Araştırma Makalesi

EXAMINING GREEN MERGERS AND ACQUISITIONS: A BIBLIOMETRIC ANALYSIS
(YEŞİL BİRLEŞME VE SATIN ALMALARIN İNCELENMESİ: BİBLİYOMETRİK BİR ANALİZ)

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ABSTRACT

In the past few decades, Mergers and acquisitions (M&A) have been a key tactic for competitive positioning since organizations face pressure to implement sustainable practices as environmental degradation and climate change become a worldwide concern. M&A that prioritize sustainability objectives or ecologically conscious methods are called Green Mergers and Acquisitions (GMA). GMA is increasingly becoming a viable option for highly polluting businesses to embark on green transformation journeys and achieve their emissions reduction and energy-saving goals, prompting scholars to conduct research in this area to investigate how these business tactics support environmental goals and reduce companies' ecological impacts. This study addresses the increasing importance of green M&A trends. This study aims to investigate GMA using the content analysis method on randomly selected journals included in the Web of Science (WOS) index from 2015 to 2024. Additionally, the study examines current M&A transactions by considering global M&A indicators. The findings show that the vast majority of publications on GMA (86%) were made between 2020 and 2024, and Chinese writers accounted for 44% of all GMA publications. Joint publishing by three or more academics from different countries accounted for 61.5% of the articles published between 2020 and 2024. Scholars from several nations are working together to explore the topic, which suggests that it has universal significance. Green innovation (14%), green M&A (14%), heavy pollution (11%), carbon issues (11%), and cross-border M&A (8%) were the most explored subjects in the reviewed publications.

Keywords: Mergers and Acquisitions, Content Analysis, Green Mergers and Acquisitions (GMA), Sustainability

Jel Classification: G32, G34, G39

ÖZ

Son yıllarda, çevresel bozulmanın ve iklim değişikliğinin dünya çapında bir endişe haline gelmesiyle, kuruluşlar sürdürülebilir uygulamalara yöneldiler. Rekabetçi konumlandırma için önemli bir taktik olan birleşme ve satınalmalar, sürdürülebilirlik hedeflerine öncelik verdiklerinde "Yeşil Birleşme ve Satınalma" olarak adlandırılır. Yeşil Birleşme ve Satınalmalar, işletmelerin yeşil dönüşüm yolculuklarına başlamaları, emisyon azaltmaları ve enerji tasarrufu hedeflerine ulaşmaları için uygulanabilir bir seçenektir. Bu durum, bilim insanlarının bu alanda araştırma yaparak çevresel hedeflerin nasıl desteklendiği ve şirketlerin ekolojik etkilerini nasıl azalttığını araştırmalarına sebep olmaktadır. Bu çalışma, 2015'ten 2024'e kadar WOS endeksine dahil edilen dergilerde içerik analizi yöntemi kullanarak, Yeşil Birleşme ve Satınalmalar konusunu araştırmayı amaçlamaktadır. Ek olarak çalışma, birleşme ve satınalmaların küresel göstergelerini incelemektedir. Çalışmanın bulguları, Yeşil Birleşme ve Satınalmalar konulu yayınların büyük çoğunluğunun (%86) 2020 ile 2024 arasında yapıldığını ve Çinli yazarların bu yayınlarının %44'ünü oluşturduğunu göstermektedir. Farklı ülkelerden üç veya daha fazla akademisyenin ortak yayınları, 2020-2024 yılları arasında yayınlanan makalelerin %61,5'ini oluşturmaktadır. Farklı ülkelerden araştırmacıların konuyu araştırmak için birlikte çalışması, konunun evrensel bir öneme sahip olduğunu düşündürmektedir. İncelenen yayınlarda en çok araştırılan konuların yeşil inovasyon (%14), yeşil birleşme ve satın almalar (%14), ağır kirlilik (%11), karbon sorunları (%11) ve sınır ötesi birleşme ve satın almalar (%8) olduğu gözlemlenmiştir.

Anahtar Kelimeler: Birleşme ve Satınalma, İçerik Analizi, Yeşil Birleşme ve Satınalma, Sürdürülebilirlik

Jel Kodları: G32, G34, G39

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1. INTRODUCTION

In a global market that is becoming more and more fiercely competitive, businesses can grow, increase their market share, and diversify their portfolios by utilizing mergers and acquisitions (M&A). To acquire more resources, expertise, and skills, this business approach entails either purchasing an existing company or combining with another to create an entirely new one (DePamphilis, 2011). In another words, the act of two or more businesses deciding to combine their resources into a single organization is known as a merger. An acquisition is the process by which a corporation effectively controls the management or assets of another company without physically merging their operations (Gupta, 2012). Still, the majority of M&A deals fall short of the intended financial and strategic goals (Junni and Teerikangas, 2019; Haleblian et al., 2009; King et al., 2004).

Because they frequently result in new cost reductions, creative consumer products, and synergies, M&A activities are important for economies and businesses alike. This, however, brings up difficult obstacles, including possible financial risks, regulatory scrutiny, and the integration of cultures. Business executives, investors, employees, regulators, and consumers are required to understand the dynamics of M&A since these transactions have the power to alter industries, affect employment markets, and impact economic growth.

