PressAcademia

JEFA

Journal of Economics, Finance & Accounting

ABOUT THE JOURNAL

Journal of Economics, Finance and Accounting (JEFA) is a scientific, academic, peer-reviewed, quarterly and open-access online journal. The journal publishes four issues a year. The issuing months are March, June, September and December. The publication languages of the Journal are English and Turkish. JEFA aims to provide a research source for all practitioners, policy makers, professionals and researchers working in the area of economics, finance, accounting and auditing. The editor in chief of JEFA invites all manuscripts that cover theoretical and/or applied researches on topics related to the interest areas of the Journal.

Editor-in-Chief
Prof. Suat Teker

Editorial Assistant
Inan Tunc

JEFA is currently indexed by
EconLit, EBSCO-Host, Ulrich's Directiroy, ProQuest, Open J-Gate,
International Scientific Indexing (ISI), Directory of Research Journals Indexing (DRJI), International Society for Research Activity(ISRA), InfoBaseIndex, Scientific Indexing Services (SIS), Google Scolar, Root Indexing, Journal Fctor Indexing, TUBITAK-DergiPark, International Institute of Organized Research (I2OR), SOBIAD.

Ethics Policy
JEFA applies the standards of Committee on Publication Ethics (COPE). JEFA is committed to the academic community ensuring ethics and quality of manuscripts in publications. Plagiarism is strictly forbidden and the manuscripts found to be plagiarised will not be accepted or if published will be removed from the publication.

Author Guidelines
All manuscripts must use the journal format for submissions. Visit
www.pressacademia.org/journals/jefa/guidelines for details.

CALL FOR PAPERS
The next issue of JEFA will be published in March, 2020.
Submit manuscripts to
jefa@pressacademia.org or
http://www.pressacademia.org/submit-manuscript/

Web: www.pressacademia.org/journals/jefa

CONTENT

WHAT SKILLS ACCOUNTING STUDENTS NEED: EVIDENCE FROM STUDENTS' PERCEPTIONS AND PROFESSIONALS' EXPECTATIONS

Feyza Derekoy
Canakkale Onsekiz Mart University, Canakkale Social Sciences Vocational School, Terzioglu Campus, Canakkale, Turkey.
fderekoy@comu.edu.tr, ORCID: 0000-0003-1508-7498.

ABSTRACT

Purpose- The aim of the study is to identify the skills that should be gained in accounting education according to the perceptions of students and the expectations of professional accountants and to determine whether there is a difference between the opinions of students and professionals.
Methodology- A questionnaire which includes the skills to be gained in accounting education, was applied to the students in different departments where accounting education is given, at Çanakkale Onsekiz Mart University. It was also applied to the accounting professionals registered to Çanakkale Chamber of Certified Public Accountant.
Findings- The results of the study revealed that there were differences between the opinions of students and professional accountants in 11 out of 30 skills that should be included in accounting education.
Conclusion- Although there are similarities between students' perceptions and expectations of professionals, there are some differences. It would be appropriate to review and update the accounting education in line with the expectations considering these differences**.**

Keywords: Accounting education, accounting skills, accounting curriculum, accounting student, accountancy profession.
JEL Codes: M40, M41, M49.

1.INTRODUCTION

In the global competition environment, the most important toll of competition is the timely production and use of knowledge. Besides, in the production and use of knowledge, accounting undertakes the most important task. As a component of management information system, accounting which has a higher advantage, should produce information which helps to the organizatons for improving their performance and using this information for continuous improvement of activities.

Accounting is the process of preparing, reporting and interpreting financial information that is provided to decision makers (Ingram and Albright, 2007: 20). Accounting and accountancy profession, plays a leading role in the right and effective decision-making process and the preparation of future plans. The first requirement for the accountant to fulfill this function effectively is the existence of well-educated accountants who know the responsibility of the profession (Özdemir & Elitaş, 2015). Therefore, the accountant must have the necessary field expertise and the ability to use the necessary equipment in order to use his knowledge in the best way. Accordingly, the first condition for increasing the quality of the accounting profession is to increase the quality of education in the subjects that require knowledge of accounting expertise (Kalmış & Yılmaz, 2004).

Accounting education is a vocational education and the expected thing from this education is bringing the knowledge and skills required by the profession (Zaif and Ayanoğlu, 2007: 117). Accounting education aims to inform the person receiving accounting training, about determination, collection, processing, checking of accuracy and summarizing of useful information for business and for decision making and to develop abilities of person receiving accounting training, on the implemantation of these information. Therefore, the main purpose of accounting education is give an education in the matter of proving accurate and reliable accounting information to those who are in need of financial information and to direct applications accordingly (Gökçen, 1998: 43- 50).

In recent times, the problems in accounting education are discussed even in literature, conferences, panels and congresses. One of the main problem is insufficiency of accounting education to develop critical thinking, communication and problem

solving abilities of students (Çürük ve Doğan, 2001: 30). The other main problem is related to accounting courses and contents. The accounting courses fail to educate future accountants adequately to face the rapidly chaning global environment of the future. In addition, the course contents are insufficient to meet the requirements of the profession (Asonitou, 2015).

While the rapid and continous changes take place in business life, a structural changing in accounting education occurs very slowly. So,this causes a gap between accountant education and accounting practices (Kendirli et al., 2015: 55). In other words, accouting programmes are not harmony with the requirements of the real world. Accounting programmes need to develop a group of crucial skills (Tan and Fawzi, 2017). Accounting programmes should contain attributes that prepare future accountants as lifelong leaners, as global citizens (Kavanagh and Drennan, 2008: 280). Future accountants should have ability to use information technology, to work in team, to communicate effectively and also should be equipped with features to evaluate and interpret information, to draw attention to issues and identify and put forth information neccessary for management (Dağdeviren et al., 2016: 493; Sürmeli, 2007: 30).

In this study, it was tried to find out which skills should be gained to students in accounting education from the point of view of both students and professionals. In addition, it was analyzed whether there was a difference between the perceptions of the students and the expectations of the professionals. In this context, firstly the skills covered by the accounting curriculum in the training process will be described. In the literature section of the study, previous studies on the subject will be reviewed and related search questions will be determined. In the final section, a research aiming to reveal the differences in the perspectives of students and professional accountants about the skills required in accounting education will be conducted and research findings will be presented.

2. SKILLS IN ACCOUNTING EDUCATION

Accounting programmes need to produce graduates with the skills necessary for their professional careers. Skills are capabilities which include knowledge, professional values, ethics and behaviors to perform accounting tasks required from accounting profession (Chaker and Abdullah, 2011: 194).

At the present time, the obtaining and assessment of data, the organization and protection of files, the interpretation, communication and use of computer processed information, the understanding of social, organizational and technological systems, the observing and correcting performance and planning and improving systems are the skills required in accounting education (Mohammed and Lashine, 2003: 6). There are several classification of these skills in literatures. In this study, the classification of AICPA (The American Institute of Certified Professional Accountants) has been adopted. They are generic, functional and information technology related skills are described as follows;

Generic Skills: Professional accountant should have a series of skills as critical thinking, interpersonal and lifelong learning skills along with professional knowledge (Sin and Reid, 2005: 13). Generic skills include oral and written communication, teamwork, ethical behavior, critical thinking and problem solving. According to some research findings, accounting education programmes fail to provide oral and written communication skills to accountant graduates, although these skills are highly important to employability and enduring success (Kearns, 2014: 27).

Functional Skills: Functioal skills consist of skills specific to acountancy (Awayiga and et al., 2010: 142). Functional skills are the traditional skills relevant to the mastery of accounting knowledge such as budgeting, income tax and preperation and analysis of financial statement and auditing analysis (Kearns, 2014: 27).

Information Technology Related Skills: The accounting education should provide information technology knowledge that accounting students need to use and evaluate information technology and systems and also design and management of those sytems. Every accountant must have the ability to use a word processing package, a spread-sheet package, a database package and at least one entry-level accounting package (Awayiga and et al., 2010: 143). An ideal accounting education includes both conceptual knowledge and application skills in a wide range of information technologies (Greenstein and McKee, 2004: 216). Information technologies should be integrated into the current accounting education programmes. This integration brings about accounting education programmes being more analytical and interdisciplinary as information technology system is used to analyse information and for decision making, not only a technical function. It is also important to identify what skills should be included in an information technology course of accounting education programme in order to remove the gap between academic education and professional requirements (Stumke, 2017: 123- 124).

3. LITERATURE REVIEW AND RESEARCH QUESTIONS

There are many studies regarding the significance level of skills expected to gain during the accounting education. Klibi and Oussii (2013) determined that technical skills were evaluated as more important skills than other group of skills in accounting education. In this context, students ranked the top three skills as, preparation of financial statements, technical bookkeeping and accounting for depreciation and provision. Jackling and De Lange (2009) investigated the emphasis placed on technical and generic skills gained during the accounting education from both the students and employers perspective. Students perceived that the technical skills were more importance than the generic skills. According to the students, the most significant skills were accounting problem analysis, key accounting skills. Similiarly, Gabric and Mc Fadden (2001) investigated students' and employers' perceptions about accounting skills. According to the search results, students perceived verbal

communication, problem solving and listening skills as the most important generic skills, also spreadsheet proficiency, operating systems abilities and word processing knowledge were identified as the top three technical skills by students. Hence the first research question was stated as follows;

Q1: What is the significance level of accounting skills perceived by students?

The skills of accounting graduates highly valued by accounting professionals have also been investigated. Albrecht and Sack (2000) investigated the perceptions of accounting professionals and academicians concerning skill development. Professionals ranked the skills they believed as most important, were written communications, analytical-critical thinking, oral communication and computing technology. Likewise, Uyar and Güngörmüş (2011) tried to determine the accounting skills that were considered important by external auditors for accounting graduates who intend to be auditors. Search results revealed that all skills except accounting software, were perceived as important for auditing profession. The most important skills were valued as ethics, teamwork and honesty. In the study conducted by Arsoy et al.(2014), the opinions of professionals and academicains were compared in terms of knowledge, skills, and training techniques that should be acquired in accounting education. As a result of the study, it was found that academicains and professionals had different opinions about the content and method of accounting education. Paratama (2015) conducted a survey to compare accouting knowledge and skills and analyze gaps between the academicians and professionals views. Research results demostrated that professionals considered financial accounting and reporting was the most important knowledge, while business and trade law was the least important knowledge. Furthermore, academicians and professionals agreed that the ability to investigate and examine, logical thinking, cause-effect analysis and critical analysis and teamwork were important skills. Moreover Hence the second research question is stated as follows;

Q2: What is the significance level of accounting skills perceived by accounting professionals?

Likewise, some studies in literature have been conducted in order to highlight the different viewpoints of accounting students, professionals. Kavanagh and Drennan (2008) conducted a study in order to examine perceptions and expectations of students and practitioners. The results of the study states that there is a concurrence between students and practitioners in terms of lifelong learning skills such as problem solving skills, oral and written communication skills and continous learning. According to the findings, students focus on ongoing development personal skills while practitioners place emphasis on background knowledge, life experience and work-related skills. Lin, Xiong and Liu (2005) used a survey to analyze the perceived importance of knowledge and skills by students, professionals and academicians for accounting education. The skills of analytical-critical thinking, decision making and written and oral communication which accounting professionals emphasized, were not sufficiently perceived by students. Also, there were large variances between the perceived importance of the knowledge and skills as finance, business law, auditing services, information systems, ethics and social responsibility, global business and E-commerce. Francisco and Kelly (2002) aimed to compare attitudes of skill importance between accounting students, academicians and professionals. The results of the research showed that differences in the views of three groups were unimportant. These three groups recognized many of the same skills as being extremely important. Only, such skills as analytical- critical thinking and computer technology were valued differently by professionals and students. Hence, the third research question is stated as follows;

Q3: Is there any diffirence between the perceptions of accounting students and professionals in terms of the significance level of accounting skills?

4. DATA AND METHODOLOGY

The aim of this study is to identify the skills that should be gained in accounting education according to the perceptions of students and the expectations of professional accountants. In the study, it was also tried to determine whether there is a difference between the opinions of the students and the practitioners about the related skills.

Since the skills covered in the study should be gained to the students during the accounting education process, it is a necessity that students take part in the research scope. In addition, it is important that the opinions of the professional accountants involved in the practice take part in the study. Therefore, the scope of the research was composed of both students and professionals.

Survey method was used as a data collection tool in the research. The questionnaire was developed by Kearns (2014). However, the skills included in the survey, were revised in the framework of accounting education in Turkey. So that were adapted into existing curricula.

The survey consists of two parts. The first section contains demographic questions, and the second section lists 30 accounting skills. Accounting skills in the second part are divided into three groups according to the classification of AICPA. Respondents were asked to evaluate these skills with the help of the 5-point Likert scale: 1: not important at all, 2: important, 3: undecided, 4: important, 5: very important.

The questionnaire was applied to 224 randomly selected students in the departments of business, international trade and business administration, accounting and tax and business management of the School of Political Sciences, School of Applied

Sciences and Vocational School of Social Sciences at Çanakkale Onsekiz Mart University. Besides, 47 professional members registered to Çanakkale Chamber of Certified Public Accountant were included in the survey.

The data obtained were analyzed in SPSS 20 package program. The average and standard deviation for each of the accounting skills included in the questionnaire were calculated, and the significance of the accounting skills was determined. In addition, it was investigated whether there is a difference between the opinions of students and professional accountants. Since the data did not show a normal distribution, Mann-Whitney U Test, which measures the difference between two independent groups, was applied. The reliability of the questionnaire was measured by Cronbach's alpha coefficient. The cronbach alpha value of the questionnaire was 0.927.

5. FINDINGS

In this section, general information about the students and professionals in the study and the analysis results of the opinions of students and professionals about accounting skills are given.

5.1. General Information of Students and Professionals

The results of frequency analysis of students and accounting professionals participated in the survey are given in Table 1 and Table 2 below.

Table 1: Frequency Data of Students

		Frequency	Percentage
Gender	Female	114	50,9
	Male	110	49,1
State of Education	**Associate degree**	**101**	**45,1**
	College	52	23,2
	Undergraduate	71	31,7
Job Status	Not working	159	71
	Part-time work	47	21
	Working	18	8

Table 1 presents the frequencies and percentages of the students in terms of gender, education and job status. The majority of the students who participated in the research were female with 50. 9% and associate students with 45. 1%. These data show that the majority of students do not work with 71%.

Table 2: Frequency Data of Accounting Professionals

		Frequency	Percentage
Gender	Female	33	70,2
	Male	14	29,8
Professional Title	Independent Accountant and Financial Advisor	28	59,6
	Certified Public Accountant	1	2,1
	Accounting Personnel	18	38,3
Occupational Experience	1-4 Year	11	23,4
	5-10 Year	14	29,8
	11-15 Year	8	17
	16-20 year	5	10,6
	More than 20 year	9	19,1

Table 2 presents the frequencies and percentages of the accounting professionals in terms of gender, professional title and occupational experience. The majority of the professional accountants participated in the study were male with 70. 2% and independent accountants with 59. 6%. These data show that 29.8% of the members of the profession have an occupational experience of between 5- 10 years.

5.2. Perception of Importance of Skills for Students and Professionals

The 30 skills to be gained in accounting education were asked to students and accounting professionals in order to determine about importance. The mean and standard deviation were calculated according to the answers of both groups and the significance levels of these skills were determined. The results of these are given in Table 3.

_____

DOI: 10.17261/Pressacademia.2019.1149   187

Table 3: Skills to be Gained in Accounting Education According to Students and Professional Accountants

Skills	Students (224 persons)			Accounting Professionals (47 persons)		
	Mean	Rank	Std.Dev.	Mean	Rank	Std.Dev.
Ethical Behavior	4,21	8	,96	4,51	5	,59
Communication Skills	4,34	1	,75	4,49	7	,59
Critical and Analytical Thinking	4,18	9	,88	4,30	13	,66
Problem Solving	4,29	2	,80	4,38	11	,74
Team Working	3,88	25	1,10	4,47	8	,69
Social Skills	3,79	27	,94	4,23	19	,60
Preparation of Financial Statement	4,02	16	1,02	4,70	1	,62
Financial Statement Analysis	3,96	20	1,04	4,62	2	,64
Deviation Analysis	3,62	30	,99	4,04	29	,78
Budget and Analysis	3,94	22	1,01	4,28	15	,77
Internal Control	3,67	29	1,04	4,45	9	,75
Risk Management	3,96	21	,98	4,21	21	,62
Activity-Based Costing	3,86	26	1,03	4,17	23	,79
Phase and Order Costing	3,91	23	1,00	4,15	25	,72
Stock Management	4,06	13	,94	4,28	14	,97
Detection and Prevention of Fraud	4,22	6	1,06	4,57	3	,54
Financial Forecast	4,10	11	,84	4,23	20	,63
Cost-Volume-Profit Analysis	4,26	3	,87	4,23	18	,73
Present Value	3,98	20	,90	4,15	24	,62
Auditing Stds Evidence Collection	3,71	28	1,01	4,15	26	,59
Fixed Assets and Depreciation Accounting	3,99	17	,97	4,26	17	,53
Business Law	4,04	15	1,05	4,40	10	,54
Basic Tax Applications	4,22	5	,94	4,49	6	,51
Audit Report Preparation	3,99	19	,94	4,28	16	,85
Foreign Currency Transfer	4,05	14	,99	3,57	30	,93
Current Package Programs	3,89	24	1,04	4,17	22	,87
Excel Spreadsheets in Accounting	4,21	7	,91	4,34	12	,79
Database Tools	4,12	10	,87	4,04	28	,78
Information Technology Security	4,06	12	,97	4,51	4	,55
Accounting Information System Designing	4,23	4	,95	4,11	27	,89

As seen in Table 3, according to students, the first five skills that should be gained in accounting education are as follows; communication skills, problem solving, cost-volume-profit analysis, accounting information system designing and basic tax applications. The students in the scope of this study, ranked the first two general skills (Communication skills and problem solving skill) as the most important skills. The students might have given importance to these skills on the grounds that they would need them during the recruitment process and in their future career.

Accounting education is mostly given in business administration and business management departments and the importance of making profit and profitability for the enterprises in the education process of the students in these departments, is constantly emphasized. Therefore, the students may have stated "Cost-Volume-Profit Analysis" used as a profit planning tool in the third place. On the other hand, it is seen that the degree of importance given to "cost-volume-profit analysis" and "accounting information system designing" skills by the professionals is low.

Similarly, in the accounting education process, it is emphasized that the most important element of the business information system is the accounting information system in terms of carrying out the activities of the enterprises. This may have caused students to consider "accounting information system designing" as the 4th most important skill to acquire. On the other hand, it is seen that the degree of importance given to "cost-volume-profit analysis" and "accounting information system designing ın skills by the professionals is low.

Since the accounting process is tax-oriented in practice, students stated that basic tax applications are important for accounting education. Although "basic tax practice" is not among the top five skills according to the accounting professions, it is also important for them. They rank "basic tax practices" in the 6th place.

Professional accountants in the study stated that basic accounting knowledge and functional skills should be acquired primarily in accounting education as seen in Table 3. In this context, according to professionals, the first two most important skills are preparation and analysis of financial statements. In contrast to professionals, the degree of importance that students attach to "financial report preparation" and "financial analysis" skills is much lower.

Another important functional skill for professionals is "detection and prevention of fraud". It is expected that accounting audit will be important for professional accountants. According to the students, "detection and prevention of fraud" is in the 6th position even though it is not in the top five. This finding shows students' awareness of the importance of accounting auditing in the accounting education process.

Widespread use of information technology in the field of accounting leads to the realization of many accounting transactions electronically. This situation has made the concept of information technology security important for the activities carried out in the accounting process. In this context, professional accountants within the scope of the study evaluated the importance of "information technology security" as well as gaining knowledge and skills related to information technologies in accounting education.

Since the accounting profession is not only a profession requiring technical expertise, it is very important that professionals have ethical and social responsibility awareness. In particular, the responsibility placed on the accounting profession has increased nowadays and accountants are expected to have professional qualification and to be impartial, independent decision makers and honest professionals. In this context, the professional members of the study stated that ethical behavior is one of the most important skills to be gained in accounting education.

5.3. Differences of Opinions between Students and Professionals

The Mann-Whitney U test was used to analyze the differences between the opinions of students and professional accountants about the skills required in accounting education. The analysis results are given in Table 4.

Table 4: Differences Between Students and Professional Accountants

Skills	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
Ethical Behavior	5187,000	6315,000	-,173	,862
Communication Skills	5125,500	30325,500	-,313	,754
Critical and Analytical Thinking	4319,500	29519,500	-2,097	,036
Problem Solving	4754,500	5882,500	-1,151	,250
Team Working	2778,500	27978,500	-5,396	,000
Social Skills	2531,000	27731,000	-5,916	,000
Preparation of Financial Statement	5097,500	6225,500	-,360	,719
Financial Statement Analysis	4502,000	29702,000	-1,649	,099
Deviation Analysis	2765,000	27965,000	-5,348	,000
Budget and Analysis	4690,500	29890,500	-1,250	,211
Internal Control	3824,500	29024,500	-3,086	,002
Risk Management	4840,000	30040,000	-,921	,357
Activity-Based Costing	3965,500	29165,500	-2,795	,005
Phase and Order Costing	3235,000	28435,000	-4,426	,000
Stock Management	4944,000	30144,000	-,705	,481
Detection and Prevention of Fraud	4819,000	5947,000	-,997	,319
Financial Forecast	5264,000	6392,000	,000	1,000
Cost-Volume-Profit Analysis	4493,500	5621,500	-1,708	,088
Present Value	4483,000	29683,000	-1,703	,088
Auditing Stds Evidence Collection	3184,500	28384,500	-4,537	,000
Fixed Assets and Depreciation Acctg.	3881,000	29081,000	-3,005	,003
Business Law	4717,000	29917,000	-1,197	,231
Basic Tax Applications	3139,000	4267,000	-4,644	,000
Audit Report Preparation	4720,500	29920,500	-1,180	,238
Foreign Currency Transfer	4496,000	29696,000	-1,675	,094
Current Package Programs	4965,500	30165,500	-,647	,518
Excel Spreadsheets in Accounting	4503,500	29703,500	-1,695	,090
Database Tools	5253,500	30453,500	-,023	,982
Information Technology Security	4015,500	29215,500	-2,730	,006
Acctg. Information System Designing	4719,000	5847,000	-1,208	,227

As a result of the research, it was found that there were differences between the opinions of students and professional accountants in 11 out of 30 skills that should be included in accounting education. These skills are; critical and analytical thinking, team working, social skills, deviation analysis, internal control, activity-based costing, phase and order costing, auditing stds evidence collection, fixed assets and depreciation accounting, basic tax applications and information technology security. When the findings was examined, it was seen that professional accountants gave more importance to all skills that

had differences between the opinions of students and professionals. Apart from these skills, there is no difference between the opinions of students and professionals for other skills in the table.

6. DISCUSSIONS AND CONCLUSION

In the study, three research questions were tested. Firstly, the significance level of accounting skills perceived by students was investigated. Research findings show that the most important skills to be gained in accounting education according to students are "communication" and "problem solving" similar to the results of Gabric and Mc Fadden (2001). Moreover, as the students listed four of the six general skills as top ten, they considered the general skills which are important for employability and long lasting success, were more important in accounting education. The students in the study emphasized that information technology skills are also important for accounting education. They evaluated three of the five information technology skills in the top ten. On the other hand, students ranked only three of the nineteen functional skills that are specific to acountancy, in the top ten and eight in the top twenty.

Secondly, the significance level of accounting skills perceived by professional accountants was investigated in the study. The results of the research are similar to those of Paratama (2015). According to professionals, the most important skills to be gained in accounting education are "financial accounting" and "reporting". Although the professionals stated that the two most important skills to be acquired in accounting education are functional skills as "financial reporting" and "financial analysis", they evaluated only six of the nineteen functional skills in the top ten. Professionals also stated that general skills are important, like students, by grading three out of six general skills in the top ten. But, professionals evaluated only "information technology security" skill of five information technology skills included in the study, in the top ten.

Finally, it was investigated whether there is a difference between the perceptions of accounting students and professionals about the importance of accounting skills. When the rankings of accounting experts and accounting students were compared, it was found that professionals and students had different opinions about 11 accounting skills. According to the findings of the study, as Kavanag and Drennan (2008) had revealed, there was a parallelism between the opinions of students and professionals in terms of skills required for a successful career in todays' business life such as communication, problem solving, ethical behavior skills. Furthermore, students gave more importance to lifelong learning skills, while professionals gave more importance to professional knowledge and skills.

Finally, although there are similarities between students' perceptions and expectations of professionals in terms of skills to be gained in accounting education, there are some differences. Therefore, it would be appropriate to review and update the accounting education in line with the expectations considering these differences. It is also possible to make arrangements in the course contents in order to gain the skills that the professionals concerned about.

There are two limitations in the study. First, the study was conducted only in Çanakkale. Another limitation of the study is that the professional accountants working in the enterprises were not been included in the study and only those who were registered to Çanakkale Chamber of Certified Public Accountant were included in the study. However, there is no significant difference in accounting education and accounting curriculum at the universities, results obtained in the study will contribute to the assessment of the accounting education in Turkey.

REFERENCES

Albrecht, W. Steve and Sack, Robert J. (2000). Accounting Education: Charting the Course Through a Perilous Future, *Sarasota, FL: The American Accounting Association.*

Ali, Inalia Mohd, Kamarudin, Khairunnisak, Suriani, Nur Adila, Saad, Nur Zulaikha and Afandi, Zati Arifah M. (2016). Perception of Employers and Educators in Accounting Education, *Procedia Economics and Finance*, 35, 54- 63.

Asonitou, Sofia. (2015). "The Evolution of Accounting Education and the Development of Skills", *11th Interdisciplinary Workshop On Intangibles, Intellectual Capital and Extra-Financial Information,* Athens University of Economics and Business, 17 September 2015.

Awayiga, Joseph Y., Onumah, Joseph M. and Tsamenyi, Mathew. (2010). Knowledge and Skills Development of Accounting Graduates: The Perceptions of Graduates and Employers in Ghana, *Accounting education: an International Journal*, Vol. 19, Nos. 1- 2, February- April 2010, 139- 158.

Arsoy, Aylin Poroy, Bora, Tuba and Selimoğlu, Seval. (2014). Muhasebe Eğitimindeki Bilgi, Beceri ve Eğitim Tekniklerinin Gerekliliklerine İlişkin Beklentiler: Türkiye'deki Akademisyenlere ve Meslek Mensuplarına Yönelik Bir Araştırma, *International Journal of Management Economics and Business*, Vol. 10, No. 23, 121- 136.

Chaker, Mohammed Naim and Abdullah, Tengku Akbar. (2011). What Accountancy Skills are Acquired at College?, *International Journal of Business and Social Science*, Vol. 2, No. 18, October 2011, 193- 199.

Çürük, Turgut ve Doğan, Zeki.(2001). Muhasebe Eğitiminin İşletmelerin Taleplerini Karşılama Düzeyi: Türkiye Örneği, *ODTÜ Gelişme Dergisi,* 28 (3- 4), 281- 310.

Dağdeviren, İbrahim Ethem, Mirza, Şakir ve Dağdeviren, Fatma. (2016) . Muhasebe Programının Öğrenci Perspektifinden Değerlendirilmesine Yönelik Uşak Üniversitesinde Bir Araştırma, *Uluslararası Yönetim İktisat ve İşletme Dergisi*, ICARF 16 Özel Sayısı, 491- 505.

Francisco, Bill and Kelly, Ann. (2002). Beyong Albrecht and Sack: A Comparison of Accounting Professionals and College Students, *American Institute of Certified Public Accountants.*

Gabric, Daniela and McFadden, Kathleen L. (2001). Student and Employer Perceptions of Desirable Entry-Level Operations Management Skills, *Mid- American Journal of Business*, Volume 16, Number 1, Spring 2001, 51- 59.

Gökçen, Gürbüz. (1998). Uygulamacıların Muhasebe Eğitiminden Beklentileri, *Muhasebe Finansman Dergisi*, T.C. Marmara Üniversitesi Muhasebe Araştırma Merkezi, Y. 7, S. 9, 43- 50.

