

Research on Interlocking Directorates in Family Business: Evidence from Scopus Bibliometric Data

Nawar Muneer J. Alghami and Nazimah Hussin

ABSTRACT

We examined the trend of studies on interlocking directorates in family businesses using bibliometric data mined from the Scopus database. Search terms including “family business” and seven other variant terms (including family ownership) plus a wildcard (interlock*) yielded only 17 peer-reviewed papers written in the English Language, published between 1999 and 2020. We used graphical tools to summarise the data. Pearson’s r was employed to analyse the data on three of Scopus’ bibliometric indicators (CiteScore, SCImago Journal Rank, and Source Normalized Impact per Paper) using JASP. The only 17 articles on interlocking directorates in family business poorly compare with the 4,792 articles returned when the wildcard was dropped. Thus, the data show that interlocking directorates in family businesses is a grossly neglected niche in the otherwise steadily maturing field of family business research. The distribution of the scanty literature by country of origin, research purpose pursued, theories employed as explanatory frameworks, the most frequently studied interlocking directorate typologies, and their respective implications were pointed out.

Keywords: Bibliometric data, CiteScore, Family business, Interlocking directorates, Scopus database.

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I. INTRODUCTION

Interlocking directorates have excited researchers and scholars (especially those from economists and lawyers) for over 120 years. Fennema and Schijf [1] report that the very first work on directorate ties was a 1905 dissertation produced in Germany. Ten years later, Dixon [2] and Durand [3] in the United States published their work on the subject from socio-economic and legal perspectives, respectively. In 1990, Kirkpatrick published a study on the research trends in the field using studies published between 1974 and 1988. He found that research on interlocking directorates has levelled off, suggesting that not much scholarship was invested in the area. He attributed the lacklustre scholarly output to data deficit. Kirkpatrick [4] hoped that the emergence of reliable, credible, and accessible data would reflate researchers' efforts in the field.

However, three decades after Kirkpatrick [4], research on interlocking directorates, notwithstanding the superlative availability of various databases on virtually every facet of corporate function, including board and director characteristics, is disappointingly modest. The paltry publication statistics presented in Caiazza and Simoni's [5] recent bibliometric analysis as the sum of all effort in the field supports this conclusion.

The less than satisfactory performance scorecard is reflected in every specialised field of inquiry where directorate ties play a significant role, including corporate governance [6], [7]. It is dismal with regard to the family business research niche. Indeed, research on interlocking

directorates is so neglected that a recent review on family business research with a focus on corporate governance [i.e., 8] did not even mention the construct at all. The situation is surprising, seeing that scholars have almost universally concurred that family businesses rely on close personal, social, and institutional relationships as mechanisms for survival and business development [9, 10]. In response to this intriguing situation, we undertook this study to find evidence, however tenuous, from one of the largest (or the largest) databases of peer-reviewed scholarship, i.e., Elsevier's Scopus.

II. CONSTRUCTS

A. Family Business

We single out Shanker and Astrachan's [12] definition of the family business to delineate what we mean by the family business. They divided family businesses into three categories, depending on the degree of family involvement in the business. The first category is the broadest and includes family firms where the family has a low degree of involvement in the firm's operations but retains control over business strategy, and there is an intention to retain long-term employment in the family. The second category involves family firms where there is greater family involvement in the operations, so that family members manage the firm's affairs through its board and retain control and voting rights. The last category is the narrowest and contains family firms with the highest degree of involvement in operations, and family

members dominate the board of directors. *Family board members* are directors related to the owning family by (i) blood, or (ii) marriage, or (iii) long professional employment relationship up to 10 years, or any combination of i–iii [13]. Any article indexed in the Scopus database that studies any of these categories of family firms plus the construct of interlocking directorates is included in this study.

B. Interlocking Directorates

Burt [10] defines interlocking directorates as "inter-organisational connections through corporate boards of directors" [10]. The connection is created "when one individual sits on the board of directors of two or more companies" [14]. Heemskerck [15] remarked that "interlocking directorates tie together a corporate elite network that spans the corporate control centres of the economy" [15]. Thus, directorate tie is a mechanism that connects one firm to another through a board member having a seat on boards of several companies. Accordingly, we define interlocking directorates as the number of family business board members who sit on other firms' board(s). It is noteworthy that inter-corporate relationships not necessarily mediated through any board member are termed corporate networks in contradistinction to interlocking directorates. Thus, these are two distinct but related areas of study.

Family businesses cultivate directorate ties primarily to advance some interest or protect against some market adversities [16]. Easy access to material and no-material resources and political leverages are some of the benefits that family businesses gain through interlocking directorates [17–19]. Directorate ties thus serve several purposes. It integrates family business owners into the network of clan alliances and serves as windows for mobilising tangible and intangible resources [20]. Also, interlocking directorates are mechanisms for disseminating corporate best practices in a given industry or geographic location [21], [22]. It crucially serves as a mechanism for maintaining cohesion in the family business [23]. Similarly, the work of Lee *et al.* [24] suggests that ties with external sources created through directorate ties could serve a family business very well in times of resource scarcity. Not least in importance, directorate ties also serves as an internal cohesion mechanism facilitating information sharing among group members [25].

C. Interlocking Directorates in Family Business Research

Scholarly interests in interlocking directorates arouse following the government's attempt to guard against unfair competitive practices and monopolistic tendencies of big corporations in the United States. The corporations practised interlocking ties to survive agency costs resulting from the dysfunctions of the business environment. Thus, it was business for the corporations while it was unfair competitive practices in the eyes of the authorities. The Sherman Antitrust Act of 1890 and the Clayton Act of 1914, which amended it, deals with directorate ties among the corporates of the United States [3], [26]. Outside the United States, governments have used company regulations to cap the number of interlocks per board member or the board itself. For example, Article 17(c) of Saudi Arabia's *Corporate Governance Regulation* [27] places a ceiling on the number of boards a person may sit on to five.

The statutes and regulations related to directorate ties, such as those mentioned above, were crafted to deal with monopolistic practices of big business and thus hardly contemplate family businesses. However, directorate ties in family business arouse for different reasons. For a long time, scholars believe that kinship is one of the primary and most basic catalysing factors for interlocking directorates [28], especially in family businesses [29]. Nevertheless, family business research typically adopts or at best adapt practices developed within the non-family businesses research contexts in the study of directorate ties. In this study, the researchers highlighted the methods, theories and perspectives researchers follow in study interlocking directorates in family businesses.

