Article

Economic Value Added Research: Mapping Thematic Structure and Research Trends

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Abstract: The purpose of this article is to examine the academic literature about the function, structure, calculation, and weaknesses of economic value added (EVA). EVA has been used as a measure of economic profit and captures the inadequacies of using traditional rates of return. In addition, this article tackles the main residual earnings (RI) modifications used to calculate EVA. A keyword search for publications was conducted in early 2022. This study couples an inferential analysis with descriptive analyses of the existing research. The articles were sorted into different clusters based on bibliographic coupling analysis. This study identifies the main areas and current dynamics of EVA research while evaluating the quality and impact of the scientific output. Three broad themes emerged from the analysis of the cluster related to the use and application of EVA: residual income and valuation, financial performance, and performance management. In doing so, we hope to enhance the understanding and contributions of EVA research to advance its theory and practice.

Keywords: economic value added; market value added; EVA; residual income; bibliometric

1. Introduction

It is noteworthy in the financial literature that shareholder wealth maximization is the supreme objective of management. Shareholder wealth maximization implies an increase in the share price and market capitalization of a company. In this situation, a good performance metric assists in the evaluation of a company's performance in terms of wealth maximization (Jones and Slack 2011). Several companies continue to use profit-based performance measures that disregard opportunity costs, such as the cost of equity capital (Jones and Slack 2011). In addition, profit-based performance measures such as accounting profit are altered by accrual-based and real earnings management. Due to the application and implication of accounting standards, accountants' discretion can occasionally affect the accounting profit (Jones and Slack 2011). Economic value added mitigates the flaws inherent in traditional profit-based performance measures and enables businesses to achieve their ultimate objective. EVA measures economic profit or rent. Value-added refers to an organization's increased wealth. It is a common method for calculating shareholder income (Haller and Stolowy 1998). In numerous sectors of business administration, value-added has also been employed as a performance measure (Haller and Stolowy 1998). Accounting value added to shareholder wealth is annual net profit added to book value (balance sheet equity). Accounting value added cannot address over- and under-investment problems. It does not account for opportunity costs (implicit costs). The difference between accounting profit and cost of capital equals economic profit. Financial managers do not subtract equity capital from profit. Traditional managers measure EPS for firm shareholders whereas an economist calculates earnings by incorporating the opportunity cost of equity capital. Thus, finance manager profits differ from economist profits. EVA does not evaluate profitability. Instead, it considers if any earnings remain after payment of all costs (including the

opportunity cost for equity capital). Opportunity cost is the expense of paying equity stockholders at a market-determined rate of return. If the business's earnings can meet this requirement and some earnings are left for the business's exclusive use, EVA will be positive. It is becoming more popular as companies try to understand their investors' mentality and retain them.

Another important reason for conducting this study is the rising focus of scholars on EVA research viz-a-viz other firm performance evaluation methods. The research on EVA has grown with a CAGR of 9.60% whereas the research on other business performance measures has only increased at the rate of 5.67%, as per publications in Scopus-listed journals (estimated by authors). The purpose of this article is to examine the academic literature about the function, structure, calculation, and weaknesses of economic value added (EVA). In addition, the key changes to residual earnings (RI) used to calculate EVA are discussed.

2. Conceptualization of the Study

The articles revealed through search strings are represented graphically in Figure 1. The number of articles on EVA followed a stagnant growth until 1995 and logically so. After incorporating EVA in 1982, Stern Stewart & Co. New York, U.S. familiarized the model with business and its wide usage in diverse fields. EVA was always and is currently promoted as an alternate measure of capturing economic profit or maximizing shareholder value for an enterprise or business. There is a need to understand how far EVA has been applied and the future direction for its application. Recently, there has been research conducted showing and analyzing the application of EVA in various fields, such as universal financial metrics (Dobrowolski et al. 2022), sustainability assessment (Jankalová and Kurotová 2019), and performance evaluations of public organizations (Subedi and Farazmand 2020). It seems worthwhile to explore and understand current and future research in the field of EVA. Thus, the following research focuses have been posed:

RQ1. Analyze leading publishing outlets, journals, and authors in the domain of EVA.
RQ2. Analyze and review leading publications according to local and global citations.
RQ3. Identify clusters based on keyword analysis and suggest future research areas.
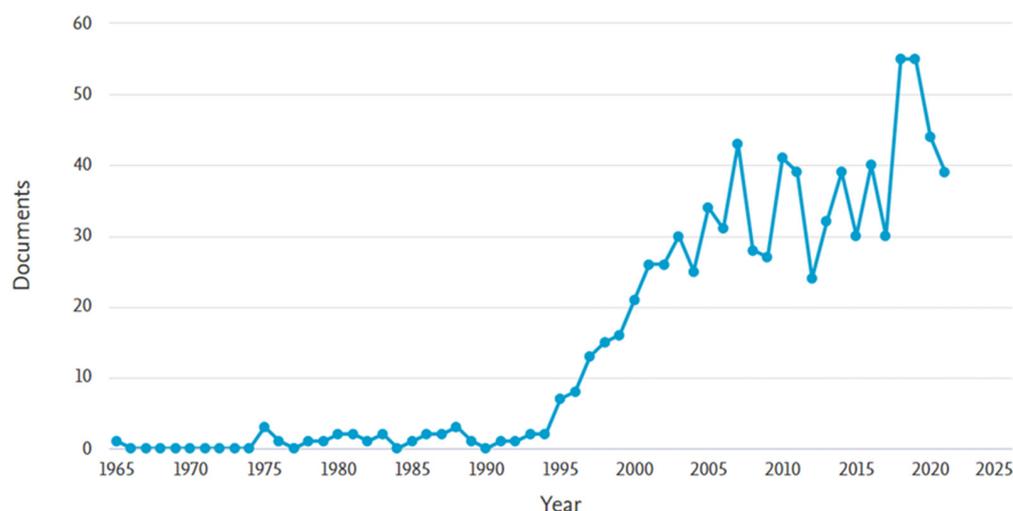
Figure 1. The number of publications year over year on EVA. Source: Authors.

2.1. Emergence of Economic Value Added (EVA)

Accounting profit does not account for opportunity cost. As a result of selecting any alternative, the opportunity cost is the biggest net value forgone. Utilizing opportunity cost and contemporary finance, EVA as a financial metric comes much closer to capturing genuine economic profit. EVA is a valuable performance statistic that is directly tied to the maximization of shareholder wealth and is less controversial among practitioners (Shil

