

THE BIBLIOMETRIC MAPPING OF STUDIES ON CASH POLICIES

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ABSTRACT

This study aims to analyse the academic literature on cash holding, cash management and cash policies of firms using bibliometric method. While cash holding policies play a critical role in firms' liquidity management, they are affected by external factors such as economic fluctuations, financial constraints and geopolitical risks. Cash management and related strategies are one of the cornerstones of firms' efforts to achieve sustainable growth, investment decisions and financial flexibility.

In this context, bibliometric analysis will be used to examine the distribution of publications in the field, the most influential authors, institutions and countries, keywords used and thematic trends. The study will be based on publications obtained from international databases such as Web of Science and Scopus. The findings have the potential to guide future research by systematising the existing body of knowledge in the field.

This study is expected to make valuable contributions in terms of identifying new research areas that combine theory and practice in cash management and policies, and providing implications for researchers working in this field and policy makers.

Keywords: CASH HOLDINGS, CASH MANAGEMENT, CASH POLICY, BIBLIOMETRIC ANALYSIS

Jel Codes: A10, G30, G32, E41

NAKİT POLİTİKASI ÇALIŞMALARININ BİBLİYOMETRİK HARİTASI

ÖZET

Bu çalışma, işletmelerin nakit tutma, nakit yönetimi ve nakit politikaları konularında gerçekleştirilen akademik literatürü bibliyometrik yöntemle incelemeyi amaçlamaktadır. Nakit tutma politikaları, firmaların likidite yönetiminde kritik bir rol oynarken, ekonomik dalgalanmalar, finansal kısıtlar ve jeopolitik riskler gibi dışsal faktörlerden etkilenmektedir. Nakit yönetimi ve ilgili stratejiler, firmaların sürdürülebilir büyüme, yatırım kararları ve finansal esneklik sağlama çabalarının temel taşlarından biridir.

Bu bağlamda, bibliyometrik analiz yöntemi kullanılarak, alanla ilgili yayınların dağılımı, en etkili yazarlar, kurumlar ve ülkeler, kullanılan anahtar kelimeler ve tematik eğilimler incelenecektir. Çalışma, Web of Science ve Scopus gibi uluslararası veri tabanlarından elde edilen yayınlar üzerinden gerçekleştirilecektir. Elde edilen bulgular, alandaki mevcut bilgi birikimini sistematik bir şekilde ortaya koyarak, gelecekteki araştırmalara rehberlik etme potansiyeli taşımaktadır.

Bu çalışmanın, nakit yönetimi ve politikaları konularında teori ve uygulamayı birleştiren yeni araştırma alanlarını belirleme, bu alanda çalışma yapan araştırmacılar ve politika yapıcılar için çıkarımlar sunma açısından değerli katkılar sağlayacağı düşünülmektedir.

Anahtar Kelimeler: NAKİT TUTMA, NAKİT YÖNETİMİ, NAKİT POLİTİKASI, BİBLİYOMETRİK ANALİZ.

Jel Kodları: A10, G30, G32, E41

INTRODUCTION

Cash management and cash policies have a critical importance in enhancing the financial flexibility of enterprises and building resilience against unexpected economic fluctuations. Cash holding policies, which should support firms' profitability and sustainable growth targets while meeting their liquidity needs, have become an area that has attracted increasing attention in the academic literature. Especially in a global environment characterised by financial crises, geopolitical risks and uncertainties, research on this topic provides important implications at both theoretical and practical levels.

This study aims to examine the academic literature on cash holding, cash management and cash policies by using bibliometric analysis method. Bibliometric analysis allows to systematically reveal the trends, impact and thematic relationships of academic publications on a particular topic. Within the scope of the study, academic articles published in the Scopus database will be taken into consideration and the data obtained will be analysed through VOSviewer software. With this method, the most influential authors, journals, institutions and countries in the field; frequently used keywords; thematic clusters and publication trends will be revealed.

The main objective of the study is to identify the current state of the literature on cash management and policies, research gaps and potential future areas of study. The findings are expected to serve as a guiding resource for researchers working in this field and provide valuable information for the business world and policy makers.

LITERATURE REVIEW

It is known that Opler et al. (1999) is the leading researcher of firms' behaviors regarding cash holdings. According to Opler et al. (1999), since a perfect capital market is not possible for today's conditions, it is inevitable to have cash assets. Contrary to expectations, a firm may become unable to continue its activities due to a decrease in cash assets or it will need to obtain the fund requirement for investment at a cost.

Therefore, if the cost of lack of cash assets is high for the firm, it is expected that the firm will try to equalize the marginal cost and marginal benefit of holding cash.

When it comes to cash holding policy, the first concept that comes to mind is cash and cash equivalents. Cash and cash equivalents include the cash in the firm's safe, time and demand deposits in banks, uncollected checks and convertible investments with a maturity of three months or less (Karapınar and Zaif, 2018).

Holding Cash; businesses may prefer to accumulate cash due to precautionary reasons. The main reason why this preference is considered reasonable by companies is to prevent future cash needs from putting the company in trouble (Opler et al., 1999).

Cash Management; aims to determine the optimum level of cash or cash-like assets that should be kept in the business by taking into account cash surplus and cash deficit. It tries to establish a balance between financial inputs and outputs in certain periods (Aydın et al., 2018)

These basic concepts define the key terms and processes related to cash holding and cash management. Cash policy plays an important role in financial planning and decision-making processes for businesses and can affect the financial health of the business.

When the literature on cash holding, cash management and cash policy is examined, it is seen that Opler et al. (1999), which is encountered in many of the relevant studies and is the most cited in the relevant field, used data from companies traded on the stock exchange in the USA. The study conducted between 1971 and 1994 examined the determinants and effects of cash assets. As a result of the study, it was concluded that firms with strong growth opportunities and relatively risky cash flows have relatively high cash holding ratios (Opler et al. 1999).

Another study that is heavily cited in the literature is the study conducted by Bates et al. (2009). In the study, a sample was created using data from the 1980s, 1990s and 2000s. As a result of this sample, the researchers aimed to find an answer to why

the cash holding ratio has increased in recent years. As a result, it is shown that firms tended to hold more cash from the 1980s to the 2000s, and the main reasons for this situation are the decrease in stocks, the increase in cash flow risk, the decrease in capital expenditures and the increase in R&D expenditures (Bates, Kahle, and Stulz 2009).

Another study that stands out with its number of citations among studies on cash is the study conducted by Harford et al. 's research with US companies (2008). The study examined the effect of corporate governance on cash holdings of firms using firm data between 1996-2004. As a result of the study, it is seen that the effect of governance on cash holding levels of firms is revealed in a comprehensive manner. It is also among the results stated that weak governance in firms generally keeps cash in small reserves, while firms with excess cash of the same nature cause cash expenditures to increase and profitability to decrease (Harford, Mansi, and Maxwell 2008).

Dittmar, one of the researchers who is prominent in the literature with his studies, is seen to have investigated the effects of international corporate governance on cash holdings of firms in his study with Smith and Servaes. Data from more than 11 thousand firms from 45 countries were used in this study. As a result of the analysis, it was seen that cash holding rates of firms in countries where shareholder rights are not protected are up to two times higher than in other countries. Another point underlined in this study is that firms with easier access to funds hold more cash (Dittmar, Mahrt-Smith, and Servaes 2003).