The world of M&A is changing significantly as we enter a period of swift economic, technical, and geopolitical transformation. Innovative strategies that consider the specific opportunities and challenges of the modern world are replacing or supplementing traditional approaches to M&A. Green Mergers and Acquisitions (GMA) has become one of the most frequently discussed topics in recent literature, as environmental sustainability, climate change, and ESG (Environmental, Social, and Governance) criteria are increasingly important in the global business landscape.

Carbon risk is a crucial consideration in corporate strategy decisions, particularly when it comes to green transformation plans since firms' carbon emission costs are more likely to be internalized under increasingly stringent carbon legislation. Carbon-intensive businesses are expected to pay more for management and accounting expenses associated with carbon, including clean-up, Research and Development (R&D), compliance and litigation, and reputational harm (Liu et al., 2025; Karpoff et al., 2005; Clarkson et al., 2004; Barth and McNichols, 1994). Businesses may use M&As to lower carbon emissions to lower the cost of carbon risk. Because they integrate the structural and technological emission reductions of enterprises, take into account the adjustment of industrial and energy structures, and innovate green technologies, M&As for green upgrading purposes, therefore, have more strategic value (Liu et al., 2025).

Businesses are emphasizing green manufacturing and taking steps to lessen their environmental effects within the framework of sustainable development. To increase energy efficiency, lower emissions, and create environmentally friendly goods, green investments are essential since they offer both financial support and strategic guidance. With environmental goals at their center, GMAs incorporate sustainability concepts into the M&A process. This strategy facilitates the shift to sustainable practices, which gives priority to businesses and industries committed to ecological sustainability and encourages access to cutting-edge environmental technologies and renewable energy sources. GMAs are becoming a strategic route for companies looking for essential green technology assets in the face of strict laws on resource use and ecological compliance. This strategy balances economic growth with environmental care, which promotes innovation and increases competitiveness (Ma et al., 2025).

The purpose of this study is to examine GMA, which has had a substantial impact on M&A in recent years. To realize this purpose, a content analysis of publications published in selected journals in the Web of Science (WOS) index was conducted. According to the structure of this study, first, an overview of M&A has been discussed with the types and industry diversity over the years. A literature summary related to the topic has been given later. Then, GMA, which influences M&A, has been discussed. In the methodology section of this study, ten randomly selected Q1-ranked journals that were included in the WOS index from 2015 to 2024 were examined. The study aims to provide insight to industry professionals, investors, and company executives on how to anticipate and adjust to the dynamic M&A environment by analyzing recent changes in the literature.

2. WORLDWIDE INDICATORS of M&A BETWEEN 2003 and 2023

In business history, mergers and acquisitions have taken many forms. From the "greed is good" corporate raiders who buy businesses hostilely and tear them apart to the current trend of leveraging mergers and acquisitions for industry consolidation and external development (Sherman, 2011). A period of worldwide megamergers began in the first ten years of the new millennium. Similar to the 1980s and 1990s' mergers and acquisitions boom, several variables drove activity into the middle of 2007. These included easily accessible funding, historically low interest rates, growing equity markets, technical advancements, international competitiveness, and industry consolidation. The majority of the world's economies entered a recession in 2008 as a result of record-high oil prices and limited credit availability, which caused

global M&A activity to drop by more than one-third from its peak. The first half of 2009 saw a worsening of the global recession. In an attempt to boost consumer and corporate confidence, restore credit market functionality, and counteract deflationary pressures, governments from all over the world have recently interfered aggressively in the global credit markets (DePamphilis, 2011). Figure 1 shows the worldwide M&A transaction numbers from 2003 to 2023.

Figure 1. Number of Global M&A Transactions
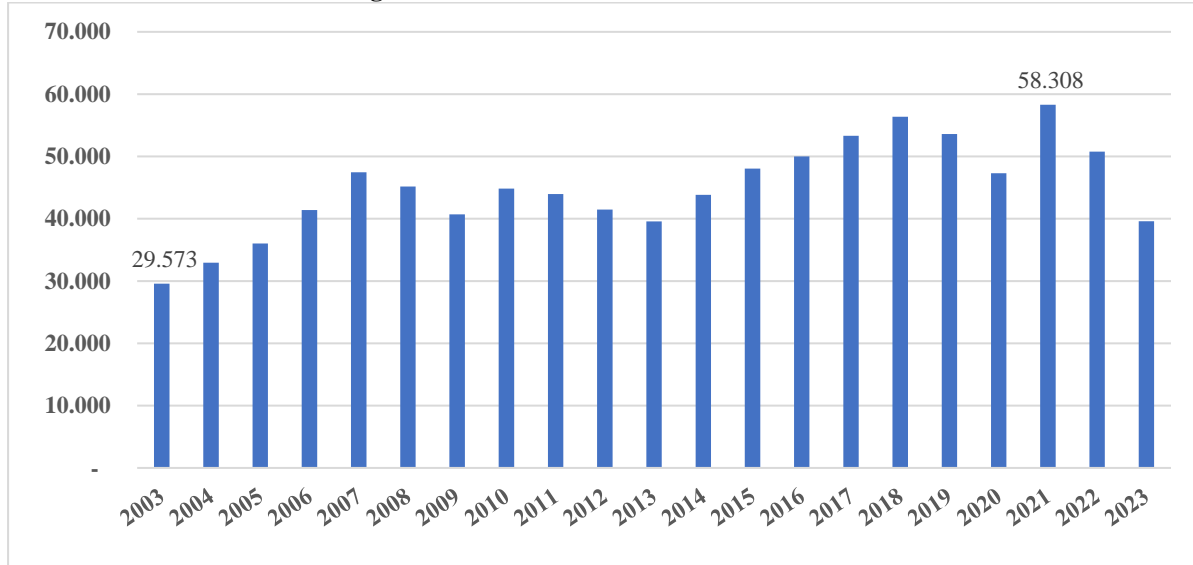
Source: (Statista, 2024)