2009). EVA focuses a stronger emphasis on the development of shareholder value through management and is unique from other measures that rely mainly on accounting data from the past (Shil 2009). EVA has been applied by a significant number of businesses to motivate management to maximize shareholder value (Chen and Dodd 2001). Companies may willfully pay taxes to confirm their profitability and give shareholders a false image (Shil 2009). EVA tries to fix this issue and normalizes any accounting data distortions at its source (Shil 2009). Accounting information-based financial decisions might be detrimental to a corporation (Bennett 1991). Economic value added gauges a firm's value while also contributing to its growth using adjusted financial data (Mäkeläinen and Roztocki 1998; Bennett 1991). As is typical, earnings per share (EPS) is the most essential financial indicator for assessing a company's financial success (Bennett 1991). EPS is nonetheless based on historical data and is not updated for usage in the present. Despite the inherent limits of EPS, managers continue to favor EPS figures since, according to them, good EPS attracts investors and influences stock prices (Bennett 1991). Typically, in the goal of increasing EPS to attract investors, companies jeopardize their financial stability (Bennett 1991). Economic Value Added improves firms' efficiency and value production (Shaked et al. 1997; Bennett 1991). EVA uses accounting statement data to calculate the value growth of a company (Mäkeläinen and Roztocki 1998). It considers all relevant aspects of a company's growth, such as the financial expenditures connected with expansion (Bennett 1991). The market value of a firm is equal to the book value of its stock and the present value of its future EVA, as declared by Stewart. The bonus structure may be determined by EVA. It considers all essential aspects linked with a company's growth, including the monetary expenses associated with the company's expansion (Bennett 1991). Stewart (1991) was the first to evaluate the correlation between EVA and share price. He identified a significant relationship between the two factors. As reported by him, the market value of a corporation is equal to the book value of its stock and the present value of its future EVA. Incentive programs could be designed with EVA in mind. EVA is accountable for building accountable and transparent links between capital spending, strategic planning, operating decisions, and shareholder value. EVA is a dependable predictor of a company's future growth (Fisher 1995) and a reliable indicator of the quality of managerial decisions (Lehn and Makhija 1996).

2.2. Concept of EVA

In 1990, the "EVA" tool was created to evaluate a company's profitability. In reality, this concept dates back to the early nineteenth century when it was first proposed by Alfred Marshal (1890). EVA simply quantifies the additional return an investment generates above the market rate of return. Simply put, EVA evaluates profitability after deducting capital costs. Stern Stewart Corporation has developed economic value added as a broad indicator of financial success to focus managers' efforts on creating shareholder value. EVA is the net operating profit minus the opportunity cost of all the capital used to launch a business. EVA, also known as estimated true economic profit, is the proportion by which earnings exceed or fall short of the required minimum rate of return that shareholders and lenders can achieve by investing in other assets of equivalent risk. It determines a firm's financial return relative to its opportunity cost (Bodie et al. 2014). As a performance metric, EVA emphasizes management's contribution to the creation of value for the company's owners by incorporating the cost of capital employed. EVA is a more accurate predictor of the market value of a company from an investor's perspective than other operating performance measures (O'Byrne 1996). The exhaustive flow of components having a relationship and contribution in EVA is presented in Figure 2.
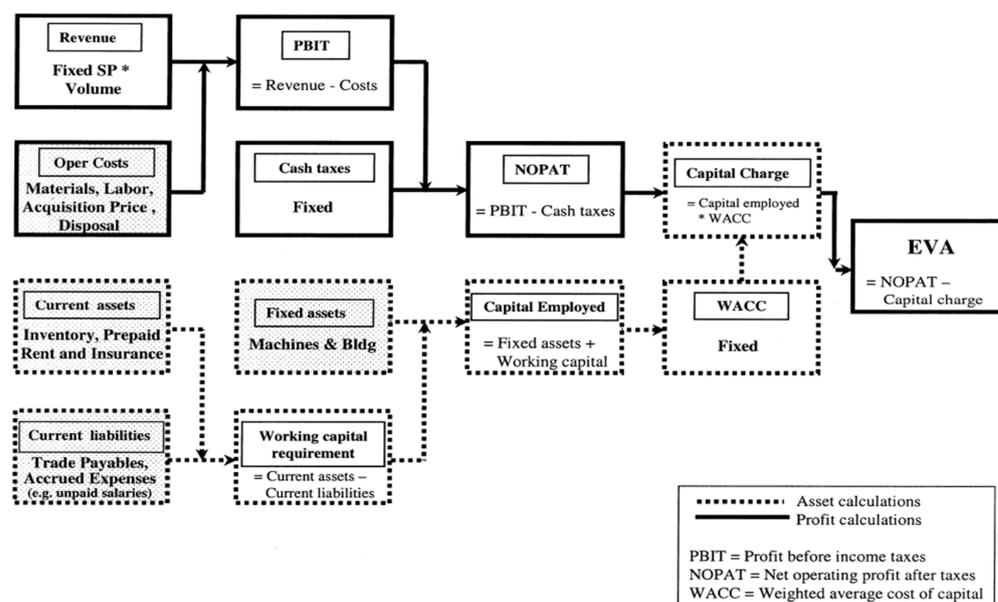
Figure 2. EVA calculation (Guide and Van Wassenhove 2001).

3. Methodology

The keyword search for publications was conducted in early 2022. The three-step refinement strategy used was utilized–keyword search, area filtration, and scholarly filtration. The Scopus database was used for the search because of two reasons: (1) extensive coverage of subjects while retaining a standard quality of articles and (2) comprehensive bibliometric characteristics accessible for indexed works (Kumar et al. 2021). Numerous scholars prefer the Scopus database for conducting academic literature surveys compared to its counterparts (Archambault et al. 2009). Additionally, Paul et al. (2021) recommends the Scopus database for its versatile collection in the Business, Management, and Accounting category, thereby authenticating it as a suitable choice for this review. Following the strategy of Mukherjee et al. (2022), we performed a bibliometric analysis of EVA to fulfill the research objectives. We searched the articles on EVA using the keywords 'Economic Value Added', 'EVA', 'Residual Income', and 'Market Value Added' with the 'OR' operator, as the four keywords are used synonymously with EVA. The search string produced 4111 search results as per the above-discussed criteria.

Secondly, the search results were filtered on the subject area of the publication. This study only considers articles published in the "Business, Management, and Accounting" category of the Scopus database. The subject filtration was primarily done to restrict the studies on EVA in the context of business management. Moreover, this subject is an overarching discipline where the concepts of accounting and economic value added are formed. The count of search results after subject filtration was 1098 documents.

The third and last stage included scholarly filtration. In this stage, the articles were filtered on (1) the readability of authors, i.e., English language, and (2) the nature of publications. This study only considered research articles published in journals in the English language. Other languages and publication types, such as conference proceedings, reviews, books, and book chapters, were not taken as samples for this study. The final count of documents after all filtrations was 693, which were examined in this study.

4. Analysis

4.1. Leading Performing Publishing Outlets in the EVA Research Domain

A comprehensive list of journals that have published a minimum of six articles and were listed as journals were identified based on AJG (Academic Journal Guide) 2021 and ABDC (Australian Business Deans Council) ranking. Figure 3 shows the list of leading publishing outlets in the domain of EVA research. These journals were further analyzed

based on the h_index (Hirsch type index) used to understand the impact of the journal's article (Harzing and Van der Wal 2009), total citation (TC) to number of publications (NP) ratio (also known as Garfield's constant) (Podlubny 2005), and citation per year (CPY) to understand the rate of citation per year (Purkayastha et al. 2019). The results of the analysis are shown in Table 1. The analysis provided identification of the top 20 journals for authors who want to refer to articles for their consumption, pursue further research in the EVA domain, and publish research work.

Table 1. Leading Performing Publishing Outlets in the EVA Research Domain.