Another researcher who has made a name for himself with his studies is Pinkowitz. In a study conducted with Stulz and Williamson in 2006, they examined the contribution of firms' cash holding ratios to firm value and whether this situation depends on firm governance. In the study conducted with data from different firms in 35 countries between 1988 and 1998, it was observed that the effect of cash assets on corporate governance was investigated. As a result of the study, it was revealed that

there was a relationship between the cash holding ratio in firms and firm value and that this varied according to the governance of the firms (Pinkowitz, Stulz, and Williamson 2006).

Another study that has taken its place in the literature is the determinants of corporate cash assets conducted by Ozkan and Ozkan with firm data from the United Kingdom. Focusing particularly on managerial ownership, board structure, ultimate controllers, growth opportunities and cash flows, the study examined the relationship between these issues and cash assets. In the study, which used cross-sectional regressions and dynamic panel data method, in firms in the United Kingdom; It has been observed that ownership structure significantly affects cash holdings, that there is a non-monotonic relationship between managerial ownership and cash assets, that cash flows and growth opportunities positively affect cash assets, and finally, that family firms have higher cash holding rates (Ozkan and Ozkan 2004).

A study conducted Tekin et al. (2023) examined the effects of geopolitical risk (GPR) on firms' cash holding policies during the 2008-2009 global financial crisis and found that such risks prompted firms to adopt more prudent cash holding behaviors. These results highlight that GPR influences not only investment decisions but also cash retention strategies, with firms accumulating more cash, particularly during periods of crisis. Similarly, Tekin's study of firms from 26 emerging Asian economies between 1991 and 2016 revealed that financially constrained firms increased their cash levels significantly more than less constrained firms after the 2008 crisis. These findings underscore how financial crises and GPR shape cash policies at both micro (firm) and macro (country) levels, with the direction of the effect varying based on factors such as governance quality, trade volume, and the presence of financial constraints (Tekin 2022, Tekin et al. 2023).

Another study that explores the impact of financial inclusion and international trade on cash management in OIC countries. The findings show that when financial inclusion is high, firms flexibly manage their cash, while when it is low, they

encourage prudent cash accumulation strategies. These results emphasize that policies to increase financial inclusion can contribute to effective cash management in trade (Gürbüz 2025).

In another study conducted on American firms, researchers examined the cash holdings of firms in terms of taxes. In this study, Foley et al. investigated the possibility that tax costs contribute to the size of firms' cash holdings using firm data between 1982 and 2004. As a result of the study, it was seen that taxes have significant effects on the cash holdings of US firms, and it was observed that multinational companies, in particular, hold more cash because they have more tax risks (Foley et al. 2007).

Another prominent study in studies on corporate cash holdings is the study conducted by Han and Qui in 2007. In this study, the relationship between firms' cash holdings, financial constraints and cash flow volatility was analyzed using firm data from 1997 to 2002. As a result of the study, it was shown that the effect of cash flow volatility on a firm's cash holdings depends on financial constraints. It was also revealed that a financially constrained firm increases its cash holdings in response to increased cash flow volatility, but there is no systematic relationship between cash holdings and cash flow volatility for firms without financial constraints (Han and Qiu 2007). Another study in the cash holdings literature addressed cash holdings and agency management issues internationally (Kalcheva and Lins 2007).

In the study, data on agency costs, firm values and cash holding rates of more than five thousand firms from 31 countries were examined. As a result of this study, it is presented as systematic evidence that the increase in cash holding ratio, instead of managerial development, is negatively related to firm value in parallel with agency theory (Kalcheva and Lins 2007).

Another researcher who is at the top of the list when looked at the number of citations in the literature, Fresard, has examined the effects of corporate cash holding on financial strength and product markets (Fresard 2010). It has been seen that the

strategic dimension of firms' cash policies and especially the effect of cash holding ratio on product markets are discussed in the study. As a result of the analysis conducted with data between 1973-2006, it has been revealed that the competitive effect of cash holding increases especially when there are strategic interactions between competitors. It has also been revealed that the competitive effect of cash holding contributes to the increase in operating performance and firm value (Fresard 2010).

Another study investigating the determinants of cash holdings by firms is the study conducted by Ferreira and Vilela in 2004 using panel data from European Union countries between 1987 and 2000 (Ferreira and Vilela 2004). In this study, the effects of liquidity, investment opportunities, cash flows, leverage and firm size on cash holdings were examined. As a result of the study, it was observed that as cash flow and investment opportunities increased, the cash holding ratio also increased. On the contrary, it was revealed as a result of the study that there was a negative relationship between cash flows, leverage and firm size and the cash holding ratio (Ferreira and Vilela 2004).

Another study in the literature on cash holdings focuses on R&D expenditures. This study particularly examines the effect of the cash holding ratio on the regulations in R&D expenditures of firms facing financing constraints. The study used data from firms operating in the USA between 1970 and 2006. As a result of the research, it was observed that companies with relatively few financial constraints facilitated R&D expenditures without using their cash assets. It was also determined that especially young companies used their cash assets to ensure stability in R&D expenditures during financial shocks. In more mature companies, cash reserves play a minimal role in R&D expenditures (Brown and Petersen 2011).

In another issue where holding cash is important for companies, refinancing, Harford et al. investigated the effect of companies' cash assets on refinancing risk in their study conducted in 2014. The study used data from approximately 100 thousand

companies in the USA between 1980 and 2008. As a result of the research, it was observed that companies' cash holding rates increased in order to reduce their refinancing risk. In addition, it was concluded that cash reserves were more valuable for companies with refinancing risk, and companies with high cash holding rates tended to have shorter-term debts in terms of debt maturity (Harford, Klasa, and Maxwell 2014).

Additional study conducted with firms in the US was on firms' cash holding rates and corporate diversification. In this study, the researcher analyzed approximately 50 thousand observations consisting of data between 1990 and 2006. As a result of this analysis, it was observed that firms with corporate diversity have higher cash holding rates due to their diverse investment opportunities. However, in contrast to this situation, corporate diversification has been associated with lower cash holding rates in financially constrained firms. It is also stated that firms with corporate diversity hold a large portion of the total corporate cash in the US (Duchin 2010).

Another study in the literature on cash holdings examines whether firms around the world use credit limits instead of cash for their corporate liquidity. The study analyzes the data obtained from surveys conducted in 2005 with financial affairs managers of firms in 29 countries on the subject. As a result of this analysis, it was observed that firms use credit limits for future opportunities and hold cash for financial shocks or emergencies (Lins, Servaes, and Tufano 2010).

Another article examining the determinants of cash holdings in firms was conducted by Gao et al. (2013). In this study, a large-sample comparison of cash policies in public and private firms in the USA was made. The summaries of public and private firms from 2011 were used for the sample. As a result of the study, it was revealed that public firms hold more cash due to higher agency costs. In fact, when looked at in general, it was revealed that private firms hold almost half as much cash as public firms. It was also concluded that private firms spend less on R&D and are less likely to pay dividends (Gao, Harford, and Li 2013).

Phan et al. (2019) took its place in the literature with the study on the relationship between the uncertainty of the government's economic policy and firms' cash holding rates. In the study conducted in the USA, company data between 1986 and 2015 were used. As a result of the study, it was observed that policy uncertainty increased the cash holding rates of companies due to precautionary reasons and investment indecision (Phan et al. 2019).

