or society, and the meaning that the persons involved attribute to that knowledge. In other words, it concerns the context in which data is collected, its encoding in intelligible form and ultimately the meaning attributed to that data.
Erudition is the possession of a great deal of knowledge and information in one or more fields of knowledge. The term emphasizes the vast store of knowledge possessed, obtained through intensive reading and meticulous research, and can also have a derogatory connotation when the vast amount of knowledge acquired is not assisted by original thought or critical insight.
Education is the activity, influenced in different historical periods by various cultures, aimed at the development and formation of mental, social and behavioural knowledge and faculties in an individual.
Concept is a term by which we mean a defined and ideally configured thought, formulated and usable on an intuitive, logical and practical level; in philosophy, it means the general and universally valid process or result of cognitive activity, aimed at grasping and defining the essence of the object.
Criticism means the activity of thought engaged in the interpretation and evaluation of historical or aesthetic facts or documents (historical criticism, literary criticism), or of the deep functions and contents of the human spirit, from a gnoseological and moral point of view (philosophical criticism; criticism of pure reason, practical reason).
Culture derives from *colere* ('to cultivate') and refers both to the acquired baggage of intellectual knowledge and to the intellectual process of reworking and rethinking necessary to convert notions from mere erudition into a constitutive element of one's moral personality, one's spirituality and one's aesthetic taste and, in short, in one's awareness of oneself and one's world.
Knowledge, understood as awareness, is the understanding of facts, truths or information obtained through experience or learning (a posteriori), or through introspection (a priori). Knowledge is the self-awareness of the possession of interconnected information, which, taken individually, is of lesser value and utility.
Data (from the Latin datum meaning literally 'fact') is an elementary, often codified, description of a phenomenon. Data processing can lead to information. Each type of data depends on the code and format used.

Source: our elaboration.

Different terms and concepts, on the basis of the colors they belong to, can be summarized in the conceptual map depicted in Fig. 3.

It is interesting to note that the three dimensions of the information variety find correspondence and correspondence in reference to specific linguistic terms, whose semantics essentially lead back to the conceptual syntheses mentioned above, and which make it possible to identify logical spaces that are independent of each other.

Fig. 3 - *Erudition, Awareness, Understanding: a map*



Source: our elaboration.

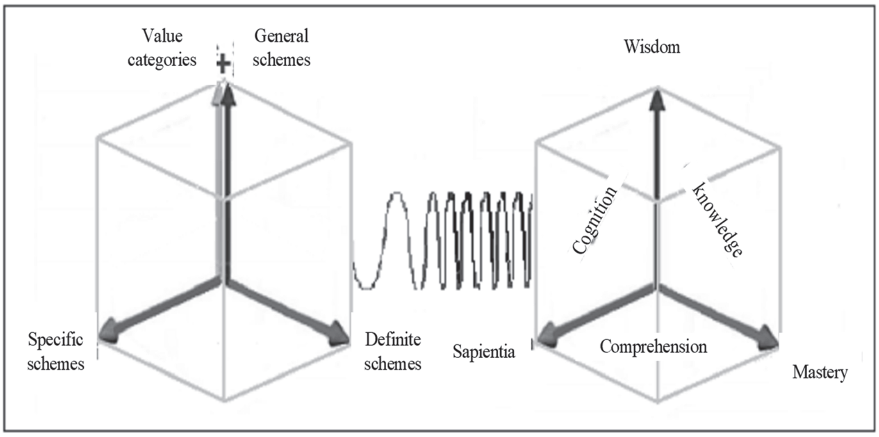
Essentially, given the need for simplification even at this explanatory stage, it is possible to identify a strong conceptual analogy between the following terms and the identifying elements of the axes in Fig. 4:

I. Mastery: singular skill, rare expertise in the performance of an activity, in the execution of a work and the like [definite schemes]; masterly skill expressible through artistic, sporting and intellectual modalities. Generally, these are innate aptitudes, also cultivated through experience;
II. Sapientia: refers to the possession of much knowledge and profound cognition [specific schemes] in one or more fields of knowledge, acquired through study, meditation, reflection;
III. Wisdom: refers to an individual condition [value categories + general schemes] that reveals, in behaviour, judgement and action, shrewd discernment, moderation, intellectual and spiritual balance. It entails maturity and balance, and a knowledge of things acquired through reflection and superior to that of the average individual.