According to Figure 1, almost 40,000 M&A were finalized globally in 2023. Despite being lower than in 2022, this number is consistent with those recently recorded. In 2022, JPMorgan, Goldman Sachs, and Rothschild & Co. provided advice on the most M&A transactions. Recently, there has been a huge fluctuation in the value of M&A acquisitions worldwide. In 2021, it reached a peak of more than 5.2 trillion dollars. The market performance is significantly impacted by referred-to mega-deals, which are M&A transactions valued at USD 1 billion or more: The total value of over 1,000 megadeals in 2021 was 3.7 billion USD (Statista, 2024).

During the most difficult year for dealmaking in the last ten years, Goldman Sachs Group Inc. successfully repelled resolute competitors. According to Bloomberg, the bank ended up with a 31,2 % share of the global take for merger advisory, moving up beyond JPMorgan Chase & Co., 27,4 % share of global shares, which held the top at the halfway point of the year. Although Goldman Sachs's margin over JPMorgan shrank from the previous year, its overall market share has increased since 2016 relative to its biggest competitors (Sonali and Gould, 2023).

Table 1 lists the financial advisor firms ranked by value.

Table 1. Global Financial Advisor Firm Value (Million Dollars)

	Financial Advisor	September 30, 2024	September 30, 2023	%
1	Goldman Sachs & Co.	744,733	558,511	33.3%
2	Morgan Stanley	588,103	427,997	37.4%
3	JP Morgan	568,080	521,762	8.9%
4	Citi	379,605	289,858	31.0%
5	Bank of America	322,711	338,282	-4.6%
6	Evercore Partners	256,920	131,666	95.1%
7	Barclays	245,272	151,436	62.0%
8	UBS Investment Bank	234,127	165,576	41.4%
9	Centerview Partners LLC	206,875	177,607	16.5%
10	Jefferies	200,187	98,111	104.0%

Source: (Mergermarket, 2024)

According to Table 1, the worth of Goldman Sachs & Co. rose to $744.4 million in the first nine months of 2024, a 33.3% year-over-year rise. Its nearest competitor, Morgan Stanley, finished the same time frame with a value of $588.1 million, up 37.4%, demoting 2023 second-place finisher JP Morgan to third place with a value of $568.1 million.

Global M&A activity reached US$2.9 trillion in 2023, the slowest full-year period for deal-making since 2013 and a 17% drop from the previous year. The fourth quarter of 2023 was the most successful quarter for global deal-making since the second quarter of 2022, with a 23% rise over the third quarter (LSEG, 2023).

Figure 2 displays the global M&A deal values in billions of dollars from 2003 to 2023.