Greenstein, Marilyn and McKee, Thomas E. (2004). Assurance Practitioners and Educators Self-Perceived IT Knowledge Level: An Empirical Assessment*, International Journal of Accounting Information Systems*, 5, 213- 243.

Ingram, Robert W. and Albright, Thomas L. (2007). Financial Accounting, USA: South-Western Cengage Learning.

Jackling, Beverley and De Lange, Paul. (2009). Do Accounting Graduates Skills Meet The Expectations of Employers? A Matter of Convergence or Divergence, *Accounting Education: An International Journal*, Vol. 18, Nos.4 -5, September- December 2009, 369- 385.

Kalmiş Halis ve Yilmaz Berna B. (2004). Lisans Seviyesindeki Muhasebe Eğitiminin Mevcut Durumu Ve Geliştirilmesi İçin Yapılması Gereken Geliştirmeler, *XXIII. Türkiye Muhasebe Eğitimi Sempozyumu*, 19- 23 Mayıs 2004, Antalya, 1- 15, 2004.

Kavanagh, Marie H. and Drennan, Lyndal. (2008) What Skills and Attributes Does an Accounting Graduate need? Evidence from Students Perceptions and Employers Expectations, *Accounting and Finance*, 48, 249- 300.

Kearns, Grover S. (2014). The Importance of Accounting Information Systems in the Accounting Curricula: A CPA Perspective, *AIS Educator Journal*, Volume 9, Number 1, 24- 40.

Kendirli, Selçuk, Ülker, Yakup ve Yamaltdinova, Adilya. (2015). Accounting Education at Faculty of Economic Administrative Science in Kyrgyzstan Universities and Expectation of Students from Accounting Education, A Case Study in Bishkek, *Research Journal of Business and Management*, Volume: 2, Issue: 1, 52- 68.

Klibi, Mohamed Faker and Oussii, Ahmed Atef. (2013). Skills and Attributes Needed for Success in Accounting Career: Do Employers' Expectations Fit with Students' Perceptions? Evidence from Tunisia, *International Journal of Business and Management*, Vol. 8, No. 8, 118- 132.

Lin, Z. Jun, Xiong, Xiaoyan and Lui, Min. (2005). Knowledge Base and Skill Development in Accounting Education: Evidence from China*, Journal of Accounting Education,* 23, 149- 169.

Mohamed, Ehab K.A. ve Lashine, Sherif H. (2003). Accounting Knowledge and Skills and the Challenges of A Global Business Enviroment, *Managerial Finance*, Volume 29, Number 7, 3- 16.

Özdemir, Serkan ve Elitaş, Cemal. (2015). Ön Lisans Muhasebe ve Vergi Bölümü Öğrencilerine Verilen Mesleki Eğitime Genel Bir Bakış: Ege Bölgesi'nde Bir Uygulama*, XXXIV. Türkiye Muhasebe Eğitimi Sempozyumu*, Mayıs Antalya, 21- 36, 2015.

Paratama, Arie. (2015). Bringing The Gap Between Academicians and Practitioners on Accountant Competencies: An Analysis of International Education Standards (IES) Implementation on Indonesia's Accounting Education, *Procedia Social and Behavioral Science*, 211, 19- 26.

Sin, Samantha and Reid Anna. (2005). Developing Generic Skills in Accounting: Resourcing and Reflecting on Trans-Disciplinary Research and Insights, *Australian Association for Research in Education*, Conference, 1- 22.

Stumke, Olive. (2017). Information Technology in Accoutancy Curricula: Necessity or Afterthought, *International Journal of Business and Government Studies*, Vol 9, No 2, 121- 135.

Sürmeli, Fevzi. (2007). Muhasebe Eğitiminde e-Değişimi Yakalamak, *Muhasebe ve Finans Dergisi*, Sayı 33, Ocak 2007, 28- 30.

Tan, Lin Mei and Fawzi, Laswad. (2017). Employability Skills Required of Accountants, *SHS Web of Conference* 34, 06001.

Tan, Lin Mei, Fowler, Michael B. and Hawkes, Lindsay. (2004). Management Accounting Curricula: Striking a Balance Between The Views of Educators and Practitioners, *Accounting Education*, 13 (1), 51- 67.

Uyar, Ali and Güngörmüş, Ali Haydar. (2011). Professional Knowledge and Skills Required for Accounting Majors Who Intend to Become Auditors: Perceptions of External Auditors, *Business and Economics Research Journal*, Volume 2, Number 3, 33- 49.

Zaif, Figen ve Ayanoğlu, Yıldız. (2007). Muhasebe Eğitiminde Kalitenin Arttırılmasında Ders Programlarının Önemi: Türkiye'de Bir İnceleme, *Gazi Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 9/ 1, 115- 136.

THE DETERMINANTS OF CORPORATE CASH HOLDINGS: DOES COUNTRY'S LEGAL REGIME MATTER? EVIDENCE FROM BRIC AND TURKEY

Guler Aras[1], Ozlem Kutlu Furtuna[2], Nuray Tezcan[3]

[1] Yildiz Technical University, Center for Finance Governance and Sustainability (CFGS), Istanbul, Turkey.
 dr.guler.aras@gmail.com, ORCID ID: 0000-0002-9438-7191
[2] Yildiz Technical University, Center for Finance Governance and Sustainability (CFGS), Istanbul, Turkey.
 ozzlemkutlu@yahoo.co.uk, ORCID ID: 0000-0001-8230-200X
[3] Halic University, Business Informatics Department, Istanbul, Turkey.
 nuraytezcan@hotmail.com, ORCID ID: 0000-0002-3184-7330

To cite this document
Aras, G., Furtuna, O.K., Tezcan, N., (2019). The determinants of corporate cash holdings: Does country's legal regime matter? Evidence from BRIC and Turkey. Journal of Economics, Finance and Accounting (JEFA), V.6(4), p.192-205.
Permemant link to this document: http://doi.org/10.17261/Pressacademia.2019.1150

ABSTRACT

Purpose - This study aims to fill the gap for BRIC countries and Turkey by looking into the determinants of cash holding across different firm sizes and industries with a perspective on country's legal regime.
Methodology- The sample contains 5.840 firm-year observations across these countries for the period 2005–2014. Capital expenditure, growth opportunities, liquid asset substitutions, leverage, profitability, firm size and GDP per capita- as a measure of the economic development- have been taken to explore the determinants of corporate cash holdings. In order to see whether country's legal regime matter; the shareholder protection has also been discussed as a determinant of corporate cash holding. Several models have been implemented for each of the cash holding measures, and all of them are estimated by panel data regressions with fixed effects.
Findings- The results gave strong evidence that potential investment and growth opportunities, liquid asset substitution and firm size significantly affect the cash holdings decisions of non-financial firms and that are in conformity with the existing literature on the determinants of corporate cash holdings. Besides this, findings provide support for the notion that related firms is under financial constraint and tend to hold more cash as a result of the precautionary motive for cash.
Conclusion- These multicounty results, together with the view of common and civil-law differentiation, suggest that country characteristics strongly influence the determinants of cash holding. Countries which have poor corporate governance hold cash at higher levels compared to countries that have good corporate governance.

Keywords: Corporate cash holding, liquidity, financial constraint, corporate governance, BRIC, Turkey, panel data.
JEL Codes: C23, G30, G38

1. INTRODUCTION

Cash and cash equivalent are considered to be one of the most important components of the current assets of the firm and are also called the life line of corporate financial management. Ever since Opler et al. (1999) first investigated the effects of various financial variables on the level of cash holdings for U.S. firms, there has been growing attention in explaining why firms hold cash. Initial studies by Jensen and Meckling (1976), Myers (1984), Jensen (1986), and Myers and Majluf (1984) have debated the potential benefits and costs of holding cash.

The determinants of corporate cash holdings have traditionally been studied from the perspective of three dominant cash holding theories: Kraus and Litzenberger's trade-off theory (1973), Myers and Majluf's pecking order / financial hierarchy theory (1984) and Jensen and Meckling's agency theory (1976). According to Kraus and Litzenberger's (1973) trade-off theory, cash holdings are the result of a trade-off between the benefits and costs associated with holding cash, the marginal benefit and marginal cost of debt has to be considered. Some of the benefits are that cash enables firms to take and continue

the projects without raising external funds that are at high transaction costs, to pay dividends and not to decrease it under cash shortage. The majority of the papers confirmed that the tradeoff theory exists and researchers have found evidence that firms in countries with greater investor protection and better capital markets hold less cash (Opler et al. (1999) and Kim et al. (1998) since when firms need cash for financing the projects that are profitable they usually go to the capital market for it.

Myers and Majluf (1984)'s pecking order theory, or financing hierarchy model, challenges the trade-off theory by rejecting the existence of an optimal level of cash holdings. The first preference of the firms to finance their investments is given to retained earnings, and then debt and finally at the end they prefer for equity share due to the new equities are highly costly to issue. Jensen and Meckling's (1976) agency theory states that cash holdings are the result of management entrenchment. If investment opportunities are scarce and the firms is constrained, it will prefer holding cash in the company instead of paying it out to shareholders. Moreover, in free cash flow theory by Jensen (1986) managers want to hold more cash so as to exercise more power in decisions regarding investments. With high cash levels by firms the need to take external finance and increase in free cash flow is associated with increase in agency conflicts that is between management and shareholders.

Among the theories, the motives of holding corporate cash have to be clarified. The precautionary motive states that firms hold cash for the future uncertainty. The transaction motives underlying that cash holding can be used as a tool for lowering the transaction cost. Baumol (1952). The tax motive arguing firms hold cash for avoiding double taxation.

The remainder of the study is organized as follows. After the literature review part, the following section represents data selection and methodology. Findings have been discussed in the fourth section. Additionally, in order to explore whether country's legal regime matters in determination of corporate cash holdings for the related countries, further data analysis has been utilized. Finally, concluding remarks are revealed in the last section.

2. LITERATURE REVIEW

Several empirical studies carried out relating to cash holdings are more focused on the determinants of corporate cash holdings. For instance, Opler et al. (1999) are among the pioneer researchers who investigated the determinants of cash holdings. They study the determinants and implications of cash holdings amongst publicly traded US firms from 1971 to 1994. They state that stronger growth opportunities, higher business risks, and of smaller held more cash than firms which displayed these attributes to lesser degrees.

Ali and Yousaf (2013) demonstrate the determinants of the cash holdings in 876 non-financial German firms during the period 2000–2010. They found the most significant economic impact was for the presences of the substitutes for cash in the balance sheet of the corporation under current assets. Almeida et al. (2004) investigate the extent to which the cash flow sensitivity of cash provides an empirically useful measure of financial constraint for the all US manufacturing firms during the years 1971 to 2000. They demonstrate that financially unconstrained firms should not increase their propensity to retain cash following macroeconomic shocks, while constrained firms should.

As for the developing countries, the literature for the topic is scarce which contradicts to the significance of the topic due to the growing economic activities of BRIC and Turkey. Firms in these countries have considerably increased their cash holdings over the past decades. A growing literature has emerged to investigate its determinants and its consequences for firm behavior. This study aims to fill that gap for BRIC countries and Turkey by looking into the determinants of cash holding in nonfinancial firms of BRIC(T) across different firm sizes and industries with a perspective on country's legal regime.

For BRIC firms, Al-Najjar (2013) examines the effect of capital structure and dividend policy on cash holdings in these countries and compare our results with a control sample from the US and the UK. For the period 2002-2008, he provides evidence that capital structure, dividend policy, and firm size are important factors in determining cash holdings. He also state show firms operating in countries with low shareholder protection hold more cash

Amess et al. 2015 argue that China represents an interesting context for investigating corporate cash holdings because government agencies retain a controlling or significant ownership stake in Chinese firms. Chen et al. 2012 investigate all nonfinancial firms listed on the Shanghai and Shenzhen stock exchanges from 2000 to 2008. In 2005, the split share structure reform commenced in China and they report that the cash holding ratio significantly decrease. Moreover, Ameer (2014) investigates the investment ratios of 519 non-financial listed firms in six Asian countries (India, S.Korea, Indonesia, Malaysia, Pakistan and Thailand) over the period of 1991–2004. He states that investment-cash flow sensitivities vary across firms in the sample countries. Hall et al. 2014 investigate the determinants of cash holding at privately held and publicly held firms for 20 emerging between the years 2001 to 2010. Privately held emerging market firms tend to hold more cash than public firms.

A recent study for Turkish Business Groups was done by Cetenak and Vural (2015). They investigate investment-cash flow sensitivity of the Borsa Istanbul manufacturing firms by considering affiliation with 164 business groups during 2004 to 2012. They state an insignificant investment-cash flow relationship for the firms affiliated with a major business groups and firms which have more than %15 foreign shareholders. However, they report strong investment-cash flow sensitivity for the small business groups affiliated firms and non-affiliated independent firms. Uyar and Kuzey (2014) analyze the factors that might explain the level of corporate cash holdings in a broad sample of Turkish-listed nonfinancial firms over the period 1997 to 2011. The results reveal that cash flow and growth opportunities have positive and significant impact on the cash level.

More recently, a number of papers have documented evidence that corporate governance at both country and firm levels could potentially influence corporate cash holdings in U.S. and international firms. However, the conclusions from this strand of research are relatively mixed. Aras et al. 2015 investigate BRIC firms' governance practices on the impact of financial structures in terms of financial profitability and financial leverage. Findings provide support for the notion that board independence, representation of women on the board, duality, and the number of board meetings are key factors in determining corporate governance efficiency and play important roles in enhancing firm financial structure in BRICK firms. She also states that the common and civil-law differentiation strongly influence the aspects of governance practices while predicting firm financial structure. Lee and Lee (2009) state that for 1.061 firms initiated in five ASEAN countries (Malaysia, Philippines, Indonesia, Singapore and Thailand) with higher expected managerial entrenchment, those with higher proportion of outside director on the board and smaller board size have lower cash holdings

This paper aims to investigate the determinants that affect the level of cash holdings. Cash and cash equivalent is a significant policy matter in the field of modern corporate finance that is why this research work is intended to provide solution to the corporate managers regarding accessing cash and liquid assets requirement. Furthermore, these multicounty results, together with the view of common and civil-law differentiation, suggest that country characteristics strongly influence the determinants of cash holding.

3. DATA AND METHODOLOGY

The sample for this empirical analysis is gathered from the Bloomberg Professional Database for BRICs and Turkish firms for the period 2005–14. For Brazil, a sample composed of 670 nonfinancial firms with shares traded on the Brazil BOVESPA Stock Index. For Russia, 50 nonfinancial firms listed on the Eastern Europe MICEX Main Russian Index. For India, a sample of 126 nonfinancial firms traded on the Bombay Stock Exchange. For China, 134 nonfinancial firms listed on the Shanghai Stock Exchange. Finally, in Turkey, 207 nonfinancial firms listed on Borsa Istanbul. The exclusion of financial institutions is due to the influence of statutory capital requirements and other governmental regulatory requirements on their cash holdings.

For alleviating the problems of outliers, all financial variables are winsorized at the 1st and the 99th percentile levels. As a result, the final sample includes 5840 yearly firm observations between 2005 and 2014 for 584 listed companies. The software package used for the analyses is Stata 11.

3.1. Variables

There is no preference in the finance literature, about the best theory that can explain the determinants of cash holdings and thus there is no optimal set of factors that determine the decision to hoard cash. One of the aim of this study is to empirically test which variables determine cash holdings for the firms across BRIC and Turkey.

3.1.1. The Dependent Variable

The first dependent variable *(CASH1)* is the corporate cash holdings ratio. This ratio is the expression of the balance sheet's cash and cash equivalents account divided by the balance sheet's total assets account (Kusnadi 2011; Najjar 2013; Ho et al.2014; Borhanuddin and Ching 2011; Chen 2008; Loncan and Calderia 2013; Ali 2013, Uyar and Kuzey 2014; Ali and Yousaf 2013; Anagnostopoulou 2013; Hall 2014; Najjar 2013).

Nonetheless, the literature is divided on the calculation of this ratio. Others like Opler et al. (1999); Dittmar et al. (2003); Pinkowitz et al. (2013); Ramirez and Tadesse (2009); Kuan et al. 2012; Harford et al. (2008); Masood and Shad (2014); Harford et al.(2006), Pinkowitz et al. (2006), Kusnadi (2011), Chen (2008), Ammann et al. (2010) and Kuan et al. (2011); Belkhir et al. (2014). Borhanuddin and Ching (2011); Gill and Shah (2012); Lee and Lee (2009); Chen et al. (2014) argue that it should be divided by net assets defined as total assets minus cash and cash equivalents, since cash is not an asset in place and does not generate profits. Net assets are computed as total assets less cash and cash equivalents. Following this argument, the second determinant of the cash holding *(CASH2)* is used as the dependent variable in testing for robustness. Therefore, that variable makes a good dependent variable for robustness testing, since the divisor is scaled down considerably and the differences between observations' cash holdings more apparent.

Other measurement of cash holdings in literature has also given. The measurement of cash holding is expressed by log of cash by Anagnostopoulou (2013); Kusnadi (2011) and earnings before interests, taxes, depreciation and amortization, less interests, taxes and dividends; this is then divided by total assets and expressed as free cash flow by Chen et al. (2009); Chen et al. (2015a). According to Belkhir et al. (2014); cash as a liquid investment necessary to support the working capital needs of the firm, which is closely related to its sales. He used the ratio of cash to sales, computed as the log of cash and cash equivalents to total sales as cash holding proxy. Belkhir et al. (2014) state excess cash by calculating the residual value from the equation. Furthermore, cash flow sensitivity has also been studied by Almeida et al. (2004); Ameer (2014); Attig et al. (2013).

Though not tabulated, two alternative methods is constructed to measure cash holdings in this study. First, direct measure of cash *(CASH1)* is calculated. Second, cash holdings using the ratio of cash and marketable securities to net assets computed as total assets minus cash and marketable securities *(CASH2)* similar to fundamental study of Opler et al. (1999). Later, given that industry classification is a significant factor in the determination of cash holdings, following the Subranimian et al. (2011) methodology an industry-adjusted measure of the firm's cash to sales ratio *(ADJCASH)* is created. Detailed information has been stated while discussing the industry affect.

3.1.2. The Independent Variables- Determinants of Cash Holding

This subsection handle only studies on the determinants of cash holdings.

The first determinant of cash holding represents the capital expenditures ratio *(CAPEX)* and serves as a proxy for controlling the potential investment opportunities. The trade-off theory suggests a positive relationship between cash holdings and capital expenditures. Companies that have high capital expenditures will need to hold more cash in order to keep the transaction costs associated with external capital low. On the other hand, the pecking order theory states a negative relationship between cash holdings and capital expenditures. Firms that have high capital expenditures will have their cash holdings drained and thus have lower cash holdings as capital expenditures go up. This view is supported by studies such as Bates et al. (2009). In this study, *CAPEX* is measured as the capital expenditures divided by assets. The same formula is used in Ramirez and Tadesse (2009); Opler et al. (1999) and Dittmar et al. (2003); Verduyn (2013); Borhanuddin and Ching (2011); Subramaniam et al. (2011), Daher (2010) and Anjum and Malik (2013) propose another formula to measure investment opportunities; the yearly sales growth rate.

The second variable captures the future growth opportunities, has been measured as the market-to-book ratio *(MB).* In most previous empirical research (Ogundipe et al. 2012, Koshio and de Sales Cia 2003, Ferreira and Vilela 2004, Ali and Yousaf 2013, Guney and Ozkan 2006, Luo 2011).

Trade-off theory suggests a negative relationship between the amount of liquid asset substituts and cash holding. For the liquidity of the firms consistent with the studies of Kim et al. (1998), Harford (1999), Opler et al. (1999) and Dittmar et al. (2003), Net Working Capital divided by net assets *(LIQ)* is used. This variable captures and controls for the additional liquid assets that are held by the firm. It is equal to or a substitute for cash and equivalents (Lee and Lee 2009; Subramaniam et al. 2011, Al-Najjar 2013, Verduyn 2013, Ali and Yousaf 2013, Kim Mauer and Sherman 1998, Hall et al. 2014).

The trade-off theory states that firms will hold more cash as leverage increases in order to reduce the probability of financial distress. Moreover, the pecking order theory states that debt levels are directly related to investment and retained earnings. Therefore, the pecking order theory provides a negative relationship between leverage and cash holdings. Prior studies state that cash levels decrease with more debt. Accordingly, firms with more liquid assets can covert these assets to cash and in turn hold lower levels of cash. Following the studies; Al-Najjar and Belghitar (2011); Ozkan and Ozkan (2006), Verduyn (2013); Kusnadi (2011); Lee and Lee (2009), Borhanuddin and Ching (2011); Gill and Shah 2012; Ali and Yousaf (2013) total debt over total assets (LEV) is used. Moreover, Al-Najjar (2013) and Verduyn (2013) use the short-term debt between year t and t−1 divided by total assets at the end of year.

The trade-off theory suggests that dividend paying firms can raise funds by cutting dividend payments, while firms that do not pay any dividends can only raise funds through the capital markets. This makes sense to the argument that dividend paying companies hold less cash than their counterparts. Therefore, dividend payouts (DIV) are also frequently used as a financial determinant of cash holding (Al-Najjar 2013, Verduyn 2013, Anagnostopoulou 2013, Gill and Shah 2012, Kuan et al. 2012, Masood and Shah 2014). Firms cannot pay dividends when they are in need of cash. It acts as a substitute of cash for the firms.

The control variables included in the study which explain variation in the cash holdings of firms are consistent with Kusnadi (2011), Harford et al. (2008), Opler et al. (1999), Chen (2008), Kuan et al. (2011), Ammann et al. (2011). Profitability as the

return on asset *(ROA)* is used as the first firm specific control variables similar with the Verduyn (2013); Hall et al. (2014). Anagnostopoulou (2013).

The trade-off theory proposes a negative relationship between cash holdings and company size. The Miller and Orr (1966) model state that there are economies of scale in cash management. This means that larger companies would have less need to hold a buffer of cash and thus lower levels of cash holdings. On the other hand, the pecking order theory states that larger firms have been more successful and should have more cash. This would lead to a positive relationship between cash holdings and company size. Therefore, another firm specific variable is natural logarithm of total assets (in millions of US dollars) as a proxy for size measure is used (SIZE). This determinant of cash holding is also used in similar with the studies of Al-Najjar (2013); Verduyn (2013); Kusnadi (2011); Ali and Yousaf (2013); Gill and Shah 2012; Lee and Lee 2009; Subramaniam et al. (2011).

For the country specific variables; GDP per capita *(GDP)* is used as a measure of the economic development similar with the Acharya et al. (2011), Pinkowitz et al. (2006) and Chen et al. (2015b). Brazil has the highest average GDP per capita over the sample period and India has the lowest.

Table 1 provides the dependent, explanatory, and control variables utilized together with their abbreviations and definitions in light of the discussion in the literature review section.

Table 1: Abbreviations and Definitions of Variables

Variable Name	Definition	Abbreviation
Cash Holdings	Cash / Total Assets	*CASH1*
Net Cash Holdings	Cash & Cash Equivalents / Net Assets	*CASH2*
Imputed Cash	$(Imputed\ Cash) = \sum_{n=1}^{n} \left(Asset_i * \frac{Cash}{Asset} \right) industry$	
Industry Adjusted Cash	(Cash−ImputedCash)/Asset	*ADJCASH*
Independent Variables		
Capex	Capital expenditure divided by assets	*CAPEX*
Growth/Investment Oppurtunity	Market value of the firm (book value of asset less the book value of the equity, plus the market value of the equity), divided by book value of the assets	*MB*
Liquid Asset	NWC/Total Asset	*LIQ*
Net Working Capital	(Working capital- cash and short-term investments)/ total assets	
Leverage	Total debt over total assets	*LEV*
Dividend Yield	Annual dividends per share divided by the price per share	*DIV*
Profitability	Return on Asset	*ROA*
Size	Natural log of Asset	*SIZE*
Gross Domestic Product per capita	Proxy for countries' economic development	*GDP*

3.2. Industry Effect

This study has investigated firms from eighteen industries i.e. materials, utilities, transportation, consumer durables, media, pharmaceuticals, household products listed in Bloomberg Professional Database. Each industry has its own characteristic. Certain industries' earnings are highly volatile and are of high risk. This will affect the cash holdings decision indirectly. Simply adding industry dummies to the regression explaining cash holdings is not appropriate for the purpose of the study. This paper follows the similar methodology of Berger and Ofek (1995), Subramaniam et al. (2011) and Brisker et al. (2013) to construct the main dependent variable—industry-adjusted cash holdings.

For determining *(ADJCASH);* first, the median ratio of cash over total assets (CASH/TA) for each industry is calculated. Then, imputed cash holdings *ImputedCash*; as the product of the firms' industry median *(CASH2)* and its net asset value is defined. Lastly, adding up *ImputedCash* for each segment of a diversified firm gives us the *firm-level ImputedCash*. Third dependent variable of cash holdings then generated and it is the difference between the actual cash holdings of the firm and the *ImputedCash*, scaled by total assets of the firm. This variable is stated as *ADJCASH (Cash−ImputedCash)/TA* and effectively

controls for any industry effects in the regressions. *Positive ADJCASH* indicates that the firms hold more cash than their counterparts and negative *ADJCASH* indicates that firms hold less cash compared with counterparts. The methodology of using the *ADJCASH*

Using the same methodology of Subramanian (2011) the possible endogeneity problem is concerned. *Unadjusted Cash to Total Assets* along with the primary industry dummy variable as a control variable in the regressions to control for the industry affiliation of the sample. The empirical results indicate that the inferences are all unchanged.

Table 2 represents the corporate cash holding statistics across industries by industry between the years 2005–2014. The industry is defined according Bloomberg Professional Database Industry Codes. Panel A shows the bottom 5 industries with the least cash holdings and Panel B shows the top 5 industries with the most cash holdings. While *CASH2* variable makes a good dependent variable for robustness testing, it is used.

Table 2: Corporate Cash Holdings by Industry

Panel A: Bottom 5 Industries

	Industry description	Median	Mean	Std.Dev.
2520	Consumer Durables & Apparel	.0586	.1091	.1513
3020	Food, Beverage & Tobacco	.0706	.1331	.1746
5510	Utilities	.0894	.1034	.0766
1510	Materials	.0939	.1404	.1554
2030	Transportation	.0996	.1472	.1347

Panel B: Top 5 industries

	Industry description	Median	Mean	Std.Dev.
4510	Software & Services	.2314	.2971	.2501
4520	Technology Hardware & Equipment	.2299	.3010	.2580
3510	Health Care Equipment & Services	.1822	.2068	.1399
3030	Household & Personal Products	.1675	.2178	.1693
3520	Pharmaceuticals, Biotechnology & Life Sciences	.1653	.2117	.1866

Top five industries hold as much as ten times more cash as a percentage of total assets than the bottom five industries. For instance; Consumer Durables & Apparel industry with the lowest cash holdings, has a median (mean) of 5.86 % (10.91%), whereas software &services, the industry with the highest cash holdings, has a median (mean) of 23.14% (29.71%).

The large industry variation for cash holdings indicates that controlling for the industry effects is crucial for the purpose of the analysis.

Table 3: Corporate Cash Holdings by Country

Country/variables	Mean	Median	Std Dev	Min	Max	N
Brazil						
CASH1	.0864	.0608	.0876	.0000	.7234	641
CASH2	.1823	.1390	.1558	.0001	.9587	632
Russia						
CASH1	.0605	.0434	.0602	.0004	.3373	485
CASH2	.1084	.0659	.1264	.0006	.8285	481
India						
CASH1	.0402	.0217	.0711	.0000	.7935	1209

CASH2	.1662	.1047	.1815	.0002	.9622	1151
China						
CASH1	.1897	.1476	.1514	0.0003	.8781	1301
CASH2	.2282	.1670	.1965	.0003	.9839	1228
Turkey						
CASH1	.0857	.0510	.0980	.0000	.5912	1985
CASH2	.1118	.0564	.1469	.0000	.9715	1961

Summary statistics show the mean, median, standard deviation, minimum and maximum values of the variables and provide a general overview of the characteristics of the data. The mean cash ratio for Chinese firms has the highest cash levels. These statistics are very close to the US firms' mean cash ratio of 17% as reported by Opler et al (1999) and the European firms' mean cash ratio of 14.8% as reported by Ferreira and Vilela (2004).