Moreover, through further reflection, it is possible to consider that the three dimensions outlined above lead to two-dimensional realms, proper to further logical assertions referring to what could be called the ‘state of consciousness' of any sentient subject. By 'state of consciousness', in this case, we must mean the outcome of processes of understanding, cognition, and knowledge, typical manifestations of the vitality of human beings, of organisations in general, and even more inclusively, of any viable system. The interpretative content that can be attributed to the three possible two-dimensional domains is as follows:

a) Understanding (Mastery - Wisdom): is the state of mind, which, starting from the interaction with a specific event, enables one to formulate thoughts capable of tracing the phenomenology of the same back to already known concepts, so as to be able to justify it in an adequate interpretative framework;
b) Cognition (Sapientia - Wisdom): it is the faculty of processing the elements of understanding, acquiring awareness of them, and also proceeding to the formation of new concepts (learning), useful for evaluating and interpreting the surrounding reality;
c) Knowledge (Wisdom - Mastery): is the cognition and understanding of facts, truths or information obtained through experience or learning (a posteriori), or through introspection (a priori). Knowledge is the self-awareness of the possession of meta-concepts capable of connecting information, attributing a meaning and significance certainly not deducible from information individually taken.

Fig. 4 - *Two-dimensional domains relating to the 'state of consciousness'*



Source: our elaboration.

4. Discussion: information variety configuration between Time and Perception

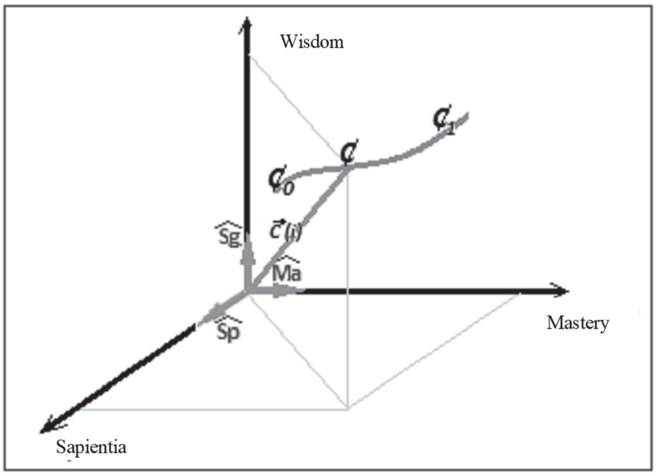
Following the discourse, therefore, the configuration of an information variety is not a characteristic of the variety itself but is an interpretative mode that can be traced back to the dimensions defined above. In Fig. 5, it is represented in the context of a Cartesian coordinate system. Vectors provide an ideal language for identifying the position of a configuration with respect to the origin, in the context of a Cartesian diagram. The vector, which in our case represents the variety configuration having specific characteristics, is called the configuration vector and is denoted by ¢.

It is possible to state that if the configuration ¢ undergoes changes, then the vector $\vec{¢}$ redetermines itself as a function of the information perceived by the viable system, and these changes can be traced back to the dimensions of the Cartesian diagram:

$\vec{¢}_{\boldsymbol{i}} = \widehat{ma} \cdot ma(i) + \widehat{sp} \cdot sp(i) + \widehat{sg} \cdot sg(i)$ where:

- ma is a unit of mastery;
- sp is a unit of sapientia;
- sg is a unit of wisdom.

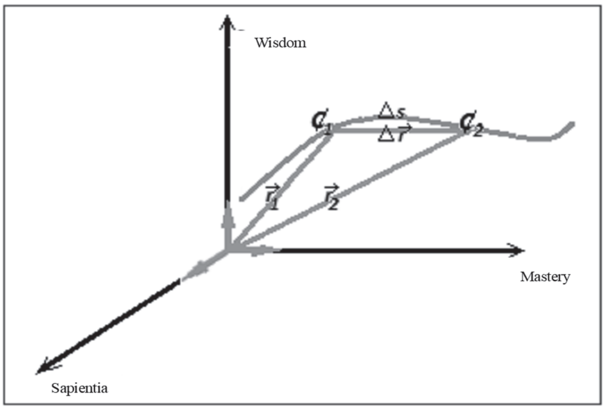
Fig. 5 - *Variety configuration through the vector ¢*



Source: our elaboration.

These dimensions represent three independent variations along the directions identified by the three verses *ma, sp,* and *sg*. This translates into the statement that the configuration of an information variety possesses three degrees of freedom. Fig. 6 shows that the evolutionary dynamics of a configuration describes a trajectory ¢. The different points of ¢ identify, due to the information variety, different values of configuration.

Fig. 6 - *Evolutionary dynamics of a configuration*



Source: our elaboration

The measure s(i) of the evolution undergone due to the unit of perception along the trajectory starting from position $¢_0$, relative to i=0, is given by the value assumed at perception i by the scalar function s(-), called the learning law.

