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How the 2008–2009 Financial Crisis Shaped Fair Value Accounting Literature: A Bibliometric Approach

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Abstract: This study aims to fulfil a gap in the literature, delivering a road map to understand the course and nature of the fair value accounting literature, further showing how the 2008–2009 financial crisis affected it. Bibliometric methods analyze 377 documents retrieved from the Web of Science and Scopus databases. Results show a heavy increase in fair value accounting literature starting due to the 2008–2009 financial crisis, further showing a shift from fair value accounting regulations to topics such as fair value measurement, earnings management, value relevance, and banks. Results provide further evidence about relevant themes, showing that topics related to financial crises stay relevant, even during times of growth.

Keywords: fair value; accounting; financial crisis; SFAS; IFRS

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1. Introduction

Fair value, defined as the market value, was formulated during the eighteenth century. Nevertheless, it was based on various elements from earlier periods, with Adam Smith's *Wealth of Nations* work being the most relevant (Donleavy 2019).

Despite these earlier developments, standard setters recently became more committed to fair value measurement, issuing the SFAS 107 (Financial Accounting Standards Board 1991) and SFAS 115 (Financial Accounting Standards Board 1993). The former extended the fair value disclosure practices of financial instruments to both assets and liabilities, recognized and not recognized in the statement of financial position when it is practicable to estimate fair value, and the latter addressed the accounting and reporting for investments in equity securities that have readily determinable fair values and for all investments in debt securities.

Moreover, SFAS 133 (Financial Accounting Standards Board 1998) established accounting and reporting standards of derivative instruments. These included specific derivative instruments embedded in other contracts and for hedging activities, and the IAS 39 (International Accounting Standards Board 2003) established principles for recognizing and measuring financial assets, financial liabilities, and some contracts to buy or sell non-financial items and was later replaced by the IFRS 9 Financial Instruments (International Accounting Standards Board 2014). It also prescribes principles for derecognizing financial instruments and hedge accounting. These regulations are similar in standardizing derivatives and other financial instruments (Beisland and Frestad 2013).

Further developments occurred, yet fair value was defined similarly in SFAS 157 (Financial Accounting Standards Board 2006) and IFRS 13 (International Accounting Standards Board 2011). The SFAS 157 defined it as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date under current market conditions". The IFRS 13 defined it as the "price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date". Further expanding the definition indicates that if market participants consider the asset or liability characteristics when pricing them at the measurement date, entities shall also consider these characteristics when applying fair value measurement.

SFAS 157 (Financial Accounting Standards Board 2006) and IFRS 13 (International Accounting Standards Board 2011) established a set of three hierarchical levels to measure fair value. Level 1 inputs can be measured through ready and observable quoted prices in active markets for identical assets or liabilities. Level 2 inputs refer to inputs (other than quoted prices included within Level 1) that are observable directly or indirectly through corroboration with the observable market for similar assets or liabilities data in active or inactive markets and other relevant market data (Laux and Leuz 2009). Level 3 inputs are unobservable inputs that reflect the entity's reporting assumptions about market participants' assumptions in pricing the asset or liability, including assumptions about risk.

Fair value accounting employs several techniques to periodically revise the financial values of financial assets such as shares, options, swaps, and other tradable elements (Haswell and Evans 2018). However, Level 1, 2, and 3 assets are classifications based on their reliability. Level 1 assets have readily observed market values, while level 2 and 3 assets are valued according to prices of comparable or financial models or the firm's reporting assumptions, respectively (Magnan and Markarian 2011).

These definitions have been settled and, despite the fact they could appear unchallenged, are a set of hybrid ideas and assumptions used to estimate the prices an asset or liability would receive in a market (Power 2010). However, the advent of the 2008–2009 financial crisis brought several critiques from financial leaders (Hughes and Tett 2008). It was argued that fair value measurement would be wrong to the extent that the well-intentioned management estimates are based on wrong predictions and assumptions (Krumwiede 2008).

Several weaknesses were also noted for fair value accounting standards and their application. For instance, the Financial Crisis Advisory Board (FCAG) (2009) report highlighted several limitations, namely the difficulty of applying fair value accounting in illiquid markets, the deferred recognition of losses associated with loans, structured credit products and other financial instruments, problems surrounding off-balance sheet financing structures, and the complexity of accounting standards for financial instruments. Furthermore, these issues highlighted diverging areas between the United States generally accepted accounting principles ("US GAAP") and the International Financial Reporting Standards ("IFRS").

Further critiques were made of the accounting regulations, namely the SFAS 157 (Financial Accounting Standards Board 2006), mainly because they require a greater weight in valuation to be placed on market prices when available than in any other method of valuing assets. This leads to several problems in fair value measurement in times of less liquidity, further exacerbating the effects of the financial trends because it is highly procyclical. For instance, asset prices must be measured according to the underlying market prices. Consequently, downward market price changes lead to asset-backed securities write down value on books, even if cash flows associated with these assets generally continue to meet expectations. On the other hand, changes in market prices upward can cause asset bubbles (Wallison 2009).

Accordingly, the main criticisms of fair value estimates were centered on illiquidity and procyclicality. Due to complex products, the former resulted from the securitization of assets such as mortgage loans, which were at the core of the 2008–2009 financial crisis and caused an imbalance between supply and demand in market conditions of many complex financial instruments in the months following August 2007. The latter criticism was based on the misleading argument that, when observable, the market prices provide the best possible indication of value because they improve the apparent robustness of the balance sheets at the top of the cycle and reduce it by the same measure at the bottom (Véron 2008).

Fair value critics have also argued that historical cost is more reliable than fair value estimates, focusing on subjectivity in measuring the fair value of the assets and liabilities. However, once fair value directly reflects the current market values of assets and liabilities, it is timelier and more relevant to shareholders (Hairston and Brooks 2018) and reflects the most current and complete estimations of the value of the asset or liability, therefore minimizing the freedom to manipulate the accounting numbers (Power 2010; CFA 2007).