Another study conducted in the literature on cash policies investigated the effects of local culture on cash holdings. In addition, the article examined the relationship between corporate cash holdings and individualism and collectivism in the USA. This study conducted by Chen et al. used data from over 27 thousand companies from 41 countries between 1989-2009. As a result of the study, it was observed that there was a negative relationship between individualism and corporate cash holdings. On the contrary, it was found that there was a positive relationship between uncertainty avoidance and corporate cash holdings. In addition, as a result of the state-based research in the USA, it was seen that companies in individualist states had lower cash holding rates than companies in collectivist states (Chen et al. 2015).

It is known that the Covid-19 pandemic has financial effects all over the world. A study in the literature examined the effect of the pandemic on cash policies. In the study, approximately 14 thousand company data from 26 countries for the year 2018 were used to be analyzed. As a result of the stress tests, it was observed that companies with low cash holding rates were less profitable during the pandemic period (De Vito and Gómez 2020).

Another study examined the cash holdings of companies in China, especially during periods of political uncertainty, using data from companies traded on the Chinese Stock Exchange between 1998 and 2014. As a result of the study, which generated approximately 25 thousand observations, it was observed that companies at risk of political conflict had low cash holding rates during periods of political uncertainty if they did not have politically connected managers or were small or low-

debt companies. This result is attributed to the fact that companies reduce the amount of cash they have as a strategic response when they anticipate political uncertainty and believe that the newly appointed official may reach out to the cash held by the company (Xu et al. 2016).

Another study conducted on the Covid-19 pandemic period examined the cash holdings and financial management of small and medium-sized enterprises during this period. The study used data from surveys conducted with 1,500 businesses in the UK in 2018-2019. As a result of the research; It was revealed that precautionary cash holdings are of critical importance for small and medium-sized enterprises in terms of resilience in crises, and even that 39% of the enterprises surveyed have sufficient cash holding rates, while the remaining 61% may experience cash shortages in this process (Cowling, Brown, and Rocha 2020).

A study conducted in 2012 examined the correlation between cash assets and credit risk. The study analyzed observations from American companies that had at least one bond between 1996 and 2010. As a result of the analysis, it was seen that there was a positive relationship between the cash holding rate of the companies and the credit margin (Acharya, Davydenko, and Strebulaev 2012).

Another interesting study examined the relationship between the buyer and supplier and the supplier's cash policy. In this study, data from manufacturing companies in the USA between 1979 and 2006 were examined. As a result of the research, the evidence strongly shows that suppliers with strong relationships with buyers hold more cash than firms with no relationships with buyers. It has also been observed that as the importance of the buyer-supplier relationship increases, the cash holding rate of the supplier also increases (Itzkowitz 2013).

One of the studies on the cash position of private companies was conducted by Bigelli & Sánchez-Vidal in 2012. In the study, cash assets, firm characteristics, industry data and financial variable data of Italian private companies between 1996 and 2005

were analyzed. As a result of the analysis, it was seen that the cash holding rate of private companies in Italy corresponds to 10% of their total cash assets. Moreover, it was concluded that small firms have higher cash holding rates than larger firms. In addition, it was among the results that firms with high cash holding rates make more investments in the medium term and have higher profitability rates (Bigelli and Sánchez-Vidal 2012).

In a study examining corporate social responsibility as a determinant affecting corporate cash holdings in the literature, it was investigated how corporate social responsibility relates to corporate cash holdings. The study attempted to explain the impact of corporate social responsibility on cash assets in the context of firms' specific risks, systematic risks, and corporate governance. The study was conducted using a 7-dimensional measurement (community relations, corporate governance, diversity, employee relations, environment, human rights, and product safety) with firm data between 1991 and 2011. As a result of the study, it was revealed that corporate social responsibility has a positive impact on cash holdings through systematic risk and corporate governance (Cheung 2016).

A study examining the impact of bank power on firms' cash holdings in the USA, Germany, and Japan was conducted by Pinkowitz & Williamson in 2001. In the study, panel data was created using firm data for Japan between 1974 and 1995, firm data for Germany between 1984 and 1994, and firm data for the USA between 1971 and 1994. As a result of the panel data analysis, it was revealed that firms in Japan have higher cash holding ratios compared to Germany and the USA, and the reason for this was explained as the presence of strong banks. Moreover, it was also revealed that the amount of power banks have over indebted firms is an important factor in determining cash holding ratios of firms (Pinkowitz and Williamson 2001).

In a study investigating the determinants of cash holdings of firms in developing countries, the effect of capital structure and dividend policies on cash holding ratios of firms, especially in Brazil, China, Russia, and India between 2002 and

2008, was examined. In order to make a comparison between developed and developing countries, data from the USA and the UK were included in the analysis and the relevant comparison was made. As a result, it has been revealed that firms' capital structure and dividend policy affect cash holding rates, and firms in countries with low shareholder protection tend to hold more cash. In addition, it has been revealed that there are similarities in the factors determining corporate cash assets in developed and developing countries (Al-Najjar 2013).

In another study, the relationship between uncertainty in economic policies and cash policies of firms was examined. The study covers the years 1985-2014 and the effect of economic and political uncertainties in the US on cash policies of firms was analyzed. The study, which concluded that policy uncertainty causes an increase in cash holding rate, also revealed that financially constrained firms are more vulnerable to capital market frictions. Moreover, it has been revealed that the relationship between policy uncertainty and corporate cash holding rate is generally more pronounced for firms with high dependence on the state. In the analysis, unlike other studies, it has also been recorded that one of the reasons for the delay in investments is not the increase in cash holding rate due to policy uncertainty (Duong et al. 2020).

In a study examining the relationship between agency problems and cash holding ratios in firms, a dynamic finance and investment model was created to understand this relationship. This model is based on three mechanisms: limited managerial ownership of the firm, managerial privilege consumption, and compensation based on firm size. As a result of the study, it was revealed that low managerial ownership in firms is an important factor in the long-term upward trend in cash holding ratios. Moreover, the agency status in firms is also among the results that the importance of small firms in cash holding ratios is very low (Nikolov and Whited 2014).

Another study draws attention to the correlation between firms' cash holding ratios and total risk and equity returns. The study used data from firms traded on the

US stock exchange as a sample. As a result of the study, it was obtained with empirical evidence that there is a positive correlation between firms' cash holding ratios and expected equity returns, and that riskier firms have higher cash holding ratios due to precautionary savings (Palazzo 2012).