III. METHODOLOGY

The articles on interlocking directorates used in this bibliometric study were sourced from the Scopus database, arguably the largest abstract and citation database of peer-reviewed journals articles, books, and conference proceedings, especially in comparison to its rival Web of Science database [30], [31]. Pearson's r and its scatter plots and heatmap were produced using JASP [32] based on the Scopus data collected. The charts were processed using Microsoft Excel.

A. Search Terms and Query Strings

Formulating an exact query string is the first task a researcher does when doing a bibliometric investigation [33]. We used a simple inclusion criterion: We included any study in the Scopus database on family business that substantially addresses directorate ties. Thus, a query string based on "family business" and seven other variants of the construct (including family ownership) AND a wildcard (interlock*) yielded only 17 peer-reviewed papers written in the English Language and published between 1999 (when the first article on family business interlocks was published) and 2020. The Boolean operator "AND" ensures that only articles on interlocking directorates plus family business are returned. It is noteworthy that we run a search substituting "interlock*" with "network" because some researchers (e.g., [34], [35]) use "director network" as synonyms for interlocking directorates. However, the three articles returned were already captured in the first search.

Appendix I shows details of the query strings used and their associated constructs. Additionally, we searched for "family business" and its variants covering 1999–2020 and limited to English Language journal articles to get the magnitude of Scopus-indexed papers in the field of family business research. The query yielded 4,792 articles, 3,000 of which comes from the years concomitant that yield the 17 articles on directorate ties in family businesses. Similarly, research articles on "interlocking directorates" outside the family business domain were searched to compare the magnitude of interlocking directorship research in the family business domain vis-à-vis the entire research output in the field. The results yielded 326 articles, 200 of which were from the years our 17 articles were extracted.

B. Data

Data were extracted from the Scopus database using a series of query strings shown in Appendix I. Additional data on journal performance and article quality (associated with the 17 articles analysed in this study) were also extracted. Appendix II shows the 2020 data on the indicators of the journals' performance (CiteScore Quartile, CiteScore, and SCImago Journal Rank) as well as the quality of the articles coming from the journals (Source Normalized Impact per Paper, and Citation Counts), arranged in descending order based on the articles' citation counts. These are the two broad categories of bibliometric indicators used in assessing scholarly publications [36].

Summaries of the 17 studies on directorate ties were shown in Appendix III. The classification of interlocking directorates used in the summaries is informed by Brennecke and Rank's [37] three typologies: sent interlocks, received interlocks, and undirected (or neutral) interlocks. However, we also extracted other important features, including study type and methods used, variables investigated, theories employed, firms' country of origin and status, and data sources.

IV. RESULTS AND INTERPRETATIONS

Results obtained on analysis of bibliometric data hardly address any meaningful objectives unless interpreted in the light of a clearly defined context [38]. In this study, we interpret the results of our analysis in light of the trend in directorate ties in family business research. We begin with understanding the quality of the journals that so far published research on directorate ties in family businesses.

A. Quality of the Scopus Journals that Published Research on Directorate Ties in Family Businesses

We relied on three Scopus' bibliometric indicators (i.e., CiteScore Quartiles 2020, CiteScore 2020, and Source-Normalised Impact per Paper 2020) as well as the SCImago Journal Rank 2020 (derived from Scopus data) in gauging the relative qualities of the 14 journals that published research on interlocking directorates in family businesses as at 2020. Data for the four indicators are presented in Table I. The CiteScore gives the average citations per document that a journal (or other sources) receives over the last four years [39]. The CiteScore Quartile indicates a journal's (or other sources') CiteScore performance within their assigned subject category or categories [40]. The Source-Normalised Impact per Paper is an indicator of a journal's (or other source's) contextual citation impact and is computed by weighting the source's citations based on the total number of citations in the source's assigned subject category or categories [41]. The SCImago Journal Rank assesses the weighted citations received by a journal (or other sources) based on their assigned subject category or categories [42]. We determine the degree of association between the metrics (except the CiteScore Quartiles, as it yields categorical data) using Pearson correlation analysis. Pearson's r describes the linear correlation between two variables [43].

TABLE I: QCS, SJR, CS, AND SNIP VALUES FROM SCOPUS

SN	Journal Title	CSQ	SJR	CS	SNIP
1	<i>Entrepreneurship: Theory and Practice</i>	Q1	5.365	17.7	4.836
2	<i>Academy of Management Journal</i>	Q1	11.193	14.2	4.230
3	<i>Journal of World Business</i>	Q1	3.607	10.8	2.801
4	<i>Organisation Studies</i>	Q1	4.441	7.7	2.669
5	<i>Journal of Family Business Strategy</i>	Q1	1.557	7.1	1.818
6	<i>Socio-Economic Review</i>	Q1	1.737	5.6	2.495
7	<i>Sustainability</i>	Q1	0.612	3.9	1.242
8	<i>Cross Cultural & Strategic Management</i>	Q1	0.545	3.8	0.918
9	<i>Corporate Governance: An International Review</i>	Q1	0.866	3.7	1.241
10	<i>Management and Organization Review</i>	Q1	0.896	3.6	1.203
11	<i>Journal of Economic Interaction and Coordination</i>	Q2	0.416	2.6	0.979
12	<i>Local Economy: The Journal of the Local Economy Policy Unit</i>	Q2	0.391	1.8	0.679
13	<i>Indian Journal of Corporate Governance</i>	Q3	0.227	1.8	1.350
14	<i>Histoire sociale / Social History</i>	Q3	0.113	0.2	0.290

KEY: CSQ = CiteScore Quartile; SJR = SCImago Journal Rank; CS = CiteScore; SNIP = Source Normalized Impact per Paper. Source: Scopus (<https://www.scopus.com/>), 2021.

In Table II, the Pearson's r was computed for the CiteScore, the Source-Normalised Impact per Paper, and the SCImago Journal Rank, based on data the 2020 bibliometric indicators of the 14 journals indexed in the Scopus database. The combination of indicators with the highest correlation coefficient is the CiteScore 2020 versus Source-Normalised Impact per Paper 2020 ($r = 0.97$). However, while the Pearson's r for the CiteScore 2020 versus SCImago Journal Rank 2020 ($r = 0.83$) and SCImago Journal Rank 2020 versus Source-Normalised Impact per Paper 2020 ($r = 0.86$) were robust, the results of the bivariate normality test using the Shapiro-Wilk test for bivariate normality [44] suggest that the data from which the correlation coefficients were computed may not be normally distributed (Table III), thereby detracting from their intrinsic worth.