Source Title	AJG Rating	ABDC Rating	h-Index	TC	NP	PY-Start	NP	Rank (TC/NP)	CPY	Rank (CPY)
Strategic Management Journal	4*	A*	2	2293	2	2001	1147	1	109	1
Management Accounting Research	3	A*	10	1399	11	1995	127	10	52	3
Journal of Accounting Research	4*	A*	6	1319	7	2000	188	6	60	2
Review of Accounting Studies	4	A*	16	1098	26	1996	42	14	42	6
Journal of Accounting and Economics	4*	A*	5	1091	5	1997	218	4	44	5
Accounting Review	4*	A*	14	1004	15	2000	67	12	46	4
Journal of Finance	4*	A*	2	718	2	1999	359	3	31	7
European Management Journal	2	B	4	602	4	1997	151	9	24	8
Production and Operations Management	4	A*	1	500	1	2001	500	2	24	9
European Accounting Review	3	A*	6	468	8	2001	59	13	22	10
Contemporary Accounting Research	4	A*	8	357	10	2001	36	17	17	11
International Journal of Accounting Information Systems	2	A	2	318	2	2001	159	7	15	12
Journal of Management	4*	A*	1	303	2	1978	152	8	7	19
Journal of Accounting, Auditing & Finance	3	A	6	286	7	2000	41	16	13	13
Journal of Business Finance and Accounting	3	A*	8	254	10	1996	25	19	10	16
Financial Analysts Journal	3	A	5	211	5	1997	42	15	8	18
R and D Management	3	A	1	197	1	2006	197	5	12	14
Journal of Financial and Quantitative Analysis	4	A*	2	179	2	2002	90	11	9	17
Accounting and Business Research	3	A	7	176	10	1979	18	20	4	20
Journal of Intellectual Capital	2	B	5	172	6	2008	29	18	12	15

Out of twenty journals, six were categorized both in A* (ABDC) and 4* (AJG). These journals are as follows: *Strategic Management Journal* (TC/NP rank–1, CPY rank–1), *Journal of Finance* (TC/NP rank–3, CPY rank–7), *Journal of Accounting and Economics* (TC/NP rank–4, CPY rank–5), *Journal of Accounting Research* (TC/NP rank–6, CPY rank–2), *Journal of Management* (TC/NP rank–8, CPY rank–19), and *Accounting Review* (TC/NP rank–12, CPY rank–4) (see Table 1). Observing the ranking of these journals, certain anomalies emerge, such as the *Journal of Management*, which ranks higher in TC/NP but very low in CPY while *Accounting Review* shows a reverse trend. Thus, it can be argued that the CPY ranking is more influenced by the starting year of publication of an article on EVA. A high TC/NP and CPY reflects journals of high impact and relevance for EVA article publication. In summary, out of twenty journals, thirteen were in the A* category (six 4* ratings, four 4 ratings, and three 3 ratings), five in the A category (four 3 ratings, and one 2 rating), and two in the B category (two 2 ratings) (see Table 1).
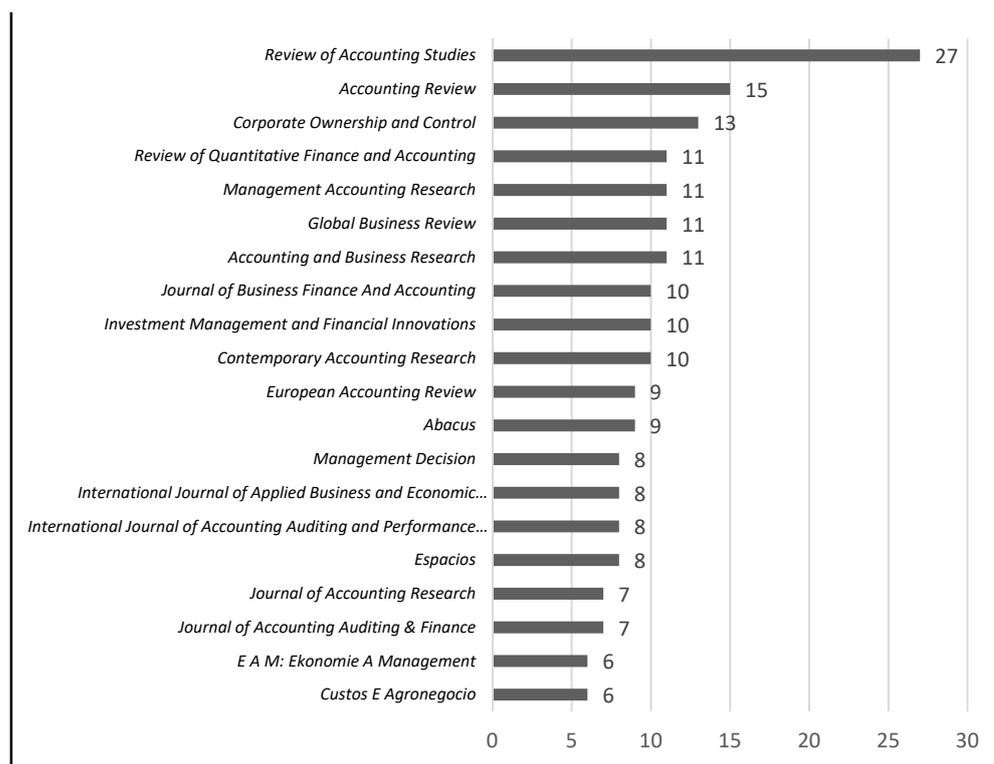
Figure 3. Leading Publishing Outlets in the Domain of EVA Research (Minimum Number of 6 Articles).

4.2. Leading Performing Authors and Institutions in the EVA Research Domain

A comprehensive list of authors who have published a minimum of four articles is listed in Figure 4. Leading authors in the field of EVA were identified based on similar parameters used for the identification of journals. Surprisingly, most of the authors were found to have published only a single article in the field of EVA. Charles M C Lee of Foster School of Business, University of Washington was the only author with five articles (see Table 2). It can also be observed from Table 2 that the years 1999 and 2001 were the most impactful years for the top 20 authors. Inclusively, they contributed seventy-one percent (10,245) to the total citation count (14,415) and fifty-eight percent (18) to the total number of publications (31) of the top 20 authors. Thirteen authors out of twenty published articles related to the field of EVA; 20 are listed in Table 2. The top five authors based on analysis in Table 2 are as follows: Hillman, A. J. (TC/NP ranking–1, CPY ranking–1); Keim, G.D. (TC/NP ranking–1, CPY ranking–1); Lee, C. M. C. (TC/NP ranking–17, CPY ranking–3); Swaminathan, B. (TC/NP ranking–16, CPY ranking–4); Otley, D (TC/NP ranking–18, CPY ranking–5). Lee, Swaminathan, and Otley had low TC/NP rankings because they published more articles, therefore, increasing their denominator.

Table 2. Leading Performing Authors in the EVA Research Domain.