Figure 2. Deal Value of Global M&A Transactions by Industry (Billion Dollars)
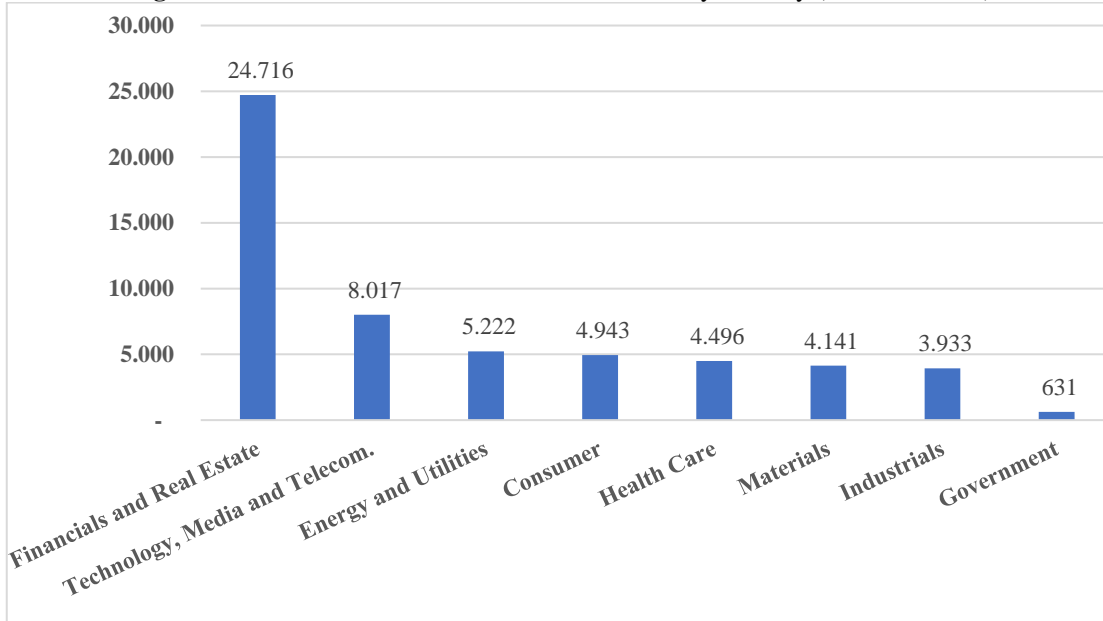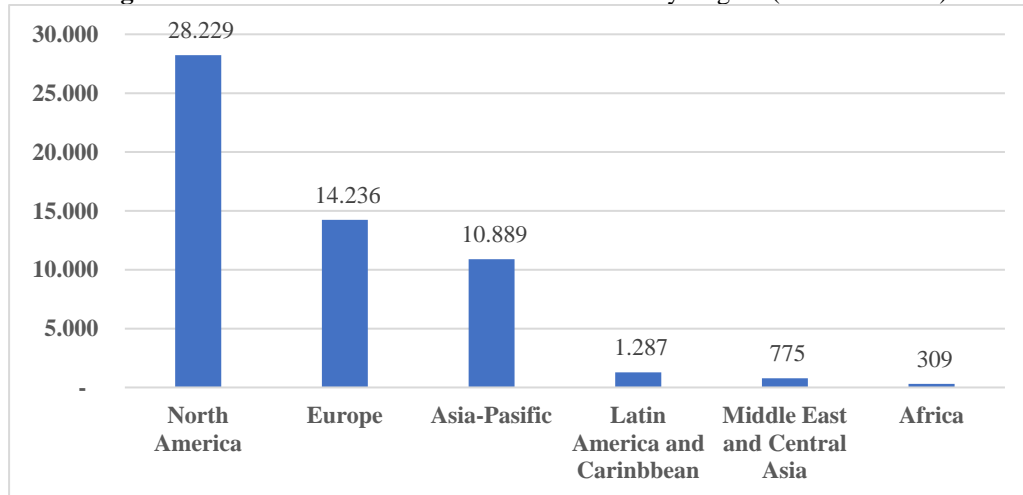

Source: (BCG, 2024)

According to Figure 2, the finance and real estate industries had the highest-valued M&A transactions during the past two decades. With a transaction value of 24,716 billion dollars, the financial and real estate sector accounts for 44% of the entire deal value. At 14% and 9% of the total deal value, respectively, the technology, media, telecommunications, energy, and utilities sectors come afterward.

The twenty-year change in global M&A deals is examined on a regional basis in Figure 3.

Figure 3. Deal Value of Global M&A Transactions by Region (Billion Dollars)

Source: (BCG, 2024)

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According to Figure 3, the highest value deals (28.229 billion dollars), which account for 51% of the overall deal amount, occurred in North America, according to a regional analysis of the worldwide M&A deal shift over the past two decades. Furthermore, the figure shows that the Asia-Pacific and Europe regions account for 20% and 26% of the overall deal value, respectively.

3. LITERATURE REVIEW

After initially emphasizing economic and financial aspects, the literature has expanded to incorporate strategic considerations, the M&A process, and sociocultural variables (Faulkner et al., 2012).

Despite financial and marketing strategists' interest in mergers and acquisitions, Cartwright and Cooper (1990) looked into the high rate of merger failure. The study's findings led the authors to examine other theories for why mergers fail and propose that psychology could help us understand mergers and acquisitions, which are essentially about the effective integration of corporate cultures and the favorable pairing of people.

In Cartwright and Schoenberg's (2006) study, three primary research streams have been used to analyze M&A in the last 30 years in the strategic and behavioral literature: organizational fit, strategic fit, and the purchase process itself. Nevertheless, the study discovered that merger and acquisition failure rates have remained continuously high in tandem with these advancements in research. The study's discussion of the potential causes of this dilemma offered significant opportunities for further M&A research.

In Ma et al.'s (2009) study, the abnormal returns to shareholders for 10 rising Asian markets (China, India, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand) were examined that make offers around the day of the M&A announcement. Information leakage about M&A negotiations has statistically significant effects on value, according to the study, which used a sample of 1,477 M&A deals in ten rising Asian countries. According to the findings, managers are strongly advised to pursue external expansion through M&A activity, as investors receive the financial advantages of such transactions.

A study conducted in 2012 by Erel et al. examined 56,978 cross-border mergers that took place between 1990 and 2007. The study discovered that the probability of mergers between two nations was influenced by geography, the caliber of accounting disclosures, and bilateral trade. Additionally, the study discovered that companies in nations with rising stock markets, recently rising currencies, and comparatively high market-to-book ratios were more likely to be acquirers than companies in regions with poorer performance.Shen et al. (2013), examine the effects of intrafirm status inequalities on firm behavior in corporate takeovers in this study. According to the study's findings, the more status differences there are between an acquirer and a target, the more favorably the market reacts to both parties when the takeover deal is announced, the more likely it is that the deal will be finalized, and the more likely it is that the acquirer will perform better after the acquisition.