Uyar and Kuzey (2014) also report that on average, Turkish-listed nonfinancial firms hold 9.1% of their total assets as cash and cash equivalents over the period 1997 to 2011. Moreover, Chen et al. (2012) investigate all nonfinancial firms listed on the Shanghai and Shenzhen Stock Exchanges from 2000 to 2008. They state the mean (median) pooled sample ratio of cash to all noncash assets is 23.4% (15.7%). In 2005, the split share structure reform commenced in China and they report that the cash holding ratio significantly decrease. Results are similar with the Ramiraz and Tadesse (2009) findings. They state the average cash holdings in Brazil, Russia, India and China are 9%, 7%, 6%, and 18%, respectively.

The majority of the papers confirmed that the tradeoff theory exists and researchers have found evidence that firms in countries with greater investor protection and better capital markets hold less cash (Opler et al. (1999) and Kim et al. (1998). This table states that firms located in common law (India) has the lowest cash ratio rather than the firms located in civil-law countries (Brazil, Russia, China and Turkey).

3.3. Methodology

As also emphasized in the prior subsections relating to methodological procedures and model specifications, major findings of this study has been evaluated by the use of panel data analysis due to its superiority over cross sectional analysis performed in the study.

All the models applied are determined to be significant with respect to F-statistic and Wald statistic, which are significant at $p < 0.001$. Wald-statistic, which is the chi-squared version of the F-test, is the F-statistic after a simple transformation applicable to any estimator that is consistent and asymptotically normal (Wooldridge 2009).

The first panel data estimation model, which evaluates the first determinant of corporate cash holdings in terms of *CASH1* can be demonstrated as in Equation 1.

The functional forms of the models are as follows:

$CASH1_{it} = \beta0 + \beta1 CAPEX_{it} + \beta2 MB_{it} + \beta3 LIQ_{it} + \beta4 LEV_{it} + \beta5 DIV_{it} + \beta6 ROA_{it} + \beta7 SIZE_{it} + \beta8 GDP + \varepsilon_{it}$ (1)

The second panel data estimation model, which evaluates the second determinant of corporate cash holdings in terms of *CASH2* can be demonstrated as in Equation 2.

$CASH2_{it} = \beta0 + \beta1 CAPEX_{it} + \beta2 MB_{it} + \beta3 LIQ_{it} + \beta4 LEV_{it} + \beta5 DIV_{it} + \beta6 ROy_{it} + \beta7 SIZE_{it} + \beta8 GDP + \varepsilon_{it}$ (2)

The third panel data estimation model, which evaluates the final determinant of corporate cash holdings in terms of *ADJCASH* can be demonstrated as in Equation 3. This model takes a closer look at the differences of the determinants of cash holdings in the various sectors in BRICT firms.

$ADJCASH_{it} = \beta0 + \beta1 CAPEX_{it} + \beta2 MB_{it} + \beta3 LIQ_{it} + \beta4 LEV_{it} + \beta5 DIV_{it} + \beta6 ROA_{it} + \beta7 SIZE_{it} + \beta8 GDP + \varepsilon_{it}$ (3)

where *CASH1it* is the cash ratio measured by cash and cash equivalents to total assets ratio in year *t* for firm *i*; *CASH2it* is the cash ratio measured by cash and cash equivalents to net assets ratio in year *t* for firm *i*; *ADJCASHit* is the product of the firms' industry median and its net asset value in year *t* for firm *i*; *CAPEXit* is the capital expenditure divided by assets in year *t* for firm *i*; *MBit* is the market value of the firm divided by book value of the assets in year *t* for firm *i*; *LIQit* is the liquidity ratio measured by the net working capital divided by total asset in year *t* for firm *i*; *LEVit* is the leverage ratio, measured by total debt to total assets in year *t* for firm *i*; *DIVit* is the dividend payout ratio measured by dividends per share divided by earnings

per share in year t for firm i; *ROAit* is the return on assets ratio measured by net income divided by assets in year t for firm i; *SIZEit* is the natural logarithm of total assets in year t for firm i; GDP is the proxy for countries' economic development in year t for country and ε is the error term.

4. FINDINGS AND DISCUSSIONS

Based on the tradeoff theory, the association between capital expenditures and cash should be negative, since firms with more and larger capital expenditure tend to hold less cash (Dittmar et al. 2013; Guney and Ozkan 2006; Afza and Adnan 2007; Chen et al. 2015b,Anagnostopoulou 2013) whereas Opler et al. (1999) found just the opposite evidence. This study fails to find any relationship in all models. The regression coefficient for capital expenditures is seen as negative in Table 4. This provides limited empirical support to the proposition that firms with more capital expenditure tend to hold less cash. Chen (2008) also finds any relationship between capital expenditures and cash holding for S&P 1.500 firms.

The existence of growth opportunities in corporations is a significant factor that positively affects cash levels, as has been shown in various empirical studies Kim et al. (1998); Opler et al. (1999); Ferreira and Vilela (2004); and Ozkan and Ozkan (2002); Ali and Yousaf (2013); Chen et al. (2015b). Although this study states limited empirical support that firms with growth opportunities negatively affects cash levels, only for the second model a significant negative impact is found. This represents that firms in BRICT with low growth opportunities hold less cash to avail opportunities available.

Firms with highly liquid assets will hold less cash because those assets can easily be converted in case of a cash shortage. That is why the trade-off theory suggests a negative relationship between cash holdings and the amount of liquid asset substitutes. The ratio of net working capital minus cash to total assets is used as a proxy for liquid asset substitutes and a negative relationship is expected because liquid assets can be seen as a substitute for cash in the event of a cash shortage (Afza and Adnan 2007; Megginson and Wei (2010); Gill and Shah 2012; Ferreira and Vilela, 2004; Ali and Yousaf 2013; Belkhir et al. 2014; Chen et al. 2015b). The pecking order theory and agency theory do not propose any relationship between cash holdings and liquid asset substitutes. Interestingly, for all the models, firms with higher liquid assets substitutes hold high cash is found.

The leverage ratio also affects a firm's cash holdings. Previous research in developed and emerging countries (Opler et al. 1999, Ozkan and Ozkan 2002, Al-Najjar and Belghitar 2011) have found there to be a negative relationship between cash holdings and leverage. This negative relationship is also supported by free cash flow theory but the main reason is because high leverage firms are subject to monitoring by capital markets preventing superior managerial control (Ali and Yousaf 2013; Rızwan and Javed 2011). On the other hand, although the trade-off, pecking order and free cash flow theory suggests a negative relationship, this study fails to find any impact of leverage on corporate cash holding for all the models similar with the results of Chen (2008). The insignificant relationship implies that leverage cannot act as a substitute of cash holdings for BRICT firms and exert an impact on the firm's cash holding decisions in all models.

Research results are divided on the subject of dividend payments and cash holding. Based on the tradeoff theory, the association between dividend payments and cash should be negative, since dividend paying firms can trade off the costs of holding cash by reducing dividend payments (Opler et al. 1999; Al-Najjar 2013). On the other hand, Ozkan and Ozkan 2004) provide a positive relationship for UK companies. For the first model, firms with pay dividends hold less cash is found. The other models fails to find any significant relationship between dividend payment and cash holding.

Any significant relationship is found between firm profitability and cash holding for all models. Anagnostopoulou (2013) evidences positive coefficients for profitability and cash holding and he could further indicate that whenever the opportunity arises in terms of profitability and internally generated cash flows, firms take it as a chance to increase liquidity.

The pioneer studies of Baumol (1952), and Miller and Orr (1966) demonstrate that there are economies of scale associated with the cash levels required to confront the normal transactions of the firm, so that larger firms can keep lower cash holdings. However, smaller firms suffer more severe information asymmetries. They are more likely to suffer financial distress Rajan and Zingales (1995). Also, financial distress is associated with high fixed costs and these costs are proportionately greater for smaller firms (Ali and Yousaf 2013). This study finds a positive impact of firm size indicator on cash holdings which is most likely explained due to the fact that larger firms have been more successful and thus should have relatively more cash, consistent with the pecking order theory.

Country level control variable is GDP per capita is used following Pinkowitz et al. (2006). Acharya et al. (2011) also state that GDP per capita proxies for economic development and control for GDP per capita as developed and developing countries may have different investment opportunity sets. Pinkowitz et al. (2006) show that cash holdings are valued more in countries with higher financial development and higher economic development (Chen et al. 2015a). This study finds a negative

relationship between GDP per capita and cash holding. However, Francis et al. (2013) state positive coefficients for (GDPPerCapita), because firms in countries with more developed financial markets have better investment opportunities.

Overall results indicate that only liquid asset form part of the determinants of cash holdings of related firms for all models. Some trade-off and pecking order theory expectations fail to find significant results for these firms.

Table 4: Fixed Effects Regression Model Results for the all Models

	CASH1	CASH2	ADJCASH
CAPEX	-0.0003	-0.0005	-0.0008
	(0.0003)	(0.0003)	(0.0006)
MB	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)**	(0.0000)
LIQ	0.1974	0.5085	0.4116
	(0.0223)***	(0.0423)***	(0.0686)***
LEV	-0.0001	-0.0002	0.0000
	(0.0002)	(0.0003)	(0.0007)
DIV	-0.0010	0.0001	-0.0016
	(0.0005)*	(0.0008)	(0.0015)
ROA	0.0004	0.0006	0.0003
	(0.0003)	(0.0005)	(0.0007)
SIZE	0.0123	0.0192	0.0130
	(0.0039)***	(0.0068)***	(0.0109)
GDP	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)***	(0.0000)***
constant	-0.0252	-0.0143	-0.0015
	(0.0329)	(0.0574)	(0.0949)
obs	3369	3275	2376
F test	11.88***	23.35***	8.03***
Goodness of fit (R2)	0.1322	0.2389	0.0729
legend *p < 0.10; **p < 0.05; ***p < 0.01			

4.1. The Role of the Country's Legal Regime

La Porta et al. (1998) argue that differences among countries in the structure of laws and their practices imply differences in stock market development and hence the protection of shareholders' rights. Moreover, governance has an impact on cash holdings. Following previous literature, which has shown corporate governance characteristics to be a significant contributor for cash ratios (Pinkowitz et al, 2006; Dittmar et al.2003; Anagnostopoulou 2013) the impact of differing corporate governance mechanisms on the cash ratios of common and civil law firms is further controlled.

One of the first study which takes into account the ownership data as the determinant of corporate cash holding belongs to Ozkan and Ozkan (2004). They provide evidence from a sample of 1,029 listed UK companies during the period 1984-1999 and find out that cash holdings are negatively impacted at low levels of ownership but that the impact is reversed at higher levels of ownership. Research conducted by Guney and Ozkan (2006), also shows that corporate governance is important in explaining the corporate cash holdings behavior. According to Ditmar et al. (2003), there are great differences in cash holdings levels between countries that have greater shareholders protection means countries that having good corporate governance than those where shareholders' protection is lower means that is the countries that have poor governance.

To examine the role of the country's legal regime and shareholder rights in this relationship, panel regressions are estimated for subsamples based on shareholder protection. Apart India, the other countries (Brazil, Russia, China, and Turkey) have a civil-law legal tradition that is deemed to provide little protection to minority investors and poor law enforcement (La Porta et al., 1998). Table 3 also highlight that firms located in common law (India) has the lowest cash ratio rather than the firms located in civil-law countries (Brazil, Russia, China and Turkey). This provides evidence that tradeoff theory exists and firms in countries with greater investor protection and better capital markets hold less cash (Opler et al. (1999) and Kim et al. (1998)

whereas bank-oriented firms where the need of extensive and disclosure is questioned hold high cash (Dittmar 2003; Francis et al. 2013; Hall et al. 2014).

Table 5 reports the results of the panel data regressions separately for firms located in civil-law (Brazil, Russia, China, and Turkey) and common-law (India) countries.

The existence of growth opportunities and liquid asset substitutions significantly affect the cash holding decisions of non-financial firms for civil and common countries. While the findings state that firms in civil law countries with growth opportunities negatively affects cash levels, firms in common law countries with high growth opportunities hold high cash. For civil law countries, results seem to consistent with free cash flow theory that states that managers with poor investment opportunities (low market-to-book ratio) hold more cash to ensure availability of funds for investment in growth projects. This result suggests the agency problem is prevalent in these firms where managers try to avoid raising external funds for keeping the investment information of the company to themselves.

Firms with higher liquid assets substitutes hold high cash has been found for all the models. For both the common and civil law countries, liquid assets substitutes are found to be statistically significant in explaining the variations on cash holding. The insignificant relationship implies that leverage cannot act as a substitute of cash holdings and exert an impact on the firm's cash holding decisions. Furthermore, for common-law firms dividends pay out and firm size has been found a positive impact on cash holdings.

The findings also exhibit that different corporate governance practices can influence the cash policies of a firm. The findings show that companies with good corporate governance normally hold cash at much lower levels than companies that have poor corporate governance. Schauten et al. 2013 investigate the relation between the quality of corporate governance and the value of excess cash for large publicly listed European firms from common-law and civil-law countries. Their results confirm that in countries with the weakest legal protection of investors, benefits of a good governance structure are the highest. Aras (2015) states that country characteristics strongly influence the aspects of governance practices while predicting firm financial structure together with the view of common and civil-law differentiation for BRICK Countries.

Table 5: Fixed Effects Regression Model Results for Civil-law Countries and Common-law Countries

	Civil law countries	**Common law countries**
CAPEX	-0.0006 (0.0005)	-0.0000 (0.0004)
MB	-0.0000 (0.0000)**	0.0036 (0.0012)***
LIQ	0.4718 (0.0524)***	0.6491 (0.0685)***
LEV	0.0000 (0.0004)	-0.0009 (0.0006)
DIV	-0.0002 (0.0008)	0.0129 (0.0051)**
ROA	0.0009 (0.0006)	0.0000 (0.0006)
SIZE	0.0117 (0.0098)	0.0385 (0.0143)***
GDP	-0.0000 (0.0000)***	-0.0000 (0.0000)
constant	0.0717 (0.0657)	-0.3420 (0.1427)
obs	2288	987
F test	14.54***	15.08***
Goodness of fit (R2)	0.2125	0.3517
legend *p < 0.10; **p < 0.05; ***p < 0.01		

5. CONCLUSION

An appropriate level of cash is required within the firm for the good and smooth operations of any sort of business entity. This paper investigates the determinants of cash holding in nonfinancial firms of BRIC countries and Turkey across different firm sizes and industries. Furthermore the data set for the period of 2005 to 2014 for the capital expenditure, growth opportunities, liquid assets, leverage and dividend policy has been taken to study the impact of these on level of corporate cash holdings.

Financial determinants influence the corporate cash holdings, but it's not clear which dominant corporate cash holding theories, trade-off, financial hierarchy and agency theories, supports best the empirical findings. Panel data findings provide some strong evidence for the determinants of cash holdings. Capital expenditures are a significant determinant for cash holdings and have a negative impact on cash holdings. Dividend payout is also a significant determinant of cash holdings and has a negative impact on cash holdings. Firm size is another significant determinant of cash holding and has a positive impact on cash holdings. This is most likely explained due to the fact that larger companies have been more successful and thus should have relatively more cash, as explained by the pecking order theory.

The results of this cross-country model provide evidence that growth opportunities, liquid assets and dividend policy are significant factors in determining cash holdings in firms across these emerging countries. This paper also sheds light on the role of economic development on corporate cash holdings. Findings provide that less developed countries tend to hold more cash.

Firm cash flow has been expected in theory to relate negatively to liquid assets, as firms with higher cash flow can afford to keep lower levels of cash, resulting in a negative relation between cash flow measures and holdings of liquid assets.

A key insight of this research is that for all the models considering the civil and common law differentiation, firms with higher liquid assets hold high cash is found. This finding is considered to be indicative of the precautionary motive for cash and under financial constraint of these firms since cash has been seen a relatively safe investment.

Corporate cash holdings and its determinants have been discussed, this study also gives further explanation on the literature analyzing the relationship regarding the question of whether country's legal regime matters while determining cash holding. Findings state that countries which have poor corporate governance hold cash at higher levels compared to countries that have good corporate governance. It is also worth noticing from results for the common and civil law differentiation performed for the regression coefficients, that coefficients for growth opportunities all differ significantly in the way they affect the cash ratios of the two groups.

This study has been carried out in as robust a manner as possible to ensure that its objectives have been successfully achieved. However, it has several limitations. Among the limitations are the missing values in the data derived from database. The sample size of the study is rather small compared to other international studies. In addition, the sample period was rather limited as it covered ten years.

Despite the limitation of firm-level data and the shorter time period under investigation, these findings have significant implications for understanding the determinants of corporate cash holding in emerging countries. In addition to what that has been investigated in this research, there are several other avenues to be explored in future research regarding cash holdings, leverage and corporate governance. Such future research could incorporate ownership structure and corporate governance mechanisms as part of the variables used in governance attitudes as well as the financial constraints and cash flow sensitivity in the corporate cash holding aspect.

REFERENCES

Acharya, V., Amihud, Y., Litov, L. (2011). Creditor rights and corporate risk-taking, *Journal of Financial Economics*, 102, 150–166

Afza, T., Adnan, S.M. (2007). Determinants of corporate cash holdings: A Case study of Pakistan. Proceedings of Singapore Economic Review Conference, Organized by Singapore Economics Review and The University of Manchester (Brooks World Poverty Institute), 164-165.

Al-Najjar, B., Y. Belghitar. (2011). Corporate cash holdings and dividend payments: Evidence from simultaneous analysis, *Managerial and Decision Economics*, Vol. 32, No. 4, pp. 231-241.

Al-Najjar, B. (2013). The financial determinants of corporate cash holdings: Evidence from some emerging markets, *International Business Review*, Vol. 22, No.1, pp. 77-88.

Ali, A., Yousaf, S. (2013). Determinants of cash holding in German Market, *Journal of Business and Management*, ISSN: 2278-487X, p-ISSN: 2319-7668, Vol. 12, Issue 6, pp. 28- 34

Almeida, H., Campello M., Weisbach M.S. (2004). The cash flow sensitivity of cash, *The Journal of Finance*, 59, pp.1777-1804.

Ameer (2014). Financial constraints and corporate investment in Asian countries, *Journal of Asian Economics*, 33, pp.44-55.

Amess, K., Banerji, S., Lampousis, A. (2015). Corporate cash holdings: Causes and consequences, *International Review of Financial Analysis*, p.13

Anagnostopoulou, S. (2013). Cash holdings: Determining factors and impact on future operating performance for listed versus unlisted Firms, *Review of Pacific Basin Financial Markets and Policies*, Vol. 16, No. 2

Anjum, S., Q.A. Malik. (2013). Determinants of corporate liquidity – An analysis of cash holdings, *Journal of Business and Management*, Vol.7, No. 2, pp. 94-100.

Attig, N., El Ghoul, S. Guedhami, O. and Riseanu, S. (2013). The governance role of multiple large shareholders: Evidence on the valuation of cash holdings. *Journal of Management and Governance*, 17 (2) 419–451.

Aras, G. (2015). The effect of corporate governance practices on financial structure in emerging markets: Evidence from BRICK countries and lessons for Turkey, *Emerging Markets Finance and Trade*, 51, sup.2, pp.5-24.

Baumol, W. J. (1952). The transactions demand for cash: An inventory theoretic approach, *Quarterly Journal of Economics*, Vol. 66, 545-556.

Bates, T., Kahle K., Stulz R. (2009). Why Do U.S. Companies hold so much more cash than they used to? *Journal of Finance*, Vol. 64, No. 5, pp. 1985-2021.

Belkhir, M. Boubaker S. Derouiche I. (2014). Control–ownership wedge, board of directors, and the value of excess cash, *Economic Modelling*, 39(C), 110–122.

Berger, P., Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37, 39–65.

Borhanuddin, R. Ching P. (2011). Cash Holdings, leverage, ownership concentration and board independence: Evidence from Malaysia, *Malaysian Accounting Review*, Vol. 10 No. 1, 63-88, 2011.

Brisker, E.R. Çolak, G. Peterson, D.R. (2013). Changes in cash holdings around the S&P 500 additions, *Journal of Banking & Finance*, 37, pp. 1787-1807.

Cetenak, E.H., Vural, G. (2015). Business group affiliation and financial constraints: Investment-cash flow sensitivity of Turkish business groups, *Journal of Economics, Finance and Accounting (JEFA)*, Vol.2, Issue 3, ISSN: 2148-6697, pp.313-330.

Chen, Y. R. (2008). Corporate governance and cash holdings: Listed new economy versus old economy firms, *Corporate Governance*, Vol.16, No.5, pp.430-442

Chen, S.S. Chou, R.K. Chou S. (2009). The impact of investment opportunities and free cash flow on financial liberalization: A cross-firm analysis of emerging economies, *Financial Management*, pp.543-566

Chen, Q., Chen X., Schipper K., Yongxin X. (2012). The Sensitivity of Corporate Cash Holdings to Corporate Governance, Working paper series

Chen, D., Li, S., Xiao, J.Z., Zou, H. (2014). The effect of government quality on corporate cash holdings. *Journal of Corporate Finance*, 27, pp.384-400.

Chen, X. Sun, Y. Xu, X., (2015a). Free cash flow, over-investment and corporate governance in China, *Pacific-Basin Finance Journal*, doi: 10.1016/j.pacfin.2015.06.003

Chen Y, Dou P.Y. Ghon R. Truong C, Veeraraghavan M. (2015b). National culture and corporate cash holdings around the World, *Journal of Banking & Finance*, 50, pp. 1–18.

Daher, M. (2010). The Determinants of Cash Holdings in UK Public and Private Companies, (Thesis), Lancaster University Management School.

Dittmar, A., J. Mahrt-Smith, Servaes H. (2003). International corporate governance and corporate cash holdings", *Journal of Financial and Quantitative Analysis*, Vol.38, No. 1, pp. 111-133.

Egimbaeva, B. (2013). Corporate Investment and Cash Flow Sensitivity: Evidence from Turkey, Dokuz Eylul University, Master Thesis.

Ferreira, A., Vilela S. (2004). Why do companies hold cash? Evidence from EMU countries, *European Financial Management*, Vol. 10, No. 2, pp. 295-319

Francis, B., Iftekhar H., Liang S., Maya W. (2013). Corporate governance and investment-cash flow sensitivity: Evidence from emerging markets, Emerging Markets Review, Elsevier, vol. 15(C), pp. 57-71.

Gill, A., Shah, C. (2012). Determinants of corporate cash holdings: Evidence from Canada, *International Journal of Economics and Finance*, Vol.4, No.1, pp.70-79.

Guney, Y., Ozkan, A., Ozkan, N. (2003). "Additional International Evidence on Corporate Cash Holding". EFMA Helsinki meetings

Guney, Y., Ozkan, A., Ozkan, N. (2006). International Evidence on the non-linear impact of leverage on corporate cash holdings, *Journal of Multinational Financial Management*, 17(1):45-60

Hall, T. Mateus, C. Mateus, I. (2014). What determines cash holdings at privately held and publicly traded firms? Evidence from 20 emerging markets, *International Review of Financial Analysis*, 33, 104–116.

Harford, J. (1999). "Corporate Cash Reserves and Acquisitions" *Journal of Finance*, Vol.54, pp. 1969-1997

Jensen, M. and Meckling, W. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure, *Journal of Financial Economics*, Vol.3, Issue 4, pp. 305-360.

Jensen, M. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers, *American Economic Review*, 76, 2, pp. 323-329.

Kim, C., D.C. Mauer, A.E. Sherman. (1998). The Determinants of Corporate Liquidity: Theory and Evidence, *Journal of Financial and Quantitative Analysis*, Vol.33, 335-359.

Koshio, S., Sales Cia, J.N. de. (2003). The Determinants of Corporate Cash Holdings in Brazil, (Working Paper), EAESP.

Kraus, A., R.H. Litzenberger. (1973). A State-Preference Model of Optimal Financial Leverage, *The Journal of Finance*, Vol.28, pp. 911-922.

Kuan, T. Li, C. Chu, S. (2011). Cash holdings and corporate governance in family-controlled firms, *Journal of Business Research*. Vol.64, pp. 757-764.

Kuan, T. Li; C. Liu, S. (2012). Corporate governance and cash holdings: A quantile regression approach, *International Review of Economics and Finance*, Vol. 24, pp.303–314.

Kusnadi, Y. Wei, K.C. (2011). The determinants of corporate cash management policies: Evidence from around the World, *Journal of Corporate Finance*, 17, 725–740.

La Porta, R. Lopez-de-Silanes, F. Shleifer A. Vishny R. (1998). Law and Finance, *Journal of Political Economy*, Vol. 106, No. 6. pp. 1113-1155.

Lee, K.W., Lee, C.F. (2009). Cash Holdings, Corporate Governance Structure and Firm Valuation, *Review of Pacific Basin Financial Markets and Policies*, Vol. 12, No. 3. 475–508.

Luo, M. (2011). A bright side of financial constraints in cash management, *Journal of Corporate Finance*, 17, pp. 1430–1444.

Masood, A. Shah, A. (2014). Corporate governance and cash holdings in listed non-financial firms in Pakistan, *Business Review*, Vol.9, No.2, 48-73.

Megginson, W.L., Wei, Z. (2010). Determinants and value of cash holdings: Evidence from China's privatized firms. SSRN Working Paper Series, 1-37.

Miller, M.H., Orr, D. (1966). A Model of the Demand for Money by Companies, *Quarterly Journal of Economics*, Vol. 80, No.3, pp. 413-435.

Myers, S.C., Majluf, N.S., (1984). Corporate financing and investment decisions when firm have information that investors do not have. *Journal of Financial Economics*, 13 (2), 187–221.

Ogundipe L.O., S.E. Ogundipe, S.K. Ajao. (2012). Cash Holding and Company Characteristics: Evidence from Nigerian Emerging Market, Journal of Business, Economics and Finance, Vol. 1, No. 2 , pp. 45-58.

Opler, T., Pinkowitz, L., Stulz, R. and Williamson, R. (1999). The determinants and implications of corporate cash holdings, *Journal of Financial Economics*, Vol. 52, pp.3–46

Ozkan, A., Ozkan N. (2004). Corporate cash holdings: An empirical investigation of UK companies, *Journal of Banking and Finance*, Vol. 28 (9), pp. 2103-2134.

Pinkowitz, L., Stulz, R., Williamson, R., (2006). Does the contribution of corporate cash holdings and dividends to firm value depend on governance? A Cross-country analysis, *Journal of Finance*, 61, 2725–2751.

Rajan, R.G. Zingales, L. (1995). What do we know about capital structure? Some evidence from international data, *The Journal of Finance*, Vol. 50, No. 5 pp. 1421-1460.

Ramirez, A., Tadesse, S. (2009). Corporate cash holdings, uncertainty avoidance, and multinationality of firms, *International Business Review*, 18, 387–403.

Rızwan, M.F. Javed, T. (2011). Determinants of corporate cash holdings: Evidence from Pakistani corporate sector, *Economics, Management and Financial Markets*, Volume 6(1), pp. 344–358,

Subramaniam, V., Tang, T. T., Yue, H., Zhou, X. (2011). Firm structure and corporate cash holdings, *Journal of Corporate Finance*, Vol. 17(3), pp. 759-773

Uyar, A., Kuzey, C. (2014). Determinants of corporate cash holdings: evidence from the emerging market of Turkey, *Applied Economics*, Vol. 46, No. 9, 1035–1048.

Verduyn, S. (2013). An Empirical Analysis of the Determinants of Cash Holdings of Non-Financial Turkish Listed Companies, Dokuz Eylul University, Master Thesis.

Wooldridge, J.M. (2002). *Econometric Analysis of Cross Section and Panel Data*, MIT Press, Cambridge.