Fair value accounting was argued to have exacerbated the 2008–2009 financial crisis because it contributed to excessive leverage in boom periods and led to excessive write-downs due to falling market prices during the crisis. However, this argument is mainly unfounded (Laux and Leuz 2010), and no alternative standard would lead to better accounting in turbulent market conditions (Véron 2008).

The 2008–2009 financial crisis led to a surge in the empirical and theoretical importance of fair value in the accounting literature and increasing output of published documents in press (e.g., Wallison 2009) and on scientific research (e.g., Barth and Taylor 2010; Laux and Leuz 2009, 2010; Magnan and Markarian 2011; Magnan et al. 2015; Power 2010; Véron 2008), covering several topics, yet primarily focused on banks (e.g., Amel-Zadeh et al. 2017; Barron et al. 2016; Blankespoor et al. 2013; Bowen and Khan 2014; Dong et al. 2014; Magnan et al. 2015; Xie 2016).

Fair value accounting is a critical topic for company valuation. It has been only marginally focused on accounting literature until the 2008–2009 financial crisis. Nevertheless, according to its critics, it became increasingly relevant due to its effects on earnings management and assets and liabilities valuation, which exacerbated the 2008–2009 financial crisis, further sparking the following research about this topic. This research seeks to fill a gap in the literature, delivering a road map to understand how fair value accounting literature evolved and how the financial crisis affected it, further showing the underlying themes that influenced this development. As far as the authors' knowledge, research about this topic has not yet provided a study of this kind. Departing from the described background, this study aims to analyze the research progress of the fair value accounting literature to conduct performance analysis and map this research stream using bibliometric methods.

2. Methods and Data

Bibliometrics methods are used to study the dynamics of subjects as portraited in the production of its literature (Hood and Wilson 2001), whose origins can be traced back as far as the 18th century (Shapiro 1992). These methods are used in various situations and apply several measurements. By assembling and interpreting statistics related to books and periodicals, it brings light to written communications, to determine trends in books and journals and to evaluate the nature and course of development of a discipline (Pritchard 1969; Raisig 1962). Therefore, the main goal of a bibliometric analysis is to provide insights on a specific research stream over a period of time (Leung et al. 2017).

The use of bibliometric methods helps represent a research area structure, helping researchers in literature reviews. It helps guide researchers to the most influential works and map a research field without subjective bias (Zupic and Čater 2015). It is valuable in portraying the nature and course of a specific research stream and has been increasingly used in scientific research, focused on specific research topics (Endenich et al. 2020; Merigó and Yang 2017; Ferreira et al. 2014; Chunjia 2019; Leung et al. 2017; Fortuna et al. 2020) or in studying research published in a specific journal (e.g., Aria et al. 2020; Gaviria-Marin et al. 2018; Rialp et al. 2019).

This study uses a bibliometric approach to represent the fair value accounting research field structure and uses both bibliometric performance methods and science mapping methods (Börner et al. 2003; Cobo et al. 2011; Noyons et al. 1999; Zupic and Čater 2015). It seeks to develop an up-to-date analysis of the fair value research stream.

Data were retrieved from Web of Science (WoS) and Scopus, usually regarded as among the most relevant databases in academic research (Harzing and Alakangas 2016) and focused on fair value accounting. A search was performed for documents included in the citation indexes WoS Core Collection, published in the English language for document type "*article*", including the term "fair value" in the title, and the terms "fair value" or "accounting" in the authors' keywords or the keywords plus. The Boolean separators "AND" and "OR" were used to compute the query. On the other hand, a similar search was conducted in the Scopus database for document type "*article*", the term "*fair value*" in the title and the terms "*fair value*" or "*accounting*" in keywords published in the English language.

Results were computed using the R (R Core Team 2020) with Bibliometrix (Aria and Cuccurullo 2017) package, and the analysis followed a step-by-step procedure. First, a bibliometric performance analysis followed by a science mapping analysis, including a citation, co-citation (Small 1973; Marshakova-Shaikevich 1973), and a co-word analysis (Callon et al. 1983).

3. Results

Search in databases was conducted in September 2021 and resulted in 600 published documents: 249 documents from the WoS database, and 351 from the Scopus database. Following this procedure, all documents were evaluated to identify duplicates. During this process, 223 documents were excluded from the analysis. The final set of documents used in the analysis included 377 papers.

3.1. Descriptive Analysis

Table 1 shows the descriptive statistics and the primary information about the used data in this study. After removing duplicates, 377 articles were used in the analysis, published from 1994–2021.

Table 1. Descriptive statistics.

Description	Results
Main Information about Data	
Timespan	1994:2021
Sources (Journals, Books, etc.)	172
Documents	377
References	13,465
article	377
Keywords Plus (ID)	414
Author's Keywords (DE)	972
Authors	738
Author Appearances	926
Authors of single-authored documents	92
Authors of multi-authored documents	646
Single-authored documents	101

Fair value accounting and fair value measurement were under intense discussion over the period following the 2008–2009 international financial crisis, in press (e.g., Hughes and Tett 2008; Wallison 2009) as well as in scientific and academic literature (e.g., Barth and Taylor 2010; Laux and Leuz 2009, 2010; Magnan and Markarian 2011; Véron 2008).

The annual production output was evaluated to assess if the financial crisis and the following discussions were related to several published articles. Figure 1 reveals the number of published articles per year. Data from 2021 were removed from the analysis at this stage. The underlying reasoning for this decision was to compare entire years.

Results show that scientific production increased for about 2 years, from 2005 to 2007, before the beginning of the financial crisis. Several causes can explain this issue. Nevertheless, the IAS 39 (International Accounting Standards Board 2003) and the SFAS 157 (Financial Accounting Standards Board 2006), applied to fiscal years beginning after November 2007, could be the main cause.