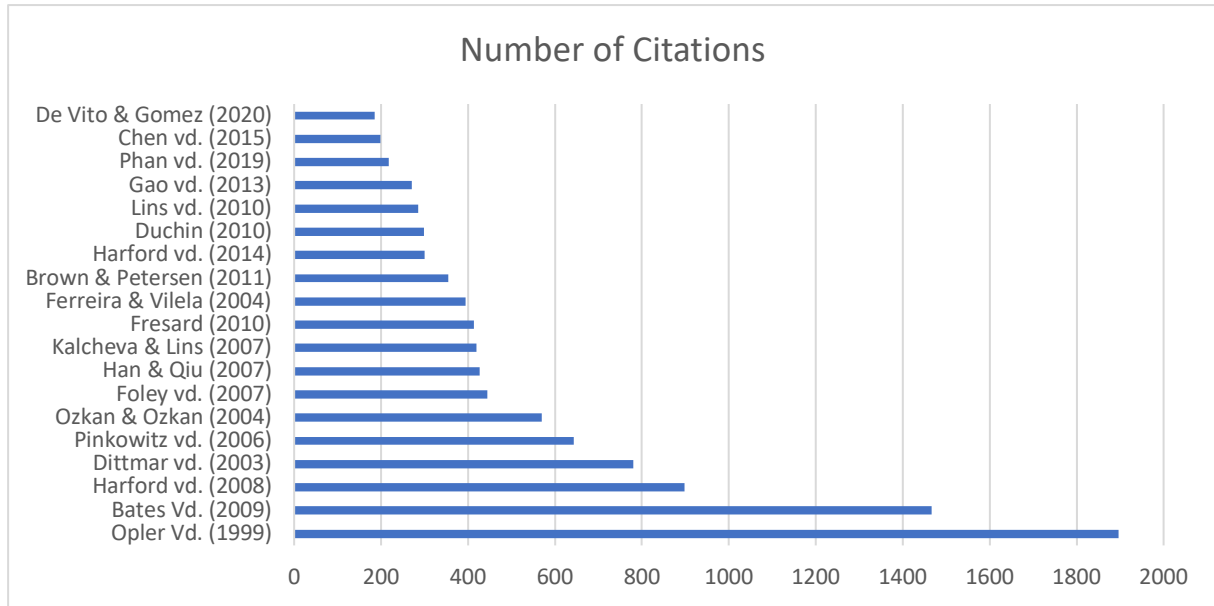


Table 1. Number of Citations

Author or Authors	Title of Article	Keywords	Number of Citations
Opler Et al. (1999)	The determinants and implications of corporate cash holdings		1896
Bates Et al. (2009)	Why Do U.S. Firms Hold So Much More Cash than They Used To?		1466
Harford et al. (2008)	Corporate governance and firm cash holdings in the US	Cash holdings; Corporate governance; Ownership structure; Take-over Provisions; Acquisitions	898
Dittmar et al. (2003)	International Corporate Governance and Corporate Cash Holdings		780
Pinkowitz et al. (2006)	Does the Contribution of Corporate Cash Holdings and Dividends to Firm Value Depend on Governance? A Cross-country Analysis		643
Ozkan & Ozkan (2004)	Corporate cash holdings: An empirical investigation of UK companies	Cash holdings; Ownership structure; Firm heterogeneity; Panel data	569
Foley et al. (2007)	Why do firms hold so much cash? A tax-based explanation	Cash; Taxes; Repatriation	444
Han & Qiu (2007)	Corporate precautionary cash holdings	Cash; Cash flow volatility; Investment; Precautionary savings	426
Kalcheva & Lins (2007)	International Evidence on Cash Holdings and Expected Managerial Agency Problems		420
Fresard (2010)	Financial Strength and Product Market Behavior: The Real Effects of Corporate Cash Holdings		414
Ferreira & Vilela (2004)	Why Do Firms Hold Cash? Evidence from EMU Countries	Cash holdings; liquidity; agency costs; corporate governance	395
Brown & Petersen (2011)	Cash holdings and R&D smoothing	Cash holdings; R&D; Value of liquidity; Investment smoothing	354
Harford et al. (2014)	Refinancing Risk and Cash Holdings		300
Duchin (2010)	Cash Holdings and Corporate Diversification		298
Lins et al. (2010)	What drives corporate liquidity? An international survey of cash holdings and lines of credit		286
Gao et al. (2013)	Determinants of corporate cashpolicy: Insights from private firms	Cash holdings; Financing frictions; Agency conflicts; Privatefirms; Excesscash; Speed of adjustment	270
Phan et al. (2019)	Policy uncertainty and firm cash holdings	Policy uncertainty; Cash holdings; Precautionary motives; Financial constraints	217
Chen et al. (2015)	National culture and corporate cash holdings around the world	Cash holdings; National culture; Individualism; Uncertainty avoidance	198
De Vito & Gomez (2020)	Estimating the COVID-19 cash crunch: Global evidence and policy	COVID-19; Cash crunch; Liquidity risk; Business taxes; Fiscal policies; Bridge loans	185

Table 2. Table of Articles

METHOD

This study employs a bibliometric analysis to examine the evolution and trends in the literature related to cash management, cash holdings, and cash policies. The dataset for the analysis was retrieved from the SCOPUS database, which is recognized for its comprehensive coverage of academic publications. The search strategy included a combination of specific keywords within article titles, abstracts, and keywords: "cash holdings," "cash management," or "cash policy" in conjunction with the term "cash" within the article title. The initial search yielded a total of 1,471 articles.

To ensure the relevance and quality of the sample, a set of inclusion criteria was applied. Articles selected for the study were required to be published in the subject areas of Economics, Econometrics and Finance or Business, Management and Accounting. The language of publication was restricted to English, and only peer-reviewed articles were included to uphold a high standard of academic rigor. Additionally, the publication period was limited to works published between 1st January 1990 and 20th February 2024. After applying these criteria, the final sample consisted of 1,089 articles.

To visualize and interpret the data, bibliometric tools such as VOSviewer were used. These tools enabled the generation of bibliometric networks, including co-citation and co-authorship networks, as well as keyword co-occurrence maps. These visualizations were crucial for understanding the interconnectedness of research themes and the development of the field over time.

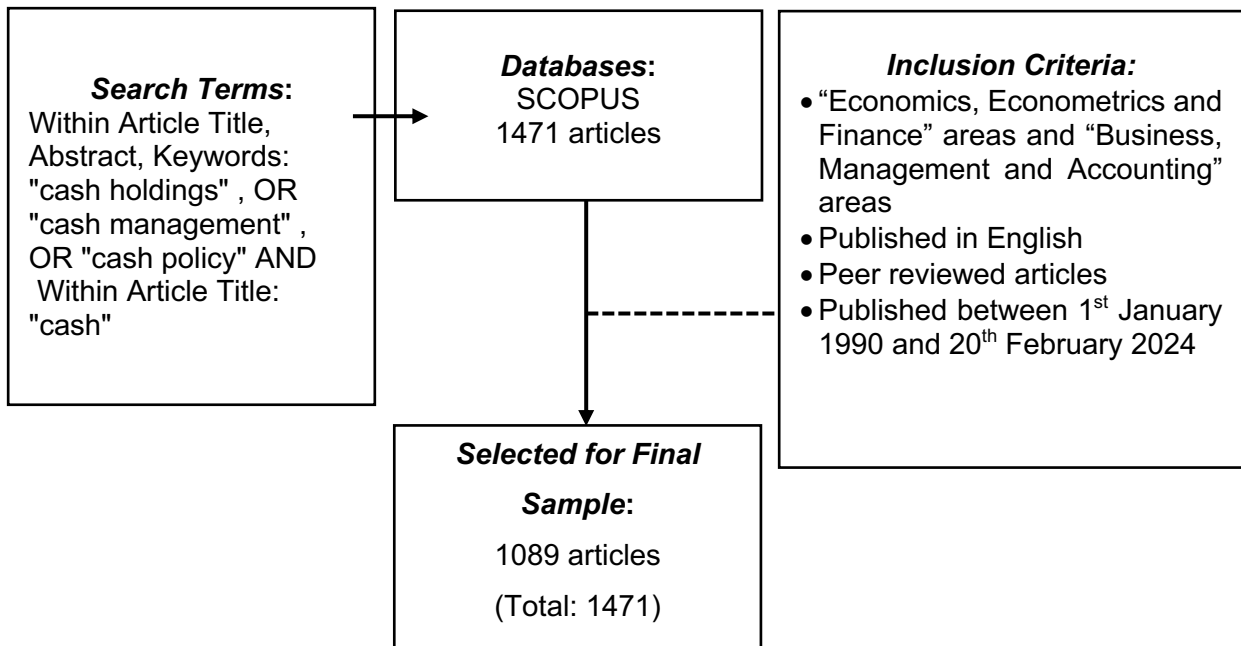


Figure 1. Research design for the bibliometric study

FINDINGS

Co-authorship of Authors

According to the co-author analysis of the authors, a network map was created by limiting the authors with at least one publication and at least one citation in order to determine the most connected and collaborating authors. According to the analysis made among the connected authors, it is seen that a total of 28 authors in eight clusters out of 1872 authors are connected to each other. It was seen that the most connected author has a total of 19 unit connections. It is noteworthy that the most cited authors are not the most connected authors. Another striking point is that the authors with the most studies on the subject are not among the connected authors.