TABLE II: PEARSON'S CORRELATIONS

	n	Pearson's r	p	Lower 95% CI	Upper 95% CI
CS – SJR	14	0.83	<.001	0.55	0.95
CS – SNIP	14	0.97	<.001	0.90	0.99
SJR – SNIP	14	0.86	<.001	0.60	0.95

TABLE III: SHAPIRO-WILK TEST FOR BIVARIATE NORMALITY

	Shapiro-Wilk	p
CS – SJR	0.53	< .001
CS – SNIP	0.87	.040
SJR – SNIP	0.59	< .001

The Pearson's correlation coefficient matrix (Table II) is depicted as scatter plots (Fig. 1 (a-c)) and is also expressed as a heatmap (Fig. 1 (d)). The scatter plots and the heatmap show that CiteScore 2020 values correlate more strongly with the Source-Normalised Impact per Paper 2020 values (and express each other better) than with SCImago Journal Rank 2020 values (Fig. 1). According to the message of the heatmap, the Pearson's r between CiteScore 2020 and SJR, between CiteScore 2020 and Source-Normalised Impact per Paper 2020, and between SCImago Journal Rank 2020 and

Source-Normalised Impact per Paper 2020 approaches one. Thus, either of the r values of CiteScore 2020 and Source-Normalised Impact per Paper 2020 can be used as there is no difference in the information they contained. However, considering the results of the Shapiro-Wilk test for bivariate normality (Table III), which revealed that the bibliometric indicators follow a normal distribution (except for SCImago Journals Rank), only the r values of CiteScore 2020 versus Source-Normalised Impact per Paper 2020 could be said to express each other. The null hypothesis of the Shapiro-Wilk test assumes a normally distributed population. Thus, the Pearson's r for CiteScore 2020 versus SCImago Journal Rank 2020 and SCImago Journal Rank 2020 versus Source-Normalised Impact per Paper 2020 reject their respective null hypotheses favouring the alternative hypotheses. This is visualised in the scatter plots (Fig. 1 (a-c)).

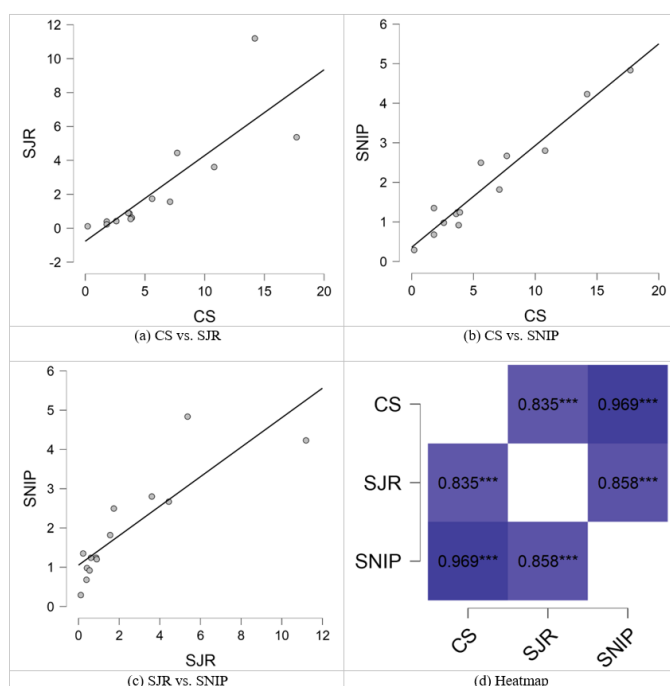


Fig. 1. Scatter Plots of Pearson's Correlations and Heatmap.

In view of the foregoing, we utilised the values from CiteScore 2020 and Source-Normalised Impact per Paper 2020 to gauge the quality of the journals in which the research on interlocking directorates in family businesses was published. Accordingly, the results of this study seem to endorse *Entrepreneurship: Theory and Practice*, *Academy of Management Journal*, and *Journal of World Business* as the top three journals [having mean CiteScore 2020 of 14.23: see Table X] that have so far published research on interlocking directorates in family businesses. These are followed by three more journals (with a mean CiteScore 2020 of 6.80): *Organization Studies*, *Journal of Family Business Strategy*, and *Socio-Economic Review*. It is noteworthy that the lowest-ranked of the 14 journals is an international journal on socio-historical research. As noted elsewhere in this paper, researchers are tuning in to organisational historiography to understand better organisational dynamics and how they evolve and impact current practices. Further, we noted that the journal from India – a country that seems to produce more research on family business interlocking directorate than the

United States – is ranked low on the CiteScore 2020 metric. Why?

One heart-warming result of this study relates to the quality of the journals in which most of the research on directorate ties in family businesses were published. We extracted the CiteScore Quartiles for the journals based on their 2020 CiteScore Highest Percentiles: “Q1 (99–75th percentiles), Q2 (74–50th percentiles), Q3 (49–25th percentiles), and Q4 (24–0th percentiles)” [40]. Fig. 2 shows that 72% of the studies were published in Q1 journals. None belongs to the 4th Quartile. The high quality of the journals where research on directorate ties in family businesses was published is an important assurance of high quality, high reputation, and high visibility the published articles should enjoy. Nevertheless, research in that niche from the family business research domain is yet to register. This could be in the CiteScore 2020 statistics, which show the 4-year average citation counts for articles from a given journal.

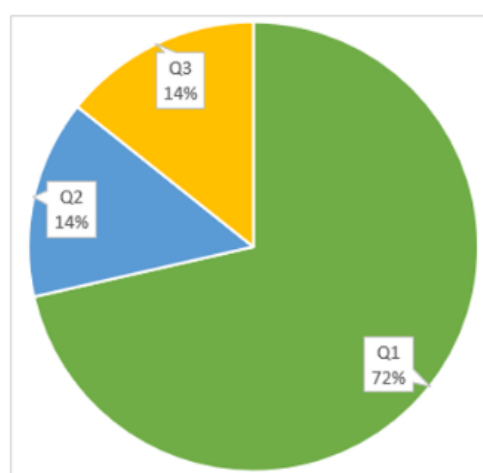


Fig. 2. Distribution of Journals by Quality.

