Thirty years of the *Journal of Derivatives and Quantitative Studies*: a bibliometric analysis

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Abstract

This paper investigates a retrospective on the *Journal of Derivatives and Quantitative Studies (JDQS)* on its 30th anniversary based on bibliometric. *JDQSs* yearly publications, citations, impact factors, and centrality indices grew up in early 2010s, and diminished in 2020. Keyword network analysis reveals the *JDQS's* main keywords including behavioral finance, implied volatility, information asymmetry, price discovery, KOSPI200 futures, volatility, and KOSPI200 options. Citations of *JDQS* articles are mainly driven by article age, demeaned age squared, conference, nonacademic authors and language. In comparison between number of views and downloads for *JDQS* articles, we find that recent changes in publisher and editorial and publishing policies have increased visibility of *JDQS*.

Keywords Performance analysis, Bibliometric methodology, Keywords analysis, Co-authorship analysis, Journal of derivatives and quantitative studies

Paper type Research paper

1. Introduction

In October 1991, Prof. Sang Kee Min, who was affiliated with Seoul National University, founded the Korean Association of Futures and Options (KAFO) to explore and disseminate theory, empirical analyses and systems in the exchanged trade and over-the-counter derivatives and related fields. KAFO published the first issue of *Korean Journal of Futures and Options* (*KJFO*) in September 1993. To expand the issues covered by KAFO, its name was changed to Korea Derivatives Association (KDA) in January 2008. At present, KDA has regular seminars, holds international conferences, [1] publishes a journal and hosts symposium on policies related to derivatives. In June 2020, to promote interaction between domestic and foreign scholars, *KJFO*'s name was changed to *Journal of Derivatives and Quantitative Studies* (*JDQS*), with Emerald Publishing as publisher.

After initially focusing on derivatives markets, the journal expanded the journal's focus to include all derivatives and quantitative finance, including behavioral finance, corporate

finance, empirical asset pricing, market microstructure, international finance and banking. *JDQS* shared research on derivatives and quantitative finance with scholars in finance area, institutional investors like brokerage firms and asset management firms, policymakers, financial data providers and other market participants.

In 2022, *JDQS* will celebrate its 30th anniversary. To commemorate the 30th anniversary, we look back at the history of *JDQS* using bibliometric analysis. Many researchers investigate special studies based on bibliometrics in various areas (Merigó and Yang, 2016; Baker *et al.*, 2020c; Donthu *et al.*, 2020a, b; Kumar *et al.*, 2020a, b, c; Valtakoski, 2020; Baker *et al.*, 2021a; Kumar *et al.*, 2021). Specifically, some literature analyzes the bibliographic data of journals on finance based on bibliometrics (Schwert, 1993; Tunger and Eulerich, 2018; Baker *et al.*, 2019, 2020b, 2021d; Zheng and Kouwenberg, 2019; Baker *et al.*, 2020a, 2021b, c; Burton *et al.*, 2020). In this paper, we analyze the historical pattern of publications in the journal and find the factors that affect citations of its articles. We also assess the effect of the changes in the journal on its visibility.

Based on the bibliometric and bibliographic data, we answer eight questions:

Q1. What are the patterns in *JDQS*'s annual publications, citations and annual citation indices?

Q2. Who are *JDQS*'s most prolific authors and author-affiliated institutions?

Q3. What are *JDQS*'s most frequently cited articles?

Q4. Which journals most often cite *JDQS* articles?

Q5. What are *JDQS*'s main keywords?

Q6. What are *JDQS*'s authorship networks?

Q7. Which of *JDQS* articles' attributes are associated with its impact?

Q8. How has publication by Emerald Publishing and changes in editorial and publishing policies affected *JDQS*'s visbility?

The rest of the paper is organized as follows. Section 2 introduces the bibliographic data and bibliometric methodology. Section 3 reports on the journal's performance results. Section 4 provides analyses of keyword-level and author-level networks based on the co-occurrence of keywords and co-authorships. Section 5 contains a regression analysis of articles' attributes and citations. Section 6 evaluates the effect of changing the publisher and editorial and publishing policies on the journal's visibility. Section 7 concludes.

2. Data and methodology

This section describes the data used in the bibliometric analysis and introduces the bibliometric methodology used to answer our study questions. *JDQS* published 290 articles between 2002 and 2020 [2]. The empirical analyses are based on data from the Korea Citation Index (KCI) [3] and the Web of Science (WOS). KCI provides data on *JDQS*, including its publications, citations and articles' attributes, beginning in 2002, and other data, including citation indices, the journals that cite *JDQS* or are cited by *JDQS*, and the most viewed *JDQS* articles, beginning in 2008. In addition, we extract information on *JDQS* articles' authors and keywords from KCI-Korean Journal Database of WOS between 2002 and 2020. The number of downloads of *JDQS*'s recently published articles is obtained from Emerald Publishing [4].

Fairthorne (1969) introduces bibliometrics as a quantitative treatment of the properties of recorded discourse and the behaviors that are related to it. Broadus (1987) applies the bibliometric methodology to graph theoretic and statistical tools to analyze bibliographic data.

Zupic and Čater (2015) suggest the bibliometric methods of citation analysis, co-citation analysis, bibliographical coupling, co-author analysis and co-work analysis. Following them, we employ performance analysis to evaluate authors' and institutions' publication performance and use science mapping analysis at the keyword and author levels to present visually the structure of scholarly knowledge.

We employ performance analysis with KCI data to answer our first four questions (Q1-Q4). We use the performance analysis to analyze patterns in *JDQS*'s publications, citations and citation indices over the years. In addition, we find the authors, institutions and articles significantly contributing to *JDQS*. We also consider the journals that cite *JDQS* most often and that *JDQS* cites most often to analyze the citation pattern among journals.

To investigate the relationship among keywords and authors (Q5-Q6), we employ science mapping by analyzing keyword-level networks and author-level networks using the KCI-Korean Journal Database of WOS. We use VOSviewer [5] for bibliographic analysis and cluster analysis at the keyword and author levels.

To study the effect of *JDQS* articles' attributes on citations of the articles (Q7), we conduct a regression analysis with KCI data. We regress the citations for each article on the article's attributes.

To answer our final question (Q8), we compare the number of downloads of *JDQS* articles published by Emerald Publishing with the number of views of the most viewed *JDQS* articles until 2019. Based on this comparison, we check the effect of publication by Emerald Publishing on the articles' visibility.

3. Performance analysis

In this section, we identify *JDQS*'s yearly publications, citation patterns, most frequently cited articles and journals that cite *JDQS* articles based on a performance analysis.

Table 1 shows *JDQS*'s yearly publication and citation trends between 2002 and 2020. Annual publications increased from 10 in 2002 to 27 in 2014 before decreasing to 16 in 2020. In addition, while *JDQS*'s citations increased to 153 in 2011, that number fell during the most recent five years. *JDQS*'s average number of citations excluding self-citations is 51.79, which is about 70% of average citations including self-citations. The *h*-index [6] increased from 5 in 2002 to 8 in 2011, indicating that eight documents had 8 or more citations in 2011. However, the *h*-index decreased to 2 in 2020.

