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.*

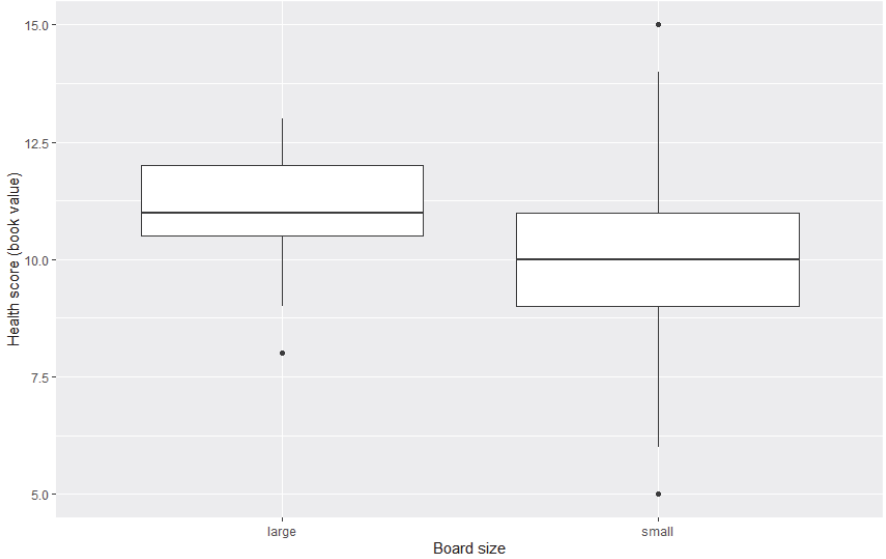
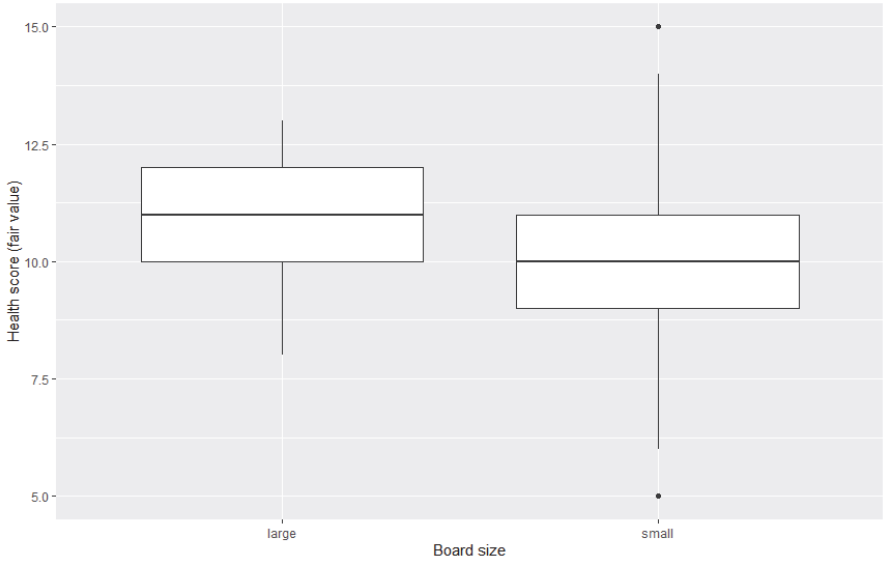


Fig. 2 - *Box plot – Health scores computed using the fair value of assets.*



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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