Authors	h_Index	TC	NP	PY-Start	TC/NP	Rank (TC/NP)	CPY	Rank (CPY)
Hillman AJ	1	1895	1	2001	1895	1	95	1
Keim GD	1	1895	1	2001	1895	1	95	1
Lee CMC	5	1541	5	1998	308	17	67	3
Swaminathan B	3	1081	3	1999	360	16	49	4
Otley D	3	879	3	1999	293	18	40	5
Gebhardt WR	1	786	1	2001	786	3	39	6

Table 2. *Cont.*

Authors	h_Index	TC	NP	PY-Start	TC/NP	Rank (TC/NP)	CPY	Rank (CPY)
Roos G	2	512	2	1999	256	19	23	13
Van Wassenhove LN	1	500	1	2001	500	4	25	11
Bontis N	1	499	1	1999	499	6	23	15
Dragonetti NC	1	499	1	1999	499	6	23	15
Jacobsen K	1	499	1	1999	499	6	23	15
Frankel R	1	452	1	1998	452	8	20	17
Dong M	1	436	1	2006	436	11	29	9
Hirshleifer D	1	436	1	2006	436	11	29	9
Richardson S	1	436	1	2006	436	11	29	9
Teoh SH	1	436	1	2006	436	11	29	9
Mohanram P	3	433	3	2003	144	20	24	12
Dechow PM	1	400	1	1999	400	14	18	19
Hutton AP	1	400	1	1999	400	14	18	19
Sloan RG	1	400	1	1999	400	14	18	19

Note: Authors are ranked based on total citations received. TC—Total Citations, NP—Number of Publications, PY-start—Publication Year Start.
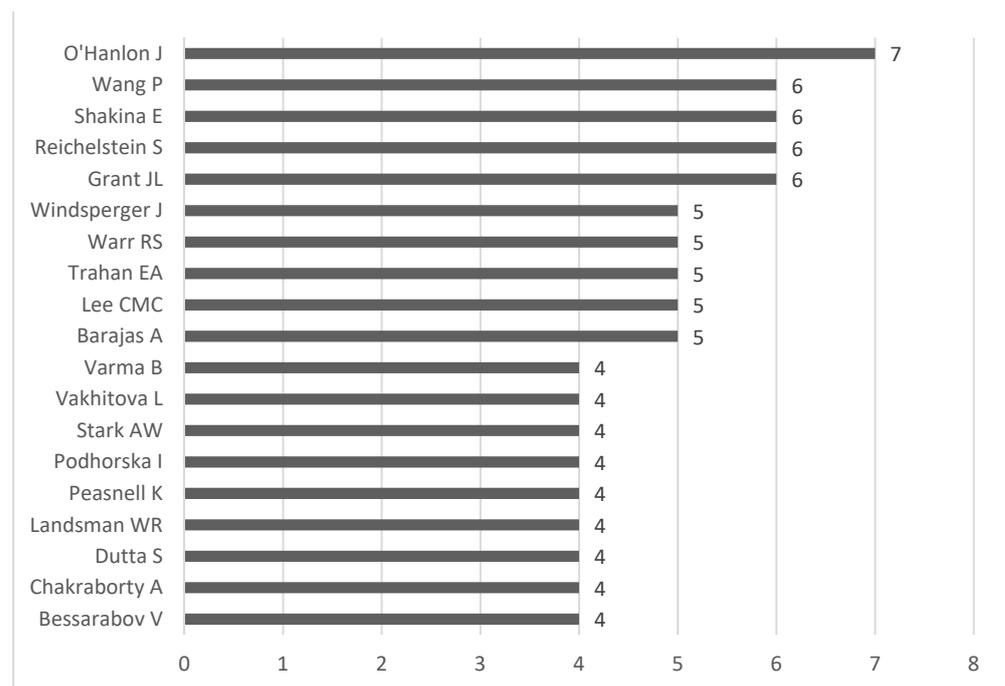
Figure 4. Leading Authors Contributing to EVA Research (Minimum of Four Articles).

Author collaboration is pictorially represented in Figure 5. The highest concentration can be seen in the blue cluster between Jill Grant, A Chakraborty, B Varma, and Trahan. Pink and orange clusters follow the pursuit with few contributions. Small contributions were made by authors representing green, light red, and pink clusters (see Figure 5). O'Hanlon J contributed the maximum number of articles (see Figure 4) but had very small collaboration from other authors. Figure 4 provides four demarcations of authors in terms of the number of publications. Seven is the top number of publications followed by six, five, and four publications for the highest concentrations of authors.
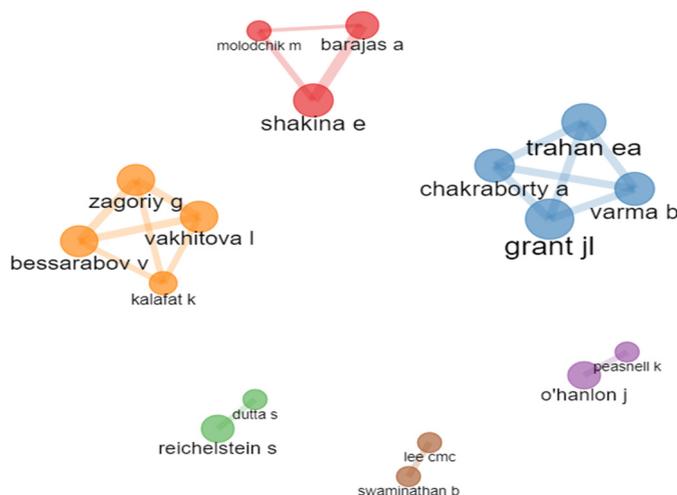
Figure 5. Visual Map of Prominent Authors' Collaboration on EVA Research.