We check citation indices like the impact factor (IF) and centrality index, as reported by the KCI. Table 2 presents the IF and centrality index between 2008 and 2019. The KCI defines IF as the average number of citations per paper published in the journal during a specific period. We focus on IFs based on the citations during recent two years and five years. In addition, the centrality index is suggested by the WOS of Clarivate Analytics and Scopus of Elsevier. The KCI explains that while the IF depends on only the number of citations to a journal, the centrality index additionally considers the number and prestige of the citing journals and is computed over a journal citation network [7]. Thus, the main factor of the centrality index is not only the number of citations to a given journal but also the number and the reputation of journals that cite the papers in a given journal. The KCI-IF based on the citations during the most recent two years increased from 0.75 in 2002 to 1.59 in 2014 and decreased to 0.66 in 2020. The KCI-IF based on the citations, excluding self-citations, during the most recent two years and the KCI-IF based on the citations during the most recent five years have a similar pattern as well. The centrality index based on the data during the most recent three years increased from 2.972 in 2012 to 5.198 in 2014 and decreased to 0.798 in 2020.

Year	TP	CTP	TCP	TC	TC(SE)	TC/TP	TC/TCP	TC(SE)/TP	TC(SE)/TCP	h
2002	10	10	10	67	60	6.70	6.70	6.00	6.00	5
2003	11	21	10	82	73	7.45	8.20	6.64	7.30	5
2004	12	33	11	81	68	6.75	7.36	5.67	6.18	5
2005	11	44	9	73	58	6.64	8.11	5.27	6.44	4
2006	10	54	8	63	43	6.30	7.88	4.30	5.38	4
2007	10	64	10	95	79	9.50	9.50	7.90	7.90	6
2008	9	73	9	59	40	6.56	6.56	4.44	4.44	5
2009	14	87	13	141	94	10.07	10.85	6.71	7.23	7
2010	12	99	12	65	50	5.42	5.42	4.17	4.17	4
2011	16	115	15	153	113	9.56	10.20	7.06	7.53	8
2012	16	131	15	90	59	5.63	6.00	3.69	3.93	6
2013	16	147	16	85	43	5.31	5.31	2.69	2.69	6
2014	27	174	22	106	68	3.93	4.82	2.52	3.09	6
2015	23	197	22	90	50	3.91	4.09	2.17	2.27	6
2016	23	220	20	68	37	2.96	3.40	1.61	1.85	5
2017	21	241	16	49	21	2.33	3.06	1.00	1.31	4
2018	17	258	12	27	14	1.59	2.25	0.82	1.17	3
2019	16	274	10	17	9	1.06	1.70	0.56	0.90	2
2020	16	290	2	5	5	0.31	2.50	0.31	2.50	2

Note(s): The table reports *JDQS*'s annual publications and citations between 2002 and 2020. TP indicates total publications. CTP indicates cumulative total of publications. TCP indicates total cited publications. TC(TC(SE)) indicates total citations (excluding self-citation). TC/TP(TC(SE)/TP) indicates citations (excluding self-citation) per publication. TC/TCP(TC(SE)/TCP) indicates citations (excluding self-citation) per cited publication. *h* indicates *h*-index

Table 1.
JDQS's annual
publications and
citations between 2002
and 2020

Year	KCI-IF (2 years)	KCI-IF (2 years, SE)	KCI-IF (5 years)	Centrality index (3 years)
2008	0.75	0.65	0.65	–
2009	0.89	0.79	0.65	–
2010	1.13	1.04	0.7	–
2011	0.77	0.58	0.91	–
2012	0.86	0.61	0.89	2.972
2013	1.34	1.03	1.07	4.17
2014	1.59	0.81	1.35	5.198
2015	0.91	0.49	0.93	2.118
2016	0.56	0.3	0.7	1.199
2017	1.04	0.57	0.79	2.473
2018	0.91	0.45	0.71	1.391
2019	0.66	0.18	0.6	0.798

Note(s): The table reports *JDQS*'s annual citation indices between 2008 and 2019. KCI-IF(2 years) (KCI-IF (2 years, SE)) indicates a mean number of citation (excluding self-citation) of publication in *JDQS* cited in other paper during recent two years. KCI-IF (5 years) indicates a mean number of citation of publication in *JDQS* cited in other paper during recent five years. Centrality index (3 years) indicates the citation index calculated based on number of types of journal citing *JDQS* and reputation during recent three years

Table 2.
JDQS's annual citation
indices between 2008
and 2019

Q2 concerns *JDQS*'s most prolific authors and author-affiliated institutions. Table 3 shows the 11 *JDQS* authors with the most articles between 2002 and 2020. Topping the list is Kook-Hyun Chang with 11 articles and 69 citations, followed by Sun-Joong Yoon with 11 publications and 67 citations and Byung Jin Kang with 11 publications and 60 citations. Kook-Hyun Chang, Sun-Joong Yoon, Byung Jin Kang and Sol Kim tie for the highest *h*-index

Author	Institution	TP	TCP	TC	TC/TP	TC/TCP	h
Chang, Kook-Hyun	Konkuk University	11	9	69	6.27	7.67	5
Yoon, Sun-Joong	Dongguk University	11	10	67	6.09	6.70	5
Kang, Byung Jin	Soongsil University	11	10	60	5.45	6.00	5
Kim, Sol	Hankuk University of Foreign Studies	9	8	86	9.56	10.75	5
Lee, Woo-Baik	Korea National Open University	9	9	45	5.00	5.00	4
Rhee, Joon Hee	Soongsil University	9	7	17	1.89	2.43	2
Choi, Youngsoo	Hankuk University of Foreign Studies	7	7	41	5.86	5.86	3
Lee, Jae Ha	Sungkyunkwan University	6	6	66	11.00	11.00	4
Park, Yuen Jung	Hallym University	6	5	27	4.50	5.40	4
Eom, Young Ho	Yonsei University	6	6	20	3.33	3.33	3
Jang, Woon Wook	Yonsei University	6	6	15	2.50	2.50	3

Table 3.
The most prolific *JDQS* authors between 2002 and 2020

Note(s): The table reports the most prolific *JDQS* authors between 2002 and 2020. All variable definitions are identical to those in Table 1

at 5. Among the 11 most prolific *JDQS* authors, Jae Ha Lee has the most citations per publication (11.00).

Table 4 presents the 12 author-affiliated institutions published most often in *JDQS* between 2002 and 2020. Soongsil University leads the list with 30 articles and 79 citations. Next is Hankuk University of Foreign Studies with 28 articles and 171 citations, followed by Korea Advanced Institute of Science and Technology with 22 articles and 118 citations. Hankuk University of Foreign Studies has the highest *h*-index at 8, and Seoul Women's University has the most citations per publication at 8.33.