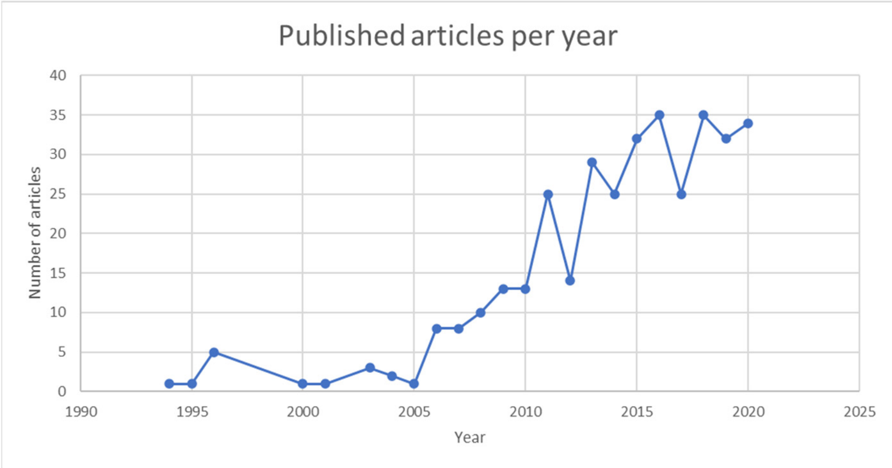

Figure 1. Annual scientific production.

Second, from 2007–2011, the annual scientific production on fair value accounting increased considerably. The annual outputs increased from eight documents in 2007 to 25 documents in 2011, primarily due to the effects of the issued SFAS 157 on financial reporting and the relationship between fair value accounting and the 2008–2009 financial crisis.

Recent years show a continuous upward trend. Third, in 2012, scientific production had decreased to 14 documents and boosted from 2012–2016, when the annual output peaked at 35 articles. The IAS 13 (International Accounting Standards Board 2011) was issued during this period.

3.2. Most Influential Sources

Table 2 presents the top 10 most influential sources. Among them, the top five most influential were The Accounting Review with 21 published documents, starting in 1994, 1280 citations and an h-index = 14; the Review of Accounting Studies, with 18 papers, starting in 2006, 322 citations, and an h-index = 11; the Journal of Accounting and Economics, with 14 documents, starting in 1996, 741 citations and an h-index = 11; the journal Advances in Accounting, with 11 papers, starting in 2013, 50 citations and an h-index = 4; and the journal Accounting and Finance, with 10 papers, starting in 2013, 59 citations and an h-index of 5.

Table 2. Top 10 most influential sources.

Source	h-Index	Total Citations	Number of Papers	Starting Year
The Accounting Review	14	1280	21	1994
Review of Accounting Studies	11	322	18	2006
Journal of Accounting & Economics	11	741	14	1996
Advances in Accounting	4	50	11	2013
Accounting and Finance	5	59	10	2013
Journal of Accounting Auditing and Finance	6	224	8	2009
Accounting and Business Research	2	11	8	2014
Custos e Agronegocio	5	238	7	2008
Abacus	5	117	7	2004
Accounting Forum	3	22	7	2016

3.3. Intellectual Structure

Citation and co-citation analysis provide insights into the intellectual structure of a research field. Table 3 shows the top 20 most cited documents on fair value accounting, including the paper's goal, DOI, and total citations.

Table 3. Top 20 most relevant articles.

Rank	Paper	Paper's Goal	DOI	Total Citations
1	(Barth 1994)	Analyses how disclosed fair value estimates of banks' investment securities and securities gains and losses based on those estimates are reflected in share prices in comparison with historical costs.	NA	252
2	(Barth et al. 1996)	Explores the value-relevance of fair value disclosures under Statement of Financial Accounting Standards No. 107.	NA	216
3	(Song et al. 2010)	Explores the value relevance of fair values among the fair value measurement levels.	10.2308/accr.2010.85.4.1375	206
4	(Nelson 1996)	Evaluates the association between the market value of banks' common equity and fair value estimates disclosed under Statement of Financial Accounting Standards No. 107.	NA	157
5	(Eccher et al. 1996)	Analyses the value relevance of fair value data disclosed under SFAS 107 by banks for 1992 and 1993.	10.1016/S0165-4101(96)00438-7	151
6	(Dechow et al. 2010)	Assesses if the CEO reward is less sensitive to securitization gains than to other earnings components in the presence of proxies for independent and informed directors.	10.1016/j.jacceco.2009.09.006	142
7	(Whittington 2008)	Analyses various controversial issues arising from the IASB and FASB to develop a joint conceptual framework for financial reporting standards.	10.1111/j.1467-6281.2008.00255.x	132
8	(Ramanna 2008)	Evaluates SFAS 142, which uses unverifiable fair-value estimates to account for acquired goodwill.	10.1016/j.jacceco.2007.11.006	131
9	(Barth et al. 1995)	Evaluates fair value accounting critics by restating earnings and regulatory capital to reflect banks' disclosed investment securities' fair values.	10.1016/0378-4266(94)00141-O	130
10	(Power 2010)	Explores the question of how and why the use of fair values in accounting acquired significance prior to 2007 despite widespread opposition.	10.1080/00014788.2010.9663394	115
11	(Christensen et al. 2012)	Evaluates estimates reported by public companies and find that fair value and other estimates based on management's subjective models and inputs contain estimation uncertainty or imprecision that is many times greater than materiality.	10.2308/ajpt-10191	92
12	(Benston 2006)	This study evaluates the role of fair value accounting in the Enron demise.	10.1016/j.jaccpubpol.2006.05.003	84
13	(Bratten et al. 2013)	Assesses the source of audit deficiencies and considers possible ways to improve the quality of judgments related to audits of fair values and other estimates.	10.2308/ajpt-50316	81
14	(Barth et al. 2008)	Evaluates whether equity value changes associated with credit risk changes are attenuated by debt value changes associated with the credit risk changes.	10.2308/accr.2008.83.3.629	80
15	(Benston 2008)	Analyses the shortcomings of fair value accounting described on SFAS 157.	10.1016/j.jaccpubpol.2008.01.001	73
16	(Dietrich et al. 2000)	Explores the reliability of mandatory annual fair value estimates for UK investment property.	NA	73