Similar to the author analyses, university analyses were also conducted to identify the highest contributing institutions. In descending order according to the number of publications, the top five institutions are the University of California (14), Lancaster University (14), Columbia University (11), the National Research Higher School of Economics (10), and Stanford University (9) (see Figure 6). Collaboration is visible in the highest cluster of the University of California, the University of Minnesota (not in the list of the institution with a minimum of five articles), and Stanford University (see Figure 7). Three other clusters of collaboration are represented in Figure 7 with the colors green, purple, and blue. The country production and collaboration metrics have been visualized in Figures 8 and 9. The highest contribution to the field of EVA was observed from USA, and this was confirmed from the size of circle in Figure 9.
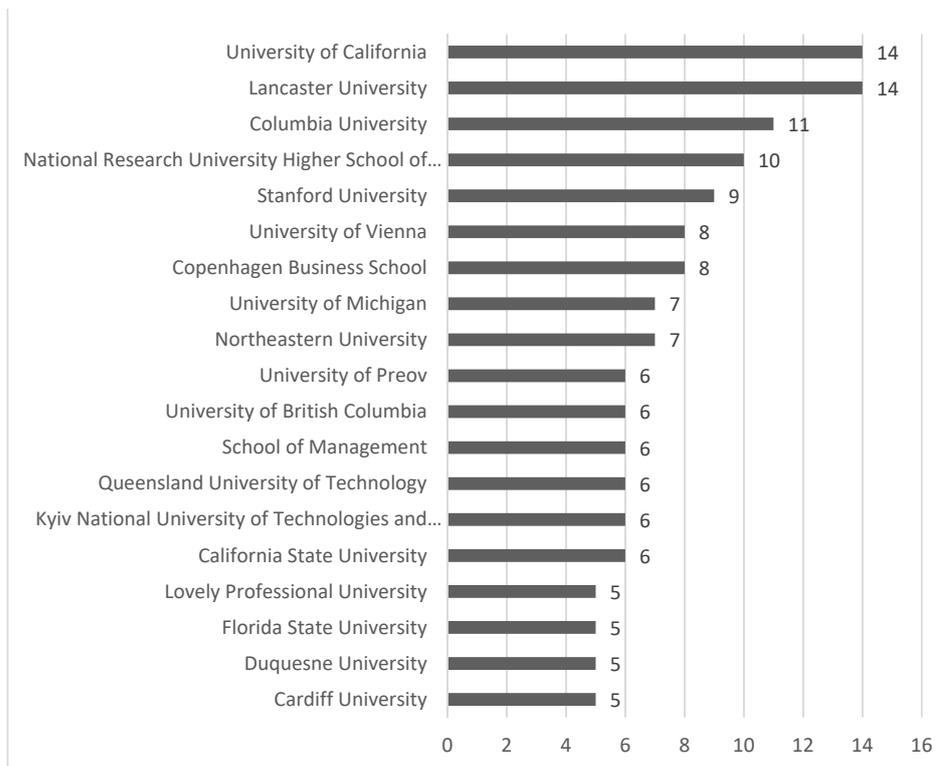
Figure 6. Leading Institutions Contributing to EVA Research (Minimum of Five Articles).
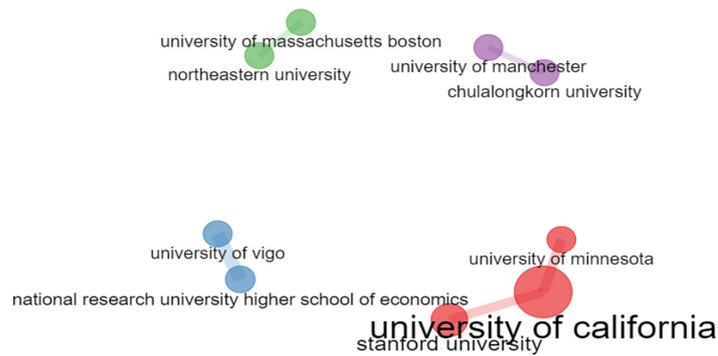
Figure 7. Visual Map of Prominent Institution's Collaboration on EVA Research.
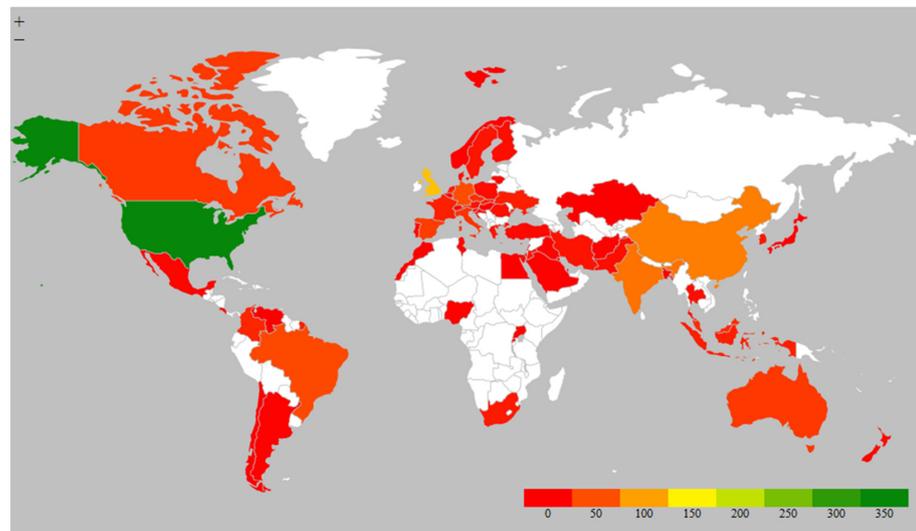
Figure 8. Geographic Heat Map of Countries Contributing to EVA Research.
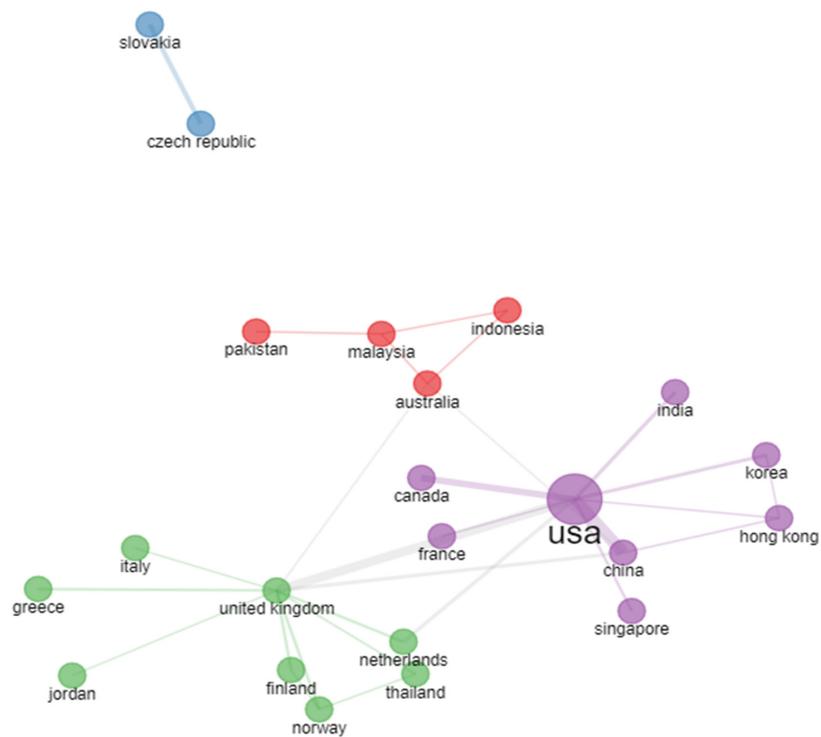
Figure 9. Leading Country Collaboration on EVA Research.

5. Literature Review

Citation-leading papers in the domain of EVA according to total global and local citation were evaluated and are presented in Tables 3 and 4. Shareholder value, cost of capital, stock returns, intangible resources, residual income valuation model, and the Ohlson model are some of the prominent keywords that appear with regular frequency. This is a repository of seminal papers which have led the way to provide future direction for research in the field of EVA. Therefore, this study has listed them down for future reference and understanding of the application of EVA in various dimensions and is not limited to the mere definition of the term.

Table 3. Leading Articles in EVA Research Domain based on Total Global Citations.

Article	Authors & Year	Journal	TGC
Shareholder value, stakeholder management, and social issues: What's the bottom line?	Hillman and Keim (2001)	*Strategic Management Journal*	1895
Performance management: A framework for management control systems research	Otley (1999)	*Management Accounting Research*	858
Toward an implied cost of capital	Gebhardt et al. (2001)	*Journal of Accounting Research*	786
Managing product returns for remanufacturing	Guide and Van Wassenhove (2001)	*Production and Operations Management*	500
The knowledge toolbox: A review of the tools available to measure and manage intangible resources	Bontis et al. (1999)	*European Management Journal*	499
Accounting valuation, market expectation, and cross-sectional stock returns	Frankel and Lee (1998)	*Journal of Accounting and Economics*	452
Does investor misvaluation drive the takeover market?	Dong et al. (2006)	*Journal of Finance*	436
An empirical assessment of the residual income valuation model	Dechow et al. (1999)	*Journal of Accounting and Economics*	400
Is performance was driven by industry–or firm-specific factors? A new look at the evidence	Hawawini et al. (2003)	*Strategic Management Journal*	398
Inferring the cost of capital using the Ohlson-Juettner model	Gode and Mohanram (2003)	*Review of Accounting Studies*	363

Note: TGC—Total Global Citations.