The vector of change. Let us assume that, at the occurrence of the perceptual i_1, an information variety is in the configuration $¢_1$, and at the occurrence of the perceptual i_2 information variety is in the configuration $¢_2$, described respectively by the configuration vectors r_1 e r_2.

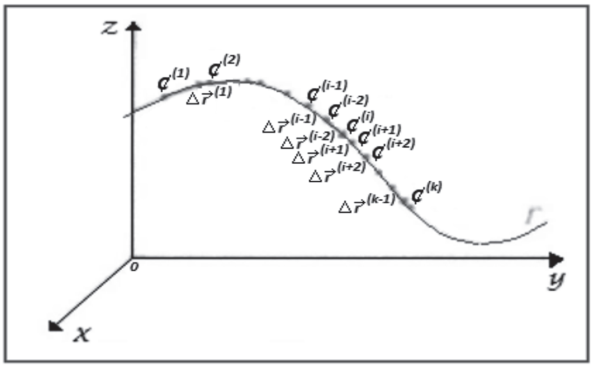
The vector $\Delta_r = r_1 - r_2$, representing the distance between $¢_1$ e $¢_2$ is referred to as the change in the configuration of the information variety due to the learning derived from the information $\Delta_i = i_1 - i_2$.

Observable consonance. Ratio Δ_i is fully defined where i_1 and i_2. It is a vector having the same direction and verse as r but modulus $1/\Delta_i$ times that of Δ_r. It is a derived quantity whose dimensions are $[sharing] = [understanding] \cdot [information]^{-1}$, its unit is $\frac{[scheme]}{\text{information}}$; it is useful to characterize the configuration variation between $¢_1$ e $¢_2$ and is called mean consonance:

$$\vec{\mathfrak{C}}_m = \frac{\Delta\vec{r}}{\Delta\vec{\imath}}$$

This new observable provides only an average idea of the evolution of a configuration. For example, if we think of the change of opinion due to listening to a political debate, due to the opinions of the different participants, the average consonance may be much lower than the consonance with this or that participant in the debate at the different moments of the debate. To obtain a more precise description, we can divide the trajectory r between $¢_1$ e $¢_2$ into a number k of parts as in Fig. 7.

Fig. 7 - *Breakdown of the evolution trajectory*



Source: our elaboration

Combining successive configuration changes $\Delta\vec{r}^{(1)}$, $\Delta\vec{r}^{(2)}$... we will obtain a break that constitutes a better approximation to the trajectory the greater the number of parts. The set of consonances $\vec{\mathfrak{C}}_m{}^{(i)} = \frac{\Delta\vec{r}^{(i)}}{\Delta\vec{\imath}^{(i)}}$

cs a more precise description of the change. If k becomes very large, the difference between percepts $\Delta\vec{\imath}^{(i)}$ and movements $\Delta\vec{r}^{(i)}$ will become smaller and smaller. For $k \to \infty$ they tend to zero. In other words, they become infinitesimal variations of the respective observables which we shall denote by the symbol d. The ratio tends to the derivative of the position vector $\vec{r}(i)$ with respect to the percept and takes the instantaneous change.

Observable resonance. Consonance varies with perception. The rapidity of change in consonance as "percepts" occur is called resonance.

As we did for consonance, we can define average resonance in the interval $\Delta_i = i_1 - i_2$:

$$\vec{R}_m = \frac{\Delta\vec{¢}}{\Delta\vec{\imath}}$$

Moving on to the limit, we define instantaneous resonance, which is therefore the first derivative of consonance with respect to perception and the second derivative of configuration with respect to perception. It is a derived quantity in the sense that its dimensions are:

$$[involvement] = [sharing] \cdot [information]^{-1}.$$

Evolution with constant r in module: knowledge from reflection. This change in configuration is also very important. For there to be a change in configuration with r constant in modulus, there must be a change in its direction. The condition $|r| = cost$ translates into Cartesian coordinates:

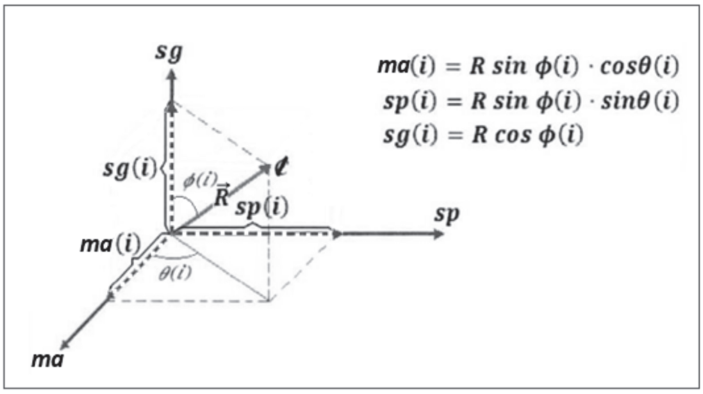
$$[ma(i)]^2 + [sp(i)]^2 + [sg(i)]^2 = cost = R^2,$$

where R is the radius of the spherical surface on which the configuration change takes place. It is easy to verify that this condition is fulfilled when:

$$ma(i) = Rsin\phi(i) \cdot cos\theta(i)$$
$$sp(i) = Rsin\phi(i) \cdot sin\theta(i)$$
$$sg(i) = Rcos\phi(i)$$

The preceding equivalences show that the set of the three parameters r, ϕ, θ is equivalent to Cartesian coordinates in the sense that, given one of the triads, the other is unambiguously determined. The numbers (r, ϕ, θ) are the spherical coordinates of the configuration ¢ (Fig. 8).

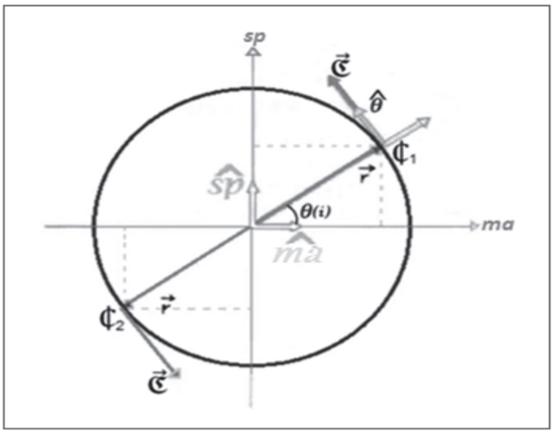
Fig. 8 - *Spherical coordinates of a configuration*



Source: our elaboration

Assuming, for simplicity of representation ϕ = 90°, the evolutionary dynamics can be described as $(ma; sp)$ as shown in Fig. 9. With this formulation, since there is no perception of events from outside, and information is generated internally, it is intended to represent the self-generation phase of understanding. In essence, the information generated using memory can be processed in the same way as information derived from external perceptions (which, as we know, generate internal information anyway). This process may be repeated several times, and the end result may therefore also be a configuration of information variety distinct and distant from the initial one.

Fig. 9 - *Self-reflection dynamics*



Source: our elaboration.

In formal terms, since from the above descriptions, it is possible to express the configuration vector as:

$$\vec{r}(i) = R\hat{r}(i)$$

where the versor $\hat{r}$ can be expressed as:

$$\hat{r}(i) = \widehat{ma}\cos\theta\,(i) + \widehat{sp}\sin\theta\,(i);$$

$$\vec{r}(i) = R[\widehat{ma}\cos\theta\,(i) + \widehat{sp}\sin\theta\,(i)];$$

the consonance vector $\vec{\mathfrak{C}}$ is derived by $\vec{r}(i)$ with respect to information:

$$\vec{\mathfrak{C}}(i) = \frac{d}{di}[R\hat{r}(i)] = R\frac{d\hat{r}(i)}{di} + \vec{r}(i)\frac{dR}{di}$$

from which:

$$\vec{\mathfrak{C}}(i) = R\frac{d\theta(i)}{di}[-\widehat{ma}\sin\theta\,(i) + \widehat{sp}\cos\theta\,(i)]$$

It is important to consider that if the consonance remains constant during the self-generation of understanding, it is possible to define a symptomatic state of a more or less severe pathology, in which a cycle is carried out on the information variety without succeeding in producing any evolution.

$$w := \frac{d\theta(i)}{di} = cost$$

Basically, we have that $\theta(i) = wi + d$ where d is a constant derived from the information variety possessed before starting the reflection. It is impossible to get out.

4. Implications and conclusion: toward an innovative approach to management

While considering the disconcertment and consequent carelessness that results from forcing a management scholar, rightly interested in practical and useful knowledge to better make strategic and operational choices, to have to be attentive to a language such as mathematics, the previous representation of qualitative observables through a quantitative formalization may prove particularly useful.