TURKISH STEEL PRODUCER COMPANIES' REACTION TO TRUMP'S AUGUST 10, 2018 TWEET OF DOUBLING TARIFFS: AN EVENT STUDY ANALYSIS

Suadiq Mehammed Hailu[1], Hatice Dogukanli[2]

[1]Cukurova University, PhD Candidate in Finance, Adana, Turkey.
  suadiq1434@gmail.com , ORCID: https://orcid.org/0000-0003-3270-1357
[2]Cukurova University, Department of Business, Adana, Turkiye.
  hatdog@cu.edu.tr , ORCID: https://orcid.org/0000-0001-8085-7394

ABSTRACT

Purpose- Stock markets are reacting to different events that happened inside or outside the company. The dissemination of information on social media is one of the events affecting the performance stock market. The main aim of this paper is to examine the reaction of steel producer companies listed in Borsa Istanbul to Trump's tweet of doubling tariffs on steel products importing from Turkey to the US on August 10, 2018.
Methodology- The event study analysis was applied to investigate the impact of Trump's Tweet. Daly adjusted closing prices for sample companies and BIST100 index covering 156 days between January 1, 2018 - August 17, 2018, was collected from Yahoo's finance Website. The selected sample companies for this study are Çemtas Çelik Makina Sanayi ve Ticaret (CEMTS), Eregli Demir ve Çelik Fabrikalari (EREGL, Gentas Genel Metal Sanayi ve Ticaret (GENTS), Iskenderun Demir ve Çelik (ISDMR) andKardemir Karabük Demir Çelik Sanayi Ve Ticaret (KRDMD). The market model was used to determine the normal stock return in the estimation period. A t-test was used to examine the significance of abnormal returns of sample companies' stock. BIST100 index used as a proxy of the market.
Findings- The finding shows that from the sample companies investigated in this study; CEMTS, EREGL, GENTS and KRDMD stocks are not significantly affected by Trump's tweet. ISDMR was the only stock among the samples vent that affected by the negatively and significantly with t-statistic (-2.18) at 5% significance level.
Conclusion- In general, the finding of the study indicated that Trump's Tweet was not significantly affected the performance of Turkey's steel producer companies listed in Borsa Istanbul.

Keywords: Abnormal return, market model, social media, stock market, tariff, twitter
JEL Codes: G10, G11, G14

1. INTRODUCTION

The share prices of companies listed in the stock market have been showing a change over time. The change may happen within a day or an hour or even within a minute. The change or movement of the stock price frequently is a result of different factors. These factors may be company-specific factors like earning announcement, stock split, merger and acquisition; orgeneral macroeconomic factors like inflation, money supply, interest rate and exchange rate (Al-Tamimi, et al, 2011). In the contemporary world, social media also have a significant effect on stock prices. Information released in social media about a specific company, industry or country has an impact on the stock market performance of the targeted entity. However, if the market is efficent, the information about the event will reflect on the stock price automatically and no one can beat the market using the information regarding the event that happened. Fama (1970) defined an efficient market as "a market in which prices always fully reflect available information" and he classified efficient market into three categories i.e. weak form, semi-strong and strong form. In a weak form of market efficiency, no one can predict the future price of the stock by using historical prices. It is impossible to beat the market by analyzing the historical price because the historical

information is already reflected in the current stock price. In a semi-strong form of an efficient market, it states that including historical price information, the publicly announced new information is reflected on the stock price quickly and properly. Investors cannot gain abnormal return by analyzing historical information and publicly announced information. The strong form of efficient market claims that current stock price reflects not only historical price and publicly available information, but also the insider's information.

The impact of information desiminated on social media regarding a country or a specific company is used to test the efficiency of the stock market at the semi-strong form. The politician's social media manipulation is one of the contemporary issues that affect the performance of the stock market return. Social media like Twitter, blogs, and forums have a significant effect on the stock market. Studies like Bollen, Mao & Zeng (2011), Chen, De, Hu, & Hwang (2011), Luo, Zhang & Duan (2013), Yu, Duan & Cao (2013) and Chen, De, Hu & Hwang (2014) identified that social media have a power that affects stock market movement.

Tweets from President Trump's official Twitter account about a specific firm or country is one of the well-known events that affect the stock market positively or negatively. After Donald Trump won the U.S. presidential election on November 8, 2016, he used Twitter to attack or support specific companies and countries. Trump`s tweet on January 5, 2017, about Toyota company's plans to build Corolla cars at a new facility in Mexico, is one of the best examples that show his tweet effect on the stock market. Trump said in a post on Twitter "Toyota Motor said will build a new plant in Baja, Mexico, to build Corolla cars for the U.S. NO WAY! Build plant in U.S. or pay big border tax." Immediately after the tweet, Toyota's American Depository Receipts (ADRs) trading volume declined and the price has fallen by more than one dollar (Ge, Kurov & Wolfe, 2017).

In-country level, Trump posts a lot of tweets about China. Among his tweet, on December 4, 2018, he said:

"We are either going to have a REAL DEAL with China or no deal at all - at which point we will be charging major Tariffs against Chinese product being shipped into the United States. Ultimately, I believe, we will be making a deal - either now or into the future...." (Phillips, 2018).

Following this tweet, Caterpillar and Boeing shares dropped suddenly by 6.9 percent and 4.9 percent respectively. These companies export a significant sale to China (Phillips, 2018). In another tweet on February 25, 2019, he said:

"productive talks, I will be delaying the U.S. increase in tariffs now scheduled for March 1. Assuming both sides make additional progress, we will be planning a Summit for President Xi and myself, at Mar-a-Lago, to conclude an agreement. A very good weekend for U.S. & China!" (Dunkley & Lockett, 2019).

Resulted from this tweet, China's CSI 300 index of firms listed in Shanghai and Shenzhen increased by 5.9 percent. This performance is the best one-day gain to CSI 300 index in more than three years (Dunkley & Lockett, 2019).

Turkey is also one of the countries affected by Trump`s Tweeter manipulation. In 2018, the relation between Turkey and the USA goes to worsen due to different reasons. The support of USA to the Syrian-Kurdish People's Protection Units (YPG) which declared by Turkey as terrorist organization, the coup attempt on July 15, 2016 in Turkey by Fethullah Gülen who has been living in the United States, the agreement of Turkey with Russian to buy S-400 missile defence system, the detained and arrested of American citizen named Andrew Brunson in Turkey over alleged links to the Gülen movement and PKK by Turkey, and others are among the reasons that affect the relation between US and Turkey (Arslan, Dost & Wilson, 2018).

Due to the above-mentioned political disagreements between the US and Turkey, the tweets by Trump regarding Turkey is affecting Turkey economy highly. Since the start of 2018 until August 2018, Turkish Lira had depreciated by around 40 per cent against the US dollar (Gunerigok, 2018). On August 10, 2018, Trump tweeted:

"I have just authorized a doubling of Tariffs on Steel and aluminium with respect to Turkey as their currency, the Turkish Lira, slides rapidly downward against our very strong Dollar! Aluminium will now be 20% and Steel 50%. Our relations with Turkey are not good at this time!" (Gunerigok, 2018).

Turkey is among the top 10 steel producer countries in the world. In 2018, Italy, Israel, Spain and the United States are the largest 4 markets for Turkey`s steel export (Global Steel Trade Monitor,2018). Trump threatened Turkey in his tweet to doubling of Tariffs on Steel and aluminium. Therefore, it is expected that this Tweet has an impact on the Turkish economy generally and on steel producer companies specifically.

The main aim of this paper is to examine the reaction of Turkey`s Steel Producer Companies listed in Borsa Istanbul to Trump's Tweet to Doubling Tariffs on Turkish Steel Imports from Turkey. When this information disseminated in local and international media, investors who have a stock investment in Turkey`s steel producer companies worry about whether the event affected

or not his investment. Therefore, the researcher assessed the reaction of Turkey`s steel producer companies to Trump`s tweet by using an event study analysis.

This paper has been divided into four sections. The first section covers the introduction part and the second section dedicated to reviewing the literature related to this study. The research methodology is described in section three. In the fourth section, the findings of the study are presented. Finally, the last part of the paper covers the conclusions of the study.

2. LITERATURE REVIEW

There are several pieces of research done to identify the determinates of stock market performance. In the era of the internet, the impact of social media on stock market performance is one of the topics has been gaining attention by academicians. The usage of social media by companies themselves and the release of information about a company by someone else have an impact on the company's stock market performance. Specifically, the post of high-ranking politicians in social media about a specific company has an impact on the company's stock performance. In this section, studies done on the topic are summarised as follows.

Yu, Duan & Cao (2013) examines the impact of social media (blogs, forums, and Twitter) and conventional media (major newspapers, television broadcasting companies, and business magazines), their relative importance, and their interrelatedness on short term firm stock market performances. They collected daily media content across various conventional media and social media outlets for 824 public traded firms across 6 industries. An automated sentiment analysis technique applied to analyse the collected data. stock return and risk are used as the indicators of companies' short-term performances. The findings suggest that overall social media has a stronger relationship with firm stock performance than conventional media while social and conventional media have a strong interaction effect on stock performance.

Fiala, Kapounek & Veselý (2015) studied causal links between users' content on the social network Twitter – tweets and price of stocks of Apple Inc. and Microsoft Corporation. Tweets during the period from 1.3.2014 to 18.5.2014 are collected and Granger causality test is applied to identify the causality link between tweets and stock prices. The finding indicated the existence of both one directional and two directional causal links.

Zhang (2016) assessed the dynamic relationship between tweets and stock price movements by applying a vector autoregression (VAR) model. The author collected four daily time-series variables: stock return, volatility, liquidity, and the volume of tweets during the period from January 1, 2014, to June 1, 2015, to study the interdependences and comovements of social media content and stock performance. The result indicated that there are strong interdependences and comovements between tweets and stock performance.

Ge, Kurov & Wolfe (2017) examined the impact of tweets from President Trump's official Twitter accounts from November 9, 2016, to February 28, 2017, that includes the name of a publicly traded company. They estimated the standard Fama-French three-factor model using OLS regressing the excess return. Their finding shows that the tweets move stock prices and increase trading volume, volatility and investor attention. The result clearly showed that the unexpected tweets from high-ranking government officials about a specific company have a positive or negative effect on the company's stock performance depending on the content of tweeted information.

Deng, Huang, Sinha & Zhao (2018) studied the microblog sentiment interact with stock return, positive sentiment and negative sentiment influence and react to stock return and the relationship between microblog sentiment and stock return at the day and hour levels. They collected a data set containing 17,835,174 Stock Twits messages spanning four years and applied vector autoregression (VAR) to analyse the data. The results show that the influence of microblog sentiment on stock return is both statistically and economically significant at the hour level. Microblog sentiment is also largely driven by movement in the market. Moreover, the stock return has a stronger influence on negative sentiment than on positive sentiment.

The relationship between the Tweets and the share prices of targeted companies studied by Juma'h & Alnsour (2018). They investigated the market reaction to the President's Tweets is measured using a conventional event study methodology. They collected about 5,700 Tweets from Donald Trump's Official Twitter Account from the beginning of 2016 to August 2017. From which 414 Tweets are related to the economy or finance terms. The findings of the study show that there are no significant effects of such Tweets on the stock market. There are no significant changes in companies' share prices on the day of the Tweets. This is an indication that either the Tweets may only influence the companies share prices in a spontaneous moment or the information contained in the President's Tweets are already reflected in the share prices before the day of the Tweets. This is consistent with the efficient market assumptions.

In general, most of the studies investigated the impact of social media on firm`s stock performances are found that it has a

positive or negative impact on stock performance depending on the information content released in social media. Among the literature summarized one studies conclude, it has not affected the stock performance significantly and the impact exists only in a very short period of time.

3. RESEARCH METHODOLOGY

In this section, methodology, sample and the data used for this study will elaborate in detail.

3.1.Sample

The main aim of the study is to examine the reactions of Turkish steel producer companies listed in Borsa Istanbul to Trump's Tweet of doubling tariffs on Turkish steel exports to the U.S. For this reason, five big steel producer companies which listed in Borsa Istanbul are selected. The selected combines are also listed in the Borsa Istanbul 100 index (BIST 100). The selected sample companies are listed as follows:

1. Çemtas Çelik Makina Sanayi ve Ticaret A.S. (CEMTS.IS)

2. Eregli Demir ve Çelik Fabrikalari T.A.S. (EREGL.IS)

3. Gentas Genel Metal Sanayi ve Ticaret A.S. (GENTS.IS)

4. Iskenderun Demir ve Çelik A.S. (ISDMR.IS)

5. Kardemir Karabük Demir Çelik Sanayi Ve Ticaret A.S. (KRDMD.IS)

Borsa Istanbul 100 index (BIST 100) is used in this paper representing the market. Daily adjusted closing prices for sample companies and BIST100 is collected from Yahoo's finance Website.

3.2. Event Study Approach

Event study investigates the stock return for a particular firm or industry before and after the announcement of events such as mergers and acquisitions, earnings announcements, issues of new debt and equity, announcements of macroeconomic variables, Initial Public Offering (IPO), dividend announcements and etc (Schweitzer,1989). Fama, Fisher, Jensen, and Roll (1969) applied an event study for the first time for stock splits. Based on Campbell, Lo and MacKinley (1997), Beverley (2008) stated seven key steps to a typical event study as follows:

1. Event definition

2. Selection criteria

3. Normal and abnormal returns

4. Estimation procedure

5. Testing procedure

6. Presentation of empirical results

7. Interpretation and conclusions

Event Definition- The first step in the event study is to identify the event and the date which happened and determine the period upon which the prices of the underlying stock will be investigated. This period is known as the 'event window'. There is also an estimation period which used to determine the normal behaviour the stock market return. The determination of the event window belongs to the researchers. However, Peterson (1989) states that a typical length of the estimation period range from100 to 300 days for daily studies and typical lengths of the event period range from21 to121days for daily studies.

In this study, the event took place on the 10th August 2018, when Donald Trump tweet in his official Twitter account saying doubling of tariffs on Turkish steel and aluminium products. The timeline for the estimation period i.e. event window and event date applied in this study are represented as follows: The researcher used 145 days as an estimation period and 11 days as an event window.

Estimation Period:1/2/2018 – 7/26/2018

Event window: 8/3/2018 – 8/17/2018

Pre-event period: 8/3/2018- 8/9/2018

Post-event window: 8/11/2018 – 8/17/2018
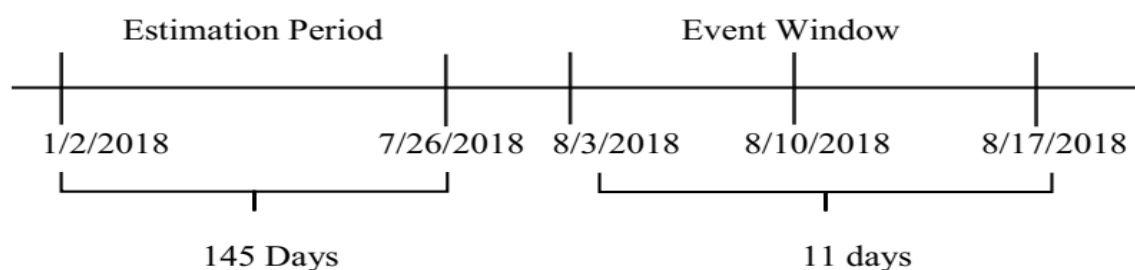
Selection Criteria - A stated earlier, Trump's Tweet targeted steel and aluminium imports from Turkey by doubling of Tariffs. Turkey exports a significant amount of steel to the US. Because of this, the above mentioned five steel producing companies listed in Borsa Istanbul are selected for this study.

Normal and Abnormal Returns - To investigate the impact of a specific unexpected event on the return of a particular company`s stock, the normal return in the absence of the event should be estimated. There are three modes used commonly to estimate the normal return assuming if there is no event took place. These models are market model, mean-adjusted model and market-adjusted model (Peterson,1989).

For this study, the market model is selected to calculate the normal return. The market model is a model that assumes a stable linear relationship between market return and the return of financial security. The Market model is theoretically superior as it eliminates the part of the return that is related to movement in the market. This mean, variance of any abnormal returns identified should be reduced. In general, this model can improve the chance to identify the effects of a particular event on the stock return (Beverley, 2008). The market model is specified as follows:

$$R_{it} = \alpha_i + \beta_{im} R_{mt} + \varepsilon_{it}$$

Where : R_{it} is the period-t returns on stock i, α_i is the intercept, β_{im} is the ordinary least square (OLS) regression coefficient, R_{mt} is the period-t returns on the market portfolio and ε_{it} is an error term with mean of zero. In this study BİST100 index is used as a market portfolio.

The abnormal return is the difference between the actual return and the expected return (Beverley, 2008).

$$AR_{it} = R_{it} - R_{it}^*$$

$$R_{it}^* = \alpha_i + \beta_{im} R_{mt}$$

$$AR_{it} = R_{it} - (\alpha_i + \beta_{im} R_{mt})$$

Where: AR_{it} is abnormal i stock return period t and R_{it}^* is an expected or predicted return on stock i in period t.

Estimation procedure - To estimate the normal return, 145 days of returns used before the study period. For the event window, 10 days before and after the event day is examined.

Testing procedure - It is important to examine the cumulative effect of a particular event. To do this, the individual period of abnormal returns is accumulated over the event window. This means the cumulative abnormal returns (CAR) is the sum of abnormal returns for each day in the event window (Beverley, 2008). i.e.:

$$CAR_i = \sum AR_{it}$$

If the expected abnormal return is zero, a particular event has no impact on the mean or variance of return. Interpretations about the CAR can be extracted using a test statistic, t, where:

$$t = CAR_i / (\sigma_i / \sqrt{n})$$

σ_i is the standard error of the distribution and 'n' representing the number of days in the event window. If the absolute value of taste statistic is greater than **1.645**,**1.96** and **2.576**, then the *AR* is statistically significant at **10%**,**5%** and **1%** level respectively.

The final two steps of an event study are Presentation of empirical results, and Interpretation and conclusions. In the next section, the empirical result, interpretation of this paper will present.

4. RESULTS AND DISCUSSION

In this section, the analysis results for the sample 5 companies will present.

4.1. Çemtas Çelik Makina Sanayi ve Ticaret A.S. (CEMTS.IS)

The event study analysis for CEMTS is presented in the following table 1 and figure 1.

Table 1: CEMTS-Event Window Data and Result Summery Based on Market Model

Date	CEMTS-P	CEMTS-R	BIST100-P	BIST100-R	E(R)	AR	CAR	T-TEST	Sig.
3-Aug-18	6.05	0.0306644	95,610.48	0.01128806	0.013161	0.01750	0.01750	0.77410	No
6-Aug-18	5.82	-0.0380165	94,173.97	-0.0150246	-0.00743	-0.03058	-0.01308	-1.35261	No
7-Aug-18	6.05	0.0395189	96,161.04	0.02109999	0.02084	0.01868	0.00560	0.82608	No
8-Aug-18	6.33	0.046281	96,973.85	0.00845259	0.010942	0.03534	0.04094	1.56291	No
9-Aug-18	6.33	0	97,185.13	0.00217873	0.006032	-0.00603	0.03491	-0.26676	No
10-Aug-18	**6.009**	**-0.0507109**	**94,939.63**	**-0.0231054**	**-0.01376**	**-0.03695**	**-0.00205**	**-1.63433**	**No**
13-Aug-18	5.88	-0.0214678	92,684.55	-0.0237528	-0.01426	-0.00720	-0.00925	-0.31861	No
14-Aug-18	6.009	0.0219388	93,418.65	0.00792041	0.010525	0.01141	0.00216	0.50477	No
15-Aug-18	5.603	-0.0675653	90,262.95	-0.0337802	-0.02211	-0.04545	-0.04329	-2.01024	Yes*
16-Aug-18	5.583	-0.0035695	87,143.21	-0.0345628	-0.02272	0.01915	-0.02414	0.84713	No
17-Aug-18	5.583	0	88,734.76	0.01826361	0.018621	-0.01862	-0.04276	-0.82351	No

CEMTS-P: CEMTS Price, CEMTS-R: CEMTS-Return, BIST100-P: BIST100-Price, BIST100-R: BIST100-Return, E(R): Expected Return, AR: Abnormal Return, CAR: Cumulative Abnormal Return, Sig: Significancy, Yes*: Significance at 5% Level

Table 1 summarizes the event study result of CEMTS. The researcher used 145 days before the event window to estimate the expected return and 5 days before and after the event day is used to calculate the abnormal return based on the market model. The event under study is expected to a negative effect on the steel producer companies in Turkey.

Figure 1: CEMTS- E(R), AR and CAR Graphic View
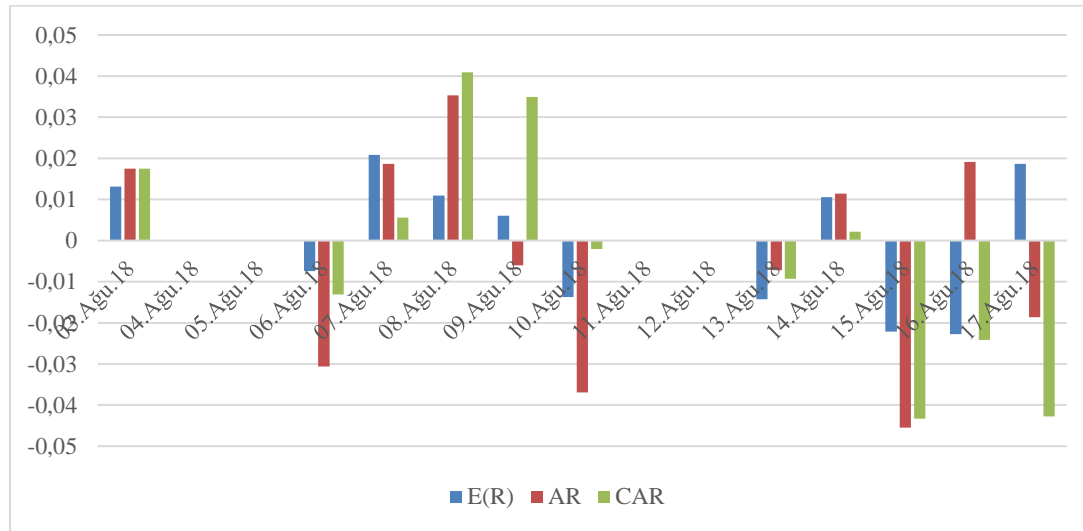
The result presented in table1 shows that there was an increment trend for 3 days before the event date on CEMTS stock and BIST100 price. On the event date, there was an insignificant negative (1.634) effect on CEMTS stock performance. After the event day, on the third day there was a negative significance effect (-2.01) at 5% significance level on CEMTS stock performance. This significant effect on CEMTS stock performance may or may not be the reflection of Trump's tweet.

4.2. Eregli Demir ve Çelik Fabrikalari T.A.S. (EREGL.IS)

The event study summery of EREGL stock is presented in Table 2 and figure 2 as follows.

Table 2: EREGL-Event Window Data and Result Summery Based on Market Model

Date	EREGL-P	EREGL-R	BIST100-P	BIST100-R	E(R)	AR	CAR	T-TEST	Sig.
3-Aug-18	11.85	-0.01578	95,610.48	0.011288	0.012861	-0.02864	-0.02864	-1.52363	No
6-Aug-18	11.72	-0.01097	94,173.97	-0.01502	-0.01239	0.00142	-0.02722	0.075547	No
7-Aug-18	12.1	0.032423	96,161.04	0.0211	0.022277	0.01015	-0.01708	0.539733	No
8-Aug-18	12.12	0.001653	96,973.85	0.008453	0.01014	-0.00849	-0.02556	-0.45147	No
9-Aug-18	12.21	0.007426	97,185.13	0.002179	0.004119	0.00331	-0.02226	0.17591	No
10-Aug-18	**11.83**	**-0.03112**	**94,939.63**	**-0.02311**	**-0.02015**	**-0.01098**	**-0.03323**	**-0.58391**	**No**
13-Aug-18	11.36	-0.03973	92,684.55	-0.02375	-0.02077	-0.01896	-0.05219	-1.00874	No
14-Aug-18	11.22	-0.01232	93,418.65	0.00792	0.009629	-0.02195	-0.07415	-1.16782	No
15-Aug-18	11.36	0.012478	90,262.95	-0.03378	-0.03039	0.04287	-0.03128	2.28039	Yes**
16-Aug-18	10.43	-0.08187	87,143.21	-0.03456	-0.03114	-0.05073	-0.08201	-2.69839	Yes*
17-Aug-18	11.33	0.08629	88,734.76	0.018264	0.019555	0.06673	-0.01527	3.550017	Yes*

Yes*: Significance at 1% Level, Yes**: Significance at 5% Level

Table 2 summarizes the event study result of EREGL. The researcher used 145 days before the event window to estimate the expected return and 5 days before and after the event day is used to calculate the abnormal return based on the market model. The event under study is expected to a negative effect on the steel producer companies in Turkey.

Figure 2: EREGL- E(R), AR and CAR Graphic View
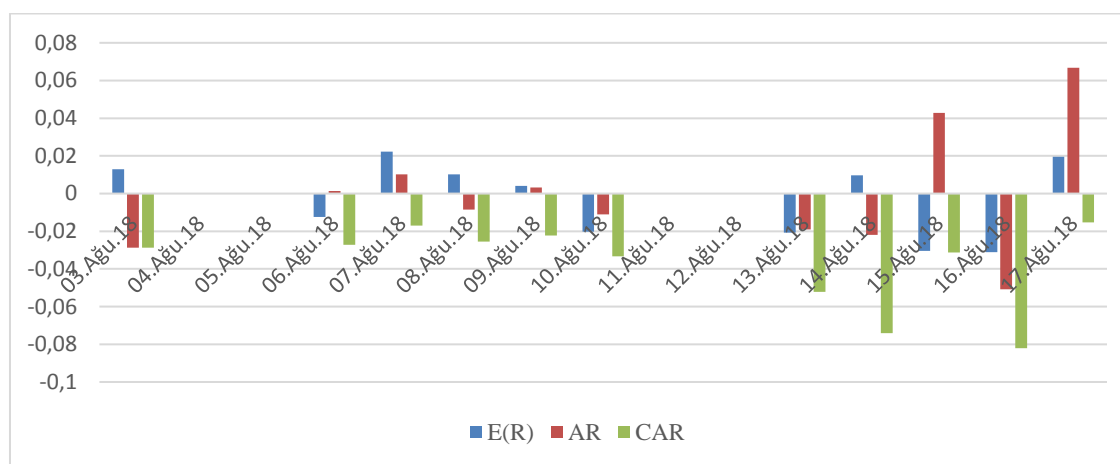
The result presented in table 2 shows that there was no significant change in EREGL stock price before the event date. On the event date, there was an insignificant negative (-0.58) effect on EREGL stock performance. On the third day after the event, there was a positive significance (2.28) effect on ERGEL stock performance at a 5% significance level. On the fourth day after the event, there was a negative (-2.69) significance effect on ERGEL stock price at 1% significance level. And on the fifth day, there was a positive significant (3.55) effect at 1% significance level. This may result from the instability of the market in Turkey in the event window days.

4.3. Gentas Genel Metal Sanayi ve Ticaret A.S. (GENTS.IS)

The event study results of GENTS stock are summarized in the in table 3 and figure 3 as follows.