Analyzing a firms' performance to ascertain an increase in shareholder value through financial measures has been the primary core of any business. EVA was recognized against other financial measures, such as earnings per share (EPS) and return on investment (ROI), to be a better performance measure that is free from randomness (Sharma and Kumar 2010). US-based business consultant Stern Stewart further emphasized "That EVA is almost 50% better than accounting-based measures in explaining changes in the shareholder's wealth" (Clinton and Chen 1998). Hillman and Keim (2001) evaluated the data of Standard & Poor (S&P) 500 firms to understand if the relationship between primary stakeholders and the firm also leads to an increase in shareholder wealth (Hillman and Keim 2001). Using multivariate analysis (MVA), they were able to determine that the causality direction was from stakeholder management to shareholder wealth increment (SWI) or decrement. In addition to this, it was also found that SWI had a positive relationship with stakeholder management and an inverse relationship with social issue participation. This paper also holds the highest number of global citations ($n = 1895$) in the domain of EVA.

Since its inception, economic value added was argued as an alternate performance measure to predict future share price and, in turn, maximize shareholder wealth. The

"Performance" of organization and management reflects a certain level of ambiguity in the sense that one cannot determine the answer to the question of "to whom" (King and Zeithaml 2001). Economic disciplines of "management accounting" have limited performance analyses on financial-only, and "Behavioral aspects" have been explored through agency theory (Foster and Young 1997). There has been a limitation in terms of the impact on performance due to the internal activities of firms and management control systems (Otley 1999). Otley (1999) suggested a performance management (PM) framework comparing three PM techniques for EVA, budgeting, and balanced scorecard. According to the framework, the control technique for EVA is a single objective that should be considered while target setting, considers inheritance effect and gives guidance for that, and follows appropriate incentive schemes and long-term discussion (Otley 1999). Therefore, the framework presented by Otley (1999) may be viewed as a standard against which modern practice can be both described and evaluated. Each of the five components (objectives, strategies and plans, targets, rewards, and feedback)—individually and collectively—require a full control system (Otley 1999).

Table 4. Leading Articles in EVA Research Domain based on Total Local Citations.

Article	Authors & Year	Journal	TLC
Accounting valuation, market expectation, and cross-sectional stock returns	Frankel and Lee (1998)	*Journal of Accounting and Economics*	66
An empirical assessment of the residual income valuation model	Dechow et al. (1999)	*Journal of Accounting and Economics*	59
What is the intrinsic value of the dow?	Lee et al. (1999)	*Journal of Finance*	45
Adopting residual income-based compensation plans: Do you get what you pay for?	Wallace (1997)	*Journal of Accounting and Economics*	34
Toward an implied cost of capital	Gebhardt et al. (2001)	*Journal of Accounting Research*	32
Wall Street's contribution to management accounting: The Stern Stewart EVA® financial management system	O'Hanlon and Peasnell (1998)	*Management Accounting Research*	27
The search for the best financial performance measure	Bacidore et al. (1997)	*Financial Analysts Journal*	27
Investment decisions and managerial performance evaluation	Reichelstein (1997)	*Review of Accounting Studies*	27
Inferring the cost of capital using the Ohlson-Juettner model	Gode and Mohanram (2003)	*Review of Accounting Studies*	20
The Ohlson Model: Contribution to Valuation Theory, Limitations, and Empirical Applications	Lo and Lys (2000)	*Journal of Accounting, Auditing and Finance*	19

Note: TLC—Total Local Citations.

Other components that play an important part in analyzing a firm's performance are the cost of capital, the function of growth rate (long term), earnings forecast dispersion, etc. EVA is the profit (or loss) left over after deducting the opportunity cost of all capital—both stock and debt—used to generate profits from operational earnings after taxes (Ehrbar 1999). Market value added (MVA) has a strong relationship with EVA; MVA equals the present value of future EVA (Ehrbar 1999). This implies that if a shareholder or investor wants to earn only the cost of invested capital (COIC), MVA will be zero and so will EVA (Ehrbar 1999). If expected earnings are greater than COIC, MVA and EVA need to be positive (Ehrbar 1999). Gebhardt et al. (2001) utilized an alternative method of discounted residual income model (RIM) and organization characteristics to determine the cost of capital. The four components of function derived for the implied cost of capital by Gebhardt et al. (2001) are the mean implied risk premium of its industry from the previous year (Indus), its current B/M ratio, its anticipated growth rate (Ltg), and the dispersion in its analyst

forecasts (Disp). It was also determined that an RIM's current information and accounting variable as well as future analyst earnings were dubious (Dechow et al. 1999).

EVA can be simply said as the net operating profit after taxes minus capital charge (Tanjung and Wahyudi 2019). Capital charge is a function of the weighted average cost of capital and capital employed (fixed assets plus working capital) (Moro-Visconti 2022). In working capital, production and manufacturing contribute the most to the working capital requirement. Reuse operations cannot be financially advantageous for all businesses; thus, management should be able to choose the most lucrative course of action for their company. A reliable tool for assessing the potential profitability of reuse options is EVA. EVA calculates the difference between a company's capital cost and returns on capital (Young 1997). A positive EVA suggests that value will be created and will satisfy the expectations of the firm's shareholders; a negative EVA demonstrates that value will not be created. Guide and Van Wassenhove (2001) proposed a framework for examining how operational needs are influenced by the profitability of reuse operations and product returns. This concept demonstrates how the purchase of old goods could be a lever for managing and profiting from reuse operations. The management of product acquisition has an impact on business decisions, such as the requirement that reuse activities add value, how the management of product returns affects the overall profitability of such activities using the trial-and-error EVA approach, and how operational issues are significantly impacted by the management of product returns (Guide and Van Wassenhove 2001).