B. Family Business Research and Directorate Ties

The data extracted from Scopus explicitly indicates that directorate tie in family business research is a barely touched but crucial niche in the family business research field. Indeed, six reviews on family business research [8], [45]-[49] did not mention anything about interlocking directorates, even by way of suggestion for future research. Even the three reviews (i.e., [45]-[47]), which are explicitly all about the future of family business research, did not foresee the significance of the need for more research into interlocking directorships in family businesses. It is thus surprising that while family businesses are known for their close-knit structure based on interrelationships among business interests, researchers have barely looked into the dynamics of such interrelationships from the board of directors' perspective. A comparison of the research output on directorate ties in family businesses with non-family businesses, curated in the Scopus database (Fig. 3), strongly buttresses the neglected state of research on board interlocks in family businesses.

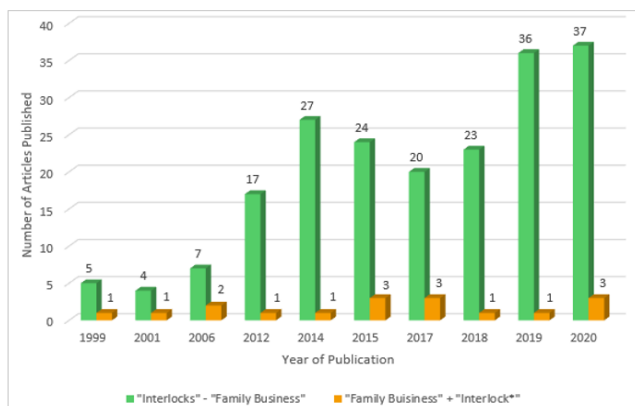


Fig. 3. Studies on Interlocking Directorate within Family and Non-Family Businesses.

C. Types of Family Business Research

An emerging consensus among researchers is that family businesses are heterogeneous and take on several characteristics that differ from place to place and culture [50]-[52]. Alrubaishi *et al.* [53] recently affirm that culture plays a “critical and pervasive influence” on the way businesses are administered. Similarly, Machek [54] decries the neglect of country of origin and ownership in family business research, which he sees as an open window where bias crept in, especially if the family firms studied have subsidiaries spread across national borders but were sampled as “family business.” Thus, using any given set of culturally or geographically influenced characteristics of family businesses as selection criteria may enhance understanding of the unique factors impacting firm performance and limit generalisability to that cultural milieu or geographical area. However, without discounting the powerful influence of culture and country of origin on the characteristics and behaviours of family businesses, we elect to group them under the listed and non-listed categories [8], a schema relatively independent of cultural and locational differences.

Azila-Gbettor *et al.* [8] observed that research on non-listed family firms focused on few indicators of ownership and board characteristics, while research on listed firms is dominated by studies using financial indicators. Non-listed family businesses are not listed on any stock exchange and whose shares are therefore not available for public subscription but are held by members of a family. On the other hand, listed family firms are listed on the stock exchange through which their shares are bought and sold by the investing public. Fig. 4 (a) shows that most of the firms in this study are listed on the stock exchanges of their respective countries of origin. Non-listed family firms are in the minority. This is surprising as the literature indicates that most economies are dominated by family businesses [55], a significant portion of which are non-listed.

It is also noteworthy that the country with the most family board interlocks studies (Fig. 4 (b)) come from the developing world (India). However, the United States, a country from the developed economic category, topped the list of countries with many interlocking directorate studies in non-family business (Fig. 5). Thus, research output on interlocking directorates in family businesses seems to be higher in developing countries, while board interlocks research in non-family businesses comes from developed economies. This is also surprising as the 32.4 million family businesses in the

United States contribute 87% of business tax returns [56]. With such a massive contribution to the US economy, one would expect the existence of robust directorate ties between United States' family business boards, which would have, in turn, triggered researchers' intense interest. However, our data seem to suggest otherwise. Is that the result of the atomisation of the United States' corporate elite, as Mizruchi [57] famously documented? For now, developing economies like India's seem to churn out more research on family business directorate ties (in percentage terms, Fig. 5) than the very bastion of family businesses (United States).

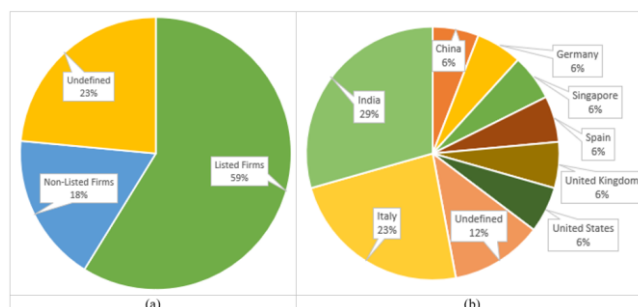


Fig. 4. Distribution of Family Businesses by (a) Status and (b) Country of Origin.

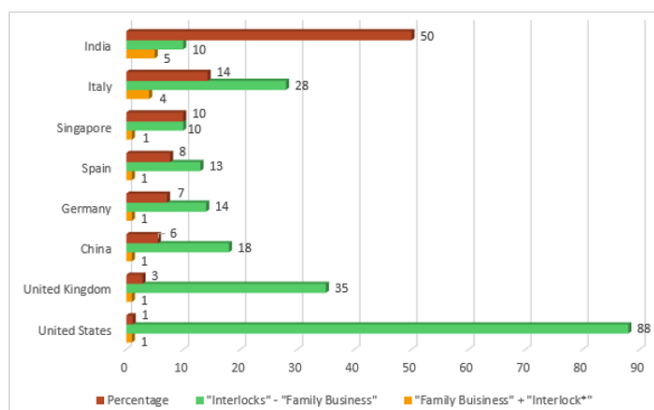


Fig. 5. Studies on Interlocking Directorate within Family and Non-Family Businesses by Country of Origin.

D. Family Business Research and Interlocking

We classified the 17 individual articles analysed in this study by purpose. Yazdani *et al.* [58] highlighted seven alternative classification systems from which we selected the one based on purpose. The purpose-based classification schema grouped scientific papers into three: explanatory, exploratory, and descriptive groups [see Fig. 6; details in Appendix III]. We followed this classification schema because of the tiny number of articles in our sample. Nevertheless, we will draw on the method-based classification approach in discussing the results.

A significant portion of the papers reviewed (53%, Fig. 6) consists of explanatory studies seeking to unravel the causal mechanisms. The exploratory papers seek to answer the *how* or *why* behind the business processes, decisions, and behaviours [59] in family businesses studied. These papers collected data through primary or secondary surveys and utilised correlation analysis in processing the data. The other types of research papers in our sample are descriptive and exploratory research. The exploratory papers mainly used survey and secondary data and were carried out to determine

possible relationships between variables in a set of data to develop further knowledge about the variables [60]. The descriptive papers are case studies and focus on single variables each. It is used in conjunction with the case method because it is the only research design that studies a single variable [61].