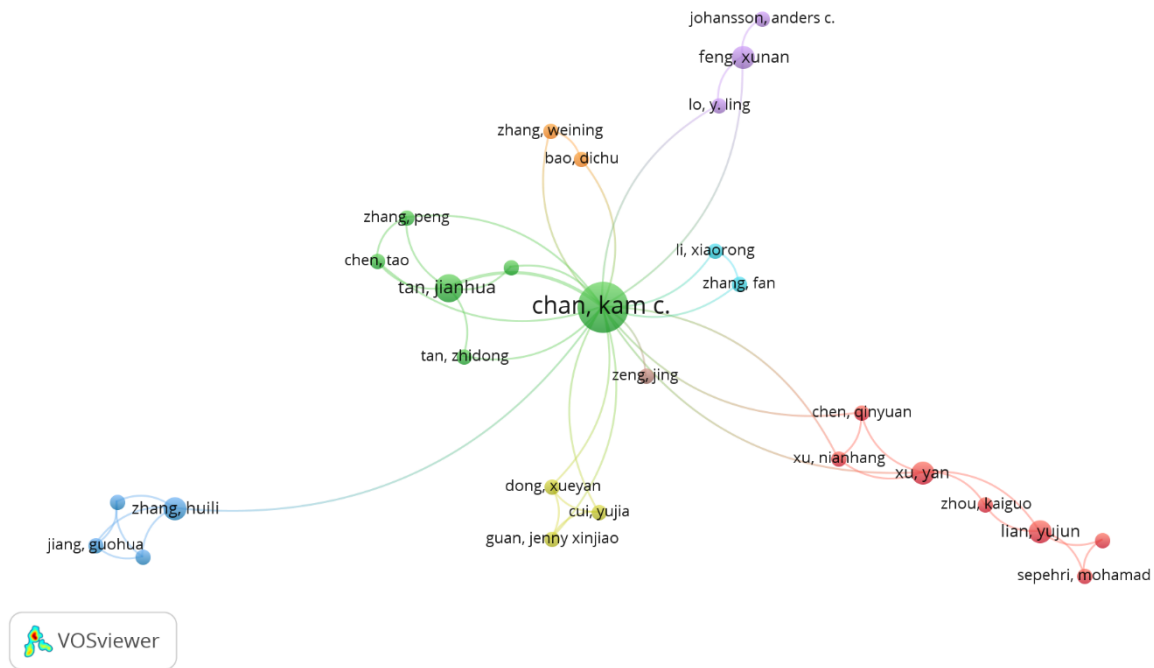


Figure 2. Co-authorship Analysis – Authors' Wise

Citation of Authors

In order to analyze the citations of the authors, a limitation was made to those who have at least one publication and at least one citation, and a network map consisting of 1725 authors was created. In this network map, a total of 49 clusters, 40367 connections and a total connection strength of 52010 were identified. The most cited authors were Lee Pinkowitz with 2784 citations, Rohan Williamson with the same number of citations and Rene Stulz with 2521 citations. These three authors are also in the top three in terms of total connection strength.

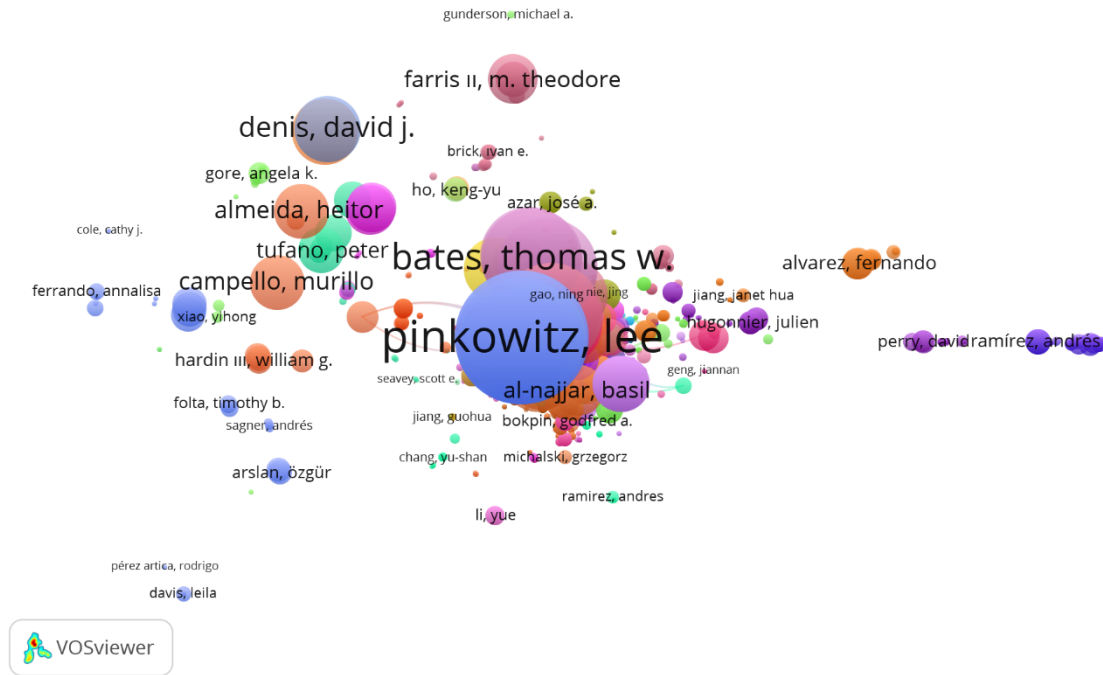


Figure 3. Citation of Authors Analysis

Citation of Countries

Within the scope of the criterion of at least one work published and one citation received from a country, a network map was created regarding the citations received by the publications according to their country of origin and an analysis was conducted on 68 countries with relations between them. 15 clusters, 909 connections and 14330 total connection strength were identified. The countries with the most citations were the USA with 19402 citations, followed by the UK with 3958 citations and Canada with 3569 citations. The USA again came first with 329 publications, but China came second with 194 publications and the UK came third with 114 publications. In terms of total connection strength, these countries were also in the top three rankings.