Table 3: GENTS-Event Window Data and Result Summery Based on Market Model

Date	GENTS-P	GENTS-R	BIST100-P	BIST100-R	E(R)	AR	CAR	T-TEST	Sig.
3-Aug-18	2.77	0.0036	95610.4800	0.0113	0.0130	-0.0094	-0.0094	-0.3472	No
6-Aug-18	2.73	-0.0144	94173.9700	-0.0150	-0.0051	-0.0093	-0.0187	-0.3448	No
7-Aug-18	2.71	-0.0073	96161.0400	0.0211	0.0197	-0.0271	-0.0457	-1.0039	No
8-Aug-18	2.6	-0.0406	96973.8500	0.0085	0.0110	-0.0516	-0.0974	-1.9142	Yes***
9-Aug-18	2.66	0.0231	97185.1300	0.0022	0.0067	0.0164	-0.0810	0.6069	No
10-Aug-18	**2.74**	**0.0301**	**94939.6300**	**-0.0231**	**-0.0107**	**0.0408**	**-0.0402**	**1.5123**	**No**
13-Aug-18	2.66	-0.0292	92684.5500	-0.0238	-0.0112	-0.0180	-0.0582	-0.6690	No
14-Aug-18	2.55	-0.0414	93418.6500	0.0079	0.0107	-0.0520	-0.1103	-1.9289	Yes***
15-Aug-18	2.58	0.0118	90262.9500	-0.0338	-0.0181	0.0298	-0.0804	1.1060	No
16-Aug-18	2.48	-0.0388	87143.2100	-0.0346	-0.0186	-0.0202	-0.1006	-0.7474	No
17-Aug-18	2.37	-0.0444	88734.7600	0.0183	0.0178	-0.0621	-0.1627	-2.3044	Yes**

Yes**: Significance at 5% Level, Yes***: Significance at 10% Level

Table 3 summarizes the event study result of GENTS. The researcher used 145 days before the event window to estimate the expected return and 5 days before and after the event day is used to calculate the abnormal return based on the market model. The event under study is expected to a negative effect on the steel producer companies in Turkey.

Figure 3: GENTS- E(R), AR and CAR Graphic View
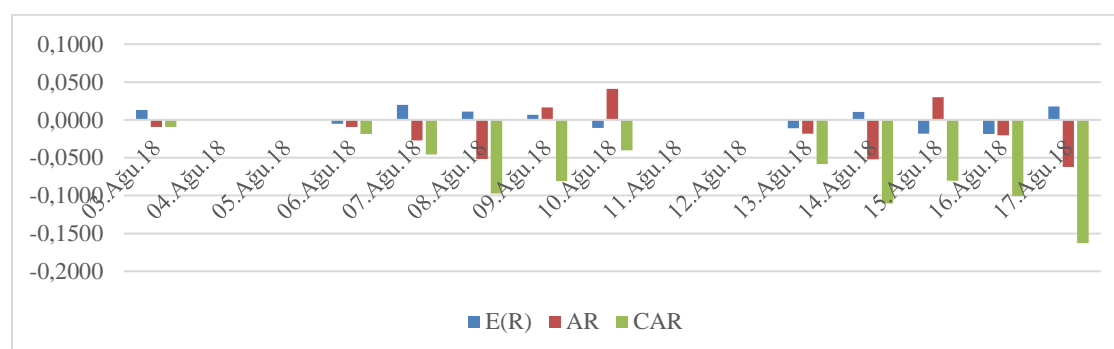
The result presented in table 3 shows that there was a 10% significance level negative change (-1.91) on GENTS stock price on the second day before the event date. On the event date, there was an insignificant positive (1.51) effect on GENTS stock performance. On the second day after the event, there was a negative significance (-1.92) effect on GENTS stock performance at 10 % significance level. On the fifth day after the event, there was a negative (-2.30) significance effect on ERGEL stock price at 5% significance level. This may result from the instability of the market in Turkey in the study period.

4.4. Iskenderun Demir ve Çelik A.S. (ISDMR.IS)

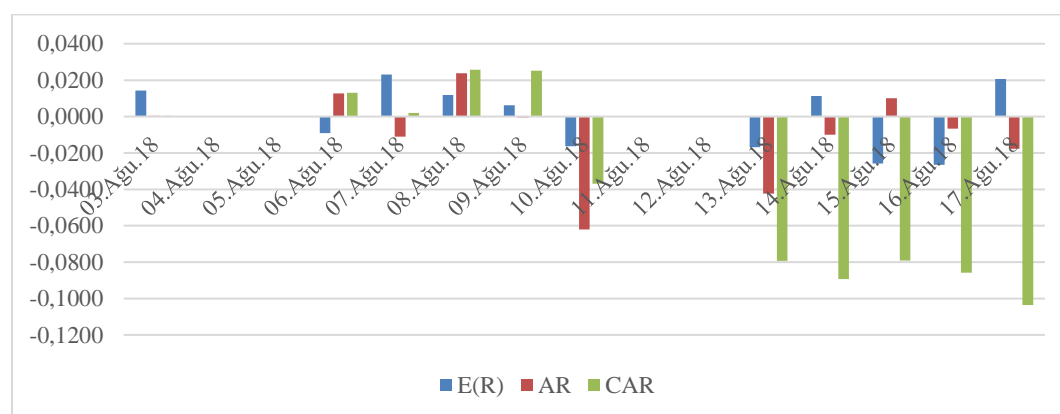The event study results for ISDMR stock are presented in Table 4 and figure 4 as follows.

Table 4 summarizes the event study result of ISDMR. The researcher used 145 days before the event window to estimate the expected return and 5 days before and after the event day is used to calculate the abnormal return based on the market model. The event under study is expected to a negative effect on the steel producer companies in Turkey.

The result presented in table 4 shows that there was no significant change in ISDMR stock price before the event date. On the event date, there was a negative significant (-2.18) effect on ISDMR stock performance. After the event date, there was no significant effect on ISDMR stock performance. Among the five-sample companies selected to study the reaction of Turkish steel producer companies for Trump's tweet to double tariff for steel products imported from Turkey to the US, only ISDMR is affected negatively and significantly on the event day.

Table 4: ISDMR-Event Window Data and Result Summery Based on Market Model

Date	ISDMR-P	ISDMR-R	BIST100-P	BIST100-R	E(R)	AR	CAR	T-TEST	Sig.
3-Aug-18	8.31	0.014652	95,610.48	0.0112881	0.0143	0.0003	0.0003	0.0111	No
6-Aug-18	8.34	0.0036101	94,173.97	-0.0150246	-0.0091	0.0128	0.0131	0.4482	No
7-Aug-18	8.44	0.0119904	96,161.04	0.0211	0.0231	-0.0111	0.0020	-0.3901	No
8-Aug-18	8.74	0.035545	96,973.85	0.0084526	0.0118	0.0237	0.0257	0.8343	No
9-Aug-18	8.79	0.0057208	97,185.13	0.0021787	0.0062	-0.0005	0.0252	-0.0171	No
10-Aug-18	**8.1**	**-0.0784983**	**94,939.63**	**-0.0231054**	**-0.0164**	**-0.0621**	**-0.0369**	**-2.1841**	**Yes****
13-Aug-18	7.62	-0.0592593	92,684.55	-0.0237528	-0.0169	-0.0423	-0.0793	-1.4876	No
14-Aug-18	7.63	0.0013123	93,418.65	0.0079204	0.0113	-0.0100	-0.0893	-0.3521	No
15-Aug-18	7.51	-0.0157274	90,262.95	-0.0337802	-0.0259	0.0101	-0.0791	0.3567	No
16-Aug-18	7.26	-0.0332889	87,143.21	-0.0345628	-0.0266	-0.0067	-0.0858	-0.2360	No
17-Aug-18	7.28	0.0027548	88,734.76	0.0182636	0.0206	-0.0178	-0.1036	-0.6257	No

Yes**: Significance at 5% Level

Figure 4: ISDMR- E(R), AR and CAR Graphic View

4.5. Kardemir Karabük Demir Çelik Sanayi ve Ticaret A.S. (KRDMD.IS)

The event study results for KRDMD stock are summarized in table 5 and figure 5 as follows.

**Table 5: KRDMD-Event Window Data and Result Summery Based on Market Model**

Date	KRDMD-P	KRDMD-R	BIST100-P	BIST100-R	E(R)	AR	CAR	T-TEST	Sig.
3-Aug-18	4.5	0.039261	95,610.48	0.0112881	0.0181	0.0211	0.0211	0.8287	No
6-Aug-18	4.47	-0.0066667	94,173.97	-0.0150246	-0.0148	0.0082	0.0293	0.3206	No
7-Aug-18	4.53	0.0134228	96,161.04	0.0211	0.0304	-0.0170	0.0123	-0.6678	No
8-Aug-18	4.79	0.0573951	96,973.85	0.0084526	0.0146	0.0428	0.0551	1.6797	Yes***
9-Aug-18	4.81	0.0041754	97,185.13	0.0021787	0.0067	-0.0026	0.0525	-0.1001	No
10-Aug-18	**4.65**	**-0.033264**	**94,939.63**	**-0.0231054**	**-0.0250**	**-0.0083**	**0.0442**	**-0.3257**	**No**
13-Aug-18	4.48	-0.0365591	92,684.55	-0.0237528	-0.0258	-0.0108	0.0334	-0.4232	No
14-Aug-18	4.45	-0.0066964	93,418.65	0.0079204	0.0139	-0.0206	0.0128	-0.8091	No
15-Aug-18	4.13	-0.0719101	90,262.95	-0.0337802	-0.0383	-0.0336	-0.0207	-1.3172	No
16-Aug-18	3.92	-0.0508475	87,143.21	-0.0345628	-0.0393	-0.0115	-0.0323	-0.4522	No

| 17-Aug-18 | 3.87 | -0.0127551 | 88,734.76 | 0.0182636 | 0.0269 | -0.0396 | -0.0719 | -1.5555 | No |

Yes***: Significance at 10% Level

Table 5 summarizes the event study result of KRDMD. The researcher used 145 days before the event window to estimate the expected return and 5 days before and after the event day is used to calculate the abnormal return based on the market model. The event under study is expected to a negative effect on the steel producer companies in Turkey.

Figure 5: KRDMD- E(R), AR and CAR Graphic View
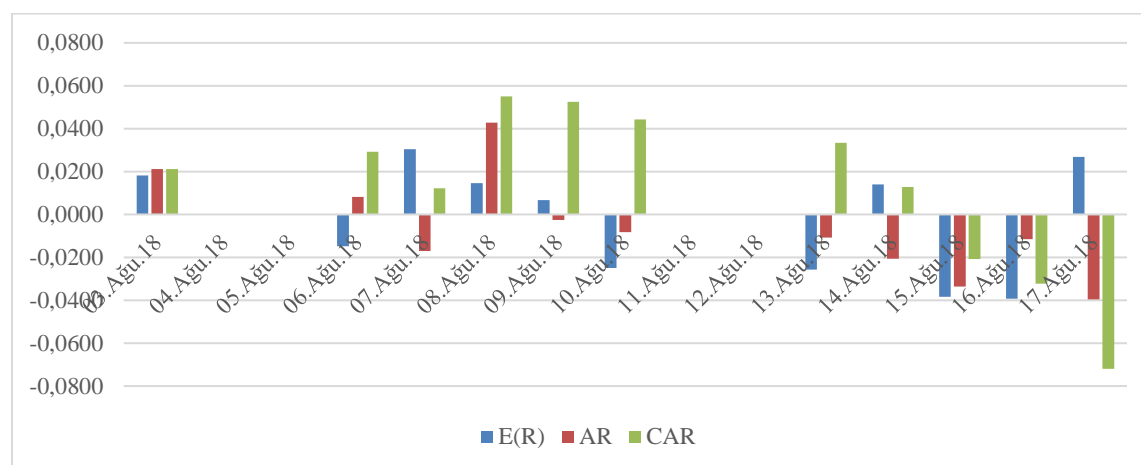
The result presented in table 5 shows that there was a 10% significance level negative change (1.67) on KRDMD stock price on the second day before the event date. On the event date, there was an insignificant negative (-0.32) effect on KRDMD stock performance. After the event day, even the trend shows a negative effect on KRDMD stock performance, there was no significant effect at less than 10% significance level.

5. CONCLUSIONS

The main purpose of this paper is to examine the reaction of Turkey`s Steel Producer Companies listed in Borsa Istanbul to Trump's Tweet of doubling tariffs on Turkish steel export to the U.S. For this purpose, five companies listed in Borsa Istanbul are selected and their daily stock prices are downloaded from Yahoo's finance website. To estimate the expected return, 145 days of return before the event day are calculated and five days before and after the event date are used to calculate the abnormal return and t-statistic based on the market model.

The finding shows that, from the sample companies under study CEMTS, EREGL, GENTS and KRDMD stocks are not significantly affected by Trump`s tweet. Specifically, CEMTS is affected negatively and insignificantly with t-statistic (-1.63), but near to 10% significant level. KRDMD and EREGL are affected negatively and insignificantly with t-statistic (-0.32) and (-0.58) respectively. On the contrary of others, GENTS is affected positively and insignificantly wit t-statics (1.51). ISDMR stock is the only stock among the sample that affected negatively and significantly with t-statistic (-2.18) at 5% significance level. As 4 out of 5 companies is not affected by the event, this result indicated that Trump's Tweet was not significantly affecting the performance of Turkey's steel producer companies listed in Borsa Istanbul. This finding is similar to studies done by Juma'h & Alnsour (2018). Their finding suggested that there are no significant effects of Trump's Tweets on targeted companies share price on the day of the Tweets. The significant changes which happened after the event date are may or may not resulted from Trump's Tweet. Because at that time, Turkey's economy was not stable and other events also happened.

REFERENCES

Almumani, M. A. (2014). Determinants of equity share prices of the listed banks in Amman stock exchange: Quantitative approach. International Journal of Business and Social Science, 5(1), 91-104.

Arslan, D., Dost, P. & Wilson, G. (2018, August 7). US-Turkey Relations: From Alliance to Crisis. *Atlantic Council*. Retrieved April 10, 2019, from https://www.atlanticcouncil.org/blogs/new-atlanticist/us-turkey-relations-from-alliance-to-crisis

Beverley, L. (2008). Stock Market Event Studies and Competition Commission Inquiries (No. 08-16). Centre for Competition Policy, University

of East Anglia.Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of computational science*, *2*(1), 1-8.

Chen, H., De, P., Hu, Y. J., & Hwang, B. H. (2014). Wisdom of crowds: The value of stock opinions transmitted through social media. *The Review of Financial Studies*, *27*(5), 1367-1403.

Chen, H., De, P., Hu, Y., & Hwang, B. H. (2011, June). Sentiment revealed in social media and its effect on the stock market. In *2011 IEEE Statistical Signal Processing Workshop (SSP)* (pp. 25-28). IEEE.

Deng, S., Huang, Z. J., Sinha, A. P., & Zhao, H. (2018). The Interaction between Microblog Sentiment and Stock Return: An Empirical Examination. *MIS quarterly*, *42*(3), 895-918.

Dunkley, E. & Lockett,H. (2019, February 25). China stocks rally after Trump tweet on tariffs delay. *Financial Times*. Retrieved April 05, 2019, from https://www.ft.com/content/981da9c0-38ad-11e9-b72b-2c7f526ca5d0

Fama, E. F. (1970). Efficient capital markets: a review of theory and empirical work. Journal of finance, 25(2), 383-417.

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. International economic review, 10(1), 1-21.

Fiala, V., Kapounek, S., & Veselý, O. (2015). Impact of Social Media on the Stock Market: Evidence from Tweets. *European Journal of Business Science and Technology*, *1*(1), 24-35.

Ge, Q., Kurov, A., & Wolfe, M. H. (2017). *Stock market reactions to presidential social media usage: Evidence from company-specific tweets*. Working Paper.

Global Steel Trade Monitor. (2018, September). *Steel Exports Report: Turkey*. Was¬hington, DC.

Gunerigok, S. (2018, August 10). Trump attacks Turkey in tweet that says 'relations' bad. *Anadolu Agency*. Retrieved April 15, 2019, from https://www.aa.com.tr/en/americas/trump-attacks-turkey-in-tweet-that-says-relations-bad/1227713#

Juheng Zhang (2016). Social Media Content on Financial Markets. International Journal of New Technology and Research (IJNTR) ISSN:2454-4116, Volume-2, Issue-3, Pages 134-137.

Juma'h, A., & Alnsour, Y. (2018). Using Social Media Analytics: The Effect of President Trump's Tweets on Companies' Performance.

Luo, X., Zhang, J., & Duan, W. (2013). Social media and firm equity value. *Information Systems Research*, *24*(1), 146-163.

Peterson, P. P. (1989). Event studies: A review of issues and methodology. Quarterly journal of business and economics, 36-66.

Phillips, M. (2018, December 4). Trump Warns China That He's 'Tariff Man,' Spooking Stock Investors. *The New York Times*. Retrieved April 01, 2019, from https://www.nytimes.com/2018/12/04/business/yield-curve-recession-stock-market.html

Schweitzer, R. (1989). How do stock returns react to special events. Business Review, 8, 17-29.

Yu, Y., Duan, W., & Cao, Q. (2013). The impact of social and conventional media on firm equity value: A sentiment analysis approach. *Decision Support Systems*, *55*(4), 919-926.

DOES VOLATILITY OF TRADE RECEIVABLES AFFECT CORPORATE CASH HOLDINGS? EMPIRICAL EVIDENCE FROM TURKEY

Guldehen Adiguzel
Boğaziçi University, Management Department, Bebek, 34342 Beşiktaş, Istanbul, Turkey
guldehen.adiguzel@gmail.com , ORCID: 0000-0003-1326-0648

ABSTRACT

Purpose - This study aims to analyze the direct impact of trade receivables volatility on corporate cash holdings. Unlike previous studies, the present paper focuses on variability of a firm's investment in trade credit which proxies instability of a firm's trade receivables policy.
Methodology - The sample is composed of 330 Turkish industrials listed on Borsa Istanbul from 2000 to 2017. The model is estimated via system GMM (Generalized Method of Moments) to account for the partial adjustment process towards the target cash level and also to address the potential endogeneity issue related with volatility of trade receivables.
Findings- Estimations establish a significant negative effect of trade receivables volatility on cash holdings. The results are robust to alternative definitions of cash holdings and trade receivables volatility.
Conclusion - The evidence presented in this study suggests that instability of trade receivables policy weakens liquidity position of firms.

Keywords: Trade credit, corporate cash, Borsa Istanbul
JEL Codes: G30, G11

1. INTRODUCTION

Majority of non-financial companies across the world are exposed to credit risk due to provision of trade credit to their customers. Trade receivables comprise a significant portion of firms' assets. The average share of trade receivables in total assets is 17% for publicly listed companies (El Ghoul & Zheng, 2016) and is between 19% and 39% across small and medium sized companies (Garcia-Teruel & Martinez-Solano, 2010). Theories of trade credit provision refer to information asymmetries in capital and product markets as the main drivers of firms' motivation for offering trade credit to their customers. Determinants of trade credit provision is a relatively well-researched area whereas consequences of trade credit provision still remains an under-researched area in trade credit literature. More specifically, existing literature focuses on the impact of trade credit provision on corporate profitability, firm value, stock returns, and growth (Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2007, Gill, Biger, & Mathur, 2010; Hill, Kelly, & Lockhart, 2012; Hill, Kelly, & Venkiteshwaran, 2015; Box, Davis, Hill, & Lawrey, 2018).

Such extensive provision of trade credit necessitates rigorous analysis of its effects at firm level. Analysis regarding the consequences of trade credit provision has been limited to use of level of trade receivables as the main explanatory variable of interest in the related literature (Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007; Hill, et al., 2012; Ferrando and Mulier, 2013; Hill, et al, 2015; Yazdanfar and Ohman, 2015; Box, et al., 2018). However, variability of a firm's investment in trade receivables, should also be factored into models analyzing effects of trade credit provision as this may well have a direct impact on financial position and performance of firms. Turkish listed firms invest one fourth of their assets in trade receivables. Moreover, they hold relatively low levels of cash compared to firms operating in other emerging countries (Fernandes & Gonenc, 2016). Unfavorable consequences of instability in trade receivables policy may push cash holdings of

Turkish firms down and may weaken their liquidity position Therefore, the analysis of the effect of a firm's investment in trade receivables on corporate cash holdings is even more critical for Turkish listed firms. By focusing on variability of trade receivables provision as the key explanatory variable of interest and by analyzing its direct impact on corporate cash holdings, the present study fills a gap in both trade credit and cash holdings literatures.

Firms that have a relatively stable trade receivables policy has a more stable mean ratio of trade receivables to total assets. Therefore, trade receivables investment policy of such firms are consistent and stable. On the contrary, some firms may have higher volatility of investment in trade receivables due to factors such as adoption of aggressive trade receivables policies and implementation of sales pull-in strategy. Higher trade receivables volatility may also imply weaknesses and instability regarding credit selection criteria, credit terms and credit monitoring process. Firms that increase their investment in trade receivables by offering credit to less creditworthy customers may experience higher write-offs due to increased delinquencies and higher portion of doubtful receivables becoming uncollectible over the medium term. Furthermore, sudden and more frequent shocks to the collection process makes cash management harder to deal with and persistence of these shocks may force management to take corrective action by tightening its trade receivables policy. Thus, another sudden change in trade receivables, this time in the opposite direction, creates even further volatility. Therefore, we hypothise that trade receivables volatility has negative impact on cash holdings. Thus, the present study brings a different perspective to our knowledge about the consequences of trade credit in the sense that rather than focusing on the level of investment in trade receivables, we study volatility of trade receivables and analyze its direct impact on cash holdings.

Based on a sample of 330 Turkish listed industrials across 2000 to 2017 period, we find that firms held about 8.8% of their assets in the form of cash and cash equivalents and invested about one fourth of their assets in trade receivables. Moreover, Turkish listed industrials with low trade receivables volatility (RECVOL) have consistently held higher cash compared to those with high RECVOL within the sample period except for the pre-crisis and crisis periods (2007 and 2008). Additionally, such firms have consistently invested a lower portion of their assets in trade receivables compared to firms with high RECVOL. Finally, investment in trade receivables by firms with low RECVOL has been quite stable, whereas firms with high RECVOL increased the share of investment in trade receivables from 26% in 2003 to 31% in 2017.

The direct impact of trade receivables volatility on cash holdings is tested via system GMM (Generalized Method of Moments), which is appropriate for dynamic models. Additionally, by employing system GMM, we also address the potential endogeneity issue related with cash holdings and trade receivables volatility, which may result from omitted variables bias. Thus, in all estimations, trade receivables volatility is treated as an endogenous rather than a strictly exogenous variable.

The empirical findings suggest that firms with relatively higher volatility of investment in trade receivables tend to hold less cash than firms with relatively lower trade receivables volatility. This finding supports our hypothesis and suggests that the increased frequency of unexpected schocks to the collection process, resulting from aggressive trade receivables policies, makes cash management difficult to conduct and that companies with high volatility of investment in trade receivables end up with lower cash holdings. Therefore, high volatility in trade receivables hampers the ability of companies to take proactive action to prevent cash levels from getting reduced or limits the effectiveness of such proactive action. We also check the robustness of the results by utilizing alternative definitions of the dependent variable and trade receivables volatility and document that our model is robust to these alternative definitions and thus our conclusion remains the same.

This constitutes valuable new evidence on the consequences of trade receivables on three fronts. First, no study to date, except that conducted by Wu, Rui & Wu (2012), has provided evidence on the cash holdings consequences of trade credit provision. Therefore, this is the second study to document the direct impact of investment in trade receivables on cash holdings in an emerging market. Second, trade credit literature has not studied the consequences of trade receivables volatility at all. Existing studies used level of trade receivables as the key variable of interest. This is the first study that approaches trade receivables provision differently, utilizes volatility of investment in trade receivables as the key variable of interest and investigates the cash holdings consequences of such policy. Third, this study extends the findings of Uyar & Kuzey (2014) by providing further evidence on the determinants of cash holdings for Turkish listed industrials.

The remainder of the paper is organized as follows. Section 2 provides a summary of literature on trade credit and cash holdings and also develops the testable hypothesis. Section 3 describes the data and sample selection, provides variable definitions and presents the regression model and estimation methodology. Empirical results and robustness checks are presented in Section 4. Section 5 concludes the study.

2. LITERATURE REVIEW

2.1. Trade Credit Literature

Earliest trade credit research found that firms with relatively stronger liquidity increase the supply of trade credit to relatively smaller and less liquid firms when monetary policy is tightened (Meltzer, 1960; Brechling & Lipsey,1963). Later, researchers started to focus on theoretical models that would explain the major motivations, which lie at the heart of suppliers' willingness to extend trade credit. It is commonly agreed that firms offer trade credit to achieve competitive advantage due to imperfections in financial markets and product markets as well as lack of perfect substitutes for all commodities, and existence of transaction costs or information costs. Major motives for trade credit supply is grouped under five main categories, which are: financing motive, efficiency motive, price discrimination motive, investment motive and quality assurance motive. A review of trade credit theories can be found in Wilson & Summers (2002) and Cheng & Pike (2003).

Empirical research regarding trade credit provision falls under two main categories. One stream focuses on the determinants of trade credit supply and the other stream focuses on the consequences of trade credit supply. Studies that explore the determinants of trade credit supply and that test trade credit theories fall under the first category (Mian & Smith, 1992; Deloof & Jegers, 1996; Petersen & Rajan, 1997; Long, Malitz, & Ravid, 1993; Love, Preve, & Sarria-Allende, 2007; Harris, 2015). Furthermore, non-financial factors, such as the quality of the good (differentiated versus standard), industry competition and bargaining power of firms (Burkart & Ellingsen, 2004; Dass, Kale, & Nanda, 2015) are found to be influential on the level of trade credit provided to customers. All of these suggest that trade credit provision can be justified not by a single theory, but by a set of multiple motivations. The second stream of empirical research in trade credit provision focuses on consequences of trade credit. This is a relatively under-researched area and this study mainly contributes to this area of research. Previous research in this area focus on several consequences of trade credit provision such as profitability, growth, stock return and firm value (Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2007; Gill et al., 2010; Hill, et al., 2012; Hill, et al., 2015; Box, et al., 2018; Ferrando and Mulier, 2013; Yazdanfar and Ohman, 2015).

2.2. Cash Holdings Literature

The rationale for firms to hold cash is justified by three alternative theories, which are trade-off theory, pecking order theory and free cash flow theory. As per the trade-off theory, there is an optimal level of cash holdings that is determined by trading off the marginal benefits of holdings liquid assets against the marginal cost of investing in liquid assets (Miller & Orr, 1966; Kim, Mauer, & Sherman, 1998). It is argued that due to imperfections in capital markets, firms should hold cash at the optimal level, otherwise firm value would be impaired. Alternatively, pecking order theory proposes that firms hold cash in order to be able to finance future investment opportunities as and when they appear (Myers, 1984; Myers & Majluf, 1984). As per this theory, firms accumulate cash to ensure that internal funds are sufficiently available when investment opportunities arise and thus costly external financing is avoided. Finally, free-cash flow theory proposes that agency problems are major determinants of cash holdings (Jensen & Meckling, 1976) in the sense that the level of corporate cash holdings reflects the managers' tendency to accumulate cash in an effort to avoid the discipline of capital markets.

Empirical literature on the determinants of cash holdings is massive (Opler, Pinkowitz, Stulz, & Williamson, 1999; Bates, Kahle, & Stulz, 2009; Graham & Leary, 2018; Gao, Harford, & Li, 2013; Ozkan & Ozkan, 2004; Guney, Ozkan, & Ozkan, 2007; Pinkowitz, Stulz, & Williamson, 2003; Dittmar & Mahrt-Smith, 2007; Harford, Mansi, & Maxwell, 2008). Additionally, an increasing number of studies have focused on non-financial determinants of corporate cash holdings. Examples of such factors are product market dynamics, organizational structure of the firm, nature of supplier-buyer relationships, family control, level of multinationality and dependence on skilled labor (Subramaniam, Tang, Yue, & Zhou, 2011; Itzkowitz, 2013; Duran, Lozano, & Yaman, 2016; Fernandes & Gonenc, 2016; Haushalter, Klasa, & Maxwell, 2007; Ghaly, Dang, & Stathopoulos, 2017). Wu et al.'s (2012) paper remains the only study that addresses cash holdings consequences of trade credit provision.