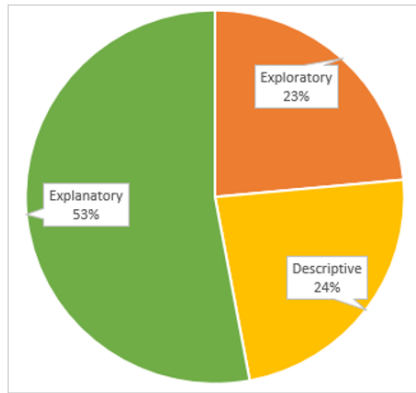


Fig. 6. Distribution of Articles by Purpose.

A crosstabulation of the three research purposes and the four types of research variables to which interlocking directorates was subjected in the 17 studies yielded interesting insights (Table IV). The Table was extracted from the data in Appendix III. Generally, our sampled articles overwhelmingly treated directorate ties as a predictor variable (Fig. 7 (a)). Few of the studies treated it as a criterion variable, and fewer still as a mediator. There is only one case of interlocking directorates as a moderating influence. When squared against the three forms of research by purpose (Fig. 7 (b)), it shows that exploratory research treats directorate ties as a predictor variable at least three times than the other variable types (Table IV). Concerning descriptive studies, the researchers seldom use interlocking directorates more as a criterion variable than as a predictor. This usage pattern aligns well with Siedlecki's [61] observation that descriptive studies can analyse a single variable. Overall, the results in Table IV seem to indicate a gap in the use of directorate ties as an interaction variable (i.e., a mediator and a moderator).

TABLE IV: DISTRIBUTION OF ARTICLES BY STUDY PURPOSES AND TYPES OF VARIABLES

Types of Variable	Research Purposes							
	Explanatory		Exploratory		Descriptive		Total	
	N	%	N	%	N	%	N	%
Predictor Variable	6	35.29	2	11.76	1	5.88	9	52.94
Mediator Variable	0	0.00	0	0.00	1	5.88	1	5.88
Moderator Variable	1	5.88	1	5.88	0	0.00	2	11.76
Criterion Variable	2	11.76	1	5.88	2	11.76	5	29.41
Total	9	52.94	4	23.53	4	23.53	17	100.00

Although research on interlocking directorates in family businesses have not even taken off per se, it is noteworthy that the few available studies have covered an appreciable ground about what is so far studied of the concept in non-family business settings. For example, the intensity of directorate ties studied by Fennema and Schijf [1] is taken up further by one of the 17 papers (i.e., Piana *et al.* [62]) reviewed in this study. In this study, the typology of interlocking directorates,

advanced in Brennecke and Rank [37] and consisting of sent interlocks, received interlocks, and undirected (neutral) interlocks as understood from the perspective of the focal firm under discussion, was used as a frame of reference. The first refers to directorate ties from the focal firm's board to another firm's board by a director with management responsibilities. The second describes a situation where a director with managerial duties from another firm interlocks with the focal firm. The third interlocking type refers to an outsider who belongs to neither of the firms he interlocks for and holds a management position in neither.

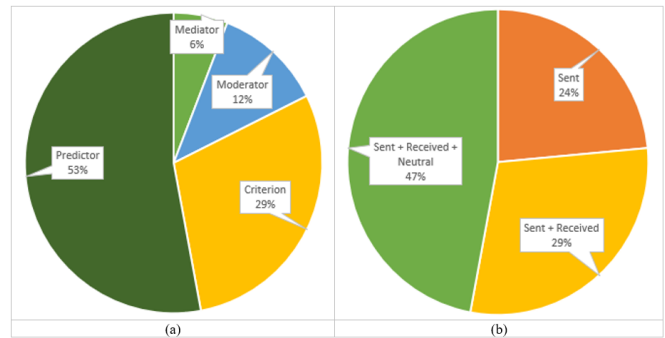


Fig. 7. Distribution of Articles by (a) Type of Variables and (b) Typology of Directorate Ties.

Fig. 7 (b) indicates that a significant portion of the family businesses studied used the whole gamut of directorate ties (sent, received, and neutral) to achieve several ends, as highlighted in section 2.2 of this paper. Indeed, only about a quarter of the firms studied in the articles use just one typology of the interlocking directorates, with three-quarters using at least a combination of the typologies. We can thus safely use these results to infer that directorate ties, though roundly neglected in the family business research domain, offer the prospects of sustainable research as most family businesses engage in one form of interlocking relationships or another. With a series of theories available to offer guidance, researchers are therefore called upon to address the many gaps identified in the field.

E. Underpinning Theories

The critical role of theory in family business research and the unquestioned need for its continual development has been recognised for a long time [63]. Theories provide the frameworks within which researchers guide develop testable propositions and explain empirical results [64]. The relevant question here is: What is the status of theory use in family business research? Zahra [65], while noting that the use of parts or multiple theories is steadily gaining momentum in family business research, he also notes that family researchers are wont to invoke the wrong theory in support of their studies or incorrectly invoke the correct theory or altogether fail to underpin the studies with any form of unifying theory. This prompts us to look into theory usage by researchers who have investigated interlocking directorates in family firms.

Analysis of the data on underpinning theories employed by researchers to explain interlocking directorate in the family business (see Fig. 8 (a)) indicates significant reliance on two theories (41% of the articles) and more than two theories (12%). Thus, 63% of the articles reviewed used two or more theories as explanatory frameworks. Indeed, Berge and

Ingerman [66] and Cairney [67] observe that using multiple theories guarantees a more balanced perspective about the research phenomenon and guard against overreliance on any single theory and the danger inherent in its implicit assumptions. Nevertheless, a significant portion of the studies (35%) were built on single theories. Sadly, a few of the articles (12%) were crafted on no theories at all.

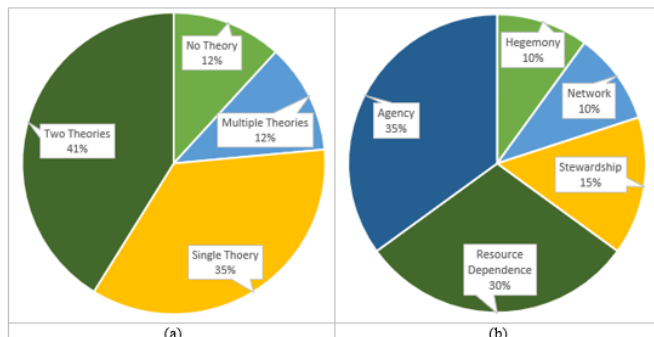


Fig. 8 (a) Distribution of Articles by Theory.
(b) Frequency of Specific Theory Use.