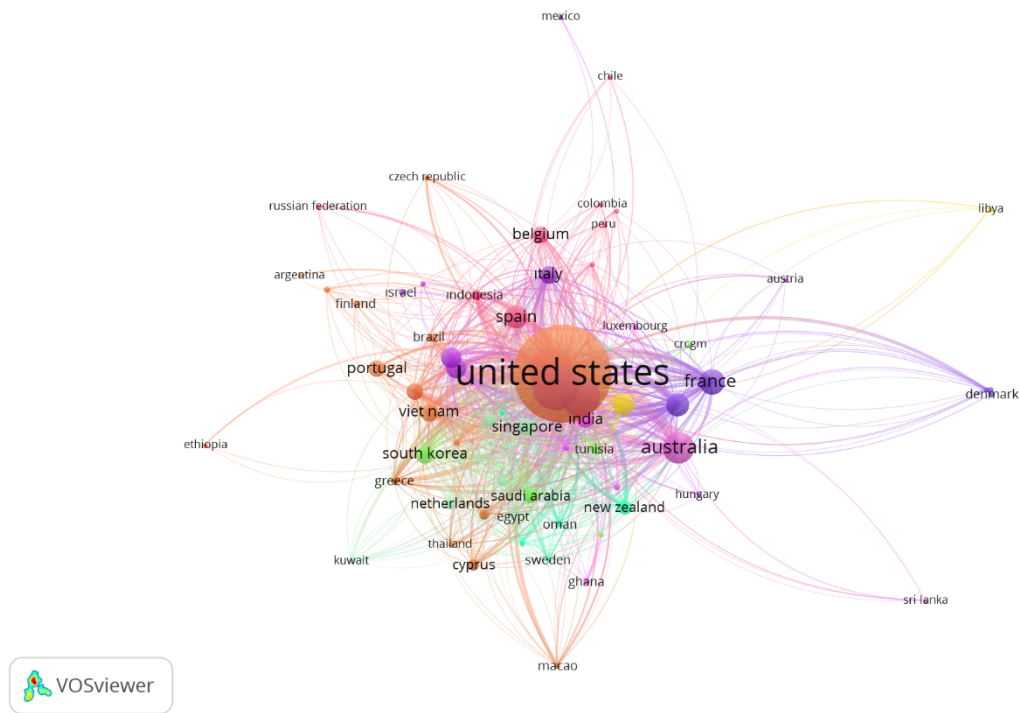


Figure 4. Citation of Countries Analysis

Citation of Organizations

In order to determine the citation networks between institutions, an analysis was conducted including 1654 institutions by determining the criteria of having at least one work published and having received one citation. It was determined that there were 51 clusters in total, 31035 connections and 32626 total connection strengths. When we look at the institutions that received the most citations, it was seen that The Ohio State University and Georgetown University shared the first place with 1883 citations, and the second place was shared by the University of Georgia and Arizona State University with 1456 citations.

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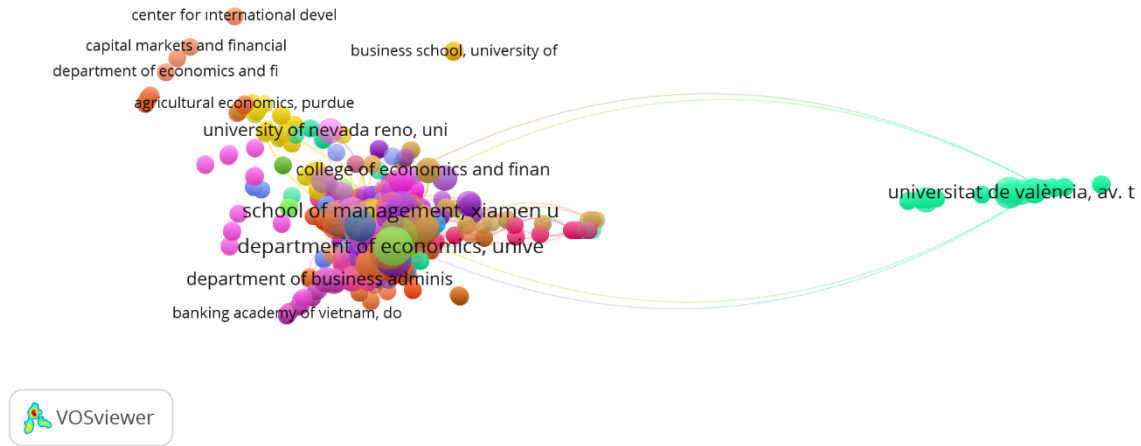


Figure 5. Citation of Organizations Analysis

Co-occurrence of Author Keywords

As a result of the analysis conducted with 241 observations that were seen at least three times and had a relationship between them for the Co-occurrence of Author Keywords analysis, a total of 23 clusters, 1574 connections and 2633 total connection strengths were determined. When the most frequently used keywords in publications related to cash are examined, the expressions “cash holdings” used 514 times, “corporate governance” used 100 times, “corporate cash holdings” used 69 times, “financial constraints” used 64 times and “cash management” used 62 times are at the top. When the strongest expressions in terms of total connection strength are examined, the first places are again “cash holdings”, “corporate governance”, “financial constraints” and “corporate cash holdings”.

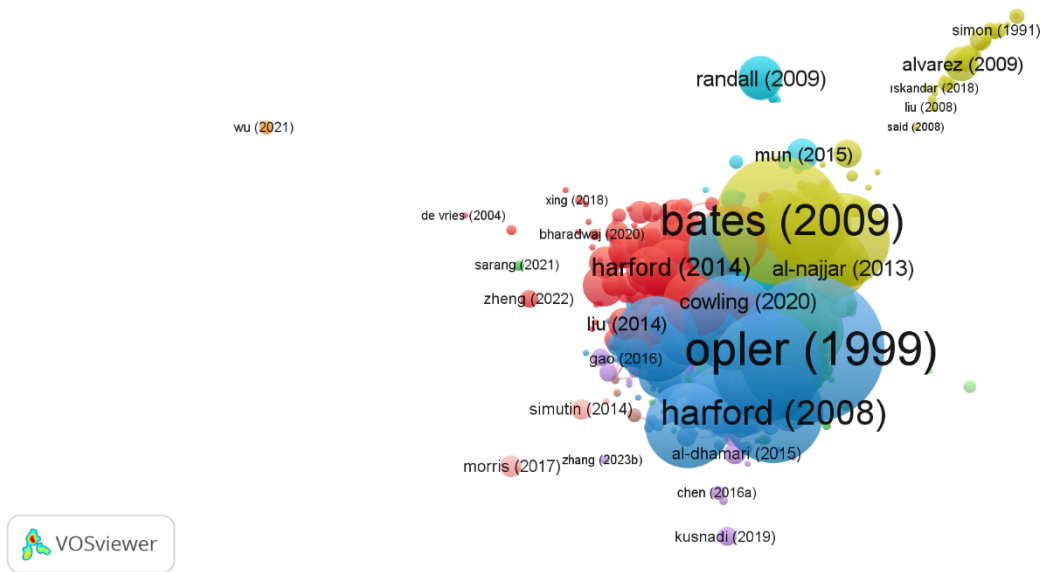


Figure 7. Bibliographic Coupling of Documents Analysis

Bibliographic Coupling of Authors

In the analysis conducted with 1438 authors who met the restriction of authors having at least one publication and three citations, 12 clusters, 826073 connections and 6831432 total connection strength were obtained. The authors with the highest number of bibliographic matches were Lee Pinkowitz with 2784 citations and Rohan Williamson with the same number of citations, while Rene Stulz came in second with 2521 citations.