2.3. Hypothesis Development

A major shortcoming of the existing literature is that no study to date has researched the consequences of instability in trade receivables policy. If a company has a stable trade receivables policy, share of trade receivables in total assets does not vary much from one year to the other and shows limited variation around a relatively stable mean value. Similarly, if the increase in the level of investment in trade receivables from one year to the other is gradual, the share of trade receivables in total assets may go up slowly and steadily and the variation would be under control. On the contrary, weaknesses in trade receivables policy may create instability in trade credit offered to customers. Such weaknesses may arise from changes in credit selection criteria and/or credit terms as well as deficiencies in credit monitoring process (Gitman & Zutter, 2015). If the firm does not maintain a robust credit selection policy, it may end up extending credit to ineligible customers. Similarly, if the

firm does not offer proper credit terms to its clients, it may start facing difficulties in collecting due amounts from its customers on time. Moreover, weaknesses in credit monitoring process may lead to a situation where collection issues are left unnoticed. In such cases, the company may have to incur excessive credit losses. For instance, if the firm is very aggressive in its trade receivables policy, management may take action to penetrate the market quickly by offering longer terms to less creditworthy client-segment (Petersen & Rajan, 1994; Biais & Gollier, 1997). Alternatively, in an effort to meet aggressive revenue targets, some firms may choose to adopt sales pull-in strategy to attract less creditworthy customers (Melumad & Nissim, 2009). Buyers that accept longer payment terms are less creditworthy (Petersen & Rajan, 1997; Paul, 2004). Thus, loosening of credit terms aggressively may lead to a deterioration of credit quality on the supplier front. Although trade credit provision has been a tool to manage growth (Ferrando & Mulier, 2013; Yazdanfar & Ohman, 2015), the sustainability of an aggressive trade receivables strategy is highly questionable. Too much investment in trade credit has negative consequences on firm profitability (Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2007; Gill et al., 2010). Aggressive trade receivables strategies may seem reasonable in the short term. However, no matter how well-functioning the credit department may be, higher write-offs are unavoidable over the medium term. Sudden and more frequent shocks to the collection process resulting from increased number of defaulting customers would create high volatility in trade receivables. Persistence of these shocks may force management to take corrective action by tightening its trade receivables policy, which would trigger a sharp drop in the share of trade receivables in total assets. Such action would result in increased volatility of trade receivables investment. Ultimately, cash management becomes very difficult to administer. As collections from customers are the lifeblood of companies, increased unpredictability surrounding the collection process hampers the ability of management to keep corporate cash levels unaffected. This discussion leads to the following hypothesis:

Hypothesis H1: Trade receivables volatility has negative impact on corporate cash holdings.

3. RESEARCH DESIGN

3.1. Data and Sample

The sample is composed of publicly traded Turkish industrial firms listed on Borsa Istanbul from 2000 to 2017. The initial sample is the set of all firms for which data are available on the Thompson Reuters Datastream database. The final sample includes 330 firms, both surviving and non-surviving, that appear on Datastream at any time in the sample period. Therefore, survivorship bias is limited. The aggregate sample has 5,940 firm-year observations. As some measures used in the regressions are not fully available for all firms and as some variables are based on the standard deviations over a 4-year period (from t to t-3), the sample size used in the regression analyses is smaller. All continous variables are winsorized at the 1 percent and 99 percent levels to minimize the influence of outliers.

3.2. Variables

Dependent variable is CASH1, which is computed as natural logarithm of cash and marketable securities scaled by total assets. This definition of cash holdings is in line with several previous studies such as Kim, Mauer and Sherman (1998), Bates et al (2009), Gao et al. (2013). To ensure robustness of the results, we also use an alternative measure of cash holdings (CASH2), which is defined as natural logarithm of cash and marketable securities scaled by net assets (total assets minus cash and marketable securities).

The key explanatory variable of interest is the volatility of a firm's investment in trade receivables (RECVOL). We first calculate the share of trade receivables in total assets for each firm (REC) across all years. Then we compute the standard deviation of REC across a four-year period from t to t-3. If any of the REC value is missing within the computation period, RECVOL is not calculated and is treated as missing. As the calculation of RECVOL requires 4 years of data, the initial observation is in 2003. Thus, regressions using RECVOL are run for 2003-2017 period.

Consistent with the majority of previous studies in cash holdings literature (Opler et al., 1999; Bates et al., 2009), the following variables are included in the baseline model specification to control for firm-specific determinants of cash holdings: GROWTH (asset growth rate from t-1 to t), SIZE (natural logarithm of total assets), LEVERAGE (total debt divided by total capital), CFO (cash flow from operations scaled by total assets), NWCAP (net working capital, which is current assets minus current liabilities minus cash and marketable securities, scaled by total assets), PPE (plant, property and equipment divided by total assets), CAPEX (capital expenditures scaled by total assets), DIV (dummy variable that takes a value of "1" in years in which the firm paid a cash dividend or "0" otherwise) and CFOVOL (operating cash flow variability computed as standard deviation of operating cash flow from t-3 to t divided by average total assets net of cash and marketable securities over the same period). CFOVOL definition is in line with Guney, Ozkan and Ozkan (2007). Finally, the first lag of CASH1 is included as an explanatory variable due to the dynamic nature of the model, which is discussed in the next section.

3.3. Regression Model

To examine whether the level of cash holdings is related to volatility of a firm's investment in trade receivables, we estimate the following baseline regression model:

$$CASH_{i,t} = \beta_0 + \beta_1\ CASH_{i,t-1} + \beta_2\ RECVOL_{i,t} + \beta_3\ CONTROLS_{i,t} + \text{Year Dummies} + \varepsilon_{i,t}$$

In line with several studies in the literature (Ozkan & Ozkan, 2004; Garcia-Teruel & Martinez-Solano, 2008), we employ a dynamic model that incorporates a gradual adjustment process towards the target cash holdings level. Therefore, one lag of the dependent variable ($CASH_{i,t-1}$), which captures the speed of convergence of cash to its target level, is included in the baseline model specification. RECVOL is the key variable of interest. CONTROLS represent the set of control variables as explained above. Year dummies are also included in the model to control for economic factors that may affect corporate cash holdings. $\varepsilon_{i,t}$ is the error term. "i" and "t" are indicators of firm and year, respectively.

As suggested by Blundell & Bond (1998) and Brown & Petersen (2011), the dynamic panel data cash holdings model is estimated via system GMM. There are mainly two reasons for the choice of system GMM as the estimation strategy in this study. First, system GMM is appropriate for models where lagged value(s) of the dependent variable are included in the model specification as independent variables. Second, by employing system GMM, we address the potential endogeneity issue related with CASH and RECVOL, which may result from a possible correlation between RECVOL and unobserved factors (both permanent and time-varying) affecting cash holdings, which are captured by the error term. If left unaddressed, these unobserved factors, such as corporate governance, corporate culture and diversification, may lead to biased estimators, which is referred to as omitted variables bias. System GMM is executed by use of Roodman's (2009) 'xtabond2' module in Stata.

Several previous studies have documented the impact of non-financial factors on cash holdings (Dittmar & Mahrt-Smith, 2007; Haushalter et al., 2007; Harford, et al., 2008; Subramaniam et al., 2011; Itzkowitz, 2013 and Fernandes & Gonenc, 2016). These non-financial factors may well have an impact on RECVOL. For instance, management in firms that are not well-governed may be more inclined to adapt varying trade receivables strategies to meet short-term objectives and thus create higher trade receivables volatility. Additionally, if the firm is operating in a market with relatively higher risk of market share loss, such a firm may be expected to have a more volatile trade receivables policy, which may be subject to frequent changes in an effort to retain and gain market share. Furthermore, compared to focused firms, diversified firms may have higher RECVOL due to several risks they are exposed to and higher probability of unexpected shocks to trade receivables. Moreover, CEO attributes may also impact RECVOL. Firms with optimistic CEOs, who estimate a lower-than-normal probability of default for customers with low creditworthiness, may adopt a more liberal trade receivables policy. This may create volatility in trade receivables policy. Similarly, some CEOs may choose to invest part of their assets in relatively higher-risk customer segments by extending payment terms and take on excessive credit risk. Such firms may be exposed to higher volatility of trade receivables. Therefore, to avoid omitted variables bias, this study controls for the potential endogeneity of RECVOL by treating it as an endogenous variable, rather than strictly exogenous, and including the lagged value of RECVOL in the model as instruments.

Model specification is assessed by employing two tests. First, we report the second-order Arellano-Bond tests for serial correlation in the error term (Arellano & Bond, 1991). The null hypothesis of this test is "no second-order serial correlation in the errors of the first-difference estimation equation". Additionally, we report the Hansen test results for the validity of the instruments (Hansen, 1982). If the model is correctly specified, instruments should be uncorrelated with the error term. The null hypothesis of Hansen test is "not a correlation between over-identifying instruments and the errors". Standard errors are robust to heteroscedasticity in all estimations.

4. EMPIRICAL RESULTS AND DISCUSSIONS

4.1. Descriptive Statistics

We initially examine the trends in cash holdings and trade receivables of firms. Average cash ratio has been down from 10.1% in 2000 to 7.7% in 2007. Its trend reversed in 2008 and reached 9.2% in 2010. In 2015, an average firm held 9.9% of its assets in cash and marketable securities. There was a sharp decrease in 2016 to 8%. Average cash ratio of listed Turkish industrials is below those of firms operating in developed (19%) and in emerging (12%) markets (Fernandes & Gonenc, 2016). As for the average trade receivables ratio, an average listed Turkish industrial firm invested 29.2% of its assets in trade receivables in 2000. This ratio started coming down in the following four years and reached 22.6% by 2004. From 2005 to 2017, it varied within a range of 22.6% and 25.5%. Therefore, listed Turkish industrials invested about one fourth of their assets in trade

receivables. Although this is below most of the Euro area countries' average trade receivables ratio (Ferrando & Mullier, 2013), it is higher than US average of 13.7% (Chen & Kieschnick, 2018).

Descriptive statistics for the main variables are presented in Table 1. The non-logarithmic ratios for CASH1 and CASH2 are 8.8% and 11.4%, respectively. Summary statistics for the remaining variables indicate that an average listed Turkish industrial firm has grown by about 19.7% and has had an asset size of about 845 million TL. Total debt correponds to about one third of total capital for an average firm. Additionally, firms in the sample generate operating cash flow that correponds to about 4% of total assets. Net working capital comprises 5.8% of total assets on average. In terms of asset tangibility, mean PPE is 33%. Moreover, CFOVOL and RECVOL means are 8.7% and 4.6%, respectively. Finally, mean CAPEX ratio is 5% and 35% of observations in the sample represents instances of dividend pay-out.

Table 1: Descriptive Statistics

Variables	N	Mean	Median	Standard Deviation	Minimum	Maximum
CASH1	4092	-3.346	-2.994	1.664	-8.861	-0.599
CASH2	4092	-3.247	-2.943	1.758	-8.861	0.196
GROWTH	3756	0.197	0.128	0.313	-0.396	2.102
SIZE	4101	12.217	12.182	1.652	8.677	16.898
LEVERAGE	3957	31.926	27.780	30.448	-83.370	256.440
CFO	3467	0.039	0.038	0.118	-0.378	0.452
NWCAP	4071	0.058	0.060	0.221	-1.183	0.611
PPE	4086	0.328	0.317	0.204	0.000	0.945
CFOVOL	2473	0.087	0.064	0.074	0.008	0.484
CAPEX	4005	0.049	0.031	0.055	0.000	0.354
DIV	4106	0.352	0	0.478	0	1
RECVOL	3088	0.046	0.034	0.038	0.002	0.228

Note: This table presents the summary statistics for the variables. The definitions of the variables are as presented in Section 3.2.

Nrxt, we analyze univariate comparisons of firm characteristics (variable means) across low and high RECVOL sub-groups. Firms with RECVOL below/above the median RECVOL values (calculated separately for each year) are categorized as low/high RECVOL. The t-statistics and the corresponding p-values demonstrate that low and high RECVOL sub-groups are significantly different at the 0.1% level for all financial characteristics considered (CASH, GROWTH, SIZE, CFO, NWCAP, PPE CFOVOL, CAPEX and DIV) except LEVERAGE. Firms with low RECVOL have higher cash holdings, are bigger and have higher operating cash flow generation capability than the other group. Furthermore, firms with high RECVOL grow at a higher rate, invest a significantly higher portion of their assets in net working capital and have lower asset tangibility and higher CAPEX requirements than the other group. The occurance of dividend payments is more frequent among companies with low RECVOL. Average collection period of low RECVOL firms is about 3 months, whereas average collection period of high RECVOL firms is slightly above 5 months. All t-tests invoke the assumption of unequal variances and Satterthwaite's approximation formula.

The correlation analysis of the variables is reported in Table 2. The table shows that, except for the correlation between NWCAP and LEVERAGE, the correlations between the variables are not very high. Additionally, Variance Inflation Factor (VIF) values, which are reported in the last column of Table 2, are below widely accepted critical VIF value of 5 and thus verify the absence of multicollinearity among the independent variables.

Table 2: Pearson Correlation Matrix for the Variables

Variables	CASH	GROWTH	SIZE	LEVERAGE	CFO	NWCAP	PPE	CFOVOL	CAPEX	DIV	RECVOL	VIF
CASH	1.0000											
GROWTH	0.0806***	1.0000										1.16
SIZE	0.2832***	0.0044	1.0000									1.51
LEVERAGE	-0.2350***	-0.0171	0.0070	1.0000								1.45
CFO	0.2576***	-0.0458***	0.1880***	-0.2558***	1.0000							1.28
NWCAP	0.1054***	-0.0096	-0.1071***	-0.4467***	-0.0052	1.0000						1.55

PPE	-0.1695***	-0.0273*	-0.0289*	0.0369**	0.0860***	-0.2345***	1.0000					1.42
CFOVOL	-0.0066	0.1089***	-0.2529***	-0.0392*	-0.0369*	0.0139	-0.1821***	1.0000				1.25
CAPEX	0.0815***	0.1841***	0.0880***	0.0075	0.1664***	-0.0424***	0.2693***	0.0587***	1.0000			1.29
DIV	0.3091***	-0.0277***	0.3933***	-0.2140***	0.2936***	0.1353***	-0.0242	-0.1654***	0.0961***	1.0000		1.42
RECVOL	-0.1547***	0.0851***	-0.2192***	0.0024	-0.1505***	0.0581***	-0.2491***	0.3622***	-0.0910***	-0.1478***	1.0000	1.25

Note: This table reports the Pearson correlation matrix and VIF for the variables. *, **, *** denote statistical significance at 10%, 5% and 1% levels, respectively. VIF is an index that shows how much the variance of an estimated regression coefficient is increased due to multicollinearity. Variable definitions are provided in Section 3.2.

4.2. Baseline Results

Estimation results of the baseline model are reported in Table 3. The baseline model is specified as follows:

$$CASH_{i,t} = \beta_0 + \beta_1 CASH_{i,t-1} + \beta \ CONTROLS_{i,t} + Year \ Dummies + \varepsilon_{i,t}$$

CONTROLS in the baseline model include GROWTH, SIZE, LEVERAGE, CFO, NWCAP, PPE, CFOVOL, CAPEX and DIV, as discussed earlier. Table 3 shows the results of the estimation using two different proxies for cash holdings. In the first and second columns, dependent variable is CASH1 and CASH2, respectively. Year dummies are also included in the regressions although the results are not reported for brevity.

As per the baseline results presented in Table 3, the coefficients of $CASH_{t-1}$ are significant at 1% level and are positive. This confirms the partial adjustment process through the target cash level, which is consistent with the results reported by Guney et al. (2003) and Ozkan & Ozkan (2004). GROWTH and CFO coefficients are positive and significant at 1% level in both models. These findings verify that firms with valuable growth opportunities hold more cash and also reflect firms' preference for internal over external finance. LEVERAGE, NWCAP and PPE coefficients are negative and statistically significant at 1% level in both models. This provides support for the prediction that when investments exceed retained earnings, debt grows and cash holdings fall. It also confirms that cash and net working capital are substitutes of each other and that fixed assets are alternative sources of liquidity. CAPEX coefficient is negative and statistically significant at 5% level, supporting the increased debt capacity of firms as a result of more CAPEX. These findings are in line with several previous studies in the related literature (Opler et al, 1999; Bates et al, 2009; Dass et al., 2015; Uyar & Kuzey, 2014; Doring, Drobetz, Janzen, & Meier, 2018). DIV coefficient is positive and significant at 5% level in both models. This finding supports the rationale that dividend-paying firms hold more cash than non-dividend-paying firms to avoid a situation in which they are short of cash to support their dividend payments (Loncan, 2019). CFOVOL coefficient is positive and in line with the existing literature that predict firms to hold more cash for precautionary purposes in case of high volatility of cash flow. However, p-value of CFOVOL indicates that it is not statistically significant in both models.

SIZE coefficient is positive and significant at 1% level. This finding is in line with studies supporting precautionary motive for holding cash, which asserts that cash is beneficial for firms due to avoidance of external finance costs when investment opportunities unexpectedly exceed internal resources (Kalcheva & Lins, 2007; Itzkowitz, 2013; Hanlon, Maydew, & Saavedra, 2017). According to the precautionary motive, firms hold more cash if they believe access to future financing is either costly or difficult to obtain. Therefore, the positive impact of SIZE on CASH may be due to the strength of precautionary motive for holding cash. Capital markets are relatively under-developed in Turkey. Moreover, there is lack of sufficient investor protection, lack of corporate transparency and lack of societal trust (McLean & Zhao, 2018; Kalcheva & Lins, 2007; Dudley & Zhang, 2016). These factors put limitations on availability of external finance and this may be the reason of the strenght of precautionary motive for Turkish industrials.

Table 3: Estimation Results (Baseline Model)

Variable	Model 1 Dependent Variable: CASH1		Model 2 Dependent Variable: CASH2	
	Coefficient	p-value	Coefficient	p-value
$CASH_{t-1}$	0.3974***	*0.0000*	0.4142***	*0.0000*
GROWTH	0.7762***	*0.0000*	0.8590***	*0.0000*
SIZE	0.1173***	*0.0000*	0.1194***	*0.0000*
LEVERAGE	-0.0061***	*0.0002*	-0.0065***	*0.0002*

CFO	2.6569***	*0.0000*	2.9335***	*0.0000*
NWCAP	-0.6043***	*0.0076*	-0.6969***	*0.0032*
PPE	-1.2085***	*0.0000*	-1.2918***	*0.0000*
CFOVOL	0.7001	*0.2323*	0.7881	*0.1953*
CAPEX	-1.3104**	*0.0315*	-1.6489***	*0.0098*
DIV	0.1480**	*0.0174*	0.1414**	*0.0303*
Year Dummies	Yes		Yes	
N	2095		2095	
ar1 (p-value)	0.0000		0.0000	
ar2 (p-value)	0.3664		0.3686	
Hansen (p-value)	0.2321		0.1965	

Note: This table reports the system GMM regression results of the baseline cash holdings model. The estimates are robust to heteroscedastic standard errors. N indicates number of observations. ar1 and ar2 are serial correlation tests of orders 1 and 2, respectively using residuals in first differences, asymptotically distributed as N(0,1) under the null of no serial correlation. Hansen is a test of the overidentifying restrictions, asymptotically distributed as χ2 under the null of no correlation between the instruments and the error term. *, **, *** denote statistical significance at 10%, 5% and 1% levels, respectively.

4.3. Impact of Trade Receivables Volatility on Cash Holdings

Table 4 presents the results of multivariate regression on the relationship between volatility of investment in trade credit and cash holdings. The model includes CASH as the dependent variable, first lag of CASH, RECVOL, controls and year dummies as explanatory variables. RECVOL is included in the model to proxy for the volatility of investment in trade receivables and is treated as an endogenous variable as discussed in Section 3.3. Model 1 and Model 2 in Table 4 present the results of the estimation where dependent variables are CASH1 and CASH2, respectively. As per the estimation results, RECVOL coefficients are negative and statistically significant at 5% levels in both models. The signs and significance levels of the other variables are the same as those in the baseline model, except for CFOVOL. With the inclusion of RECVOL in the model, CFOVOL coefficient has become significant at 5% levels in both models. The sign of CFOVOL is positive, which is in line with the literature supporting the rationale that firms with more volatile cash flows tend to hold more cash.

RECVOL coefficients are -4.3461 and -4.7665 in Model 1 and Model 2, respectively. This implies that as companies adopt policies that lead to higher volatility in trade receivables investment, their cash holdings are reduced. This suggests that, the increased frequency of unexpected shocks to the collection process resulting from aggressive trade receivables policies makes cash management difficult to administer. Therefore, high volatility in trade receivables hampers the ability of companies to take proactive action to prevent cash levels from getting reduced or limits the effectiveness of such proactive action. Consequently, higher volatility of trade receivables puts downward pressure on cash holdings. These findings support our hypothesis (H1) that trade receivables volatility has negative impact on corporate cash holdings.

Table 4: Estimation Results - Impact of Trade Receivables Volatility on Cash Holdings

Variable	Model 1 Dependent Variable: CASH1		Model 2 Dependent Variable: CASH2	
	Coefficient	p-value	Coefficient	p-value
RECVOL	-4.3461**	*0.0166*	-4.7665**	*0.0111*
CASH$_{t-1}$	0.3949***	*0.0000*	0.4089***	*0.0000*
GROWTH	0.8099***	*0.0000*	0.8960***	*0.0000*
SIZE	0.1064***	*0.0002*	0.1081***	*0.0002*
LEVERAGE	-0.0058***	*0.0005*	-0.0062***	*0.0004*
CFO	2.4884***	*0.0000*	2.7513***	*0.0000*

NWCAP	-0.5829**	*0.0105*	-0.6761***	*0.0044*
PPE	-1.3485***	*0.0000*	-1.4500***	*0.0000*
CFOVOL	1.2646**	*0.0421*	1.4119**	*0.0289*
CAPEX	-1.3662**	*0.0276*	-1.7070***	*0.0086*
DIV	0.1580**	*0.0113*	0.1530**	*0.0198*
Year Dummies	Yes		Yes	
N	2076		2076	
ar1 (p-value)	0.0000		0.0000	
ar2 (p-value)	0.2615		0.2629	
Hansen (p-value)	0.4183		0.4134	

Note: This table reports the system GMM regression results of the direct impact of RECVOL on cash holdings. The estimates are robust to heteroscedastic standard errors. RECVOL is included as an endogenous variable in the dynamic panel estimation and is instrumented by lag 2. N indicates number of observations. ar1 and ar2 are serial correlation tests of orders 1 and 2, respectively using residuals in first differences, asymptotically distributed as N(0,1) under the null of no serial correlation. Hansen is a test of the overidentifying restrictions, asymptotically distributed as χ2 under the null of no correlation between the instruments and the error term. *, **, *** denote statistical significance at 10%, 5% and 1% levels, respectively.

This constitutes valuable new evidence on the consequences of trade receivables on three fronts. First, no study to date (except Wu et al. (2012)) has provided evidence on the cash holdings consequences of trade credit provision. Therefore, this is the second study to document the direct impact of investment in trade receivables on cash holdings in an emerging market. Second, trade credit literature has not studied the consequences of trade receivables volatility at all. This is the first study that approaches trade receivables provision differently and utilizes volatility of investment in trade receivables, rather than the level of trade receivables, as the key variable of interest and investigate the cash holdings consequences of such policy. Therefore, we document for the first time in trade credit literature that volatility of investment in trade receivables may have performance-related and financial-policy-related consequences. Third, this study extends the findings of Uyar and Kuzey (2014) by providing further evidence on the determinants of cash holdings for Turkish listed firms. Our findings regarding the direct impact of SIZE and CFOVOL on cash holdings of listed Turkish industrials also constitute valuable evidence.

4.4. Robustness Checks

The model is re-tested with two additional RECVOL definitions in order to ensure the robustness of empirical findings to alternative definitions of RECVOL. The first alternative is RECVOL1, which is calculated as the standard deviation of "Trade Receivables / Total Assets" over the period from t-5 to t. The second alternative is RECVOL2, which is calculated as the standard deviation of "Trade Receivables / Total Assets" over the period from t-7 to t. Therefore, RECVOL1 and RECVOL2 are computed over a 6-year period and 8-year period, respectively. Initial observations for RECVOL1 and RECVOL2 are in 2005 and in 2007, respectively. The results of multivariate regression on the relationship between volatility of investment in trade credit and cash holdings using RECVOL1 and RECVOL2 as two alternative definitions of trade receivables volatility are presented in Table 5.

Consistent with the results from previous regressions, RECVOL1 and RECVOL2 coefficients continue to have negative sign and also remain statistically significant at 1% and 5% levels, respectively. The signs and significance levels of control variables remain unchanged. Therefore, the negative and significant impact of trade receivables volatility on cash holdings persists even when we use alternative definitions of RECVOL. This robustness check provides further evidence that supports our hypothesis H1. Therefore, our conclusions remain the same.

Table 5: Estimation Results – Robustness of the Model to Alternative RECVOL Definitions

Variable	Model 1 Dependent Variable: CASH1			Model 2 Dependent Variable: CASH2		
	Coefficient (p-value)			Coefficient (p-value)		
RECVOL	-4.3461** (0.0166)			-4.7665** (0.0111)		
RECVOL1		-5.5633*** (0.002)			-5.9626*** (0.002)	
RECVOL2			-4.9930** (0.044)			-5.3330** (0.037)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	2076	1824	1528	2076	1824	1528
ar1 (p-value)	0.0000	0.000	0.000	0.0000	0.000	0.000
ar2 (p-value)	0.2615	0.154	0.375	0.2629	0.155	0.362
Hansen (p-value)	0.4183	0.475	0.277	0.4134	0.498	0.278

Note: This table reports the system GMM regression results of the direct impact of RECVOL1 and RECVOL2 on cash holdings. The estimates are robust to heteroscedastic standard errors. RECVOL1 and RECVOL2 are included as endogenous variables in the dynamic panel estimation and are instrumented by their respective lag 2. Control variables and year dummies are included in the regressions. N indicates number of observations. ar1 and ar2 are serial correlation tests of orders 1 and 2, respectively using residuals in first differences, asymptotically distributed as $N(0,1)$ under the null of no serial correlation. Hansen is a test of the overidentifying restrictions, asymptotically distributed as χ^2 under the null of no correlation between the instruments and the error term. *, **, *** denote statistical significance at 10%, 5% and 1% levels, respectively.

5. CONCLUSION

The study of whether trade receivables volatility affect corporate cash holdings has been ignored in the literature. Unlike previous studies, this study's center of interest is volatility of investment in trade receivables. Such analysis is even more critical for Turkish listed firms not only because one fourth of their assets are invested in trade receivables on average but also because they hold relatively low levels of cash compared to firms operating in other emerging countries (Fernandes & Gonenc, 2016).

Firm's trade receivables policy constitutes an important and essential component of short-term financial policy. An inappropriate trade receivables policy may create instability in how much a firm invests in trade credit. Customer selection, credit terms offered to clients and credit monitoring process are the three most important pillars of trade receivables policy (Gitman & Zutter, 2015). A misalignment of these pillars may lead to instability in trade receivables. This situation may further result in unfavorable consequences regarding the firm's financial position and performance. It is hypothesised that firms with relatively higher trade receivables volatility tend to have lower cash holdings mainly due to increased unpredictability surrounding the collection process. This situation hampers the ability of management to keep corporate cash levels unaffected.

This hypothesis is empirically tested for a sample of industrial firms listed on Borsa Istanbul using system GMM. Results show that, as hypothesised, firms with relatively higher RECVOL hold significantly less cash than their counterparts with low RECVOL. This result is robust to alternative definitions of cash holdings and RECVOL. By employing system GMM, we also address the potential endogeneity issue related with cash holdings and volatility of trade receivables.

This study extends trade credit literature by focusing on the stability and consistency of trade receivables policy over time. It also contributes to the literature on corporate cash holdings by identifying trade receivables volatility as an additional factor that explains a part of the variation in cash holdings. Future research may consider analyzing the affect of trade receivables volatility on cash holdings across public as well as private firms operating in other emerging and developed markets. Other

consequences of trade receivables volatility, such as firm value and excess return, also constitute alternative areas for further research.

REFERENCES

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations, *The Review of Economic Studies,58*, 277-297.

Bates, T., Kahle, K., & Stulz, R. (2009). Why do US firms hold so much more cash than they used to? *Journal of Finance, 64*, 1985-2021.

Biais, B., & Gollier, C. (1997). Trade Credit and Credit Rationing. *The Review of Financial Studies*, 10(4), 903-937.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel models. *Journal of Econometrics, 87*, 115-143.