Q3 asks for *JDQS*'s most frequently cited articles. Table 5 shows the 20 most cited articles between 2002 and 2020. Heading the list is Kang (2009), cited 33 times, which explores the price discovery process using the high-frequency data on the KOSPI200 index, KOSPI200 futures and KODEX200 using the vector error correction model and the multivariate generalized auto regressive conditional heteroscedasticity model. Next is Yun and Lee (2003), cited 28 times, which examines the impact of trading volume by specific types of traders, such as individual investors, institutional investors and foreign investors, on the returns and volatility in the KOSPI200 futures market, followed by Kwon *et al.* (2011), cited 27 times, investigating the incentives of derivatives use and its effect of the risk

Institution	TP	TCP	TC	TC/TP	TC/TCP	h
Soongsil University	30	23	79	2.63	3.43	4
Hankuk University of Foreign Studies	28	23	171	6.11	7.43	8
Korea Advanced Institute of Science and Technology	22	20	118	5.36	5.90	7
Hanyang University	21	18	84	4.00	4.67	6
Konkuk University	19	17	133	7.00	7.82	7
Pusan National University	18	15	99	5.50	6.60	6
Seoul National University	16	11	82	5.13	7.45	6
Dongguk University	13	10	50	3.85	5.00	4
Korea National Open University	10	10	46	4.60	4.60	4
Seoul Women's University	9	8	75	8.33	9.38	6
National Pension Research Institute	9	8	61	6.78	7.63	4
Yonsei University	9	9	27	3.00	3.00	3

Table 4.
The most *JDQS* author-affiliated institutions between 2002 and 2020

Note(s): The table reports the most *JDQS* author-affiliated institutions between 2002 and 2020. All variable definitions are identical to those in Table 1

Authors	Title	Year	TC	C/Y
Kang, Seok Kyu	A Study on the Price Discovery in Korea Stock Index Markets: KODEX200, KOSPI200 and KOSPI200 Futures	2009	33	3.00
Yun, Chang Hyun., Lee, Sung Koo	The Impact of Trading Volumes by Trader Types in the KOSPI200 Futures Market	2003	28	1.65
Kwon, Taek Ho, Park, Rae Soo Chang, Uk	Derivatives Use, Firm Value, Risk and Determinants: Evidence of Korean Firms	2011	27	3.00
Lee, Jae Ha, Hahn, Deok Hee	Lead-Lag Relationship between Return and Volume in the KOSPI200 Spot and Option Markets	2007	26	2.00
Kim, Hong Bae, Kang, Sang Hoon	Price Discovery and Transmission Mechanism between CDS and FX markets	2011	26	2.89
Yoo, Shiyong, Koh, Jung Yang	A Research on Enhancing Forecasting Power for the Realized Volatility of KOSPI200	2009	25	2.27
Kim, Sol	Information Contents of Call-Put Options Trading Value Ratio	2007	23	1.77
Oh, Se Kyung	Intraday Volatility in the Korean Stock Index and Korean Stock Index Futures Markets	2002	22	1.22
Chung, Jay M., Kim, Jae Keun	The KOSPI200 Index Option Trading Behavior and Performance of Individual Investors	2005	22	1.47
Kho, Bong Chan, Chang, Uk Choi, Youngsoo	Style Analysis and Its Application of Domestic Mutual Funds	2011	21	2.33
Cho, Dam	The Effects of Estimation Methods of Stock Price Volatility on VaR	2004	20	1.25
Kho, Bong-Chan, Kim, Jin-Woo	Trading Performance of Domestic and Foreign Investors in KOSPI200 Index Futures Markets	2005	20	1.33
Lee, Joon Haeng	Estimating and Forecasting the Term Structure of Korea Markets Using Nelson-Siegel Model	2004	20	1.25
Kim, Sol	Which one is more important factor for pricing options, skewness or kurtosis?	2006	19	1.36
Bae, Kwangil, Kang, Hankil Lee, Changjun	The Lead-lag Relationship between the Stock Market and CDS Market in Korea	2010	19	1.90
Kim, Sol	Skewness or Kurtosis?: Using Corrado and Su (1996)'s Model	2008	19	1.58
Lee, Woo-Baik	An empirical analysis on change in price discovery of KOSPI200 futures through market maturity process	2006	17	1.21
Moon, Gyu-Hyun, Hong, Chung-Hyo	Risk Management with KOSDAQ50 Index Futures Markets	2003	16	0.94
Chang, Kook-Hyun, Yoon, Byung-Jo	CDS Premium and Jump Risk in Stock Market	2012	16	2.00
Nam, Kyung-Tae, Cho, Hoon	Empirical Study of Volume and Volatility Effects Associated with ELS and ELW Issuance	2009	16	1.45

Note(s): The table reports the 20 most cited *JDQS* articles between 2002 and 2020. Year indicates publication year. TC indicates total citations. C/Y indicates citations per year

Table 5.
The 20 most cited
JDQS articles between
2002 and 2020

management and value of firms in Korea. The remaining 17 publications have between 16 and 26 citations each.

Q4 deals with the journals that cite *JDQS* articles most often. Table 6 reports the 10 journals that cite *JDQS* articles most often (until 2019). Most citations come from journals in business management. Subject fields are classified by KCI [8]. Ranking (KCI-IF(2019, 2 years)) is determined based on the KCI-IF in 2019 computed from the citations during the most recent two years in each subject field. Not surprisingly, *JDQS* cites its own publications most often, with 432 citations, followed by *Korean Journal of Financial Engineering* with 115 citations,

Journal	NOC	Ranking (KCI-IF(2019, 2 years))	Subject field(KCI)
Journal of Derivatives and Quantitative Studies	432	59/84	Business management
Korean Journal of Financial Engineering	115	57/84	Business management
The Korean Journal of Financial Management	100	35/84	Business management
Korean Journal of Financial Studies	96	25/84	Business management
Asian Review of Financial Research	81	30/84	Business management
Journal of Knowledge Studies	49	45/64	Economics
Journal of Industrial Economics and Business	48	9/64	Economics
Korean Journal of Business Administration	34	8/84	Business management
Journal of The Korean Data Analysis Society	33	1/6	Statistics
Journal of Money and Finance	28	18/64	Business management

Note(s): The table reports the top 10 journals citing *JDQS* articles until 2019. NOC indicates the number of citations in a given journal citing *JDQS* articles. Ranking (KCI-IF(2019, 2 years)) indicates the ranking based on the impact factor calculated from the citations during recent two years in 2019. Subject field (KCI) indicates the category including the journal defined in Korea Citation Index (KCI)

The Korean Journal of Financial Management with 100 citations and *Korean Journal of Financial Studies* with 96 citations.

Table 7 shows the 10 journals that cite *JDQS* articles most often over three four-year periods. The top three journals other than *JDQS* are as follows:

(1) Between 2008 and 2011, the journal that cited *JDQS* articles most often was the *Korean Journal of Financial Engineering* with 35 citations, followed by *The Korean Journal of Financial Management* with 31 citations and the *Asian Review of Financial Research* with 26 citations.

(2) Between 2012 and 2015, one journal joins this list – *Korean Journal of Financial Studies* with 34 citations, while *The Korean Journal of Financial Management* with 34 citations and the *Korean Journal of Financial Engineering* with 25 citations, remain on the list of top-citing journals of *JDQS* articles.

(3) Between 2016 and 2019, in addition to the *Korean Journal of Financial Engineering* with 12 citations and *The Korean Journal of Financial Management* with 10 citations, the *Journal of Knowledge Studies*, with eight citations, joins the list of the top-citing journals of *JDQS* articles.

4. Analysis of keyword-level and author-level networks
In this section, we analyze the keyword-level and author-level networks using the KCI-Korean Journal Database of WOS. Q5 explores *JDQS*'s central themes and the relationships between authors of the articles in *JDQS*. We analyzed the co-occurrence of keywords and co-authorship of authors to identify keyword-level and author-level networks. We used factional counting as a counting method in VOSviewer. Since the average numbers of keywords and authors are 4.76 and 1.94, respectively, the minimum number of occurrences of keywords and authors set up to 5 and 2, respectively.