Further analysis of researchers' theory-use results revealed the specific theories they frequently rely upon to explain, predict, and or understand phenomena. Agency Theory and Resource Dependence Theory are the most frequently used (Fig. 8 (b)). Indeed, these theories are foundational to the field of corporate governance studies. Indeed, Zona *et al.* [68] combined the two theories in their study of interlocking directorates and provided a "higher-order explanation" of the directorate ties–firm performance relationships. Notwithstanding their popularity in family business research, these theories were propounded with non-family businesses in focus and thus may overlook the nuances peculiar to family businesses [48].

Less frequently used theories include stewardship, network, and hegemony theories. However, what theories were absent in the results of this study seems to be more pertinent to family business research than those featured. Indeed, it is surprising that none of the five "theories for family science" [system, life course, social exchange, structural functionalism, and symbolic interactionism] which Jennings *et al.* [49] laboriously explained in terms of their intellectual roots, core constructs, central premises, key assumptions, level of analysis, and fundamental question were not mentioned even in passing. Further, it is even more surprising that the property rights theory was barely employed in family business research since the primacy of family ownership in family businesses and its positive impact on firm performance rests squarely on the rights to family business property held by the owners [69].

Further, it is noteworthy that one of the papers reviewed in this study [70] takes a historical approach towards understanding family business. Family business researchers are now turning to history for a fuller understanding of family business dynamics, as evidenced by *Family Business Review's* dedication of its 2023 special edition to history-driven research in family business [see the call for papers in Suddaby *et al.* [71]]. Thus, we expect the sociological theory [72] and others to provide the necessary grid for

organisational historiographical research in family businesses. It is hoped that contributors may address the paucity of research on directorate ties in family businesses.

V. CONCLUSIONS

This study tentatively mapped the extant research on interlocking directorates in family business based on the 17 articles extracted from the Scopus database. We used graphical tools to summarise the data and Pearson's r and analyse the data on three Scopus' bibliometric indicators (CiteScore, SCImago Journal Rank, and Source Normalized Impact per Paper). The results seem to strongly suggest that research on directorate ties in family businesses is grossly neglected even though family businesses are known as cohesive economic units that rely overwhelmingly on family members networks not only to access needed resources but also to ensure the continuity of the business within the circle of the owner family. The distribution of the scanty literature by country of origin, research purpose pursued, theories employed as explanatory frameworks, and the directorate tie typologies most frequently studied, and their implications were pointed out.

VI. LIMITATION

Our study relied on data exclusively derived from the Scopus database. While this database arguably is one of the largest (or the largest) multidisciplinary source of peer-reviewed journal articles, conference proceedings, and books, it cannot be gainsaid that other studies on interlocking directorates in family businesses not captured in this study and which may have been indexed in other than the Scopus database (such as like Web of Science, PubMed, IEEE Xplore, and many others) will limit the generalisability of the tentative positions taken in this paper.

APPENDIXES

APPENDIX I: CONSTRUCTS, SEARCH TERMS, AND SEARCH STRINGS

SN	Constructs	Search Terms	Search Strings	Results
1.	Family Business	Family Business	((TITLE-ABS("family firm" OR "family business" OR "family enterprise" OR "family company" OR "family owned business" OR "family-owned enterprise" OR "family ownership")) AND PUBYEAR > 1998 AND PUBYEAR < 2021 AND (LIMIT-TO (SRCTYPE,"j")) AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English"))).	4,792
2.	Interlocking Directorates	Interlocking Directorates	(TITLE-ABS-KEY(interlock* OR "multiple board seats")) [as used in addition to 1 above].	In 1 above
3.	Family Business AND Interlocking Directorates	Family Business, Interlocking Directorates	(TITLE-ABS-KEY("family firm" OR "family business" OR "family enterprise" OR "family company" OR "family owned business" OR "family-owned enterprise" OR "family ownership") AND TITLE-ABS-KEY(interlock* OR "multiple board seats"))).	17
4.	Interlocking Directorates AND NOT Family Business	Family Business, Interlocking Directorates	(TITLE-ABS("interlocking director*" OR "multiple board seat" OR "multiple directorship" OR "corporate interlock*" OR "firm interlock*" OR "business interlock*") AND PUBYEAR > 1998 AND PUBYEAR < 2021 AND NOT TITLE-ABS("family firm" OR "family business" OR "family enterprise" OR "family company" OR "family owned business" OR "family-owned enterprise" OR "family ownership") AND PUBYEAR > 1998 AND PUBYEAR < 2021 AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English")) AND (LIMIT-TO (SRCTYPE,"j"))).	326

Source: Scopus, 2021.

APPENDIX II: SEARCH OUTPUT AND CORRESPONDING JOURNAL METRICS (2020)