Table 3. *Cont.*

Rank	Paper	Paper's Goal	DOI	Total Citations
17	(Badertscher et al. 2012)	Explores if the United States accounting rules exacerbated the 2008–2009 financial crisis by depleting banks' regulatory capital and triggering asset sales, leading to further economic turmoil.	10.2308/accr-10166	72
18	(Ronen 2008)	Assesses the usefulness of the fair value measurement principles spelt out in SFAS 157.	10.1111/j.1467-6281.2008.00257.x	71
19	(Muller et al. 2011)	Evaluates the effects of mandating fair value information for long-lived tangible assets on firms' information asymmetry.	10.1287/mnsc.1110.1339	64
20	(Hann et al. 2007)	Compares the value and credit relevance of financial statements under fair-value and smoothing models of pension accounting.	10.1016/j.jacceco.2007.04.001	63

NA = Not available.

Results show that the most influential papers were published in the 1990s and are focused on aspects related to the adoption of several Statements of Financial Accounting Standards, namely, SFAS 107 (e.g., Barth et al. 1996; Eccher et al. 1996; Nelson 1996), SFAS 157 (e.g., Benston 2008; Ronen 2008; Song et al. 2010), and fair value estimates (Barth 1994; Nelson 1996; Ramanna 2008; Christensen et al. 2012; Bratten et al. 2013; Dietrich et al. 2000).

The co-citation network depicts the strength of the semantic relationship between two papers, i.e., shows the frequency with which two documents are cited together (Small 1973). Figure 2 displays the 50 most co-cited documents, addressing the fair value accounting research stream and showing the strength of the clusters. Each vertex or node represents an article, and its size is proportional to the number of times an article is cited. Furthermore, the smaller the distance between nodes, the more highly related they are, thus, showing the number and strength of the clusters (Chen et al. 2016). In the same way, the thickness of the line between two documents is proportional to the strength of their connection (Chen et al. 2010).

Figure 2. Co-citation network.

The co-citation network (Figure 2) shows four clusters representing the most co-cited documents, highlighting the most relevant papers for later literature on fair value accounting. Overall, this map displays the background literature for the research stream. It reveals six primary documents: Barth (1994); Song et al. (2010); Barth et al. (1996); and Eccher et al. (1996); from cluster 1, and Landsman (2007) and Laux and Leuz (2009) from cluster 2, representing the topmost co-cited documents and thus the backbone of the research stream.

A deeper analysis of the clusters shows that cluster 1 includes topics primarily related to the value relevance of fair value estimates and fair value disclosures under financial standards, aspects related to the adoption of the SFAS 107 (Barth et al. 1996; Eccher et al. 1996; Barth 1994; Nelson 1996) or the value relevance among fair value measurement levels as settled on the SFAS 157 (Song et al. 2010). Cluster 2 highlights studies related to the role of fair value accounting on the 2008–2009 financial crisis and the following debate (Laux and Leuz 2009; Plantin et al. 2008), aspects related to the relevance and reliability of fair value disclosures (Landsman 2007), and its effects on financial reporting quality (Penman 2007).

Clusters 3 and 4 include studies related to miscellaneous topics, without a transparent background line, such as the fair value measurement levels (Riedl and Serafeim 2011), assets pricing (Petersen 2009), fair value estimates (Barth 2006), or the implementation of fair value accounting (Barth and Landsman 1995), including the shift on financial reporting standards due to the SFAS 157 (Hitz 2007) and the value relevance of fair value accounting relative to historical cost accounting for financial instruments (Carroll et al. 2003). However, cluster 3 favors an approach to the role of regulatory bodies, with cluster 4 focusing on transparency practices in accounting for the underlying assets and liabilities.

3.4. Conceptual Structure

The actual content of the documents characterizes the conceptual structure of the research field. Therefore, a co-word analysis was performed to understand if this structure has changed over time. The data were split into three periods, following the production outputs, to assess the effects of the 2008–2009 financial crisis in literature (see Figure 1). A first period (1994–2006) (Figure 3), including 23 documents, represents a period when the number of published documents was relatively low. A second period 2007–2011 (Figure 4), including 69 papers, incorporates the financial crisis critical period, when the production output heavily increased, and a third period 2012–2021 (Figure 5) includes 285 documents.