2008–2011	2012–2015	2016–2019
Journal of Derivatives and Quantitative Studies (121)	*Journal of Derivatives and Quantitative Studies* (151)	*Journal of Derivatives and Quantitative Studies* (80)
Korean Journal of Financial Engineering (35)	*Korean Journal of Financial Studies* (34)	*Korean Journal of Financial Engineering* (12)
The Korean Journal of Financial Management (31)	*The Korean Journal of Financial Management* (34)	*The Korean Journal of Financial Management* (10)
Asian Review of Financial Research (26)	*Korean Journal of Financial Engineering* (25)	*Journal of Knowledge Studies* (8)
Korean Journal of Financial Studies (23)	*Journal of Knowledge Studies* (11)	*Korean Journal of Financial Studies* (8)
Journal of Knowledge Studies (11)	*Asian Review of Financial Research* (10)	*Asian Review of Financial Research* (6)
Journal of Industrial Economics and Business (9)	*Korean management review* (7)	*Journal of Tourism Management Research* (3)
Journal of Money and Finance (8)	*Journal of Industrial Economics and Business* (6)	*Asia Pacific Journal of Business* (2)
Journal of The Korean Data Analysis Society (7)	*Korean Journal of Business Administration* (6)	*Journal of Industrial Economics and Business* (2)
The Journal of International Trade and Commerce (7)	*Management and Information Systems Review* (5)	*Journal of The Korean Data Analysis Society, Korean Business Education Review, Korean Corporation Management Review, Korean Journal of Business Administration, Review of Financial Information Studies, The Journal of Eurasian Studies* (2)

Note(s): The table reports the top 10 journals citing *JDQS* articles by 4-year period. The number of citations in a given journal citing articles in *JDQS* is reported in parentheses

[Figure 1](#) shows the keyword-level network limited to only the largest set of connected items with 14 items, five clusters and 21 links based on the weights of occurrences [9]. Cluster 1 consists of *Behavioral finance*, *Implied volatility*, *Information asymmetry* and *Jump risk*. *Behavioral finance*, *Implied volatility* and *Information asymmetry* are most important keywords in the cluster 1, with six occurrences each. Cluster 2 includes *rbitrage trading*, *Liquidity* and *Price discovery*. *Price discovery*, with 16 occurrences, is the most important keyword. Cluster 3 contains *ELS*, *KOSPI200 futures* and *VaR*. *KOSPI200 futures* is the most critical keyword with seven occurrences. Cluster 4 comprises *KOSPI200* and *Volatility*. *Volatility* has the most occurrence frequency, with 10 occurrences. Cluster 5 consists of *KOSPI200 options* and *Market efficiency*. *KOSPI200 options* is the most crucial keyword with 16 occurrences.

[Figure 2](#) presents that in a network limited to only the largest set of connected items with 25 items, six clusters and 34 links based on the weights of documents. In cluster 1, Yuen Jung Park is the most critical author with five documents. Uk Chang has published the most five articles in cluster 2. Cluster 3 has the most important author, Tong Suk Kim, with four publications. Sun-Joong Yoon and Byung Jin Kang tie for the most crucial author with 11 articles in cluster 4. Youngsoo Choi with seven articles and Bong-Chan Kho with five articles are the important authors with most publications in clusters 5 and 6, respectively.

5. Articles attributes and citations
Q5 asks for the effect of *JDQS* articles' attributes on the articles' numbers of citations. Following [Valtakoski (2020)](#), [Stremersch *et al.* (2007)](#) and [Baker *et al.* (2020a, 2021b)](#), we employ negative
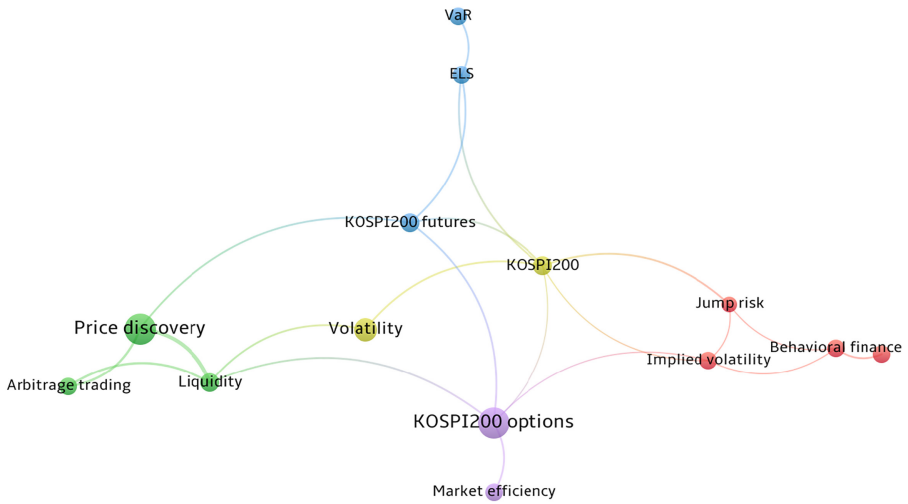
Figure 1.
Keyword-level network

Note(s): The figure plots keyword-level network of *JDQS* articles between 2002 and 2020

Figure 2.
Author-level network

Note(s): The figure plots author-level network of *JDQS* articles between 2002 and 2020

binomial regression to confirm the relationships between the *JDQS* articles' characteristics and citations. Table 8 presents the variable descriptions and summary statistics.

5.1 Variables
5.1.1 Dependent variable. Total citations is defined as a reference to other sources. The total number of an article's citations measures the effect of an articles on academia (Diamond, 1989; Laband and Piette, 1994; Burton and Phimister, 1995; Pieters and Basumgartner, 2002). The mean and the standard deviation of *Total citations* are 4.88 and 5.79, respectively. Since *Total citations* is countable, and its mean is different from its variance, the negative binomial regression is appropriate for our study (Stremersch *et al.*, 2007; Baker *et al.*, 2020a, 2021b; Valtakoski, 2020).

5.1.2 Control variable. Article age, defined as the number of years between publication year of the article and 2020, is included in our model since the literature on bibliometric studies

Variable	Description	Type	Expected sign	Max	Min	Mean	Std.Dev.
Dependent variable							
Total citations	Total number of citations received by an article since its publication	Count	*	33.00	0.00	4.88	5.79
Control variables							
Article age	Total number of years since an article's publication	Count	±	19.00	1.00	8.73	5.18
Demeaned age squared	The square of the difference between an article's age and the mean of the ages of all the articles	Continuous	±	105.45	0.07	26.78	27.85
Universalist variables							
Article length	Total number of pages in an article	Count	+	70.00	11.00	28.13	7.32
Article order	The number at which an article appears in the issue	Count	−	7.00	1.00	2.97	1.53
Lead article	1 if an article is a lead article in the issue, otherwise 0	Dummy	+	1.00	0.00	0.21	0.41
Funding	1 if an article receives funding, otherwise 0	Dummy	+	1.00	0.00	0.57	0.50
Conference	1 if an article is presented in a conference before publication, otherwise 0	Dummy	+	1.00	0.00	0.14	0.35
KCI	1 if an article is published in the journal indexed in KCI, otherwise 0	Dummy	+	1.00	0.00	0.89	0.32
Social constructivist variables							
Number of authors	Total number of authors involved in the article	Count	+	6.00	1.00	1.94	0.83
Foreign authors	1 if an article has an foreign author, otherwise 0	Dummy	+	1.00	0.00	0.02	0.13
Foreign institutions	1 if an article as a foreign institutional author, otherwise 0	Dummy	+	1.00	0.00	0.03	0.16
Nonacademic authors	1 if an article as a nonacademic author, otherwise 0	Dummy	±	1.00	0.00	0.25	0.43
Number of references	Total number of documents cited by the article	Count	+	131.00	4.00	29.14	15.07
Presentation variables							
Length of title	Total number words in a title of an article	Count	±	24.00	4.00	11.20	3.63
Number of keywords	Total number of keywords in an article	Count	+	9.00	2.00	4.76	0.93
Language	1 if an article is written in English, otherwise 0	Dummy	±	1.00	0.00	0.12	0.32