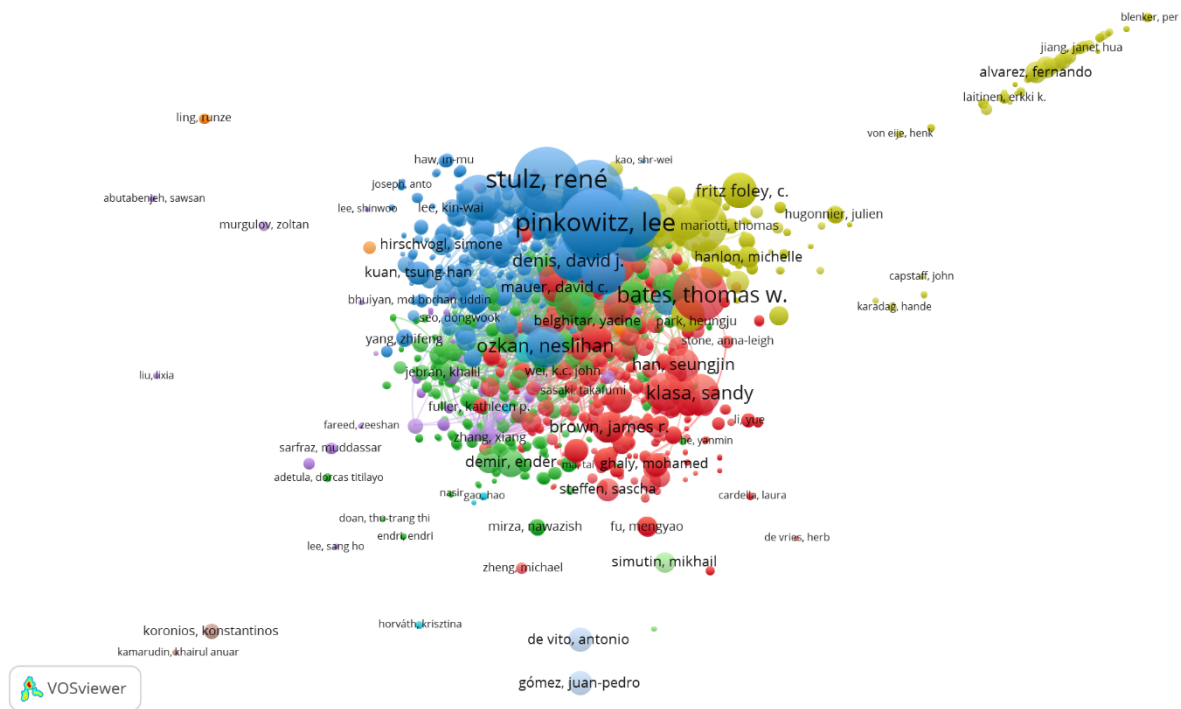


Figure 8. Bibliographic Coupling of Authors Analysis

Co-citation of Co-authors

Co-citation is the name given to different sources cited in the same publication. In the analysis conducted on 911 authors who met the specified restriction by selecting a minimum of 20 citations, it was seen that there were seven clusters, 297937 connections and 2737419 total connection strength. It was determined that the authors with the most co-citations were Lee Pinkowitz, Rohan Williamson, Rene Stulz and Jarrad Harford.

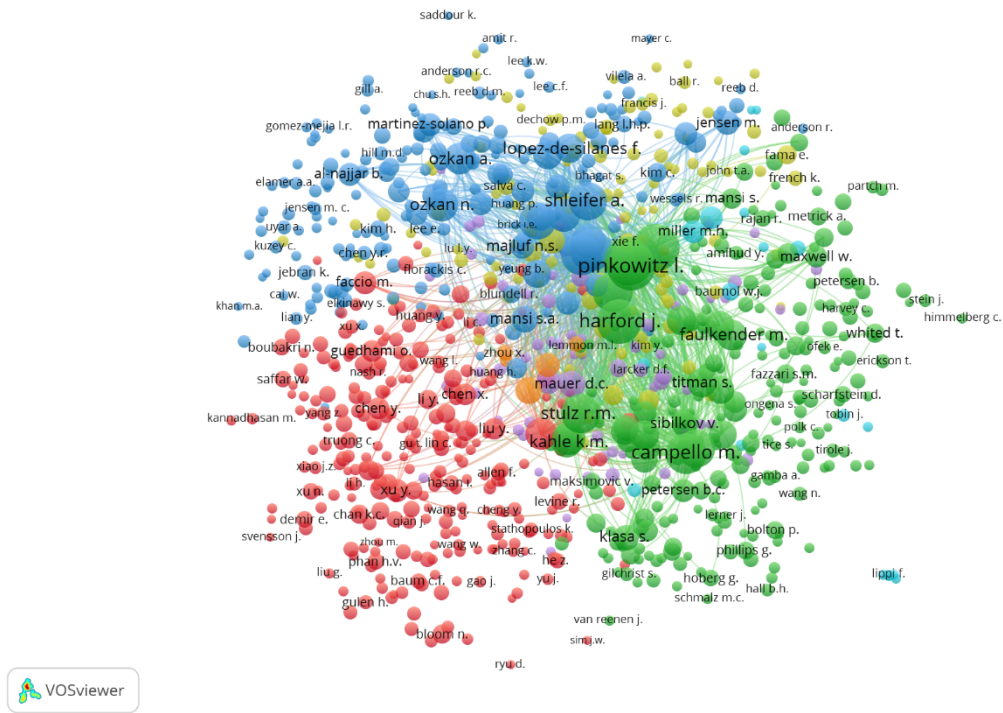


Figure 9. Co-citation of Co-authors Analysis

CONCLUSION

This study presents a bibliometric analysis of the literature focusing on cash management-related topics such as cash holdings, cash management, and cash policy between 1990 and 2024. The final sample of 1,089 articles compiled from the SCOPUS database and meeting the specified criteria provided an understanding of the evolution, main trends, and significant contributions of academic studies on cash policies over time.

The analysis results revealed that research in the field of cash management has increased over the years, and this increase reflects the increasing importance of this topic in business management and finance literature. While the most cited studies focused on the factors affecting companies' cash holding policies, keyword and citation analyses showed that the field is shaped around certain subthemes and that

certain topics (e.g., financial constraints, corporate governance, and cash policies during crisis periods) come to the fore.

The findings of this study not only contribute to the existing academic literature on cash management, but also reveal potential areas for future research. For example, it is understood that new topics such as the impact of digitalization and environmental uncertainties on cash policies need to be investigated further. In addition, the thematic gaps identified during the bibliometric analysis offer new research opportunities that can provide both theoretical and practical contributions in this field.

Finally, this study has proven that the bibliometric approach is an effective method for a broad and systematic review of the literature. However, the fact that the study was limited to the SCOPUS database and only considered articles containing certain keywords are limitations that should be noted regarding the general validity of the results. Therefore, it is recommended that future studies support these findings using wider data sources and different methods.