SN	Author/Yr.	Article Title	Journal Title	CSQ	SJR	CS	SNIP	CC
1	Lester and Cannella [73]	Interorganizational Familiness: How Family Firms Use Interlocking Directorates to Build Community-Level Social Capital.	<i>Entrepreneurship: Theory and Practice</i>	Q1	5.365	17.7	4.836	143
2	Cannella et al. [74]	Family- Versus Lone-Founder-Controlled Public Corporations: Social Identity Theory and Boards of Directors.	<i>Academy of Management Journal</i>	Q1	11.193	14.2	4.23	87
3	Bianco et al. [75]	Women on Corporate Boards in Italy: The Role of Family Connections.	<i>Corporate Governance: An International Review</i>	Q1	0.866	3.7	1.241	71
4	Singh and Delios [76]	Corporate Governance, Board Networks and Growth in Domestic and International Markets: Evidence from India.	<i>Journal of World Business</i>	Q1	3.607	10.8	2.801	69
5	Bellenzier and Grassi [77]	Interlocking Directorates in Italy: Persistent Links in Network Dynamics.	<i>Journal of Economic Interaction and Coordination</i>	Q2	0.416	2.6	0.979	19
6	Piana et al. [62]	Towards a Better Understanding of Family Business Groups and Their Key Dimensions.	<i>Journal of Family Business Strategy</i>	Q1	1.557	7.1	1.818	16
7	Zang [78]	Research Note: Personalism and Corporate Networks in Singapore.	<i>Organisation Studies</i>	Q1	4.441	7.7	2.669	14
8	Seaman et al. [79]	Social Networking in Family Businesses in a Local Economy.	<i>Local Economy: The Journal of the Local Economy Policy Unit</i>	Q2	0.391	1.8	0.679	11
9	Beachy [70]	Business Was a Family Affair: Women of Commerce in Central Europe, 1650-1880.	<i>Histoire sociale / Social History</i>	Q3	0.113	0.2	0.290	11
10	Naudet and Dubost [80]	The Indian Exception: The Densification of the Network of Corporate Interlocks and the Specificities of the Indian Business System (2000–2012).	<i>Socio-Economic Review</i>	Q1	1.737	5.6	2.495	10
11	Chua et al. [81]	How Family Firms Solve Intra-Family Agency Problems Using Interlocking Directorates: An Extension.	<i>Entrepreneurship: Theory and Practice</i>	Q1	5.365	17.7	4.836	8
12	Chen et al. [82]	Governance Structure and Related Party Loan Guarantees: The Case of Chinese Family Business Groups.	<i>Management and Organization Review</i>	Q1	0.896	3.6	1.203	7
13	Naudet et al. [83]	Heirs, Corporate Aristocrats and 'Meritocrats': The Social Space of Top CEOs and Chairmen in India.	<i>Socio-Economic Review</i>	Q1	1.737	5.6	2.495	6
14	Rubino and Napoli [84]	What Impact Does Corporate Governance Have on Corporate Environmental Performances? An Empirical Study of Italian Listed Firms.	<i>Sustainability</i>	Q1	0.612	3.9	1.242	3
15	Sanchez-Famoso et al. [85]	New Insights into Non-Listed Family SMEs in Spain: Board Social Capital, Board Effectiveness, and Sustainable Performance.	<i>Sustainability</i>	Q1	0.612	3.9	1.242	1
16	Panicker and Upadhyayula [86]	Limiting Role of Resource Dependence: An Examination of Director Interlocks, Board Meetings and Family Ownership.	<i>Cross Cultural & Strategic Management</i>	Q1	0.545	3.8	0.918	0
17	Anand and Singh [87]	Effect of Composition of Board and Promoter Group Retained Ownership on Underpricing of Indian IPO Firms: An Empirical Study.	<i>Indian Journal of Corporate Governance</i>	Q3	0.227	1.8	1.350	0

Note: CSQ = CiteScore Quartile; CS = CiteScore; SJR = SCImago Journal Rank; SNIP = Source Normalized Impact per Paper; CC = Citation Counts. Source: Scopus, 2021.

APPENDIX III: HIGHLIGHTS OF THE 17 SCOPUS-INDEXED ARTICLES ON INTERLOCKING DIRECTORATES IN FAMILY BUSINESSES

SN	Author/ Year	Study Method & Type	Objective(s)	Sources & Unit of Analysis	Predictor Variable	Mediator/ Moderator/CV	Criterion Variable	Underpinning Theory	Firm and Country	Typology of Interlocks
1	Sanchez-Famoso <i>et al.</i> [85]	Empirical. Explanatory study.	Investigate the moderated influence of board interlocking and mediated effects of board effectiveness in the relationship between social capital (internal and external) and firm sustainable performance.	Used survey data from 232 CEOs. Individual level of analysis.	Internal Social Capital; External Social Capital.	Mediator: Board Effectiveness, Moderator: Board Interlocking.	Firm Sustainable Performance	Stewardship Theory; Resource Dependence Theory; Social Capital Theory.	Non-Listed SMEs, Spain.	The results implied the existence of two types of directorate ties: sent interlocker and received interlocker.
2	Panicker and Upadhyaya [86]	Empirical. Explanatory study	To investigate the moderating influence of family ownership in interlocks/board meeting frequency and internationalisation in emerging markets.	Published economic and financial data. Organisational level of analysis.	Independent Director Interlocks; Insider Director Interlocks; Meeting Frequency	Moderator: Family Ownership	Level of Internationalisation	Resource Dependence Theory	Listed Firms, India.	Used two types of interlocking directorates: received interlocker; sent interlocker
3	Rubino and Napoli [84]	Empirical. Explanatory study	To investigate the effects of board of directors and the ownership structures of family and non-family firms on corporate environmental performances.	Published data AIDA database and website data. Organisational level of analysis.	Board Independence; Directors' Interlocks; Family Firm Status.	Control Variables: <i>Firm Size; Firm Age; Financial Performance.</i>	Corporate Environmental Performance.	Agency-Theory; Resource Dependence Theory.	Listed Firms, Italy.	Focused on sent interlocks only.
4	Anand and Singh [87]	Empirical. Explanatory study	To investigate the impact of corporate governance mechanisms (independent directors' proportion, interlocking directorships, female directors, and promoter ownership) on IPO underpricing.	Published data from 6 sources. Organisational level of analysis.	Independent Directors' Proportion; Interlocking Directorships; Female Directors; Ownership.	Control Variables: <i>Subscription Ratio; Listing Delay; Firm Age; Issue Price (Inverse).</i>	IPO Underpricing measured by Market-Adjusted Excess Return (MAER).	Signalling Theory.	Listed Firms, India.	Directorate ties proxied for corporate reputation (i.e., sent interlocker).
5	Naudet <i>et al.</i> [83]	Empirical. Primarily exploratory but also descriptive.	To analyse the social space inhabited by Indian CEOs and Chairmen of the top 100 Indian companies in 2012 based on three categories of factors: educational capital, family capital, and directorate ties.	Multi-source data. Individual level of analysis.	Educational Capital; Family Capital; Interlocking Directorates.	None	Social Space of Corporate Elite	Theory not stated. Top Echelon Theory is implied from the results and focus of the study.	Top 100 Listed Firms, India.	Interlocks as elite network (insider and outsider CEOs) based on education, economic, and social. Thus, it focused on both sent and received interlocks.
6	Singh and Delios [76]	Empirical. Explanatory study	To examine the individual and combined effects of board structure, network centrality through directorate ties and ownership structure on a firm's growth strategies.	Data extracted from 4 databases. Organisational level of analysis.	Family Ownership; Board Independence; CEO Duality; Directorate ties;	Control Variables: <i>Firm Size; R&D Intensity; Advert Intensity; Prior Performance.</i>	New Domestic Ventures; New Foreign Investments.	Agency Theory; Stewardship Theory.	Non-Listed Firms In India.	Mapped neural director interlock, sent director interlocks, and received director interlocks.
7	Seaman <i>et al.</i> [79]	Empirical. Primarily exploratory but also descriptive.	To explore the pattern of interlocks cultivated by a rural family business based on three types of social networks: family, friendship, and business networks.	Interview data; Case business records. Individual level of analysis.	Family Interlocks; Business Interlocks; Friendship Interlocks.	Family Members	Social Networks of Business Family.	Multi-Rational Network Theory.	1 Rural Family Business; United Kingdom.	Identified three interlocks in family firms based on family, friendship, and business networks: sent, received and neutral.
8	Naudet and Dubost [80]	Empirical. Primarily descriptive but also explanatory.	To explain the context-influenced emergence of interlocking directorates in top Indian businesses in the period of corporate governance reforms.	Data from CMIE-PROWESS and Directors' Database, India. Individual level of analysis.	Interlocking Directorates	Banks And Financial Institutions; Family-Owned Business Houses;	Corporate Network Density.	Hegemony Theory.	Top 250 Listed Firms, India.	Focus is on the density of received, sent, and neutral directorate ties and the emerging corporate network.
9	Chen <i>et al.</i> [82]	Empirical. Essentially explanatory.	To explore how the governance structure in family-controlled firms influences loan guarantee decisions favouring related third parties.	Data from Wind database, CCEER database, Firms' annual reports. Individual level of analysis.	Non-Family Chairs With Family Directors; Family Chairs; Interlocked Non-Family Chairs	Control Variables: <i>Growth Sales; Top Share; Firm Age; CEO Duality; Board Size.</i>	Related Party Loan Guarantees.	Agency Theory	1,785 Listed Firms, China.	Directors as sent interlockers discreetly provide interlock advantages better than CEOs as sent interlockers due to CEOs' visibility.