Abbas et al.'s (2014) study has the goal of assessing Pakistani banks' financial performance following mergers and acquisitions. The State Bank of Pakistan's Financial Statement Analysis provided the accounting and financial information for ten banks. Pre- and post-ratio analysis was conducted using the profitability and efficiency, leverage, and liquidity ratios to gauge the financial performance. The study's findings indicate that following mergers and acquisitions, Pakistani banks' financial performance has not improved.

Lebedev et al. (2015) conducted a study on examining M&As in and out of emerging economies (EEs) since there are more studies on the M&As in and out of developed economies (DEs). Examining M&As in and out of EE can add to the body of information on acquisitions because DE and EE have quite different institutional settings, corporate governance methods, and markets. The primary findings of studies on acquisitions in and out of EE are outlined in this study, which fills this gap. The study addresses the performance results and antecedents of EE M&A, emphasizing the new insights and research directions that are disclosed.

According to the study of Zhou et al. (2016), the predictors of cross-border M&A completion involving emerging economies are examined about the direction of global expansion, namely whether investment is coming from or going to developing markets. The drivers of inbound vs. outbound M&A completion differ fundamentally, according to an analysis based on 15 years of data from four growing economies: Brazil, Russia, India, and China. The data was collected between 1995 and 2010. The completion of inbound M&As is significantly impacted by country-level factors that reflect variations in the political, trade, and legal situations, but outbound M&As are significantly less affected. In contrast, outbound M&A completion is far more impacted by firm-level characteristics, such as prior M&A experience, than inbound M&A completion.

Renneboog and Vansteenkiste (2019) have performed a study on the scholarly literature on the market for corporate control, with a particular emphasis on the performance of businesses during and following a takeover. Even though the entire M&A market is worth several trillions of dollars annually, acquiring companies frequently perform worse than non-acquiring companies, particularly in public takeovers. To determine which research topics short-term returns predict long-term success, the study compiles recent literature. According to the findings of the study, key factors that impact post-takeover deal performance include serial acquisitions, CEO overconfidence, acquirer-target relatedness and complementarity, and shareholder engagement through activism or voting.

Adhikari et al. (2023) examined consolidation and restructuring in Nepal's banking industry. The financial results of several chosen commercial banks and the commercial banking industry as a whole are compared before and after the M&A policy intervention. The study uses a sample of seven Nepalese commercial banks to analyze financial ratios (profitability, liquidity, leverage, and wealth of shareholders ratios) before and after mergers that occurred between 2013 and 2020. The results show that throughout the post-merger period, the liquidity and leverage ratios of the whole commercial banking industry dramatically improved.

Ullah and Rashid (2024) performed a study to investigate how mergers and acquisitions affect both conventional and Islamic organizations. The study was an extended literature review based on two well-known online depositories, ScienceDirect and Emerald, from 2000 to 2023. It has been determined that Islamic bank M&A needs additional focus. Remarkably, the review statistics reveal that, on average, 82% of papers were conducted in conventional banks, but only 18% of papers were conducted for the merger and acquisition of Islamic banks.

Liu et al. (2025) performed a study on one of the driving factors of GMA, carbon emission risk, using China's A-share listed companies between 2010 and 2019. The study confirms the two underlying mechanisms through which carbon risk promotes green M&As. First, pressure on corporate environmental legitimacy is increased by the possibility of significant carbon emissions. Second, companies' reputations are in danger due to carbon emission behavior. To satisfy legitimacy criteria and preserve a positive reputation, companies with high carbon risk engage in green M&A.

A study by Feyisetan et al. (2025) examined how environmental, social, and governance (ESG) factors affected mergers and acquisitions (M&A) decisions and activities as well as organizational performance in UK financial and non-financial organizations between 2012 and 2022. The study's conclusions show that both financial and non-financial enterprises are statistically significantly impacted by ESG scores. An improvement in a company's ESG performance raises the possibility of M&A considerably. The findings show that ESG has a negative and significant influence on a company's financial performance, but this is not the case for non-financial enterprises, where the impact is negligible even though it is good.

A study by Bui et al. (2025) used a fixed-effects model for a sample of 674 completed M&A agreements to empirically investigate the factors influencing M&A activity in Vietnam between 2005 and 2020. The findings show that targets' corporate governance and deal features influence M&A choices in different ways. Our findings point to several significant ramifications, such as balancing the number of independent members on the board, taking into consideration the influence and interests of CEOs and other shareholders, taking into account the different kinds of M&A payments, and enlisting foreign investors in M&A transactions. Businesses can improve their decision-making processes and eventually increase shareholder value by better navigating the intricacies of M&A deals by being aware of these ramifications.