Note(s): The table describe variables and reports summary statistics of variables. The sample period is from 2002 through 2020

proposes that an article's age has an effect on citations (Landes and Posner, 1996; Ayres and Vars, 2000; Stremersch *et al.*, 2007; Baker *et al.*, 2020a). In addition, the literature, including Stremersch *et al.* (2007) and Meyer *et al.* (2018), finds that the relationship between age and

citations is nonlinear, after controlling for a time-squared term. We also employ *Demeaned age squared* as a control variable to consider this nonlinearity. The coefficient estimates on *Article age* and *Demeaned age squared* are expected to be positive and negative, respectively, based on the results in Stremersch *et al.* (2007).

5.1.3 Independent variable. Stremersch *et al.* (2007) show a conceptual framework with three perspectives on the impact of the scientometric attributes of articles and authors on the number of an article's citations and conduct an empirical analysis to confirm this framework with a sample of five major journals in marketing. The universalist perspective is that the articles are cited for "what" the authors say, such as the quality and the domain of the article, while the social constructivist perspective is that the articles are cited based on "who" the authors are, such as their visibility and personal promotion, and the presentation perspective is that the articles are cited for "how" the authors say what they say, such as title length, attention grabbers and expositional clarity. We use the variables in these three perspectives.

Based on the universalist perspective, an article's citations depend on its contents, such as its quality and domain (Stremersch *et al.*, 2007; Meyer *et al.*, 2018; Baker *et al.*, 2020a, 2021b; Dang and Li, 2020). Therefore, six of the variables we employ are based on the articles' contents:

(1) *Article length* is the article's number of pages. Since the longer articles are likely to be cited by other sources, *Article length* may be positively related with citations (Stremersch *et al.*, 2007; Meyer *et al.*, 2018; Baker *et al.*, 2020a, 2021b; Dang and Li, 2020), so the coefficient estimate on *Article length* is expected to be positive.

(2) *Article order* is an article's order in an issue. Articles located earlier in an issue are likely to have more visibility than those that are located later in the issue (Stremersch *et al.*, 2007; Dang and Li, 2020; Baker *et al.*, 2021b), so the coefficient estimate on *Article order* is expected to be negative.

(3) *Lead article* is a dummy variable that indicates whether an article is the first article in an issue and that takes the value of 1 if the article is located first in an issue, and 0 otherwise. Since editors are likely to place articles with the highest quality in the first position of an issue (Schwert, 1993; Baker *et al.*, 2020a, 2021b; Dang and Li, 2020), the lead article is likely to receive more visibility and additional citations. Therefore, the coefficient estimate on *Lead article* is expected to be positive. Among the 290 publications, this variable takes the value of 1 in 62 publications.

(4) *Funding* is a dummy variable that indicates whether an article is supported by financial resources and that takes the value of 1 if the article receives financial support, and 0 otherwise. Because an investigation that is supported by financial resources is likely to have better research sources (Dang and Li, 2020; Baker *et al.*, 2021b), it may be of high quality and receive additional citations. Therefore, the coefficient estimate on *Funding* is expected to be positive. Among the 290 publications, this variable takes the value of 1 in 166 publications.

(5) *Conference* is a dummy article that indicates whether the article was presented at a conference before publication and that takes the value of 1 if the article was presented in a conference before publication, and 0 otherwise. Since articles that are presented at conferences are discussed and reviewed by other scholars who attend the conference, the authors of these articles are likely to have more opportunity to improve their articles' quality than those that are not presented at conferences (Meyer *et al.*, 2018; Dang and Li, 2020; Baker *et al.*, 2021b). Therefore, the coefficient estimate on *Conference* is expected to be positive. Among the 290 publications, 42 publications have been presented at conferences.

(6) *KCI* is a dummy variable that indicates whether an article was published in a journal indexed in the KCI and takes the value of 1 if the article was published in such a journal, and 0 otherwise. The KCI is a database of domestic journals, articles and references. A journal's qualification to apply for inclusion in the KCI is related to the regularity and punctuality of publication, the number of reviewers per article, establishment and notification of research ethics regulations, article titles and author names in foreign languages, diversity of paper submissions and accreditation by the KCI. A journal can be indexed in the KCI if its score for system evaluation, content evaluation and special evaluation in the academic field is 85 or more (out of 100) [10]. Since the journals that are indexed in the KCI are likely to be of higher quality and receive more visibility than journals that are not, [11] the coefficient estimate on *KCI* is expected to be positive.

According to the social constructivist perspective, an article's citations vary with its social and intellectual connectivity (Stremersch *et al.*, 2007; Baker *et al.*, 2020a, 2021b; Valtakoski, 2020). We employ several of the variables that the literature suggests capture the social constructivist perspective as the determinants of an article's social and intellectual connectivity in our model.

(1) *Number of authors* indicates the number of authors who were involved in the article. Since an article that has more authors is likely to have greater social connectivity and visibility, it may receive more citations than those that have fewer authors (Stremersch *et al.*, 2007; Baker *et al.*, 2020a, 2021b; Valtakoski, 2020). Therefore, the coefficient estimate on *Number of authors* is expected to be positive.

(2) *Foreign authors* is a dummy variable that takes the value of 1 if the article has a foreign author (i.e. not Korean author), and 0 otherwise. Having a foreign author may lead to an article's having greater visibility in foreign academia and so to have more citations than would be the case if it had only domestic authors (i.e. Korean author) [12]. Therefore, the coefficient estimate on *Foreign authors* is expected to be positive. Among the 290 publications in our sample, five publications have a foreign author.

(3) *Foreign institutions* is a dummy variable that takes the value of 1 if the affiliation of at least one author is a foreign institution (i.e. not Korean institution), and 0 otherwise. Similar to *Foreign authors*, articles by authors who are affiliated with foreign institutions are likely to receive more visibility and more citations than articles whose authors are affiliated only with domestic institutions (i.e. Korean institution). Therefore, the coefficient estimate on *Foreign institutions* is expected to be positive. Among the 290 publications in our sample, eight publications take the value of 1 for *Foreign institutions*.

(4) *Nonacademic authors* is a dummy variable that takes the value of 1 if the at least one author is affiliated with nonacademic institutions, and 0 otherwise. Since a nonacademic author's involvement is likely to provide a practical viewpoint (Burgess *et al.*, 2017), the visibility of the article among practitioners could increase. On the other hand, an article with a large proportion of nonacademic authors could contribute little to academia and have less visibility among the scholars who are most likely to cite the article (Baker *et al.*, 2021b). Therefore, the coefficient estimate on *Nonacademic authors* is expected to be either positive or negative. Among the 290 publications in our sample, 73 publications have at least one nonacademic author.