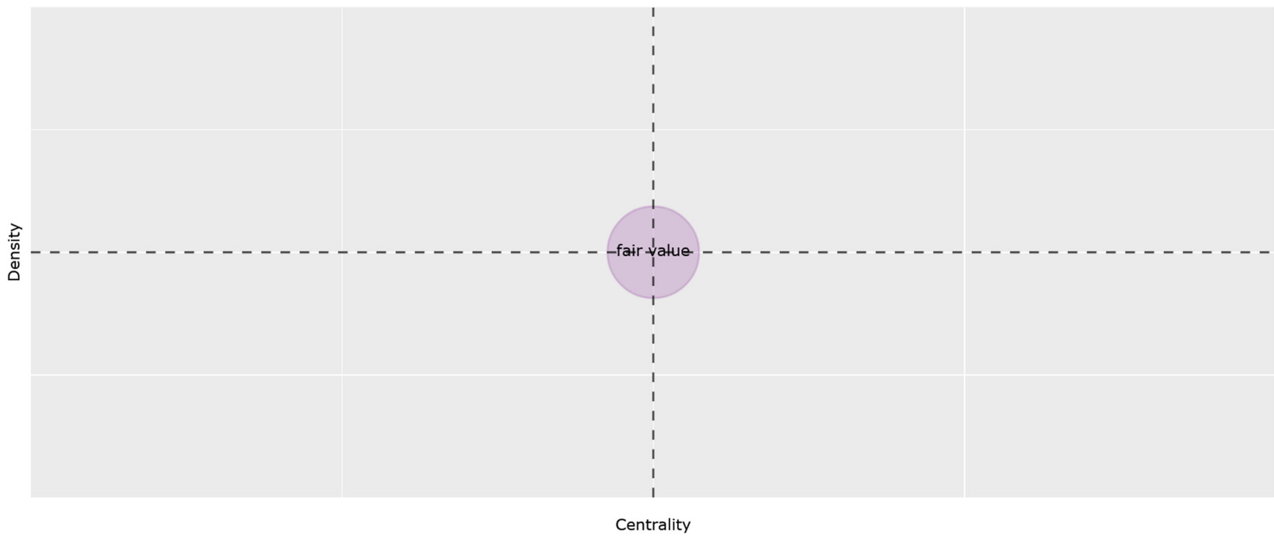

Figure 3. Thematic map—period (1994–2006).

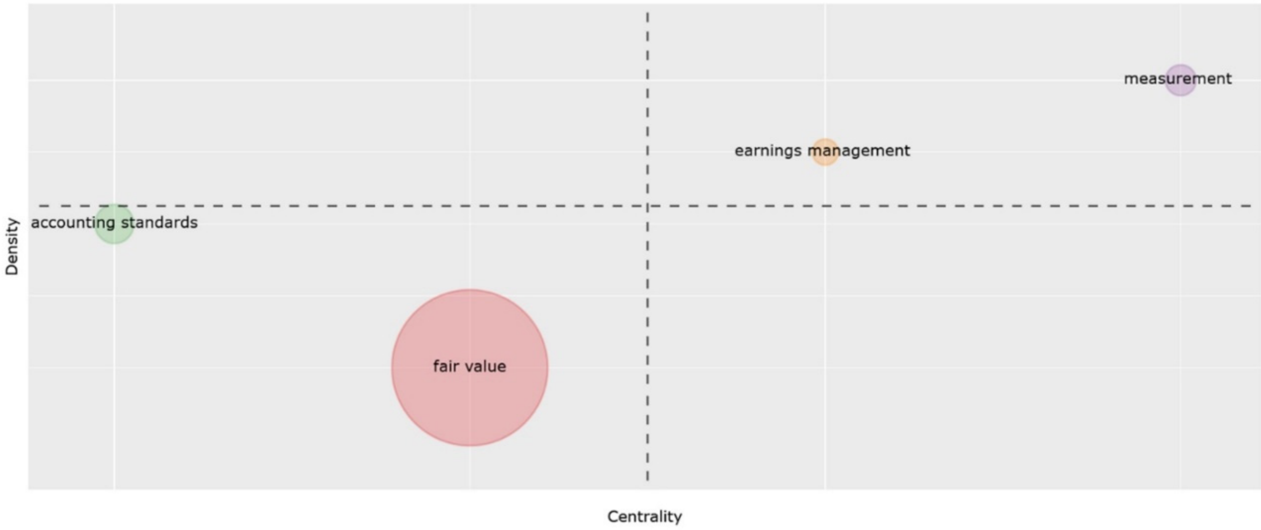

Figure 4. Thematic map—period (2007–2011).

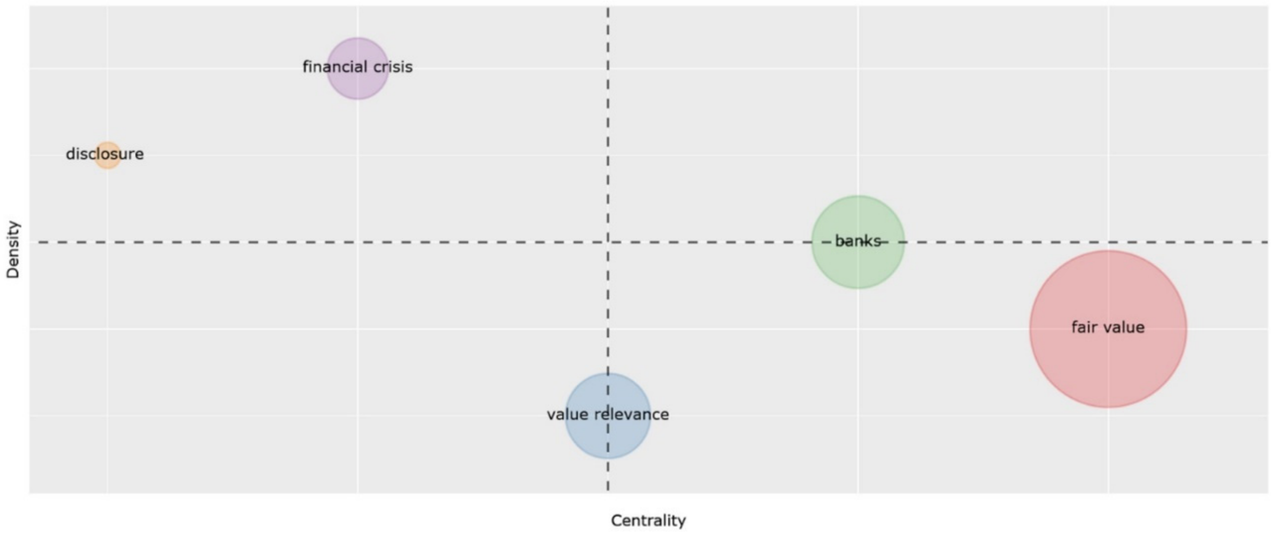

Figure 5. Thematic map—period (2012–2021).

Co-word analysis seeks to reveal the relationships between keywords that might be considered the most significant at a given moment. Therefore, it identifies groups of closely related words and corresponds to centers of interest of research problems that are objects of significant interest (Callon et al. 1991). These centers of interest or themes can be organized in a diagram divided into four quadrants according to the ideas of centrality and density (Cobo et al. 2011; Callon et al. 1991).