4. SUSTAINABILITY INTEGRATION TO MERGERS AND ACQUISITIONS

Nowadays, sustainability plays a significant role in determining the strategy, valuation, and success of transactions in M&A rather than being a minor issue. Businesses are better positioned to meet stakeholder expectations, reduce risks, and generate long-term value when proactively incorporating ESG factors into their M&A processes. The ESG components are now crucial when choosing which financial markets to invest in (Christensen et al., 2022).

Environmental, social, and governance are all referred to as ESG. In ESG frameworks, these are referred to as pillars and stand for the three primary subject areas in which businesses are expected to report. ESG aims to encompass all non-financial risks and opportunities that are present in a business's daily operations (Splawski and Lukacs, 2022).

4.1. Green Mergers and Acquisitions (GMA)

The term "green mergers and acquisitions" (GMA) describes the application of mergers and acquisitions tactics that include green ideas to achieve sustainable development and environmental protection (Stavi et al., 2021; Pan et al., 2019; Qiu et al., 2018). In other words, the process of combining or purchasing companies that prioritize sustainability, environmental impact, or the advancement of green and renewable technologies is referred to as GMA.

Green development has grown in importance for businesses in recent years. To meet the needs of green development, pollution firms start acquiring green resources, technology, or management experience through GMA. To create green technology and acquire green resources, businesses may engage in mergers, acquisitions, and other economic operations known as GMA (Lu, 2021; Salvi et al., 2018).

Reducing pollution and improving the environment have become major worldwide issues. In summary, the manufacturing of plants significantly contributes to pollution in the environment. Addressing environmental risks requires reducing corporate pollution emissions. When it comes to environmental practices, GMA is essential for quickly increasing corporate environmental responsibility (CER), serving as a catalyst for the creation of green innovation and promoting green growth (Shi and Huang, 2024).

Green mergers and acquisitions have progressively emerged as a way for highly polluting companies to start along the path of green transformation and accomplish the objectives of energy conservation and emission reduction. Through GMA, heavily polluting companies have obtained clean technology and resources; it is yet unknown if they would market their green innovations (Liang et al., 2022).

Moving over \$100 trillion in corporate assets to low-emission models will be necessary to achieve the global move to net-zero greenhouse gas emissions. Significant M&A activity is already being sparked by this reallocation. Businesses from all sectors and around the world now view sustainability-linked (green) M&A as a means of boosting their environmental, social, and governance (ESG) profiles while also accelerating their strategies, promoting growth, and improving operations. As such, they are seeking agreements related to aspects of the broader global energy transition, including circular business models (e.g., recycling, reducing, reusing), decarbonization from new technologies for power generation, mobility, heating, energy storage, and sustainable feedstocks (Raberger et al., 2024).

The twenty-year change in ESG M&A deals is shown in Figure 4 (Kengelbach et al., 2022):

Figure 4. ESG Deals Share of Total Deal Value (%)
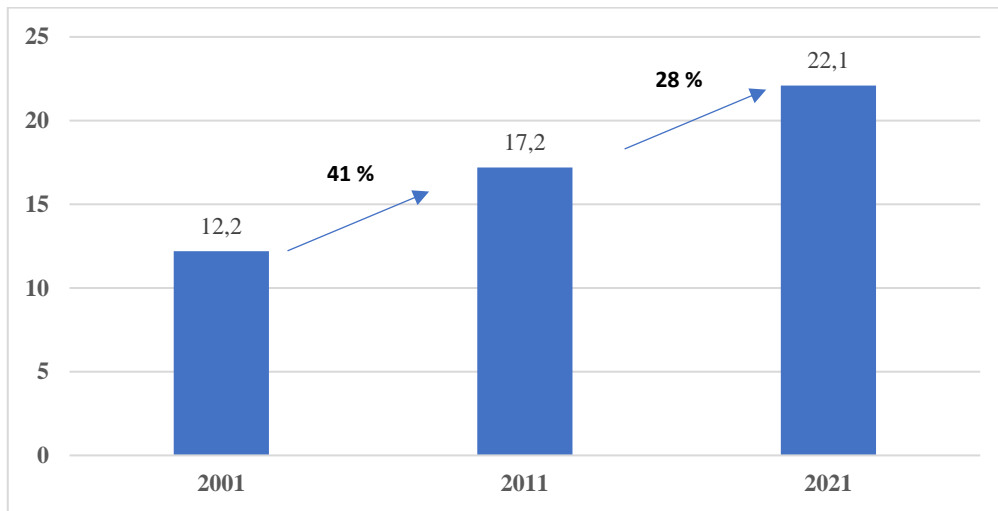
Source: (Kengelbach et al., 2022)

With no transaction size threshold, the 118,517 ESG M&A transactions announced between January 1, 2001, and December 31, 2021, include pending, partially finished, finished, unconditional, and withdrawn acquisitions. Excluded were spinoffs, recapitalizations, exchange offers, repurchases, privatizations, and self-tenders. In conclusion, a generally positive M&A climate has increased volumes overall, as evidenced by the rising trend in Figure 4 (overall deal volumes expanded by 28% from 2011 to 2021). Relatively speaking, however, the picture is even more pronounced: the percentage of deals about ESG increased from 12% in 2001 to 17% in 2011 and 22% in 2021 (Kengelbach et al., 2022).