(5) *Number of references* indicates the number of references cited by an article. Since an article with more references is likely to have intellectual connectivity with the studies it cites and, thus, greater visibility to their authors, it is likely to receive additional citations (Peters and van Raan, 1994; Stremersch *et al.*, 2007; Meyer *et al.*, 2018; Valtakoski, 2020). Therefore, the coefficient estimate on *number of references* is expected to be positive.

According to the presentation perspective, the number of an article's citations depends on its presentation (Stremersch *et al.*, 2007; Meyer *et al.*, 2018; Baker *et al.*, 2020a, 2021b; Dang and Li, 2020). The presentation-related variables we use are explained as follows.

(1) *Length of title* is the total number of words in a title of an article. Stremersch *et al.* (2007) mention that the direction of the effect of *Length of title* on article's citations is difficult to posit ex ante and find that length of title does not affect the number of citations [13]. Thus, the coefficient estimate on *Length of title* is expected to be either positive or negative.

(2) *Number of keywords* refers to the number of keywords in an article. Since the keywords help potential readers in searching for an article in various databases (Stremersch *et al.*, 2007; Baker *et al.*, 2020a, 2021b; Valtakoski, 2020), articles with more keywords are likely to receive additional citations. Therefore, the coefficient estimate on *Number of keywords* is expected to be positive.

(3) *Language* is a dummy variable that takes the value of 1 if the article written in foreign language, and 0 otherwise (i.e. written in Korean). Since in reality *JDQS*'s articles are written in English or Korean, *Language* indicates whether the article is written in English or Korean. Generally, articles that are written in English have more visibility to scholars in various countries [14]. Conversely, since *JDQS* is a domestic (i.e. Korean) journal, and we conduct this analysis using KCI data, and most of KCI's citations stem from other domestic journals, articles that are written in Korean receive more visibility. Therefore, the coefficient estimate on *Language* is expected to be either positive or negative. Among the 290 publications in our sample, 34 publications are written in foreign language.

5.2 Regression analysis

Table 9 shows the correlations between the variables in our model. Since we focus on the effect of an article's attributes on its citations, the correlations between *Total citations* and other variables are examined. The correlation between *Article age* and *Total citations* is positive and significant at the 1% level, consistent with our expectation. Although the correlation of *Demeaned age squared* to *Total citations* is insignificant, the sign of that is negative, as expected. *Conference* is positively correlated with *Total citations*, and *KCI* has a negatively significant correlation. *Foreign institutions* has a negative correlation, which is counter to our expectations. This result may be due to *JDQS*'s being a domestic journal, and almost all citations of the articles in *JDQS* being from authors who are affiliated with domestic institutions. Such authors may contribute more citations than those who are affiliated with foreign institutions. *Nonacademic authors* is negatively correlated with *Total citations*, which confirms our expectations. In addition, the correlation between *Language* and *Total citations* is negative and significant at the 1% level, which is consistent with *JDQS*'s being a domestic journal. The result for *Language* is also consistent with that for *Foreign institutions*.

The empirical investigation focuses on whether an article's attributes affect its citations. The regression model is examined as follows:

No.	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Total citations	1																
2	Article age	0.385‡	1															
3	Demeaned age squared	−0.024	0.393‡	1														
4	Article length	−0.043	−0.105*	−0.054	1													
5	Article order	−0.065	0.029	0.022	−0.125†	1												
6	Lead article	0.048	−0.009	−0.016	0.154‡	−0.670‡	1											
7	Funding	0.092	−0.029	0.005	0.044	0.014	−0.008	1										
8	Conference	0.163‡	0.074	0.003	−0.022	−0.075	0.024	0.059	1									
9	KCI	−0.130‡	−0.638‡	−0.756‡	0.103*	−0.078	0.028	−0.002	−0.038	1								
10	Number of authors	−0.053	−0.115*	0.034	0.010	−0.037	0.049	0.028	0.066	0.012	1							
11	Foreign authors	−0.085	−0.157‡	0.077	−0.093	−0.084	−0.005	0.007	−0.055	0.048	0.138†	1						
12	Foreign institutions	−0.117†	−0.109*	0.101*	−0.058	−0.107*	0.015	−0.110*	−0.010	−0.006	0.140†	0.301‡	1					
13	Nonacademic authors	−0.124‡	0.047	0.067	0.120†	0.069	−0.012	−0.189‡	−0.058	−0.042	0.159‡	−0.077	−0.001	1				
14	Number of references	−0.028	−0.228‡	−0.071	0.484‡	−0.138†	0.072	0.056	−0.042	0.145‡	0.038	−0.019	−0.059	−0.050	1			
15	Length of title	0.088	0.043	−0.075	0.071	−0.049	0.099*	−0.042	−0.041	0.052	−0.017	0.022	0.003	−0.005	−0.006	1		
16	Number of keywords	−0.088	−0.218‡	−0.140†	0.098†	−0.003	0.016	0.071	−0.053	0.119‡	0.008	−0.023	0.043	0.046	0.046	0.001	1	
17	Language	−0.228‡	−0.211‡	0.102‡	−0.130†	−0.028	0.019	−0.032	−0.120‡	0.029	−0.012	0.281‡	0.200‡	−0.063	−0.019	−0.129†	0.013	1

Note(s): The table reports the correlation among the model's variables. *, † and ‡ represent significance at the 10%, 5% and 1% levels, respectively

$$Total\ citations_i = \alpha + \beta Controls_i + \gamma Attributes_i + \epsilon_i, \qquad (1)$$

where $Total\ citations_i$ is the number of citations of article i, $Controls_i$ is the vector of article i's control variables and $Attributes_i$ is the vector of article i's attributes.

Table 10 shows the regression results. In model I, which includes the control variables only, the coefficient estimate on *Article age* is positive and significant at the 1% level. Consistent with results in the literature (Stremersch *et al.*, 2007; Baker *et al.*, 2020a, 2021b), the coefficient estimate on *Demeaned age squared* is negative and significant at the 1% level. This coefficient estimate captures the nonlinearity of the relationship between *Article age* and citations. In model II, which uses all independent variables, the coefficient estimate on *Demeaned age squared* is less significant than that in model I, but it is negative and still significant at the 10% level. In addition, the addition of all independent variables does not have an effect on the coefficient estimate on *Article age*.

As for the universalist variables, the coefficient estimate on *Conference* is positive and significant at the 5% level. This result confirms that articles that were presented at a conference before publication are positively associated with the citations, consistent with our expectation.

Among the social constructivist variables, *Nonacademic authors* has a negative relationship with *Total citations*. This result indicates that articles that have nonacademic authors do not cite the articles in *JDQS*, an academic journal, often.

For the presentation variables, *Language* is negatively associated with *Total citations*. This result is consistent with our conjecture that since most of citations of articles in *JDQS* come from other domestic journals, articles written in English may contribute little to citations of articles in *JDQS*.