The groups of words aggregated in clusters can be positioned in four general quadrants, depicted in a diagram called a Thematic Map: clusters of type 1, positioned in the upper-right quadrant, represent research problems, both central to the general network and with intense internal links, and are therefore both well developed and essential topics in forming a research field; clusters of type 2 are positioned in the lower-right quadrant and are central to the general network, however, the density of their internal links is relatively low, which means that they represent transversal and generally essential topics, which are not well developed; type 3 clusters (upper-left) refer to research problems not central, however, the strength of their internal links suggest that they correspond to research areas already well-developed or research problems formerly central; type 4 clusters (lower-left) represent both weakly developed and marginal topics with low density and low centrality, consequently incorporating emerging or disappearing topics (Cobo et al. 2011; Callon et al. 1991).

To perform the thematic analysis over the three periods and avoid duplication, a normalization of words was conducted, and a threshold of a minimum of five occurrences was imposed to filter the most frequent keywords (Aria et al. 2020).

In the first period (1994–2006), one central theme emerged (Figure 3), represented by the cluster label *fair value*, which includes the terms in Table 4 with their occurrences.

Table 4. Clusters definition—period (1994–2006).

Cluster Label	Terms	Occurrences
fair value	fair value	28
	financial instruments	6
	banks	5

Fair value is the central theme to the underlying research and, according to thematic map analysis, is geographically located at a central point of the map (Figure 3), showing that the theme was not well developed and is averagely central and dense to the research stream. This result is aligned with the overall developed literature over the timespan. Only 23 documents were published, yet the literature was focused on aspects related to the adoption of fair value accounting for financial instruments and banks, representing the theoretical backbone of the fair value accounting research line, and was among the most cited documents, discussing miscellaneous aspects, namely the issued SFAS 107 as well as the fair value estimates, relevance, and disclosures.

Following the first period analysis, Figure 4 presents the second time-slice thematic map (2007–2011).

In the second period (2007–2011), the thematic map (Figure 4) shows a shift in the relevant topics. The cluster *fair value* became less central and dense, positioned in the lower-right quadrant, including the cluster *accounting standards*. Table 5 shows the main clusters in this period, the terms that comprise it, and the respective occurrences.

Table 5. Clusters definition—period (2007–2011).

Cluster Label	Terms	Occurrences
fair value	fair value	130
	financial crisis	15
	historical cost	11
	financial instruments	8
	IFRS	7
	reliability	6
	value relevance	6
	relevance	5
	financial reporting	5
accounting standards	accounting standards	6
	conceptual framework	5
measurement	measurement	9
earnings management	earnings management	8

During this period, literature about fair value and its role in the financial crisis thrived and was mainly focused on the underlying causes for the financial crisis and the adoption of SFAS 157 (Hughes and Tett 2008; Wallison 2009; Barth and Taylor 2010; Laux and Leuz 2009, 2010; Magnan and Markarian 2011; Véron 2008).

The theme *measurement and earnings management* became highly central and dense to the research stream. These themes are in line with the leading critics of fair value measurement, namely the difficulty of applying fair value accounting in illiquid markets

(Financial Crisis Advisory Board (FCAG) (2009)) and the greater weight in valuation to be placed at market prices (Wallison 2009).

Both *measurement* and *earnings management*, became highly central and dense themes during the period 2007–2011 and reflected the underlying context of the economic and financial turmoil, representing, therefore, the motor themes for the research question in this period.

Over the period 2012–2021, the thematic map (Figure 5) includes five themes featured in Table 6. The *financial crisis* and *disclosure* themes are in the upper-left quadrant, meaning they were highly dense (developed internally) but marginally central to the research topic.

Table 6. Clusters definition—period (2012–2021).

Cluster Label	Terms	Occurrences
fair value	fair value	330
	historical cost	25
	IFRS	20
	financial reporting	17
	biological assets	16
	IFRS 13	12
	investment property	11
	measurement	9
	earnings management	8
	accounting	8
	audit fees	7
	valuation	7
	SFAS 157	6
	information asymmetry	6
	regulatory capital	6
	corporate governance	5
	FASB	5
value relevance	value relevance	27
	reliability	10
	relevance	6
	financial statements	5
banks	banks	15
	financial instruments	12
	accounting standards	9
	IAS 39	8
	credit risk	6
	china	6
	earnings volatility	5
financial crisis	financial crisis	15
	international financial reporting standards	7
disclosure	disclosure	7

On the other hand, the term *fair value* (lower-right quadrant) became highly central, although, when compared to the previous period, it does not appear denser.

The theme *banks* became highly central and somehow dense to the research stream, and the theme *value relevance* presents some degree of centrality, as well as marginal density. Furthermore, during this period, the effects of the 2008–2009 financial crisis were still felt, mainly through reminiscences of the crisis of sovereign debts. Therefore, the research stream presented a steady number of scientific outputs, showing that topics related to *fair value*, *value relevance*, *financial crisis*, and *disclosures*, mainly related to *banks*, were central to the research field.

4. Discussion and Conclusions

4.1. Discussion

This study sought to explore the development, course, and nature of the fair value accounting research field using bibliometric methods. Results confirm that, despite being based on previous concepts (Donleavy 2019), the fair value accounting research stream was mostly developed from the 1990s and was sparked by an increasing commitment to fair value measurement and disclosures by standard setters. For instance, the SFAS 107 (Financial Accounting Standards Board 1991) extended fair value practices for some instruments, requiring all entities to disclose the fair value of financial instruments, which were recognized and not recognized in the statement of financial position. On the other hand, the SFAS 115 (Financial Accounting Standards Board 1993) addressed the accounting and reporting for financial instruments in equity securities that have readily determinable fair values and all investments in debt securities. Both the SFAS 107 and SFAS 115 were the source of several papers emphasizing aspects such as value relevance of fair value estimates on the disclosures provided by the banking industry (Barth et al. 1996; Nelson 1996; Eccher et al. 1996; Barth 1994).