REFERENCES

- Acharya, Viral, Sergei A. Davydenko, ve Ilya A. Strebulaev. 2012. "Cash Holdings and Credit Risk". Oxford University Press.
- Al-Najjar, Basil. 2013. "The Financial Determinants of Corporate Cash Holdings: Evidence from Some Emerging Markets". *International Business Review* 22(1):77-88. doi: 10.1016/j.ibusrev.2012.02.004.
- Bates, Thomas W., Kathleen M. Kahle, ve René M. Stulz. 2009. "Why Do U.S. Firms Hold So Much More Cash than They Used To?" *The Journal of Finance* 64(5):1985-2021. doi: 10.1111/j.1540-6261.2009.01492.x.
- Bigelli, Marco, ve Javier Sánchez-Vidal. 2012. "Cash Holdings in Private Firms". *Journal of Banking & Finance* 36(1):26-35. doi: 10.1016/j.jbankfin.2011.06.004.
- Brown, James R., ve Bruce C. Petersen. 2011. "Cash Holdings and R&D Smoothing". *Journal of Corporate Finance* 17(3):694-709. doi: 10.1016/j.jcorpfin.2010.01.003.
- Chen, Yangyang, Paul Y. Dou, S. Ghon Rhee, Cameron Truong, ve Madhu Veeraraghavan. 2015. "National Culture and Corporate Cash Holdings around the World". *Journal of Banking & Finance* 50:1-18. doi: 10.1016/j.jbankfin.2014.09.018.
- Cheung, Adrian (Wai Kong). 2016. "Corporate Social Responsibility and Corporate Cash Holdings". *Journal of Corporate Finance* 37:412-30. doi: 10.1016/j.jcorpfin.2016.01.008.
- Cowling, Marc, Ross Brown, ve Augusto Rocha. 2020. "Did You Save Some Cash for a Rainy COVID-19 Day? The Crisis and SMEs". *International Small Business Journal: Researching Entrepreneurship* 38(7):593-604. doi: 10.1177/0266242620945102.

- De Vito, Antonio, ve Juan-Pedro Gómez. 2020. "Estimating the COVID-19 Cash Crunch: Global Evidence and Policy". *Journal of Accounting and Public Policy* 39(2):106741. doi: 10.1016/j.jaccpubpol.2020.106741.
- Dittmar, Amy, Jan Mahrt-Smith, ve Henri Servaes. 2003. "International Corporate Governance and Corporate Cash Holdings". *The Journal of Financial and Quantitative Analysis* 38(1):111. doi: 10.2307/4126766.
- Duchin, Ran. 2010. "Cash Holdings and Corporate Diversification". *The Journal of Finance* 65(3):955-92. doi: 10.1111/j.1540-6261.2010.01558.x.
- Duong, Huu Nhan, Justin Hung Nguyen, My Nguyen, ve S. Ghon Rhee. 2020. "Navigating through Economic Policy Uncertainty: The Role of Corporate Cash Holdings". *Journal of Corporate Finance* 62:101607. doi: 10.1016/j.jcorpfin.2020.101607.
- Ferreira, Miguel A., ve Antonio S. Vilela. 2004. "Why Do Firms Hold Cash? Evidence from EMU Countries". *European Financial Management* 10(2):295-319. doi: 10.1111/j.1354-7798.2004.00251.x.
- Foley, C. Fritz, Jay C. Hartzell, Sheridan Titman, ve Garry Twite. 2007. "Why Do Firms Hold so Much Cash? A Tax-Based Explanation". *Journal of Financial Economics*.
- Fresard, Laurent. 2010. "Financial Strength and Product Market Behavior: The Real Effects of Corporate Cash Holdings". *The Journal of Finance* 65(3):1097-1122. doi: 10.1111/j.1540-6261.2010.01562.x.
- Gao, Huasheng, Jarrad Harford, ve Kai Li. 2013. "Determinants of Corporate Cash Policy: Insights from Private Firms". *Journal of Financial Economics* 109(3):623-39. doi: 10.1016/j.jfineco.2013.04.008.
- Gürbüz, H. Z. (2025). International Trade and Cash Management: Does Financial Inclusion Matter in OIC Countries?. In J. Martínez-Falcó, E. Sánchez-García, B. Marco-Lajara, & R. Fuentes-Fernández (Eds.), *Global Economic*

- Interconnectedness: International Trade and Finance (pp. 197-212). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-5303-5.ch009>
- Han, Seungjin, ve Jiaping Qiu. 2007. "Corporate Precautionary Cash Holdings". *Journal of Corporate Finance* 13(1):43-57. doi: 10.1016/j.jcorpfin.2006.05.002.
- Harford, Jarrad, Sandy Klasa, ve William F. Maxwell. 2014. "Refinancing Risk and Cash Holdings". *The Journal of Finance* 69(3):975-1012. doi: 10.1111/jofi.12133.
- Harford, Jarrad, Sattar A. Mansi, ve William F. Maxwell. 2008. "Corporate Governance and Firm Cash Holdings in the US\$". *Journal of Financial Economics*.
- Itzkowitz, Jennifer. 2013. "Customers and Cash: How Relationships Affect Suppliers' Cash Holdings". *Journal of Corporate Finance*.
- Kalcheva, Ivalina, ve Karl V. Lins. 2007. "International Evidence on Cash Holdings and Expected Managerial Agency Problems". *The Review of Financial Studies* 20(4).
- Lins, Karl V., Henri Servaes, ve Peter Tufano. 2010. "What Drives Corporate Liquidity? An International Survey of Cash Holdings and Lines of Credit☆". *Journal of Financial Economics* 98(1):160-76. doi: 10.1016/j.jfineco.2010.04.006.
- Nikolov, Boris, ve Toni M. Whited. 2014. "Agency Conflicts and Cash: Estimates from a Dynamic Model". *The Journal of Finance* 69(5):1883-1921. doi: 10.1111/jofi.12183.
- Opler, Tim, Lee Pinkowitz, Rohan Williamson, ve René Stulz. 1999. "The Determinants and Implications of Corporate Cash Holdings&". *Journal of Financial Economics*.
- Ozkan, Aydin, ve Neslihan Ozkan. 2004. "Corporate Cash Holdings: An Empirical Investigation of UK Companies".
- Palazzo, Berardino. 2012. "Cash Holdings, Risk, and Expected Returns". *Journal of Financial Economics* 104(1):162-85. doi: 10.1016/j.jfineco.2011.12.009.

- Phan, Hieu V., Nam H. Nguyen, Hien T. Nguyen, ve Shantaram Hegde. 2019. "Policy Uncertainty and Firm Cash Holdings". *Journal of Business Research* 95:71-82. doi: 10.1016/j.jbusres.2018.10.001.
- Pinkowitz, Lee, René Stulz, ve Rohan Williamson. 2006. "Does the Contribution of Corporate Cash Holdings and Dividends to Firm Value Depend on Governance? A Cross-country Analysis". *The Journal of Finance* 61(6):2725-51. doi: 10.1111/j.1540-6261.2006.01003.x.
- Pinkowitz, Lee, ve Rohan Williamson. 2001. "Bank Power and Cash Holdings: Evidence from Japan". *The Review of Financial Studies* 14(4):1059-82.
- Tekin, H. (2022). How Do Financial Constraints and Financial Crises Matter in Cash Management?: Evidence From Developing Asian Economies. In B. Akkaya, K. Jermittiparsert, & A. Günsel (Eds.), *Handbook of Research on Current Trends in Asian Economics, Business, and Administration* (pp. 228-248). IGI Global Scientific Publishing. <https://doi.org/10.4018/978-1-7998-8486-6.ch012>
- Tekin, H., Gürbüz, H. Z., & Kayadibi, S. (2023). How Do Geopolitical Risk and Global Trade Shape Corporate Cash Policy?: Evidence From the Financial Crisis of 2008-2009. In *The Transformation of Global Trade in a New World* (pp. 47-68). IGI Global.
- Xu, Nianhang, Qinyuan Chen, Yan Xu, ve Kam C. Chan. 2016. "Political Uncertainty and Cash Holdings: Evidence from China". *Journal of Corporate Finance* 40:276-95. doi: 10.1016/j.jcorpfin.2016.08.007.