Variables	Model I		Model II	
	Coeff.	Std.Err.	Coeff.	Std.Err.
Constant	1.488	(0.612)**	0.517	(3.700)
Article age	0.520	(0.065)***	0.506	(0.084)***
Demeaned age squared	−0.043	(0.012)***	−0.030	(0.018)*
Article length			−0.044	(0.050)
Article order			−0.169	(0.276)
Lead article			0.234	(1.019)
Funding			0.859	(0.637)
Conference			1.763	(0.883)**
KCI			0.747	(1.802)
Number of authors			0.055	(0.385)
Foreign authors			1.108	(2.587)
Foreign institutions			−1.184	(2.019)
Nonacademic authors			−1.419	(0.746)*
Number of references			0.027	(0.024)
Length of title			0.077	(0.086)
Number of keywords			−0.025	(0.341)
Language			−2.008	(1.048)*
N	290		290	
AIC	6.162		6.180	
Log-likelihood	−890.502		−879.116	

Table 10.
Regression results

Note(s): The table reports the regression results. *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively. Akaike Information Criterion is abbreviated to AIC

6. Effect of changes in the publisher and editorial and publishing policies on visibility

Emerald Publishing began publishing *JDQS* in 2020 (Vol. 28, No. 2), a change that *JDQS*'s editorial team expected to increase the number of citations of *JDQS*'s articles by scholars not only in Korea but also in other countries. To improve the journal's visibility among scholars in various, *JDQS*'s editorial team required that all articles published in *JDQS* be written in English. In addition, the editorial team expanded the journal's scope to all functional areas of derivatives and quantitative finance, including behavioral finance, corporate finance, empirical asset pricing, market microstructure, international finance and banking, and changed *JDQS* to a fully open-access journal [15]. In this section, we compare the numbers of views and downloads before and after Emerald Publishing took over publishing to confirm its effect on *JDQS*'s visibility.

Table 11 shows the 10 most viewed *JDQS* articles between 2008 and 2019, before Emerald Publishing took over publishing. Topping the list is Kim *et al.* (2011), an article that suggests a new numerical algorithm for pricing equity-linked security based on the finite difference method with exit-probability, which was viewed 868 times. Next is Ohk (2005), an article that examines the effect of index futures trading on the price volatility and liquidity of spot markets using data on KOSPI and KOSPI200 futures, which was viewed 542 times. Next are Kim *et al.* (2015), an article that studies the effect of leveraged and inverse ETFS on the price and volatility of the Korean market, which was viewed 501 times, and Lee *et al.* (2019), an article that provides a methodology for estimating the risk-return relationship of alternative asset investments in the mean-variance framework, which was viewed 478 times. The remaining six publications on the list have between 386 and 466 views each.

Authors	Title	Year	Number of views
Kim, Yongsik, Bae, Hyeong-Ohk Roh, Hyunseok	FDM Algorithm for Pricing of ELS with Exit-Probability	2011	868
Ohk, Ki Yool	The Effect of Futures Trading on Spot Market Liquidity	2005	542
Kim, Soo-Hyun, Lee, Kyuseok, Kang, Hyoung-Goo	Leveraged/Inverse ETFs and Volatility in the Korean Market	2015	501
Lee, Su Jin, Cho, Jin Wan Lee, Jae Hyun	Analysis on the Risk Return Profile of Alternative Assets Under Reference Portfolio Concept	2019	478
Yoon, Bo Hyun, Choi, Young Min	A Study on Alternative Index Strategies in Korean Stock Market	2014	466
Yoo, Jin, Kim, Geun Beom	Theory and Evidence of Arbitrage Trading of Equity Futures	2010	423
Lee, Joon Haeng	Estimating and Forecasting the Term Structure of Korea Markets Using Nelson-Siegel Model	2004	418
Yang, Jeong Phil, Chang, Uk Choi, Youngsoo	The Issues and Improvement Plans of Pricing and Accounting of the Structured Derivatives: The Case of Zero-Coupon Callable Bond	2018	411
Song, Joonhyuk	Estimating and Forecasting a Term Structure of Interest Rates with State-Space Nelson-Siegel Model	2011	402
Lim, Hyuncheul, Choi, Youngsoo	Knock-In and Stocks Market Effect Due to ELS Issuance and Hedging	2015	386

Note(s): The table reports the 10 most viewed *JDQS* articles between 2008 and 2019. Year indicates publication year

Table 11.
The 10 most viewed *JDQS* articles between 2008 and 2019

Authors	Title	Number of downloads
Han, Minyeon, Lee, Dong-Hyun Kang, Hyoung-Goo	Market anomalies in the Korean stock market	7,543
Cheong, Chiyoung, Choi, Jaewon	Green bonds: a survey	1,414
Koo, Bonha, Chae, Joon	Dividend month premium in the Korean stock market	500
Thompson, Ephraim Kwashie Kim, Changki	Information asymmetry, time until deal completion and post-M&A performance	284
Kang, Dae Jin, Kim, Soo-Hyun	CAPM verification using overnight and daytime returns	280
Kang, Hyoung-Goo, Han, Byungsuk	An option embedded novel military service system based on cognitive bias theories	271
Chung, Jay M., Wang, Shu-Feng	Short selling and stock price crash risk	251
Kim, Jungmu, Park, Yuen Jung	Contagion between liquid and illiquid assets during the financial crisis: evidence from the US credit derivative market	214
Yang, Tun-Ya, Huang, Si-Yuan Tsai, Wei-Che, Weng, Pei-Shih	The impacts of day trading activity on market quality: evidence from the policy change on the Taiwan stock market	200
Kim. Ryoonhee	Do firm boundaries matter? The impact of Chinese imports on US conglomerates	141
Lee, Hyoseob	The necessity to activate long-term ETD in Korea	66

Table 12.
Downloads of *JDQS* articles published by Emerald Publishing

Note(s): The table reports the number of downloads of *JDQS* articles published by Emerald Publishing. Emerald Publishing starts to publish the articles in *JDQS* from 2020 (Vol. 28, No. 2)

Table 12 shows the number of downloads of the articles in *JDQS* that were published by Emerald Publishing. Heading the list is Han *et al.* (2020), an article that investigates the statistical and economic significance of the performance of 148 anomalies in the Korean market and finds that data mining explains a large portion of abnormal returns from anomalies, which was downloaded 7,543 times. Next is Cheong and Choi (2020), an article that surveys academic developments in the literature on green bonds, an important financial instrument in socially responsible investment, which was downloaded 1,414 times. Koo and Chae (2020), an article that examines the dividend month premium in the Korean stock market using data on KOSPI and KOSDAQ and finds positive abnormal returns in predicted dividend months follows, which was downloaded 500 times. Next is Thompson and Kim (2020), an article that shows the vital role of information asymmetry in the post-M&A performance-time until deal completion nexus, which was downloaded 284 times. The remaining seven publications have been downloaded between 66 and 280 times each.

A comparison of Tables 11 and 12 shows that the articles in Table 12 have been more visible than those in Table 11, although the articles in Table 11 are older than those in Table 12. Consistent with Norris *et al.* (2008), Lansingh and Carter (2009) and Bornmann *et al.* (2012), we can confirm that the publication by Emerald Publishing and the change in editorial and publishing policies have had a positive influence on visibility of the articles in *JDQS*.

7. Conclusion

This paper examines the historical evolution of *JDQS* between 2002 and 2020 based on a bibliometric analysis. We employ a performance analysis, a bibliographic analysis, a cluster analysis, a regression analysis and a comparison analysis to analyze *JDQS*'s various perspectives using the patterns of citations, keywords and authors in *JDQS*'s articles. These analyses led to several findings.