Furthermore, the scientific production over the first period (1994–2006) shows that only 23 documents were published. Nevertheless, seven of the top 20 most cited documents were published during this period (1st, 2nd, 4th, 5th, 9th, 12th, 16th). Combining the thematic map analysis with the most cited articles confirms that this period was characterized by documents centered on themes such as *fair value estimates*, *value relevance*, and *disclosures* (Barth et al. 1996; Eccher et al. 1996; Nelson 1996; Barth 1994).

During the 2000s, mainly following 2007, the discipline became increasingly relevant. Several papers were developed regarding two main related issues. On the one hand, the SFAS 157 (Financial Accounting Standards Board 2006) was introduced in 2006 and aimed to enhance clarity over the statement of financial position. Despite seeking clarity over the companies disclosures, the SFAS 157 was introduced in the run-up of the financial crisis and became highly controversial, primarily due to several shortcomings of the financial standards that arguably led to manipulations and were costly to investors (Benston 2008; Ronen 2008). On the other hand, the 2008–2009 financial crisis became the largest source of discussion regarding fair value accounting and fair value estimates. Among the most relevant topics discussed were the SFAS 157 fair value measurement hierarchical levels (Song et al. 2010) and the role of fair value measurement in the overall financial crisis (Laux and Leuz 2010; Véron 2008; Wallison 2009). Furthermore, the discussion surrounded other aspects of fair value estimates and their effects on companies' disclosures. For instance, the effect of CEO reward on companies' securitization gains (Dechow et al. 2010) and unverifiable fair-value estimates for acquired goodwill (Ramanna 2008).

Concerning the scientific production over the period 2007–2011, results show that the 2008–2009 financial crisis increased the relevance of the research stream. Fair value faced several critiques from financial leaders (Hughes and Tett 2008), the press (e.g., Wallison 2009), and researchers (Krumwiede 2008). Further limitations were also noted by the Financial Crisis Advisory Board (FCAG) (2009); nevertheless, despite many arguing that the fair value was the scapegoat for the financial crisis (Véron 2008; Badertscher et al. 2012), no alternative standard could lead to better accounting in turbulent market conditions (Véron 2008) and minimize the freedom to manipulate accounting numbers (CFA 2007; Power 2010). Thus, unsurprisingly, between 2007 and 2011, 69 documents were published, including 10 papers among the top 20 most cited documents (3rd, 6th, 7th, 8th, 10th, 12th, 14th, 18th, 19th, 20th). Furthermore, the underlying argument was centered in losses in subprime mortgage portfolios in mid-2007, which compelled companies holding these assets to sell them if they did not have additional collateral to supply to lenders. This raised doubts about the quality of the ratings of these securities, as well as about asset-backed securities, and due to the complexity of many instruments, it also became difficult to determine losses, leading to distressed or liquidation sales. Ultimately, this led to significant and continuing operating and capital losses, making companies weaker than they were

(Wallison 2009). These issues implied that themes such as *earnings management* as well as assets and liabilities *measurement* and the *accounting standards* were among the most relevant topics.

Following the 2008–2009 financial turmoil, the overall literature became increasingly more focused on the consequences of fair value estimates in the banking industry (Amel-Zadeh et al. 2017; Barron et al. 2016; Blankespoor et al. 2013; Bowen and Khan 2014; Magnan et al. 2015; de Jager 2014; Dong et al. 2014; Marabel-Romo et al. 2017) or its effects on accounting and finance professionals (Brousseau et al. 2014; Chen et al. 2013; Durocher and Gendron 2014; Georgiou 2018; Lachmann et al. 2015) and public companies (Abbott and Tan-Kantor 2018; Chen and Gavious 2016), among other aspects. However, fair value measurement and its effects on earnings management, corporate governance, and financial reporting were central to the research field. Moreover, the SFAS 157 (Financial Accounting Standards Board 2006) and the IFRS 13 (International Accounting Standards Board 2011), which established a set of hierarchical levels similar to SFAS 157, were the background for the general studies. Consequently, during 2012–2021, 285 documents were published, representing more than two-thirds of the published papers.

Figure 6 presents the thematic map evolution. It represents the evolution of the most relevant themes across the studied timespan and is split into three periods: 1994–2006, 2007–2011, and 2012–2021.