Indeed, as things stand, there is no theoretical approach that is useful for representing, analyzing, and governing the motivational and decision-making factors that underlie the attitudes described in the statements. The entire methodological complex of entrepreneurial decisions, as specified at the beginning of this work, requires references to consolidated, measurable elements, perhaps by means of so-called qualitative methodological instruments, but traceable to mathematical/statistical type of technical tools. However, as the founding fathers of behavioral economics Tversky and Kahneman (1979) have already shown in the past, rationality and the associated models of behaviour are selected based on heuristics that are only valid in certain contexts. Above all, such models are not immune to bias and error when the changing context no longer permits their application. Hence the necessary introduction of an emotional, irrational, absential dimension into decision-making processes in complex contexts. Indeed, according to Deacon «information, function, purpose, meaning, intention, significance, consciousness» (p. 23) do not exist in the way artifacts of science exist because they have «no momentum, no electric charge, no solidity and no clear extension in the space» (p. 2). Nevertheless, they causally act in the world. Thus, these phenomena are called «absential». In Deacon's view, absential is the quality that defines phenomena whose existence is related to an absence or to an intrinsically incompleteness: human experience - and managerial experience as a part of it - is wholly 'shaped' by "absentials", i.e., by 'things' that are no longer or not yet present such as beliefs, desires, values, goals, the whole pool of possibilities encompassed uncertain or complex choices.

In a previous work (Barile *et al.*, 2021), we pointed out that the logical levels against which we can intervene to bring about procedural changes in problem-solving planning and implementation processes are, regardless of the organisational profile of reference, more than one.

Considering Polya's thought (1971) it is apparent that solving problems means to find a way out of a difficulty, a way around an obstacle, to achieve a goal that is not immediately attainable. Solving problems is a specific initiative of intelligence and intelligence is the specific gift of mankind; one can consider this as the most characteristic activity of mankind.

It is worth reiterating that managerial thinking is going through a historical phase that cannot be solved by simple procedural adjustments. The solution does not reside in a new technique that can better streamline a consolidated problem-solving approach. The complex context demands a change that is at the level of transformation or even more at the level of restructuring of the problem-solving approach. The condition is well described by Taylor (1991): although the elements of the puzzle never fit together perfectly, gradual modifications can bring about major changes. If thinking is a complex process, where images, concepts and schemes struggle to fit together, the pieces of the jigsaw puzzle form networks where transformations that occur at a certain time and in a certain place have repercussions throughout the network. When ripples become waves, the networks lose stability. As experiences accumulate and ideas can no longer process them, thought is pushed away from equilibrium, approaching the critical point. At that very moment, danger and opportunity intersect.

Having reached the edge of chaos and overwhelmed by confusion, thought can dissolve into madness or undergo unpredictable transformations. The critical point is the boiling point, the point at which ideas reach maximum turbulence. If change occurs, new configurations emerge that can organize themselves spontaneously. This is a phase in which the obvious and undisputed priority of functions, purposes, and meanings that the organisation has experienced as irreplaceable and ineradicable principles requires that they be redefined even before a phase of technical deployment, in a moment of critical thinking (Deacon, 2012). It is evident, therefore, that there are two distinct perspectives to which decisions and choices can be traced: one of a logical-rational type, consolidated and shared, which can be traced back to the scientific approach; a second, little explored to date, of a sense-emotional type (Darwin, 1872; Papez, 1937; LeDoux, 1986, 2002; Damasio, 1994, 2003; Barrett and Barr, 2009; Brooks *et al*, 2012), where emotion directs and finalizes the adaptive logic to the environment, responding flexibly and quickly to environmental variability. The relevant assumption is that when environmental conditions qualify for high levels of complexity and delay in action may pose serious threats to the viable system survival, the decision-maker amplifies the role of emotions in selecting appropriate choices.

Regardless of the possibility of establishing whether factors exist to discern whether best decisions are rational or emotional, managerial literature shows that the commitment of most scholars is focused on the analysis and description of the rational, quantitative aspects underlying decisions, redirecting relations between emotions and decisions to the field of psychology and social psychology. Nevertheless, the operational reality of organisations has demonstrated a significant pervasiveness of emotional factors that can act or have acted positively or negatively in the process of formulating choices (Slovic *et al*., 2001).

Therefore, believing that future research cannot disregard considering the complex interaction between emotion and rationality, and considering the growing pervasiveness of the emotional dimension with respect to the ideal prospect of absolute calculability, the construction of a methodological framework useful for correctly interpreting the role and limit of the emotional input can no longer be postponed.

Such reflection has the immediate effect of projecting management studies and research onto a different level of interdisciplinarity. Present times find a culturally broad commitment to the need to rediscover principles of causation (and meta-causation) of human events, and on the recognition of managerial methods to better connect problems and purposes, overcoming the deterministic criterion of efficiency centered on a reductionist method.

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