Box, T., Davis, R., Hill, M., & Lawrey, C. (2018). Operating Performance and Aggressive Trade Credit Policies. *Journal of Banking and Finance, 89*, 192-208.

Brechling, F., & Lipsey, R. (1963). Trade credit and monetary policy. *The Economic Journal, 73(292)*, 618-641.

Brown, J., & Petersen, B. (2011). Cash holdings and R&D smoothing. *Journal of Corporate Finance, 17*, 694-709.

Burkart, M., & Ellingsen, T. (2004). In-Kind Finance: A Theory of Trade Credit. *The American Economic Review, 94(3),* 569-590.

Chen, C., & Kieschnick R. (2018). Bank credit and corporate working capital management. *Journal of Corporate Finance, 48,* 279-596.

Cheng, N.S. & Pike, R. (2003). The Trade Credit Decision: Evidence of UK Firms. *Managerial and Decision Economics, 24,* 419-438.

Dass, N., Kale, J., & Nanda, V. (2015). Trade credit, relationship-specific investment, and product market power. *Review of Finance, 19(5),* 1867-1923.

Deloof, M. (2003). Does Working capital management affect profitability of Belgian firms? *Business Finance and Accounting, 30(3-4),* 573-587.

Deloof, M., & Jegers, M. (1996). Trade Credit, Product Quality, and Intragroup Trade: Some European Evidence. *Financial Management, 25(3),* 33-43.

Dittmar, A., & Mahrt-Smith, J. (2007). Corporate governance and the value of cash holdings. *Journal of Financial Economics, 83*, 599-634.

Doring, S., Drobetz, W., Janzen, M., & Meier, I. (2018). Global Cash Flow Sensitivities. *Finance Research Letters, 25*, 16-22.

Dudley, E., & Zhang, N. (2016). Trust and corporate cash holdings. *Journal of Corporate Finance, 41*, 363-387.

Duran, R., Lozano, M., & Yaman, S. (2016). Is Family Control Relevant for Corporate Cash Holding Policy? *Journal of Business Finance and Accounting, 43(9-10),* 1325–1360,.

El Ghoul, S., & Zheng, X. (2016). Trade Credit Provision and National Culture. *Journal of Corporate Finance 41,* 475-501.

Fernandes, N., & Gonenc, H. (2016). Multinationals and cash holdings. *Journal of Corporate Finance, 39,* 139-154.

Ferrando, A., & Mulier, K. (2013). Do firms use the trade credit channel to manage growth. *Journal of Banking and Finance, 37(8),* 3035-3046.

Gao, H., Harford, J., & Li, K. (2013). Determinants of corporate cash policy: Insights from private firms. *Journal of Financial Economics, 109*, 623-639.

Garcia-Teruel, P., & Martinez-Solano, P. (2007). Effects of working capital management on the SME profitability. *International Journal of Managerial Finance, 3,* 164-177.

Garcia-Teruel, P., & Martinez-Solano, P. (2008). On the determinants of SME cash holdings: Evidence from Spain. *Journal of Business Finance and Accounting, 35(1-2),* 127-149.

Garcia-Teruel, P., & Martinez-Solano, P. (2010). Determinants of trade credit: A comparative study of European SMEs. *International Small Business Journal 28(3)* 215–233.

Ghaly, M., Dang, V., & Stathopoulos, K. (2017). Cash Holdings and Labor Heterogeneity: The Role of Skilled Labor. *The Review of Financial Studies, 30(10),* 3636-3668.

Gill, A., Biger, N., & Mathur, N. (2010). The relationship between working capital management and profitability: Evidence from the United States. *Business and Economics Journal,* 10, 1-9.

Gitman, L. J., & Zutter, C.J. (2015). Principles of Managerial Finance (14th Edition) Harlow, Pearson Education Limited.

Graham, J., & Leary, M. (2018). The evolution of corporate cash. *The Review of Financial Studies, 31(11),* 4288-4344.

Guney, Y., Ozkan, A., & Ozkan, N. (2003). Additional International Evidence on Corporate Cash Holding. *Working Paper* (SSRN Electronic Library).

Guney, Y., Ozkan, A., & Ozkan, N. (2007). International evidence on the non-linear impact of leverage on corporate cash holdings. *Journal of Multinational Financial Management, 17,* 45-60.

Hanlon, M., Maydew, E., & Saavedra, D. (2017). The taxman cometh: Does tax uncertainty affect corporate cash holdings? *Review of Accounting Studies, 22*, 1198-1228.

Hansen, L. (1982). Large sample properties of generalized method of moments estimators. *Econometrica, 50*, 1029-1054.

Harford, J., Mansi, S., & Maxwell, W. (2008). Corporate governance and firm cash holdings in the US. *Journal of Financial Economics, 87,* 535-555.

Harris, C. (2015). Trade Credit and Financial Flexibility. *Banking and Finance Review, 7(1)*, 47-57.

Haushalter, D., Klasa, S., & Maxwell, W. (2007). The influence of product market dynamics on a firm's cash holdings and hedging behavior. *Journal of Financial Economics, 84*, 797-825.

Hill, M., Kelly, G., & Lockhart, G. (2012). Shareholder returns from supplying trade credit. *Financial Management, 41,* 255–280.

Hill, M., Kelly, G., & Venkiteshwaran, V. (2015). On the Diminishing Return to Trade Credit. *The Journal of Financial Research, 38(3),* 305-317.

Itzkowitz, J. (2013). Customers and cash: How relationships affect suppliers' cash holdings. *Journal of Corporate Finance, 19*, 159-180.

Jensen, M., & Meckling, W. (1976). Theory of the firms; Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3(4),* 305-360.

Kalcheva, & Lins. (2007). International Evidence on Cash Holdings and Expected Managerial Agency Problems. *The Review of Financial Studies, 20(4),* 1087-1112.

Kim, C., Mauer, D., & Sherman, A. (1998). The determinants of corporate liquidity: Theory and evidence. *Journal of Financial and Quantitative Analysis, 33,* 305-334.

Loncan, T. (2019). Foreign institutional ownership and corporate cash holdings: Evidence from emerging economies. *International Review of Financial Analysis*, Available online 22 December 2018 (In Press).

Long, M., Malitz, I., & Ravid, S. (1993). Trade Credit, Quality Guarantees, and Product Marketability. *Financial Management, 22(4),* 117-127.

Love, I., Preve, L., & Sarria-Allende, V. (2007). Trade credit and bank credit: Evidence from recent financial crises. *Journal of Financial Economics, 83*, 453-469.

McLean, R., & Zhao, M. (2018). Cash savings and capital markets. *Journal of Empirical Finance, 47*, 49-64.

Meltzer, A. (1960). Mercantile credit, monetary policy, and size of firms. *The Review of Economics and Statistics, 42,* 429-437.

Melumad, N., & Nissim, D. (2009). Line-Item Analysis of Earnings Quality. *Foundations and Trends® in Accounting, 3(2-3),* 87-221.

Mian, S., & Smith, C. (1992). Accounts receivable management policy: theory and evidence. *The Journal of Finance, 47(1),* 169-200.

Miller, M., & Orr, D. (1966). A model of the demand for money by firms. *Quarterly Journal of Economics, 80,* 413-435.

Myers, S. (1984). The capital structure puzzle. *Journal of Finance, 39*, 575-592.

Myers, S., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13,* 187-221.

Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics, 52,* 3-46.

Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: an empirical investigation of UK companies. *Journal of Banking and Finance, 28*, 2103-2134.

Paul, S. (2004). Strategic trade credit: an empirical study, PhD thesis. Leeds: Leeds University Business School.

Petersen, M., & Rajan, R. (1994). The Benefits of Lending Relationships: Evidence from Small Business Data. *Journal of Finance, 43,* 9-26.

Petersen, M., & Rajan, R. (1997). Trade credit: theories and evidence. *Review of Financial Studies, 10(3),* 661-691.

Pinkowitz, L., Stulz, R., & Williamson, R. (2003). Do firms in countries with poor protection of investor rights hold more cash? Cambridge: NBER Working Paper 10188.

Roodman, D. (2009). How to do xtabond2: an introduction to difference and system GMM in Stata. *Stata Journal, 9,* 86-136.

Subramaniam, V., Tang, T., Yue, H., & Zhou, X. (2011). Firm structure and corporate cash holdings. *Journal of Corporate Finance, 17(3),* 759-771.

Uyar, A., & Kuzey, C. (2014). Determinants of corporate cash holdings: evidence from the emerging market of Turkey. *Applied Economics, 46(9),* 1035–1104.

Wilson, N. & Summers, B. (2002). Trade credit terms offered by small firms: Survey evidence and ampirical analysis. *Journal of Business Finance and Accounting, 29 (3-4),* 317-351.

Wu, W., Rui, O., & Wu, C. (2012). Trade credit, cash holdings, and financial deepening: Evidence from a transitional economy. *Journal of Banking and Finance, 36*, 2868-2883.

Yazdanfer, D., & Ohman, P. (2015). The impact of credit supply on sales growth: Swedish evidence. *International Journal of Managerial Finance, 11(3),* 329-340.

SHORT-TERM PRICE-PERFORMANCE ANALYSIS OF INITIAL PUBLIC OFFERINGS: AN APPLICATION ON HEALTH INDUSTRY IN NYSE

Havane Tembelo
Istanbul Health Services Administration, Istanbul, Turkey.
havane.tembelo@saglik.gov.tr , ORCID: 0000-0003-3394-4166

ABSTRACT

Purpose - The purpose of this study is to investigate short-term underpricing anomaly of IPOs in health industry firms in USA. This study tried to test short-term underpricing anomaly that suggests investors may able to get abnormal returns by purchasing stocks at issuance date and selling them after holding for short time period.

Methodology – Analysis period is taken into consideration as first 7 days after the issuance. To conduct analysis in the study, a sample, which includes 12 listed firms, is built. Stock returns are calculated from issuance date until 7th day. First raw returns are calculated based on price movements of each IPO and then abnormal returns are calculated by comparing them to NYSE index return. In order to get smoother series to reflect normal distribution features, compound abnormal returns are calculated.

Findings – Raw returns are positive but significant only on 5th day after issuance. Abnormal returns except for 2nd and 3rd day are positive but statistically significant only 5th day after issuance. Compound abnormal returns are positive except for 3rd day but similarly it is statistically significant on 5th day after issuance. Based on test results, an investor who purchased stocks at the issuance and hold them until 5th day would get higher return (abnormal return) by %0,71 and higher compound return (compound abnormal return) by %1,23 than market average.

Conclusion – According to results of t-test, it can claimed that underpricing anomaly can be confirmed for the firms are traded in health industry in NYSE.

Keywords: Price anomalies, underpricing anomaly, initial public offerings (IPO), t -test
JEL Codes: C23, G10, G32

1. INTRODUCTION

To maintain business operations firms need for financing. Money and capital markets are financial markets where firms can meet their financing needs according to their short and long term operations. While short-term financing needs can be met via money markets, long-term financing needs can be met from capital markets.

There are two types of funds in the form of debt and equity that can be obtained from the capital market by companies that need long-term funds, in particular investment. The acquiring new shareholders by selling shares to the public is called public offering and public offering is used as equity financing method in the capital market. While public offerings have advantages such as providing non-repayable funds and increasing popularity of firms, they also have some disadvantages, especially public offering costs. Before making this critical decision, firm management needs to address the advantages and disadvantages of public offering together.

Many studies have been conducted in the literature on public offerings. Most of the studies are related to short and long price performance of public offerings. In most of the studies performed in the literature, price abnormalities were observed in the short and long term after the public offering. In the short term after the public offering, it is generally seen that the prices increase excessively compared to the market average and thus investors may have abnormal returns in the short term. This is called a short term underpricing anomaly. In the long run, there is a long-term under-performance anomaly, which

suggests that the stock price performance of the firms that performed IPOs may have a relatively low price performance compared to index return and return of the similar firms that did not make the IPO.

The aim of this study is to contribute to the current literature and to test the short term underpricing anomaly of public offerings through firms operating in the health sector traded on the NYSE stock exchange.

In the second part of the study, the studies about the short term underpricing anomaly in the initial public offerings are examined in the literature. Section 3 provides information about the data and the sample, and provides methodological information on how the analysis is performed. In Chapter 4, raw, abnormal and compound abnormal return calculations are performed. In order to determine whether each return type is statistically significant, t test is performed and the results are analyzed by comparing with critical values. In the last part of the study, the hypotheses related to the short term underpricing anomaly in the initial public offerings are evaluated based on the findings.

2. LITERATURE REVIEW

One of the most important explanations regarding the underpricing anomaly in the initial public offerings is the adverse selection model. Rock (1986) proposes the inverse selection model and classifies the investors as knowledgeable investors who want to buy stocks when the public offering is underpriced and as non-knowledgeable investors who want to buy stocks in all public offerings, regardless of stocks are underpriced or not. In the model, it is assumed that when the stocks have underpriced the allocation to the uninformed investor will be very low, even if the demand received from both informed and uninformed investors. On the other hand, if the IPO is overpriced, the uninformed investor will receive all issued shares and will suffer losses in the medium and long term. As a result; that allocation in these low and overpricing situations would reveal the problem known in the literature as the winner's curse.

Mc Donald and Fisher (1972) worked on 142 public offerings of more than $ 1 Million, which sold a minimum of 150,000 shares in the first quarter of 1969, and found underpricing in public offerings that support the effective market hypothesis.

Logue (1973), examined the behavior of investment banks in the pricing process. He found out that if an investment bank made underpricing in the initial public offering, it would have minimized its costs and risk and would have provided higher returns to the investor especially in the short term. In summary, the main determinant of the underpricing in public offerings is that the investment bank aims to guarantee the success of the public offering by selling all the shares in the public offering thanks to discounting offering prices.

Ritter (1984), as a result of his analysis that includes 5,162 first public offerings made in the USA between 1960 and 1982 confirmed the underprice anomaly in the initial public offerings and the hot issuing cycle. He found out that the initial public offerings were underpriced by 18.8% in the short term. In his study, he calculated the return in the 1980 - 81 period which he defined as hot issuing offerings as 48.4% and the return for the period that he described as cold issuing offerings as 16.3%.

Loughran, Ritter, and Rydqvist (2015) in their study, analyzed the difference between short-term returns of public offerings in different locations in terms of binding regulations, contract mechanism and the characteristics of the public offering firm. They stated that attempts to reduce legal interventions in the process of determining the public offering price, especially in East Asian countries, resulted in a decreasing underpricing degree in the 90s compared to the 80s.

Bajo and Raimondo (2017) analyzed the relationship between the news that is published in the media about the company before the IPO and the IPO price performance. They examined 2184 initial public offerings and 27309 news articles in the USA between 1995 and 2013. According to the results of the analysis, they found a positive relationship between the positive news about the company prior to the initial public offering and the underpricing. Also they observed that this degree of the relationship is much stronger in the news published closely IPO date and in the news published in reputable newspapers.

Boulton et.al (2017), examined the effect of accounting conservatism applied by countries on underpricing anomaly observed in international IPOs. They tried to confirm the hypothesis that suggests conservatism reduces on underpricing anomaly by decreasing the information asymmetry level in the firms. Based on their findings based on 13285 IPOs from 36 countries, they found out that there is a negative relationship between more accounting conservatism of countries and underpricing anomaly.

Kotlar et.al (2018), tried to reconcile the conflicts between the theories about the low pricing anomaly seen in the initial public offerings made by family firms. They approach IPO pricing as a two-stage gamble. They assume that the initial socioemotional losses wealth required by the IPO decision is increasing the tendency of the owners of family firms to compensate for these losses. For this purpose, they adjusted a behavioral agency model with the aversion to loss realization

logic to state how the decision affects owners of family firms during the IPO based on initial losses for current socioemotional losses wealth and new expectations related to future socioemotional losses wealth.

Gandolfi et.al (2018), studied both short and long-term price anomalies observed in IPOs. As short-term anomaly they analyzed underpricing anomaly while for the long-term they used the underperformance anomaly. They conducted the analysis based on sample includes 437 IPOs in Europe for the 1997 – 2011. They examined three major countries in Europe includes Germany, France and Italy respectively. They also perform analysis according to industries. Based on their analysis results, they found out that there is no significant difference between countries in terms of short-term underpricing anomaly while they observed remarkable differences in long-run price performance. They also stated that industry type is not determining factor on both short and long-term price performance.

3. SAMPLE CONSTRUCTION AND METHODOLOGY

Data regarding stock prices of health industry firms that listed in NYSE are used. Historical stock price information are obtained from investing.com. In the NYSE, currently there are 12 health firms are being traded that's why our sample is based on these 12 firms. The summary information of the sample is provided in Table 1.

Table 1: Summary Information of the Sample

No	Company	Ticker	Avg. Marke Value - Millions	Avg. Return of 1 Year - %
1	HCA Healthcare, Inc.	HCA	48.700	7
2	Universal Health Services, Inc.	UHS	12.810	12
3	DaVita Inc.	DVA	9.380	25
4	Encompass Health Corporation	EHC	6.960	-4
5	Tenet Healthcare Corporation	THC	3.870	60
6	Select Medical Holdings Corporation	SEM	3.080	24
7	Mednax, Inc	MD	2.380	-27
8	Brookdale Senior Living Inc.	BKD	1.280	-18
9	Community Health Systems, Inc.	CYH	414	-24
10	American Renal Associates Holdings, Inc	ARA	335	-36
11	Genesis Healthcare, Inc.	GEN	267	-4
12	Capital Senior Living Corporation	CSU	113	-57

Since short-term analysis is being performed, the analysis period is taken into consideration as first 7 days in line with existing literature. First raw returns of stocks are calculated based on closing prices and then abnormal returns are calculated by comparing raw returns to return of NYSE index. Required formula to calculate raw returns are shown as follows.

$$R_{it} = \frac{(P_{it} - P_{it-1})}{P_{it-1}} \qquad (1)$$

A description of the notations in the formula is given below:

R_{it} : The return of stock called i for time t.

P_{it} : Closing value of stock called i for time t.

P_{it-1} : Closing value of stock called i for time t-1.

To calculate the abnormal return of stocks, the returns of the NYSE index are calculated as follows:

$$R_{mt} = \frac{(P_{mt} - P_{mt-1})}{P_{mt-1}} \qquad (2)$$

A description of the notations in the formula is given below:

R_{mt} : Return of the NYSE index for time t,

$P_{mt:}$: Closing value of NYSE index for time t,

P_{mt-1} : Closing value of the NYSE index for time t-1.

We performed analysis under the buy and hold investment strategy. Therefore, we assumed that investors will not make daily trading instead they will hold stocks for a while and then sell. Abnormal returns are calculated based on following formula Asquith and Mullins (1986):

$$AR_{it} = R_{it} - R_{mt} \qquad (3)$$

A description of the notations in the formula is given below.

AR_{it} ： Abnormal return of stock called i for time t,

R_{it} ： The raw return of stock called i for time t,

R_{mt} ： Market return for time t.

To see statistical properties of stock prices more clearly, in this study, average adjusted return and compounded adjusted return are calculated repectively. Required formulas are presented in Eq.4 and Eq.5 respectively.

Average abnormal return can be calculated based on following equation of Asquith and Mullins (1986).

$$\overline{AR_t} = \frac{1}{N} \sum_{i=1}^{n} AR_{it} \qquad (4)$$

To calculate compound abnormal return following equaton developed by Wu and Kwork (2007) should be applied:

$$CAR_{(T_1,T_2)} = \left[\prod_{t=T_1}^{T_2} (1 + R_{it}) \right] - \left[\prod_{t=T_1}^{T_2} (1 + R_{mt}) \right] \quad (5)$$

We preferred to calculate compound abnormal return instead of cumulative abnormal return since compound abnormal return based on geometric average calculation and thus make series smoother by eliminating outlier values (Cikrikci and Ozyesil, 2018:210).

t statistics and critical values are calculated to find out whether abnormal returns are statistically significant or not. We built following hypothesis statements:

H_0: $\overline{AR_t}$, $\overline{CAR_t} \leq 0$ There is underpricing anomaly in stock prices of sample.

H_1: $\overline{AR_t}$, $\overline{CAR_t} > 0$ There is underpricing anomaly in stock prices of sample.

4. FINDINGS

All calculations are made by using Excel 2016 and SPSS 22 program. Table 2 indicates stock returns for the first week after the issuance. When the raw returns are analyzed, it is seen that the raw returns are positive during the first week after the IPO but it is statistically significant only on the 5th day. On the 2nd and 4th days abnormal returns were negative but statistically insignificant. However, abnormal returns provide positive returns as of the 5th day as well as raw returns and these returns are statistically significant. According to this result, it can be concluded that if investors purchase shares from the issuance, hold them until the 5th day, and then sell, they will generate 0.71 higher returns compared to the market average. Similar results are observed in the compound abnormal returns. Except for 3rd day, compound abnormal returns are calculated as positive but found statistically significant only on the 5th day. Based on findings for compound returns, it is possible for the investor to generate 1.23% more returns than the market on the 5th day after issuance.

Table 2: Short - Term Price Performances of Stocks

Period	n	$\bar{R}$	t- ist.	$\overline{AR}$	t- ist.	$CompoundAR$	t- ist.
First Day (t)	12	0,61	0,22	0,41	0,08	0,47	0,25
t+1	12	0,37	0,35	-0,75	-0,27	0,36	0,38
t+2	12	0,26	0,09	0,41	0,23	-0,25	-0,54
t+3	12	0,87	0,32	-0,50	-0,10	0,57	0,76
t+4	12	0,73*	0,78	0,71*	1,12	1,23*	0,72
t+5	12	0,21	2,01	0,65	0,87	2,33	0,82
t+6	12	0,49	2,45	0,98	1,75	3,57	1,03

Note: n refers sample size. Critical values to test the t-statistics are used as 1,282, 1,645, 2,326 and related significance level for these values are %10, %5 and %1 respectively (Tarı, 2012: 500).

5. CONCLUSION AND RECOMMENDATION

In this study, short - term stock price performance of 12 companies operating in the health sector in NYSE is analyzed. In the study, the short term is considered as the first 7 days after the public offering. In the analysis, it is assumed that investors follow the buy & hold strategy, which states that they buy the stock and keep it in the portfolio for 7 days, which is the analysis period. Firstly, the raw returns are calculated over the closing value of the stocks and then the abnormal returns and compound abnormal returns are calculated by comparing raw returns with NYSE returns.

According to the test results, if the investors sell their stocks as of the 5th day after the first issue, it is confirmed that they can obtain an over market return according to both abnormal return and compound abnormal return and the results are statistically significant. According to the results of the analysis, short-term underpricing anomaly in the health sector in NYSE is partially confirmed. Investors who are timing stock trading during the first week after the issuance may have higher returns than the market average.

In this study, macro and micro determinants of the stock price performance are not included in the analysis. In addition to macro parameters such as the macroeconomic conjuncture, by examining the micro parameters such as IPO ratio, IPO size, IPO method, brokerage firm type, and costs, the factors affecting the abnormal returns can be determined.

REFERENCES

Asquith, P., & Mullins, D. W. (1986). Equity Issues And Offering Dilution. *Journal of Financial Economics*, (15), 61 - 89.

Bajo, E., Raimondo, C. (2017). Media Sentiment and IPO Underpricing, Journal of Corporate Finance, 46, 139-153.

Boulton, T.J., Smart, S.B., Zutter, C. (2017). Conservatism and International IPO Underpricing, Journal of International Business Studies, 48(6), 763-785.

Cikrikci, M, Ozyesil, M . (2018). Long Term Underperformance Anomaly and Its Dterminant Factors on Seasoned Equity Offerings: Evidence From Turkey. Journal of Business Economics And Finance, 7 (3), 208-227.

Gandolfi, G., Regalli, M., Soana, M.G, Arcuri, M.C. (2018). Underpricing and Long-Term Performance of IPOS: Evidence from European Intermediary Oriented Markets, Economic, Management and Financial Markets, 3,11-36.

Kotlar, J., Signori, A., Massis A.D., Vismara, S. (2018), Financial Wealth, Socioemotional Wealth, and IPO Underpricing in Family Frims: A Two – Stage Gamble Model, Academy of Management Journal, 61(3), 1-59.

Logue, D.E. (1973). On The Pricing of Unseasoned Equity Issues: 1965-1969. Journal of Financial and Quantitative Analysis, 8 (1). 91 - 103.

Loughran, T., Ritter, J. R., Rydqvist, K. (2015). Initial Public Offerings: International Insights. Pacific - Basin Finance Journal, (2). 165 - 199.

Mcdonald, J, Fisher, A.K. (1972). New Issue Stock Price Behaviour. Journal of Finance, 27 (1). 97 - 102.

Myers, S. C., & Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information The Investors Do Not Have. *Journal of Financial Ecconomics*, 13 (2). 187 – 221.

Ritter, J. R. (1984). The Hot Issue Market of 1980. Journal of Business, 57 (2). 15 - 240

Ritter, J. R. (1991) The Long - Run Performance of Initial Public Offerings. *Journal of Finance*, 46 (1), 3 - 27.

Rock, K. (1986). Why New Issues Are Underpriced. Journal of Financial Economics, (15). 187 - 212.

Tarı, R., (2012). *Ekonometri*. Kocaeli: Umuttepe Yayınları.

Welch, I. (1989). Seasoned Equity Offerings, Imitation Costs and The Underpicing of Initial Public Offerings. *The Journal of Finance*, 44 (2), 421 - 449.

Welch, I. (1992). Sequential Sales, Learning, and Cascades. *The Journal of Finance*, 47 (2). 695 – 732.

Wu, C., & Kwork, C. C. K. (2007). Long-Run Performance of Global Versus Domestic Initial Public Offerings. *Journal of Banking & Finance*, (31). 609 -627.

FOREIGN TRADE CONCENTRATION: THE CASE OF DENIZLI PROVINCE IN TURKEY

Aysun Karadayi
Pamukkale University, PhD Program in Management, Aydin, Turkey.
aysun.karadayi@gmail.com, ORCID: 0000-0002-0485-5773

ABSTRACT
Purpose- In this study, for the period 2012-2016, foreign trade data on Denizli, South Aegean (TR32) Region and Turkey basis were examined and provincial, regional and country-level evaluations were carried out by the comparison method.
Methodology- The export and import concentration ratios for Denizli and South Aegean Region were calculated and subsequently market and sectoral concentration conditions on the provincial and regional level were evaluated. In addition, export and import concentration coefficients for Denizli were calculated and the sectors that are prominent in provincial foreign trade were determined.
Findings- The results showed that even though fluctuations in the period examined, Denizli and South Aegean Region have a certain foreign trade trend and that the sectoral concentration in the foreign trade of Denizli is higher than the market concentration of it. Concentration coefficients calculated for Denizli province demonstrated that Textile Products, N.E.C. Electrical Machines and Devices, Other Non-Metallic Mineral Products, Metal Goods Industry, Quarrying and Other Mining, Clothing and Base Metal Industry are the most prominent sectors in provincial exports while Base Metal Industry, Textile Products, Paper and Paper Products, Wood and Cork Products, Agriculture and Livestock are the prominent sectors in provincial imports.
Conclusion- Sectoral concentration may not be considered as a negative situation if it is derived from a real specialization in the concentrated sectors and thus high value-added production. The production and export strategy of the province can be established both on the basis of increasing the value-added in certain sectors and also on increasing the sector and product diversity in production and export.