6. Keyword Analysis in EVA Research Domain

EVA research articles in "Business, Management, and Accounting" contributed roughly 55% to the overall searched articles with the keywords. To analyze the prominent keywords and trending topics Figures 10 and 11 were generated. Figure 10 shows the trend of topics in EVA research that were researched and the fields in which the research was done. For the current year based on the recency of the topic return on equity (ROE), return on assets (ROA) and market value added (MVA) were trending topics being researched in the domain of EVA. Furthermore, performance management, value-based management, and financial performance were areas most explored by researchers in EVA research based on the size of keywords in the word maps (see Figure 11).
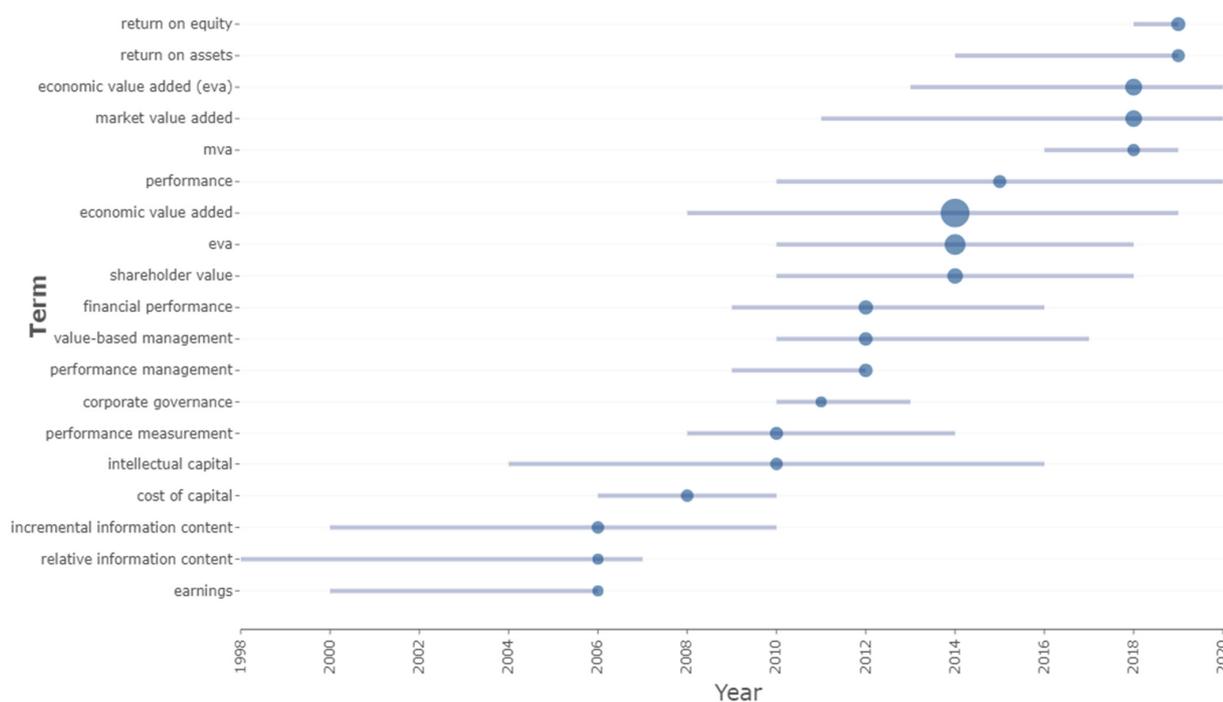
Figure 10. Trending topics in EVA research.

Figure 11. Word map of author's keywords in EVA research (Biblioshiny).

7. Analysis of Knowledge Clusters in the EVA Research Domain

To further deep dive into these clusters and keywords to find sub-themes among the broader clusters, a thematic map was constructed in Biblioshiny (see Figure 5). To analyze the keywords based on the clustering algorithm "walktrap" (Brusco 2022), the "Thematic Map" option under "Conceptual structure" was used. The "Map" option was selected to obtain Figure 12, and the "Clusters" option was used to generate Table 5.

Bubbles in a thematic map were formed based on an inter-relationship of keywords (Alcaide-Muñoz et al. 2017) defining their centrality and density (Cobo et al. 2011). The density indicates the strength of the link among keywords (Wu et al. 2011), and the centrality depicts the strength of the connection with other clusters or other keywords (Ding et al. 2001; Otte and Rousseau 2002).

Table 5. Results of Bibliographic Coupling Summarizing Description of Knowledge Clusters.

Cluster & Keywords	Cluster No.	Frequency	Centrality	Impact
Intellectual capital (47.1%), value creation (40%), and innovation (60%)	1	15	0.076740303	2.320075525
Economic value added (87.7%), market value added (87.5%), and financial performance (100%)	2	135	0.26783151	3.015579838
EVA (100%), performance measurement (66.7%), and economic value added (10.8%)	3	106	0.257171546	2.86745628
Business performance (80%), South Africa (100%), and sustainability reporting (100%)	4	6	0.105958886	9.333333333
Financial management (75%), performance measures (33.3%), and auditors (100%)	5	4	0.060193845	0
Residual income (93.5%), valuation (95.8%), and equity valuation (100%)	6	150	0.167842498	2.760054716
Economic value added (EVA) (100%), corporate governance (50%), and performance (60%)	7	79	0.111283991	2.792080032
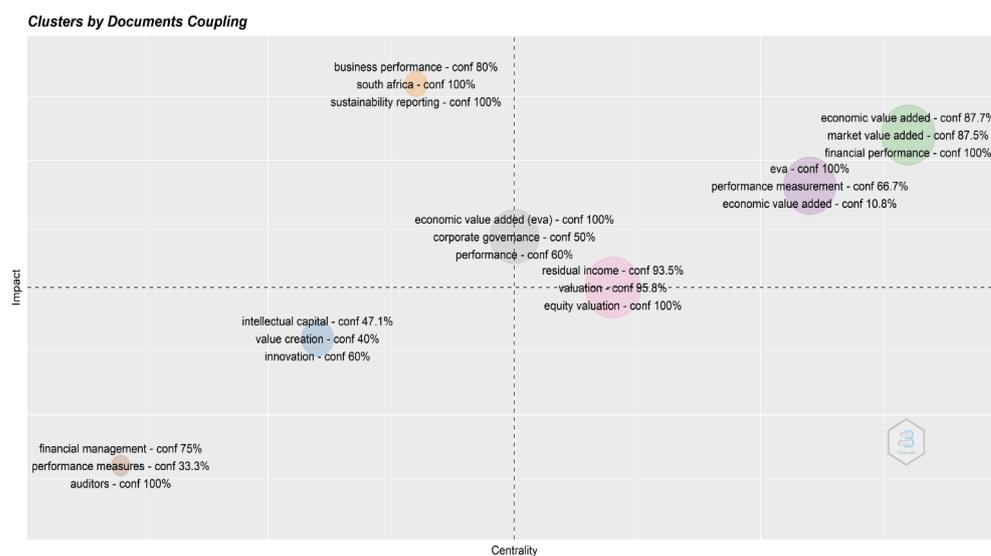
Figure 12. Visual Map of Knowledge Clusters.

Based on the document coupling, seven clusters were identified, which are listed as centrality and impact pictorially (see Figure 12) and in tabular form as well (see Table 5). The highest frequency is witnessed in cluster 6 (150, centrality–0.16 and impact–0.76) and cluster 2 (135, centrality–0.26 and impact–3.01) followed by cluster 3 (106, centrality–0.257 and impact–2.86) and cluster 7 (79, centrality–0.11 and impact–2.79). However, the highest impact is on cluster 4 (9.3) with a frequency of only four. For this study, we have taken clusters incorporating EVA or economic value added as a keyword for review only. We find that despite ongoing advancements, several unanswered problems hinder the development of this discipline. Three broad themes emerged from the analysis of the cluster related to the use and application of EVA: residual income and valuation, financial performance, and performance management.

7.1. Residual Income and Valuation

If a company wants to earn profit and create value, it must earn a rate greater than the cost of capital known as residual income (Drucker 1995). This also leads to agency problems considered to be a prominent issue in management and finance. Studies have tried to further understand the impact of EVA application for resolving this issue or to provide another perspective. A recent study compared EVA with non-EVA adopters to understand its impact as a compensation tool for executives and its long-term effects. An increase in the working capital cycle, reducing the intensity of asset usage, and reducing share repurchases and dividends to decrease payout to shareholder wealth were found as the outcomes for EVA adopters (Guermat et al. 2019). This study provides justification for revisiting the seminal work of Wallace (1997), which stated the opposite of adopting a firm for a certain set of decisions (investing decision, financing decision, and operating decision) (Wallace 1997). Out of the seven variables used by Wallace (1997), only one showed similar results (the new investment). For future researchers, this again opens up the arena for analyzing adopters and non-adopters of EVA across the set of decisions taken in a company.