5. METHODOLOGY

5.1. The Aim of the Study

This study aims to investigate GMA, which has significantly influenced M&A in the last few years. A content analysis of papers published in particular journals in the WOS index was carried out to achieve this goal.

5.2. The Method of the Study

The study examined randomly selected journals included in the WOS index from 2015 to 2024. The list of journals indexed by the Elsevier publisher in the Web of Science Q1 index is shown in Table 2.

Table 2. Selected Journals from WOS

	Journal Name	Country of Journal	Index	Ranking	Publisher
1	Economic Analysis and Policy	AUSTRALIA	SSCI	Q1	Elsevier
2	Environmental Impact Assessment Review	UNITED STATES	SSCI	Q1	Elsevier
3	Journal of Cleaner Production	UNITED STATES	SSCI	Q1	Elsevier
4	Journal of Environmental Management	ENGLAND	SSCI	Q1	Elsevier
5	Sustainable Production and Consumption	NETHERLANDS	SSCI	Q1	Elsevier
6	Energy Economics	NETHERLANDS	SSCI	Q1	Elsevier
7	Finance Research Letters	UNITED STATES	SSCI	Q1	Elsevier
8	International Review of Economics & Finance	NETHERLANDS	SSCI	Q1	Elsevier
9	International Journal of Production Economics	NETHERLANDS	SCIE	Q1	Elsevier
10	Industrial Marketing Management	UNITED STATES	SSCI	Q1	Elsevier

Source: (Author's own)

Table 2 shows that the journals were chosen at random from the Elsevier publisher. Four of the selected publications are from the United States, four are from the Netherlands, one is from England, and one is from Australia. Bibliographic citations from 36 scholarly articles published in selected SSCI Q1-ranked journals over ten years (2015–2024) are gathered, examined, and mapped as part of the research. The following criteria are established to measure the author and article variables.

- Authorship details
- Citation of the publications
- Subjects

5.3. The Importance of the Study

The importance of this study is examining the green mergers and acquisitions in the literature to provide a better understanding of how companies manage the nexus of corporate strategy and sustainability.

5.4. The Findings of the Study

5.4.1. Authorship Details

Table 3 displays the authorship details of the selected GMA articles. In the Authorship details section, classification is made in three sub-breakdowns. These are country, co-authorship, and academic breakdowns.

Table 3. Authorship Details

	2015-2019	2020-2024	Total	%
Country				
China	0	16	16	44%
Australia	2	1	3	8%
Canada	0	1	1	3%
UK	0	3	3	8%
Other	3	10	13	37%
Total	**5**	**31**	**36**	**100%**

Co-authorship				
Single	3	2	5	14%
Two authors	1	5	6	17%
Three authors	1	12	13	36%
More than three authors	0	12	12	33%
Total	**5**	**31**	**36**	**100%**
Academic/Non-academic				
Academic	4	29	33	92%
Non-academic	1	2	3	8%
Total	**5**	**31**	**36**	**100%**

Source: (Author's own)

When the first breakdown, namely country breakdown, is examined in Table 3, it is concluded that the most publications on GMA were made by Chinese authors (44%) with 16 publications, and these publications were made only between 2020 and 2024. This result can be interpreted as the interest in the GMA topic being given more place by researchers, especially because carbon emissions, legal sanctions, and sustainability issues have an important place in the Chinese industry. In addition, the fact that the vast majority of publications on GMA (86%) were made between 2020 and 2024 shows that the same factors are not only in China but also in other countries; researchers are investigating GMA more than in previous years.

The breakdown of co-authorship shows that 36% of the papers have three authors, while 33% have more than three authors. In addition, 8 of the 10 articles (61.5%) published between 2020 and 2024 were published as joint publications of three or more researchers from different countries. According to the final breakdown, almost all of the publications (92%) were written by academics. The remaining researchers work in the energy sector or banks.

5.4.2. Citation of The Publications
Table 4 displays the citation details of the selected GMA articles.

Table 4. Citation of the Publications

	2015-2019	2020-2024	Total	%
0-10	0	18	18	50%
11-20	0	2	2	6%
21-50	2	8	10	28%
More than 50	3	3	6	16%
Total	**5**	**31**	**36**	**100%**

Source: (Author's own)

Eighteen publications (50%) in Table 4 have ten or fewer citations. The fact that 12 of the publications were released in 2024 could be a reason for this. However, four of these papers have not yet been cited. This table also shows that 28% and 17% of the papers have received 21–50 citations and more than 50 citations. With 631 citations, Bocken's (2015) paper in the Journal of Cleaner Production is the most cited of the reviewed articles.