SN	Author/Year	Study Method & Type	Objective(s)	Sources & Unit of Analysis	Predictor Variable	Mediator/Moderator/CV	Criterion Variable	Underpinning Theory	Firm and Country	Typology of Interlocks
10	Cannella <i>et al.</i> [74]	Empirical. Primarily explanatory but also descriptive.	Investigate how family businesses and lone-founder businesses differ concerning their unique desires for control and influence and how these differences are reflected in their board structures.	Compusat database; EDGAR database. Individual and organisational levels of analysis.	Family Business; Lone-Founder Business; Public Business.	Control Variables: <i>Board Size; Director Age; CEO Duality; Firm Age; Firm Performance.</i>	Directorate ties; Prior Experiences of Directors; Director Tenure.	Social Identity Theory; Organisational Identification Theory.	Listed Firms, United States.	Analysed the three forms of interlocks: received interlock, sent interlock, and neutral interlock.
11	Bianco <i>et al.</i> [75]	Empirical. Primarily explanatory but also descriptive.	To investigate family-affiliated women representation on the boards of directors of Italian firms before the affirmative action legislation of 2012 and its correlation with family connections.	Firm data from Datastream Worldscope. Director data from survey. Individual & organisational levels of analysis.	Ownership Structure; Institutional Investors; Board and Director Characteristics (e.g., Interlocks).	Control Variables: <i>Firm Size; Firm Age; Firm Performance.</i>	Female Directorship	Agency Theory; Resource Dependence Theory	Listed Firms, Italy.	There are all three interlocking types: received interlock, sent interlock, and neutral interlock.
12	Bellenzier and Grassi [77]	Empirical. Primarily exploratory but also descriptive.	To examine the evolution of interlocking directorate over a considerable time scale (1998–2011) among Italian companies.	Data from <i>Assonime</i> . Organisational level of analysis.	Stability of Network Structure Over Time.	Ownership of a Few Family Firms; Cross-Shareholdings.	Interlocking Directorate	Graph Theory; Network Theory.	Listed Firms, Italy.	Directorate ties in terms of <i>board network</i> and <i>director network</i> .
13	Piana <i>et al.</i> [62]	Empirical. Primarily exploratory but also descriptive.	To assess corporate governance in a Family Business Group based on the firm's distinctive characteristics (nature, type, intensity, and persistence over time), shareholding and directorate ties.	Data from AIDA, AMADEUS, Italian Chamber of Commerce; - Organisational level of analysis.	Nature, Type, Intensity, and Persistence of Family Business Group.	Relational Structure (Shareholdings); Relational Texture (Interlocking Directorships).	Corporate Governance of a Family Business Group	Agency Theory; Stewardship Theory.	Non-Listed Firm, Italy	Mapped out the nature, type, intensity, and persistence of all three forms of interlocking directorships.
14	Lester and Cannella [73]	Theoretical: Conceptual. Essentially descriptive.	To map out the types of directorate ties family firms may use and show how the interlocks can address intra-family agency problems.	Theoretical propositions	Family Controlled Firms; Non-Family Controlled Firms	Interlocking Directorates	Strategic Orientation; Firm Performance	Agency Theory; Resource Dependence Theory	Undefined assumed to be Listed	Interlocking directorate as a mechanism for building business social capital.
15	Chua <i>et al.</i> [81]	Theoretical: Commentary. Essentially descriptive.	Extended Lester and Cannella [73] for a better understanding of directorate ties in family businesses.	Theoretical propositions.	Family Firms	Shared Values; Trust; Resource Sharing. Geographical Distance	Director Interlocks	Agency Costs Theory	Undefined assumed to be Listed	New propositions on received, sent, and neutral directorate ties.
16	Beachy [70]	Archival. Organisational Historiography. Essentially descriptive.	Show how practices of family-based enterprise shaped the legal and social structures that allowed for women economic participation in Central Europe between 1650-1880.	Archival sources. The family as a business unit; Individual level of analysis.	Economic Agency (as discussed in the paper).	Evolution of Legal Female Legal Rights to Engage in Commerce	Women Participation in Economic Activities based on Links (Interlocks).	Gender Role Theory (implied in the paper).	Early Form of Family Business, Germany	Female interlocking directorate as a mechanism for the long-term survival of family firms in Germany, 1650-1880.
17	Zang [78]	Empirical. Essentially explanatory.	To examine inter-firm connectedness among large Chinese family businesses in Singapore.	Published and survey data: <i>Singapore 500</i> (1987), <i>Singapore 500</i> (1988), <i>Singapore 1,000</i> (1991)	Family Control and Reputation (Family Firm; Firm Size, Age & Solvency; Long-Term Debt; Trade Credit).	None	Interlocking Directorships (Number of Inter-Corporate Ties as of 1992)	Resource Dependence Theory; Hegemony Theory; Network Theory.	107 Listed Firms; Singapore	Directorate ties informed by sent interlocker and few received interlockers. Strategic use of neutral interlockers.

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