Value drivers of a company are essential in projecting shareholders' future wealth creation projections. The focus of EVA is on future value creation for shareholders through value drivers such as the cost of capital, operating profit, and disclosure. A study conducted with a ten-year panel of Swiss firms interestingly showed that the reporting or disclosing of financial and non-financial information and activities of a firm can lead to better operating performance, which they coined "value reporting" (Eugster and Wagner 2020). In this study, they also substantiated the idea of integrated reporting in which elements of value reporting are developed. Providing for future research, the authors mention that though the study investigated the economic effects of value reporting, the ways in which this alters

decision making still needs to be explored. Furthermore, technology plays an important role in all aspects of business, and how it can add value to value reporting should be further examined.

7.2. Financial Performance

A recent study recommended the development of a mixed integer non-linear programming (MINLP) model that incorporates financial risk measurements into a reliable design of a closed-loop supply chain, taking into account the unpredictability of final product demand (Polo et al. 2019). Studying closed-loop supply networks becomes essential for the sustainability of businesses when it comes to reprocessed products to boost financial performance. In fact, by evaluating how they affected the design and methodology, the perturb parameters, stability requirements, and performance characteristics were determined subjectively and quantitatively (Polo et al. 2019). A closed-loop supply chain generates a wide range of setups by taking into account any changes in demand uncertainty as a perturbation parameter. Through robustness-EVA characterization, the most reliable configuration was identified and used to construct a closed-loop chain to maximize the EVA (Polo et al. 2019).

The future of a firm depends on how effectively it achieves broader objectives rather than only generating sufficient profits. Achievement of this depends on measuring financial performance, monitoring and increasing shareholder wealth, and identifying factors affecting company value and acting on it (Vrbka 2020). The use of artificial neural networks to evaluate the relationship between value drivers and EVA for rural area firms in the Czech Republic was conducted (Vrbka 2020). Borrowed capital, human capital involvement, and multiple factors of production used to create a difference between successful and unsuccessful companies were presented in this study (Vrbka 2020). The integrated reporting and financial performance relationship is also very important and was analyzed in South African banks (Matemane and Wentzel 2019). However, apparently the only positive relationship was found between integrating reporting quality and earning per share; the rest of all relationships were insignificant. Similarly, a study was conducted on Indian corporates to evaluate the efficiency of EVA over financial performance measures for incentive plans and compensation (Tripathi et al. 2018). Although the study identifies EVA as more efficient, mandatory disclosure is required to establish it as a performance measure.

7.3. Performance Management and Corporate Governance

The superiority of EVA over NOPAT (net operating profit after tax) and net cash flow (NCF) for determining the change in MVA (market value added) for stocks is frequently debated. Obaidat (2019) stated that NCF was superior to EVA in explaining MVA for non-financial firms and that NOPAT made no significant contribution to either NPS or EVA. If an organization adopts EVA, it can make productive investment decisions and optimize operation decisions, thereby enhancing its overall performance (Subedi and Farazmand 2020). Subedi and Farazmand (2020) analyzed the significance of EVA in public enterprises as well as the role of public enterprises in the country's economy alongside private organizations. Several prior studies suggested EVA as a metric for assessing managerial performance (Siniak and Lozanoska 2019). After adopting the EVA performance evaluation metric, the Chinese government's performance evaluations of government enterprises indicated that executives have become more cautious with their operating and investment decisions. This study also demonstrates that the adoption of EVA only had a positive impact on the performances of state-owned companies (Subedi and Farazmand 2020). The findings of the study indicate that state-owned companies that borrowed recklessly and cheaply and made poor investments and operating decisions prior to the adoption of EVA (i.e., prior to 2010) were more cautious about their investment opportunities and management approaches after the adoption of EVA, thereby improving the company's overall performance (Subedi and Farazmand 2020).

Economic value added in its current form is not the only statistic available according to a comparison of interest rates in the USA, UK, Euro Zone, Japan, Poland, Romania, Hungary, and Croatia. The existing EVA metric should be altered to account for the research that was done and for all markets, not only stable ones. As a result, Dobrowolski et al. (2022) altered the EVA formula and offered a general fix suitable for all markets, including unstable ones. This study is of particular interest to future researchers, as it provides seven pointers in which studies can be conducted, such as the non-determination of interest rates in an unstable economy, the importance of time difference impact on investment decisions in energy markets, the objectivity of calculation of energy projects influenced by short periods and variable time values of money, etc.

8. Conclusions

This study adds to the field in many ways. Firstly, by examining annual publications as well as contributions at the author, nation, and institution levels, we summarize the publication trends in this field. Secondly, by mapping citation and co-authorship networks, we pinpoint the research and authors that have the most impact. Third, to aid researchers in avoiding stagnation and advancing the subject, we map the intellectual structure of this domain by identifying the most prominent themes and intellectual structure using co-occurrence and co-citation analysis. This study analyses the bibliometric and theoretical findings in the field of EVA. The analysis section discusses the leading publishing outlets for articles of EVA and describes the performance metrics of top outlets in terms of the impact made on the community. The leading authors and institutions are discussed as part of the performance analysis. The theoretical contributions laid by the founder laureates cannot be ignored. The co-authorship network among authors and institutions helps in the identification of research groups across the world in this field. The study then lists the leading countries and their partner countries for research on EVA. This study couples an inferential analysis with the descriptive analyses of existing research. The leading articles are identified using the impact made in the community through total global as well as local citations, and their findings are summarized in the review section. The articles are also sorted into different clusters based on the bibliographic coupling analysis. The literature review and analysis of the clusters reveal themes and topics organized under three heads: residual income and valuation, financial performance, performance management, and corporate governance. Each of these clusters tries to provide information on current and future work in the primary field of the study. Figure 10 helps in identifying or clustering popular keywords into four clusters: motor, niche, emerging or decline, and basic theme. Interestingly, the analysis provides sustainability reporting and business performance as the niche theme. "Sustainability" comes up as a popular keyword in all categories and so does "visible" in business performance but through economic value added. Financial management, performance management, and auditors are on a decline in this field.

9. Further Research Areas in EVA

Since its inception, the enablers and barriers of EVA have been lucrative research areas and still hold great potential for scholarly research. With the penetration of technology in all aspects of life and the emergence of industry 4.0, scholars should evaluate the implications of technology in using EVA. Vrbka (2020) used artificial neural networks for mapping value drivers and economic value created, thus proposing the use of this methodology for mapping more complex relationships. A segment of scholars engaged in research on a better proxy for shareholder wealth maximization out of EVA, NOPAT, MVA, cash flow analysis, and others and found distinct results across different geographies. Though Dobrowolski et al. (2022) proposed a formula fix for using the EVA metric globally, scholars should find better ways to model EVA as one of the important benchmarks for shareholder wealth maximization. Siniak and Lozanoska (2019) warranted the use of EVA as a performance predictor for managers and listed favorable results for companies using this predictor. Researchers can further explore the less explored areas, such as the impact of interest rate

determination and different economic conditions. Another less explored area is the time difference impact of investment decisions as evidenced by findings in energy markets influenced by shorter periods and variable time values of money.

10. Limitation

This research only assesses articles on EVA concerning the 'Business, Management and Accounting' discipline of the Scopus database, and documents not under this criterion have not been referred to in the drawing of the suggestions and conclusions in this paper. Additionally, the study presents a summary of the literature available on a wide research area and reports the findings as published. The keywords used to search for related articles are not exhaustive and may contain important findings which are not captured through this review.

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