5.4.3. Subjects of The Publications
Table 5 displays the subject details of the selected GMA articles.

Table 5. Subjects of the Publications

	2015-2019	2020-2024	Total	%
Green Innovation	0	5	5	14%
Green M&A	0	5	5	14%
Heavy Pollution	0	4	4	11%
Carbon Challenges	0	4	4	11%

Cross-border M&A	0	3	3	8%
Corporate Environmental Responsibility	1	1	2	6%
Corporate Environmental Performance	1	1	2	6%
Sustainable Venture Capital	1	0	1	3%
ESG	0	1	1	3%
Environmental Sustainability Policy	0	1	1	3%
Environmental Investment Strategy	0	1	1	3%
Other	2	5	7	18%
Total	**5**	**31**	**36**	**100%**

Source: (Author's own)

According to the results obtained in Table 5, the most researched topics in the examined articles were green innovation (14%), green M&A (14%), heavy pollution (11%), carbon challenges (11%), and cross-border M&A (8%). It is likely that all published studies were published between 2020 and 2024, and that ESG Trends and Regulations and Policies have had an increasing impact in recent years. Although the other title appears in 19%, it is not explained separately because it contains many different topics.

6. CONCLUSION

Businesses can use mergers and acquisitions to expand, gain market share, and diversify their portfolios in a global market that is growing to be increasingly competitive. In 2023, about 40,000 M&A deals were completed worldwide, even if it is less than in 2022. JPMorgan, Goldman Sachs, and Rothschild & Co. advised on the majority of M&A deals in 2022. Globally, the value of M&A acquisitions has fluctuated greatly in recent years. It peaked at more than 5.2 trillion dollars in 2021.

Businesses that actively integrate ESG considerations into their M&A processes are better positioned to satisfy stakeholder expectations, lower risks, and create long-term value. M&A is used to acquire green technologies in addition to using it to expand financially as sustainability requirements become more stringent and stakeholders call for more ecologically conscious business practices. From 12% in 2001, the percentage of transactions of ESG rose to 17% in 2011 and 22% in 2021 (Kengelbach et al., 2022).

In M&A, generating value from ESG factors has become more significant. Businesses are looking at how to use a target's ESG strengths to boost earnings, profits, and balance sheet efficiency for the merged company. These synergies can significantly increase overall shareholder returns and are frequently highlighted in the equity narrative that is given to investors. However, acquirers have several obstacles to overcome. The employment of several frameworks and standards makes it more difficult to comprehend and compare the ESG performance of large corporations, even though the quality of their ESG reporting has increased over the last five years. Furthermore, only a small percentage of middle-market businesses completely disclose their ESG performance. In terms of both short-term and long-term ESG-related value drivers, like talent retention and brand exposure, this makes it challenging to identify the best candidates for bolt-on acquisitions (Arjona et al., 2023).

Therefore, GMA has become one of the most talked-about issues in the literature in recent years since environmental sustainability, climate change, and ESG criteria are becoming increasingly significant in the global corporate sector. This study aims to investigate GMA, which has significantly influenced M&A in recent years. A content analysis of Q1-ranked papers published in particular journals in the WOS index was carried out in 2015-2024 to achieve this goal.

One finding of this study indicates that with 16 articles, Chinese writers accounted for 44% of all GMA publications, and these were only published between 2020 and 2024. This finding may indicate that scholars are becoming more interested in the GMA topic, particularly given the significance of carbon emissions, legal penalties, and sustainability concerns in Chinese business. Furthermore, the fact that the great majority of GMA articles (86%) were produced between 2020 and 2024 indicates that the same criteria apply outside of China as well; more scholars are looking at GMA than in the past.

Almost 70% of the studies that were analyzed on the topic had three or more authors. Eight of the ten articles (61.5%) that were published between 2020 and 2024 were also joint publications by three or more researchers from other nations. The fact that the subject is examined jointly by researchers from different countries of the world can be interpreted as

the subject having universal importance and that each country wants to carry out its legal regulations within the framework of sustainability. Academics authored nearly all of the papers (92%). The other researchers are employed by banks or the energy industry.

Ten or fewer citations are present in 18 articles (50%) of the total. One possible explanation for this could be that 12 of the papers were published in 2024. The percentage of papers with 21–50 citations and those with more than 50 citations is 28% and 17%, respectively. Of the reviewed works, Bocken's (2015) study in the Journal of Cleaner Production has the most citations (631). It can be said that this high number of citations reinforces the increasing importance of the subject.

Green innovation (14%), green M&A (14%), heavy pollution (11%), carbon issues (11%), and cross-border M&A (8%) were the most explored subjects in the reviewed publications. All published research was probably released between 2020 and 2024, and the influence of ESG trends, regulations, and policies has grown in recent years.

Integrating ESG considerations throughout the M&A process is one recommendation for the corporations in the GMA process. This all-encompassing strategy guarantees that sustainability goals are in line with business strategy and makes it easier to achieve ESG synergies. To find any liabilities and guarantee compliance with environmental standards, it is also advised to assess the target company's environmental permits, licenses, and compliance history. This evaluation informs negotiation tactics and helps reduce the risks related to environmental non-compliance. Recognizing and addressing cultural gaps between merging businesses could be the final piece of advice, particularly when purchasing companies with strong sustainability cultures. Put plans in place to keep important personnel and align company cultures to achieve sustainability objectives.

Future studies should keep examining the financial results of green deals, sector-specific green M&A trends, and their long-term effects on corporate sustainability. Green M&A will probably continue to be a major force behind company transformation as the market adjusts to environmental challenges, making it a crucial topic for continued scholarly and industry-focused research.

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