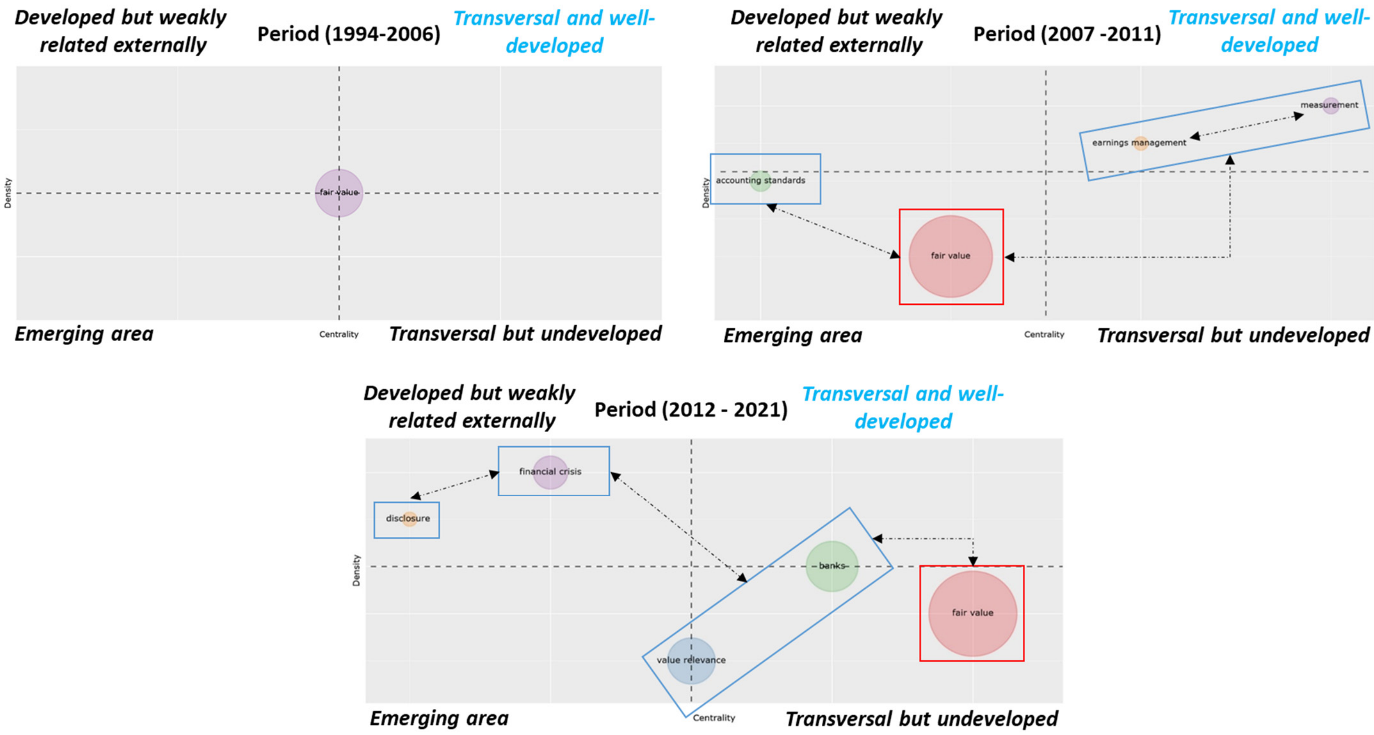

Figure 6. Thematic evolution mapping.

Over the period 1994–2006, the theme *fair value* emerged, associated with accounting corporate assets and liabilities and SFAS 107. The second period (2007–2011) was affected by the 2008–2009 financial crisis. Several themes emerged associated with the accounting standards, regulations, and the accounting of financial assets and liabilities. However, topics such as *earnings* and *management* emphasized the market constraints resulting from the devaluation of assets valued at fair value. During this period, the market downturn led companies to record the devaluation of the assets, leading to further market turmoil and intensifying the pressure to measure other assets' devaluation at fair value. In alignment with this phenomenon, the term *value relevance* gained relevance.

In the third period (2012–2021), the scientific literature focused on the analysis associated with the aftermath of the financial crisis. The theme *disclosure* became a critical topic due to the disclosure requirements in reporting assets and liabilities measured at fair value. Furthermore, fair value accounting literature was also centered on banks. The relevance of the *banks* theme for the research field is related to the severe constraints banks faced due to financial crisis and the pressure of central banks, imposing new requirements, strengthening regulation, supervision, and risk management. Moreover, several studies have been focused on aspects related to the financial *disclosures* due to *financial crisis* (e.g., Badertscher et al. 2012) and on aspects related to the adoption of *fair value* accounting by *banks*.

4.2. Conclusions

This study deals with a relevant research topic that is critical to financial markets and aimed (1) to deliver a road map to understand how fair value accounting literature evolved, (2) to show how the financial crisis affected it, and (3) to present the underlying themes that influenced this development.

Fair value accounting has become an increasingly relevant research stream over the past 30 years. This happened for several reasons; among them, the regulations issued in the early 1990s settled the base for the following research, and the 2008–2009 financial crisis established the foundations for the increasing number of published documents, starting in the second half of the 2000s.

Among the main contributions, this study provides scholars and practitioners with an unbiased framework of the fair value accounting research field. It shows how it evolved, its main actors, and the main underlying subjects. It also provides an analysis of the effects of the 2008–2009 financial turmoil by providing the background for forming the fair value accounting body of work.

Accordingly, this research delivers a road map of knowledge about the fair value accounting research stream, its relevance on the valuation of assets and liabilities, and how it affects financial markets, providing the starting point for researchers seeking to study fair value accounting.

Moreover, this study shows that fair value literature explored aspects concerning fair value measurement and the impact of the financial standards, particularly the three hierarchical levels, in financial reporting, and the consequences on firms' valuation. The analysis displays one topic that crosses the overall scientific literature: the reliability of fair value estimates in companies' valuations. The discussion has been mainly focused on aspects involving the degree of objectivity/subjectivity of fair value estimates, due to the difficulty in employing fair value measurement in times of less liquidity and the known critic of exacerbating the effect of financial trends. Overall, during periods of crisis, such as the current COVID-19 pandemic, companies may be pressured to reduce the effect of the pandemic in results and relaxing accounting rules might become necessary to avoid poor performance or corporate bankruptcy (Ozili 2021). However, the financial crisis showed that the shortcomings of the financial standards and the propensity for manipulation in fair value estimates could be costly to investors (Benston 2008; Ronen 2008).

Following the conducted thematic analysis, topics such as *earnings management*, *fair value measurement/estimates,* as well as *value relevance* and *financial disclosures* should be among the most relevant in future research, particularly concerning the banking industry and the effect of the COVID-19 pandemic on firms' financial performance, with a focus on how fair value hierarchical levels affect financial reporting. Despite the imposed regulations, the characteristics of the fair value measurement did not change. In the same way, assets and liabilities valuation positively affect companies' financial statements during boom periods, though they negatively affect them during downturn periods.

Despite the resulting enlightenment, this study presents several weaknesses, mainly due to the search procedures. The search query including the words "fair value" or "accounting" could be expanded or changed to include further studies. On the other hand, the Scopus and WoS are among the most relevant scientific databases, yet relevant research referenced in databases such as Google Scholar were not included in the analysis, and readers should be aware of this shortcoming.

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