JDQS's yearly publications, citations, IFs and centrality indices increased in the early 2010s and then decreased in 2020. *JDQS*'s most prolific authors and their affiliated institutions are Kook-Hyun Chang, Sun-Joong Yoon and Byung Jin Kang with 11 articles each. The most author-affiliated institutions are Soongsil University, with 30 publications, followed by Hankuk University of Foreign Studies, with 28 publications and Korea Advanced Institute of Science and Technology, with 22 publications.

JDQS's most cited article is Kang's (2009) "A Study on the Price Discovery in Korea Stock Index Markets: KODEX200, KOSPI200, and KOSPI200 Futures," with 33 citations. Yun and Lee (2003) and Kwon *et al.* (2011) take second and third place with 28 and 27 citations, respectively. We also find that the authors of *JDQS* articles cite *JDQS* articles most often, with 432 citations, followed by authors published in *Korean Journal of Financial Engineering* with 115 citations, *The Korean Journal of Financial Management* with 100 citations and *Korean Journal of Financial Studies* with 96 citations.

Our keyword network analysis reveals that the main keywords investigated by *JDQS* authors are *Behavioral finance, Implied volatility* and *Information asymmetry* with six occurrences each, *Price discovery* with 16 occurrences, *KOSPI200 futures* with seven occurrences, *Volatility* with 10 occurrences and *KOSPI200 options* with 16 occurrences across five clusters. Based on the author network analysis, we find that the most prolific authors of *JDQS* articles are Sun-Joong Yoon and Byung Jin Kang, with 11 articles each; Youngsoo Choi, with seven articles; Yuen Jung Park, Uk Chang and Bong-Chan Kho, with five articles each and Tong Suk Kim, with four articles.

We also focus on the relationship between the articles' various characteristics and the number of citations. Using on a negative binomial regression model, we confirm that the statistically significant characteristics that are positively related with *JDQS* citations are *Article age* and *Conference,* and that *Demeaned age squared* and *Nonacademic authors* are negatively associated with *JDQS* citations. Finally, we compare the number of views of *JDQS* articles between 2008 and 2019 and the number of downloads of *JDQS* articles published by Emerald Publishing (since 2020) with changed editorial and publishing policies. While the most viewed *JDQS* article between 2008 and 2019 is Kim *et al.* (2011) "FDM Algorithm for Pricing of ELS with Exit-Probability" with 868 views, the most downloaded *JDQS* article since Emerald Publishing began publishing the journal is Han *et al.* (2020) "Market anomalies in the Korean stock market" with 7,543 downloads. We confirm that publication by Emerald Publishing and the change in editorial and publishing policies have had positive effects on *JDQS* articles' citations.

This study contributes to journals' editorial boards and the literature on bibliometrics in several ways. First, we clarify the impact of *JDQS*'s publisher, articles' citations, *JDQS*'s citation indices and the patterns of authors' and articles' attributes on the journal's citations. Our study helps *JDQS*'s editorial board to manage editorial and publishing policies for the development of the journal. Second, we identify the effects of keywords in the *JDQS*'s articles, which provides useful information to scholars who are interested in submitting their studies to *JDQS*. Third, we examine co-authorships in *JDQS* articles, which suggests a strategy for increase the number of researchers who may be interested in reading and contributing to *JDQS*. Finally, we identify a significant relationship between *JDQS* articles' attributes and the number of citations they receive. These results provide factors for *JDQS* articles' authors to

consider to increase citations of their articles, including presenting their work at conferences and avoiding collaboration with nonacademic authors.

Our study has several limitations. One is that our empirical analyses stem from data on the citations in domestic journals. Since Emerald Publishing has only recently started to publish the articles in *JDQS*, and the editorial and publishing policies to support citations from international journals have only recently been implemented, the data on the citations are not sufficient to compare the relationship between the articles' attributes and the citations from domestic and international journals. Another limitation is that the analysis of the relationship between the articles' attributes and their citations does not consider environmental factors. For example, *JDQS* articles that were published during the financial crisis can be affected by conditions in the stock and derivative markets. Considering these limitations is left to future research.

Notes

1. KDA has held the international Asia–Pacific Association of Derivatives (APAD) conference since 2004. The *Journal of Futures Markets* and *JDQS* published a special issue comprised of selected papers presented at APAD. The most recent APAD conference, the 17th, was held July 12–13, 2021, in Busan, Korea, under the sponsorship of the Korea Exchange, Korea Investment and Securities, Mirae Asset Global Investments, Shinhan Investment, NH Investment and Securities, Korea Financial Investment Association, KB Financial Group, Mirae Asset Securities, Korea Investment Management, KB Securities, Samsung Asset Management, Korea Securities Depository, KIWOOM, Shinhan Asset Management, Hanwha Asset Management, SK Securities, FnGuide, and Samsung Life Insurance. The keynote speaker was K. Geert Rouwenhorst, who is affiliated with Yale University and presented the topic "The Commodity Futures Risk Premium."

2. While *JDQS* was first published in 1993, the data on *JDQS* article's citations is available only from 2002.

3. https://www.kci.go.kr/kciportal/main.kci?locale=en

4. The data on the number of downloads for recently published articles is as of the end of June, 2021.

5. VOSviewer is developed by van Eck and Waltman (2010) with the algorithms to construct and view bibliometric maps.

6. *h*-index is an author-level metric defined as the maximum value of *h*, such that an author has published at least *h* publications that have each been cited at least *h* times.

7. An explanation for two indices is available at https://www.kci.go.kr/kciportal/po/citationindex/explanation.kci?locale=en

8. For example, Social Science is classified into Social Science in general, Political Science, Economics, Agricultural Economics, Business Management, Accounting, International Trade, Sociology, Social Welfare, Area Studies, Anthropology, Education, Law, Public Administration, Public Policy, Geography, International/Regional Development, Tourism, Journalism and Broadcasting, Military Science, Psychological Science, and Other Social Science.

9. Some keywords were unified. For example, "KOSPI 200 index options" and "KOSPI200 index option" are changed to "KOSPI200 options."

10. A detailed explanation for the KCI's evaluation of academic journals is available at https://www.kci.go.kr/kciportal/guidance/jourEvalGuidance.kci?locale=en

11. Alamri (2018) concludes that, while a number of factors may contribute to the number of citations an article receives, indexing plays an important role since indexing of journals in a database allows journals' articles to be easily searchable by scholars and increases journals' visibility.

12. Stremersch and Verhoef (2005) show that articles that have foreign scholars are cited less often than those that have US-based authors. The authors reason that foreign authors may have disadvantages in visibility since the majority of the finance field is based in US. Following their

idea, the finance academia in Korea is even less developed than it is in other nations, so we use *Foreign authors* as an independent variable in our model.

13. Dang and Li (2020) and Valtakoski (2020) also employ *Length of title* in their regression model.

14. Lansingh and Carter (2009) show that the average number of citations of articles written in English is larger than that of articles written in other languages. Bornmann *et al.* (2012) find that, since English is the lingua franca in all fields of science, the papers published in English have an advantage over those published in other languages. Following those authors, we use *Language* in our regression model.

15. Norris *et al.* (2008) provide empirical evidence of a citation advantage of open-access articles over toll-access articles in ecology, applied mathematics, sociology, and economics.

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