Keywords: Denizli, concentration ratio, concentration coefficient, market concentration, sectoral concentration.
JEL Codes: F10, F14, O24

DIŞ TİCARETTE YOĞUNLAŞMA: TÜRKİYE'DEN DENİZLİ İLİ ÖRNEĞİ

ÖZET
Amaç- Bu çalışmada 2012-2016 dönemi için Denizli, Güney Ege (TR32) Bölgesi ve Türkiye bazında dış ticaret verileri incelenmiştir ve il, bölge ve ülke düzeyinde karşılaştırma yöntemi ile değerlendirmeler yapılmıştır.
Yöntem- Denizli ve Güney Ege Bölgesi için ihracat ve ithalat yoğunlaşma oranları hesaplanarak pazar ve sektörel yoğunlaşma durumları değerlendirilmiştir. Ayrıca Denizli için ihracat ve ithalat yoğunlaşma katsayıları hesaplanarak il dış ticaretinde öne çıkan sektörler tespit edilmiştir.
Bulgular- Ulaşılan sonuçlar incelenen dönemde dalgalanmalar olsa da Denizli'nin ve Güney Ege Bölgesi'nin belli bir dış ticaret eğilimine sahip olduğunu ve dış ticarette sektörel yoğunlaşmanın pazar yoğunlaşmasından daha yüksek olduğunu göstermiştir. Denizli ili için hesaplanan yoğunlaşma katsayıları, il ihracatında öne çıkan sektörlerin Tekstil Ürünleri, B.Y.S. Elektrikli Makine ve Cihazlar, Metalik Olmayan Diğer Mineral Ürünler, Metal Eşya Sanayi, Taşocakçılığı ve Diğer Madencilik, Giyim Eşyası ve Ana Metal Sanayi olduğunu; il ithalatında öne çıkan sektörlerin ise Ana Metal Sanayi, Tekstil Ürünleri, Kâğıt ve Kâğıt Ürünleri, Ağaç ve Mantar Ürünleri, Tarım ve Hayvancılık olduğunu göstermiştir.
Sonuç- Sektörel yoğunlaşma eğer yoğunlaşılan sektörlerde gerçek bir uzmanlaşma olmasından ve bu sayede yüksek katma değerli üretim yapılmasından kaynaklanıyorsa olumsuz bir durum olarak değerlendirilmeyebilir. İlin üretim ve ihracat stratejisi belli sektörlerde katma değer artışı sağlanması üzerine kurulabileceği gibi üretim ve ihracatta sektör ve ürün çeşitliliğinin artırılması üzerine de kurulabilir.

Anahtar Kelimeler: Denizli, yoğunlaşma oranı, yoğunlaşma katsayısı, pazar yoğunlaşması, sektörel yoğunlaşma
JEL Kodları: F10, F14, O24

1. GİRİŞ

1945 yılından sonra literatürde yerini alan "Kalkınma" kavramına ilişkin paradigmalar günümüze kadar önemli değişimler geçirmiştir. 1970'lerin ikinci yarısına kadar hâkim olan yaklaşımda "Kalkınma" bir modernleşme projesi olarak tanımlanmıştır ve temel amacı az gelişmiş ülkelerin (bölgelerin), batılı (gelişmiş) ülkelerin toplumsal ve ekonomik refah düzeyine erişebilmesi olmuştur. Bu dönemde kalkınmanın itici gücü olarak "sanayileşmeye dayalı ekonomik büyüme" görülmüştür. 1990'lı yıllardan itibaren hâkim olmaya başlayan kalkınma paradigması ise "sürdürülebilir insani kalkınma" odaklıdır ve bu anlayışa göre toplumların esas zenginliği insanlarıdır. Bu paradigma değişimi sonucunda "Kalkınma" kavramı; başlangıçtaki ekonomik boyutuna sosyal, ekolojik, politik, kültürel, yaşam kalitesi, sosyal uyum ve refah boyutları eklemlenerek genişletilmiştir (Akın, 2006).

Benzer şekilde, klasik anlamda temel amacı bölgelerarası gelişmişlik farklılıklarının en aza indirilmesi olan "Bölgesel Kalkınma" kavramı da zaman içinde değişikliğe uğramıştır. Bölgesel kalkınmanın günümüz amaçları arasında bölgelerin küresel rekabet güçlerinin artırılması, yerel ve bölgesel potansiyelin harekete geçirilmesi suretiyle ulusal büyüme ve kalkınmaya katkılarının azami seviyeye çıkarılması da yer almaktadır. Bu bakış açısının bir yansıması olarak ülkemizin Dokuzuncu Kalkınma Planının (2007-2013) "Bölgesel Gelişmenin Sağlanması" ekseni altında; bölgesel gelişme politikasının merkezi düzeyde etkinleştirilmesi, yerel dinamiklere ve içsel potansiyele dayalı gelişmenin sağlanması, yerel düzeyde kurumsal kapasitenin artırılması ve kırsal kesimde kalkınmanın sağlanması hedeflerine yer verilmiştir.

Küreselleşen dünyada dış ticaretin katkısı olmadan kalkınmanın sağlanamayacağı genel kabul görmüş bir görüştür. Ülkemiz açısından bakıldığında üretim ve ihracatımızın yüksek katma değerli ve teknoloji yoğun bir yapıya kavuşması için yapısal bir dönüşüm ihtiyacı bulunduğu görülmektedir. Cari işlemler açığı veren Türkiye ekonomisinde üretim kapasitesi ve ihracatı artıracak yatırımlara öncelik verilmesi gerektiği Onuncu Kalkınma Planında (2014-2018) yer verilen bir husus olmuştur. Plan döneminde reel olarak ortalama ihracat artışının ithalat artışından yüksek olması, ihracatın ithalata olan bağımlılığının azaltılması, ihracat içinde orta-yüksek ve yüksek teknolojili imalat sanayii ürünlerinin payının yükseltilmesi, hizmet ihracatının artırılması ve çeşitlendirilmesi hedeflenmiştir.

İhracat artışı kadar ihracat çeşitlendirmesi de önemli bir konudur. İhracat çeşitlendirmesi ülke ihracatının pek çok sektör (ürün) ve ülkeye (pazar) yayılması anlamına gelir ve bu sayede ülke dışsal risk, kriz ve şoklara karşı daha dayanıklı hale gelir. Bu doğrultuda Onuncu Kalkınma Planı döneminde, Türkiye'nin geleneksel ihracat pazarlarındaki payını düşürmeden, AB-dışı ülkelere mal ve hizmet ihracatını artırması hedeflenmiştir.

Ulusal ve bölgesel kaynakların etkin kullanılması zorunluluğu doğrultusunda Türkiye'de kaynakların daha çok refah üreten alanlara yönlendirilmesi ihtiyacı vardır. Bu yönde karar verici olanlar ve ilgili taraflara yol göstermesi açısından, bu çalışmada 2012-2016 dönemi için Denizli ilinin dış ticaret analizi yapılmıştır. Analizde Yoğunlaşma Oranı, Yoğunlaşma Katsayısı ve Karşılaştırma yöntemleri kullanılmıştır.

Denizli ilinin 2017 yılı nüfusu 1.018.735 kişidir, nüfus yoğunluğu bakımından Türkiye illeri arasında 26'ıncı sıradadır (TÜİK, 2017) ve sosyoekonomik gelişmişlik endeksi sıralamasında 10'uncu sıradadır (Kalkınma Bakanlığı, 2013). 2014 yılında ilde; GSYH 24.056 milyon TL, kişi başına GSYH 24.772 TL veya 11.327 USD'dir (TÜİK, 2014).

Çalışma beş bölümden oluşmaktadır. Giriş bölümünden sonra ikinci bölümde Literatür Araştırması, üçüncü bölümde veri ve yöntem, dördüncü bölümde bulgu ve tartışmalar ve beşinci bölümde sonuç yer almaktadır.

2. LİTERATÜR ARAŞTIRMASI

Yoğunlaşma Analizi bölgelerin ekonomik faaliyetler yönünden karşılaştırılması ve göreli olarak uzmanlaştığı sektörlerin tespitinde kullanılmaktadır. Firma, ürün, sektör, ülke (pazar) bazında yoğunlaşmaların ele alındığı çalışmalara odaklanarak yapılan literatür araştırmasında taranan çalışmalara bu bölümde değinilmektedir.

Wolff (2000) tarafından yapılan çalışmada; 1970-1997 yılları arasında 33 imalat malında 14 OECD ülkesi baz alınarak, söz konusu ülkelerin ihracat uzmanlaşma ve benzerlik dereceleri ölçülmüştür. Bununla birlikte, Kanada ve ABD'nin geleceğe yönelik uzmanlaşma dereceleri tahmin edilmiştir. Sonuçlar; Kanada'nın ulaştırma ekipmanları, özel karayolu taşıtları, motor araçları, demir ihtiva etmeyen metal ve ağaç ürünlerinde uzmanlaştığını ve ABD'nin uçak, profesyonel ürünler, petrol ve kömür ürünlerinde yüksek oranda nispi üstünlüğe sahip olduğunu ortaya koymuştur.

Kaya (2006) çalışmasında; 1991-2003 döneminde, imalat sanayi ihracatında, Türkiye'nin AB-15 ve AB-10 ile Bulgaristan, Romanya gibi aday ülkeler karşısında üstünlük sahibi olduğu endüstriler belirlenmeye çalışılmıştır. Çalışmada imalat sanayi ihracat verileri kullanılmıştır. Balassa Endeksi kullanılarak yapılan analiz sonucunda, 151 imalat sanayi alt ürün grubu içinde 53 endüstride AKÜ (Açıklanmış Karşılaştırmalı Üstünlük) 1 tespit edilmiştir. Türkiye'nin karşılaştırmalı üstün olduğu 53 maldan 1'i hammadde yoğun, 27'si emek yoğun, 16'sı sermaye yoğun, 9'u zor taklit edilen araştırma yoğun mallar olarak tespit edilmiştir.

Hamid (2008) çalışmasında; 1970-1993 dönemi için Malezya'da pazar ve ürün yoğunlaşması incelenmiş ve ticaret deseni ve istikrarsızlığın zaman içinde nasıl değiştiği analiz edilmiştir. İstikrarsızlık endeksi, ürün yoğunlaşması, pazar yoğunlaşması ve birincil ürün ihracatının payını içeren bir dizi açıklayıcı değişken ile regresyon analizine tabi tutulmuştur. Sonuçlar, ürün yoğunlaşmasının ihracat gelirlerinin dengesizliğini açıklayan önemli bir değişken olarak ortaya çıktığını göstermektedir. İstikrarsızlığın olumsuz etkilerinden korunmak için Malezya'nın; verimliliği üretim maliyetinden yüksek tutma, endüstri tabanını genişleterek çeşitlendirme ve yeni ürünler için sürekli yeni pazarlar bulmak suretiyle rekabeti sürdürme konusunda sürekli bir çaba içinde olması gerektiği yönünde öneriler sunulmuştur.

Hesse (2008) çalışmasında; ihracat çeşitlendirmesinin kişi başına gelir büyümesi üzerindeki olumlu etkisine dair sağlam ampirik kanıtlar sağlandığı ileri sürülmektedir. İhracat çeşitlendirmesinin daha yüksek büyümeye yol açtığı ve gelişmekte olan ülkelerin çeşitlendirme ile ihracat istikrarsızlığının veya birincil ticaret ürünleri ticaret koşullarındaki olumsuz etkilerin üstesinden gelebilecekleri değerlendirilmiştir.

Akal (2009) çalışmasında; 1995 - 2005 döneminde Türkiye'nin Rusya ve Ukrayna ile dış ticaretinde meydana gelen ihracat, ithalat, avantajlı ve dezavantajlı fasıl yoğunlaşması ve değişimleri ortaya koyulmuştur. Araştırma sonucunda toplam 200 milyon nüfuslarıyla farklı gelir gruplarına sahip Rusya ve Ukrayna'nın piyasa ekonomisine geçişlerinin Türkiye'den olan mal talebi fasıllarında değişimlere yol açtığı tespit edilmiştir. Türkiye'nin Rusya ve Ukrayna'dan ithalatının Mineral Yakıtlar, Mineral Yağlar ve Ürünleri, Mumlar ile Demir ve Çelik fasıllarında yoğunlaştığı görülmüştür. Türkiye bu iki ülkeden doğal kaynak yoğunluklu mallar ithal ederken, ihraç edilen mallarda yoğunlaşmanın düşük teknoloji ile emek yoğun üretilen mallardan orta ve ileri teknoloji ile sermaye yoğun üretilen mallara ve bunların oluşturduğu fasıllara kaydığı görülmüştür. Bir diğer çalışmasında Akal (2008), 1980-2005 dönemi için Türkiye'nin Ortadoğu sınır ülkeleriyle (Irak, İran, Suriye) olan dış ticaretinde fasıl bazında ihracat ve ithalat yoğunlaşmalarını incelemiştir. Türkiye'nin bu ülkelere olan ihracatı tarımsal fasıllardan sanayi fasıllarına, emek yoğun fasıllardan sermaye ve teknoloji içeren fasıl yoğunlaşmasına kaymıştır.

Ayrancı (2009) çalışmasında; Türkiye'nin ekonomik açıdan küreselleşmesi konu edilmiştir. Ekonomik küreselleşmenin bir boyutu olan dış ticaret yoğunlaşması 1996-2004 dönemi için incelenmiş ve Herfindahl-Hirschman Endeksi kullanılarak analiz yapılmıştır. Araştırma sonuçları; Türkiye'nin dış ticaret yoğunlaşmasının azalma eğilimi gösterdiğini ve buna göre Türkiye'nin dış ticaret açısından küreselleşme eğilimi sergilediğini göstermiştir.

Arip, Yee, Karim (2010) çalışmasında; 1980-2007 dönemi için Malezya'da ihracat çeşitlemesi ve ekonomik büyüme arasındaki ilişki incelenmiştir. Koentegrasyon ve Granger nedensellik test sonuçları değişkenler arasında benzersiz bir eş-bütünleşme vektörünün varlığını göstermiştir. İhracat çeşitlendirmesinin Malezya'daki ekonomik büyüme üzerinde önemli rol oynadığı bulgusundan hareketle çok taraflı ve bölgesel ticaret serbestleşmesi etkisi altında gelecekte ekonomik büyümeyi sürdürebilmek için Malezya'nın ihracat mallarını çeşitlendirmesi ve dünyanın geri kalanıyla daha büyük sosyal ve ekonomik işbirliği geliştirmesi gerekliliği ortaya koyulmuştur.

Doğan ve Kaya (2011) çalışmasında; Türkiye'nin dış ticaretinde Gümrük Birliği sonrasında ülke ve fasıl bazlı değişimleri ortaya koymak amacıyla yoğunlaşma oranı (CR) ve Herfindahl Endeksi (H-I) yöntemleri kullanılarak yoğunlaşma analizi yapılmıştır. Analiz sonucunda; ülke bazında hem ithalatta hem ihracatta ilk dört sırada yer alan ülkeleri kapsayan CR_4 oranında bir değişiklik olmadığı; ürün bazında ise ihracatta düşük teknoloji grubu mallardan orta üst teknoloji grubu mallara geçilirken, ithalatta orta üst teknoloji grubu malların ve sermaye girdisi fasılları payının azalmadığı saptanmıştır. Buna göre, Avrupa Birliği'ne yapılan ihracatta yapısal bir değişim gözlenirken, ithalatta Avrupa Birliği'ne bağımlılığın azalması yönünde yapısal bir değişim sağlanamadığı değerlendirmesi yapılmıştır.

Gündem ve Acar (2011) çalışmasında; Türkiye imalat sanayindeki bölgesel uzmanlaşmaları saptamak amacıyla istihdam verileri ile firma sayısı verileri kullanılmış ve piyasa yoğunlaşmasının bozucu etkileri ayrıştırılmaya çalışılmıştır. Türkiye İstatistik Kurumu'nun 2003-2008 dönemini kapsayan Türkiye imalat sanayi "yerel birim sayısı" ve "istihdam" verileri kullanılarak Bölgesel Uzmanlaşma Endeksi hesaplanmıştır. Sonuçta; bölgeler itibariyle en yüksek uzmanlaşma düzeyine sahip sektörlerde piyasa yoğunlaşması olduğu görülmüştür.

Bayraktutan, Tüylüoğlu, Özbilgin (2012) çalışmasında; önce yığınlaşma analizi ile lojistik sektörünün istatistiki bölgeler düzeyinde yoğunluğu incelenmiş; sonra lojistik gelişmişlik endeksiyle her bir il için gelişmişlik endeksi olarak tanımlanabilecek sayısal değerler elde edilerek illerin sıralaması yapılmıştır. Analiz sonuçları Kocaeli'nin Türkiye'nin diğer illerine göre önemli ölçüde lojistik üstünlüklerinin olduğunu ve sektör açısından yüksek bir potansiyel taşıdığını göstermiştir.

Erkan (2012) çalışmasında; 1993-2010 dönemi için Türkiye'nin geleneksel ihraç tarım ürünlerindeki uzmanlaşma düzeyinin belirlenmesi amacıyla 7 ürünün (kuru incir, kuru üzüm, kuru kayısı, fındık, antep fıstığı, ceviz, badem) ihracatına ilişkin uzmanlaşma ve rekabet gücü endeksleri hesaplanmıştır. Bu bağlamda, ihracat payı, ihracat-ithalat oranı endeksi, net ticaret endeksi, Vollrath'ın nispi ihracat avantajı endeksi ve Balassa'nın açıklanmış karşılaştırmalı üstünlük endeksi ele alınmıştır. Adı geçen endeks sonuçlarına göre, geleneksel ihraç tarım ürünlerinin 5'inde (incir, kuru üzüm, fındık, antep fıstığı, kuru kayısı)

uzmanlaşma ve rekabet avantajı mevcut olup 2'sinde de (badem, ceviz) uzmanlaşma yoktur ve rekabet dezavantajı söz konusudur.

Kaynak ve Ari (2012) çalışmasında; N-Firma Yoğunlaşma Oranları (CR$_4$ ve CR$_8$) ve Herfindahl-Hirschman Endeksi yardımıyla Türk otomotiv sektöründeki yoğunlaşma düzeyi analiz edilmiştir. Yapılan analiz sonucunda CR$_4$'e göre yerli binek ve yerli hafif ticari, CR$_8$'e göre ise yerli hafif ticari ve ithal hafif ticari araç sektöründe yüksek düzeyde yoğunlaşmanın olduğu görülmüştür. Herfindahl-Hirschman Endeksi analizi sonucunda da yerli hafif ticari ve yerli binek araç sektöründe monopolcü rekabet piyasa yapısı söz konusu iken ithal binek ve ithal hafifi ticari araç sektöründe düşük yoğunlaşma oranı olduğu ve bunun neticesinde daha rekabetçi bir yapının geçerli olduğu görülmüştür.

Manavgat ve Saygılı (2014) çalışmasında; Ege Bölgesi'ndeki endüstriyel faaliyetlerin coğrafi ve sektörel yoğunlaşması, üç Düzey 2 bölgesi için (TR31,TR32,TR33) analiz edilmiştir. Yoğunlaşmanın söz konusu olduğu sektörlerin belirlenmesinde, TÜİK 2001 "Yıllık İmalat Sanayi İstatistikleri" ve TÜİK 2009 "Yıllık Sanayi ve Hizmet İstatistikleri" verileri kullanılarak Yoğunlaşma Katsayısı analizi yapılmıştır. Çalışmada sektörel yoğunlaşmanın belirlenmesinin yanı sıra yoğunlaşma dinamiğini etkileyen faktörler, Ege Bölgesi'nin Düzey 2'de yer alan alt bölgeleri kapsamında karşılaştırmalı olarak incelenmiştir.

Seçilmiş (2014) çalışmasında; Türkiye'de Kültürel ve Yaratıcı Endüstrilerin (KYE) örgütlenmesi incelenmiştir. Bu kapsamda firma ve işgücü bazında yoğunlaşma katsayıları hesaplanmıştır. Çalışmada Birleşik Krallık Kültür, Medya ve Spor Dairesi (DMCS) sınıflandırması 2013 sürümü esas alınmıştır. Bu sınıflandırmadaki yaratıcı sektörler; Yayımcılık, Yazılım ve Programlama, Tasarım ve Moda Tasarımı, Mimarlık, Reklamcılık ve Pazarlama, Fotoğrafçılık ve Diğer Faaliyetler, Sinema Filmi ve Video, Eğlence ve Sanat, Radyo ve Televizyon, Müzik ve Kültürel Eğitimden oluşmaktadır. Çalışmada kullanılan veri seti, TÜİK Kültür İstatistikleri, TÜİK Yıllık Sanayi ve Hizmet İstatistikleri, Gelir İdaresi Başkanlığı verileri, Sosyal Güvenlik Kurumu İstatistik Yıllıklarıdır. Çalışmanın ilk etabında yaratıcı kümelerin tespiti için ilgili endüstrilerde faaliyet gösteren firmalara odaklanılmış ve Türkiye'nin illeri için Yoğunlaşma Katsayıları hesaplanmıştır. Çalışmada yapılan analizler değerlendirildiğinde Türkiye'de KYE'de uzmanlaşan 11 il tespit edilmiş fakat Türkiye'de KYE'nin göreli olarak gelişmediği ifade edilmiştir.

Sungur (2015) çalışmasında; Antalya, Isparta ve Burdur illerinde ve bir bütün olarak İBBS Düzey2 TR61 bölgesinde öne çıkan sektörler yoğunlaşma katsayısı yöntemi ile analiz edilmiştir. İl bazında yoğunlaşma katsayılarının hesaplanmasında TÜİK 2002 Genel Sanayi ve İşyeri Sayımı verileri, bölge bazında yoğunlaşma katsayılarının hesaplanmasında ise TÜİK 2009-2012 Yıllık İmalat Sanayi İstatistikleri kullanılmıştır. Çalışma kapsamında, bölgede yoğunlaşma dinamiğinin belirlenmesi ve bölgesel düzeyde öne çıkan sektörlerin değişiminin ortaya konulması amacıyla 2009-2012 yılları için bölgesel düzeyde sektörel yoğunlaşma katsayıları hesaplanmış ve bölgede zaman içerisinde yoğunlaşma katsayısı artan veya azalan sektörler tespit edilmiştir.

Çamlıca, Akar, Şenkayas (2016) çalışmasında; İBBS Düzey2 TR32 Bölgesi için yapılan yoğunlaşma analizi sonuçları Bölgede karayolu taşımacılığı ile suyolu taşımacılığı sektörlerinin Türkiye'ye oranla daha rekabetçi olduğunu göstermiştir. Muğla ve Aydın illerinin suyolu taşımacılığı bakımından potansiyelinin alt yapı ve genişletilmiş ulaşım güzergâhları ile geliştirilmesinin bölgeyi suyolu taşımacılığında Türkiye'de önemli bir konuma getirebileceği ileri sürülmüştür.

Erkan ve Sunay (2016) çalışmasında; 2000-2014 dönemi için Türkiye'nin ihracatındaki ürün ve pazar çeşitlendirmesi düzeyi Gini-Hirschman Endeksi ve Ticaret Yoğunlaşma Oranı kullanılarak belirlenmiştir. Elde edilen sonuçlar, Türkiye'nin ihracatında pazar ve ürün çeşitlendirmesini gerçekleştirdiğini göstermektedir. İhracatta daha çeşitli ürünle daha fazla ülkeye yayılarak belli ürünlere ve pazarlara olan bağımlılığın azaltılmasını, Türkiye ekonomisi ve rekabet gücü bağlamında olumlu bir gelişme olarak değerlendirmişlerdir.

İskenderoğlu (2017) çalışmasında; Niğde ili için 2006 – 2014 dönemi esas alınarak yıllık frekanstaki bölgesel ve ulusal bir dizi veri dâhilinde Yoğunlaşma Katsayısı analizi gerçekleştirilmiştir. Yoğunlaşma Katsayısı analizinden elde edilen sonuçlar, Niğde ilinin ülke ekonomisine kıyasla hangi yönlerden daha yoğun faaliyette olduğunu ortaya koyarak bölgesel kalkınma sürecinin hangi eksende ilerlediğini göstermiştir. Buna göre madencilik ve taş ocakçılığı ihracatı, tarım ve ormancılık ithalatı, tarım ihtisas kredileri, toptan ve perakende ticaret ihracatı, mesleki ihtisas kredileri, tarım ve ormancılık ihracatı, bitkisel üretim değeri, resmi kuruluşlar mevduatı, canlı hayvanlar değeri, imalat ihracatı, tasarruf mevduatı alanlarında Niğde ili Türkiye ekonomisine kıyasla daha yoğun faaliyet göstermektedir.

Yıldız (2018) çalışmasında; Borsa İstanbul'da işlem gören finansal olmayan firmaların ihracat yoğunluğu ile performansları arasındaki ilişki incelenmiştir. Buna ilaveten, Ar-Ge yatırımlarının ihracat yoğunluğu ve firma performansı arasındaki ilişki üzerindeki rolü de değerlendirilmiştir. 2005-2015 yılları arasında Borsa İstanbul'da işlem gören 192 şirket ve 2020 gözleme dayanan çalışma sonuçları, ihracat yoğunluğu ile firma performansı arasında pozitif bir ilişki olduğunu, ancak bu pozitif ilişkinin Ar- Ge yatırımı yapan şirketler için geçerli olduğunu göstermiştir. Ar-Ge yatırımı yapmayan işletmelerde ihracat yoğunluğu ile firma performansı arasında herhangi bir ilişki bulunmamıştır. Makalede ayrıca, ihracat yoğunluğu ile firma performansı arasındaki ilişkinin yapısı da incelenmiştir.

3. VERİ VE YÖNTEM

Daha çok bölgesel iktisat çalışmalarında yaygınlıkla kullanılan Yoğunlaşma Analizi ile bölgelerin sektör düzeyinde mukayeseli üstünlükleri ortaya konulabilmektedir (Bayraktutan vd., 2012; Çamlıca vd., 2016; İskenderoğlu,2017; Sungur, 2015)

Yoğunlaşma Oranı veya Katsayısı, kolay hesaplanması özelliği nedeni ile bu analizde yaygın olarak kullanılan yoğunlaşma ölçüleridir. Dış ticarette yoğunlaşma oranı esas olarak, belli sayıdaki firma, ürün, sektör veya ülkenin toplam paylarını ifade eden bir kavramdır. Yoğunlaşma oranı "0 ile 100" arasında bir değer almakta ve aşağıda belirtilen formül yardımıyla hesaplanmaktadır. Formülde, CR_m yoğunlaşma oranını, P_i ise firma, ürün, sektör veya ülkenin payını göstermektedir (Erkan vd., 2016: 1831; Kaynak vd., 2011:47).

$$CR_m = \sum_{i=1}^{m} P_i * 100$$

İhracat (veya ithalat) yoğunlaşma katsayısı ise il sektör ihracatının (veya ithalatının) il toplam ihracatındaki (veya ithalatındaki) payının, sektörün ülke toplam ihracatındaki (veya ithalatındaki) payına oranlanması ile hesaplanmaktadır ve sektörün ülke ihracatındaki (veya ithalatındaki) göreli üstünlüğünü ifade etmektedir. İl ihracat (ithalat) yoğunlaşma katsayısı (PECR) ise aşağıda gösterilen formül yardımıyla hesaplanmaktadır (GEKA, 2018: 85-86).

$$PECR = (X_{iJ}/X_i)/(X_J/X)$$

X_{iJ}: i ilinde j sektörünün ihracatı (ithalatı) X_J: Türkiye'deki j sektörünün toplam ihracatı (ithalatı)

X_i: i ilinin toplam ihracatı (ithalatı) X: Türkiye'nin toplam ihracatı (ithalatı)

Katsayının 1'den büyük olması durumunda sektörün öne çıktığı ve uzmanlaşmanın söz konusu olduğu ifade edilir. Yoğunlaşma Oranı ve Katsayısı genellikle istihdam verileri kullanılarak hesaplansa da üretim, katma değer, ihracat (veya ithalat) verileri kullanılarak da hesaplanabilmektedir (Sungur, O., 2015: 323). Analizde 2012-2016 dönemi için Türkiye İstatistik Kurumu Yıllık Dış Ticaret İstatistikleri kullanılmıştır.

4. BULGU VE TARTIŞMALAR

4.1. Genel Dış Ticaret Görünümü

2016 yılında Denizli'de 737 milyon USD dış ticaret fazlası verilmiştir; 2,4 milyar USD ihracat, 1,6 milyar USD ithalat yapılmıştır. Aynı yıl Aydın, Denizli ve Muğla'dan oluşan Güney Ege Bölgesi'nde 1,3 milyar USD dış ticaret fazlası sağlanmıştır; 3,4 milyar USD ihracat ve 2,1 milyar USD ithalat yapılmıştır. Türkiye genelinde ise 56 milyar USD dış ticaret açığı verilmiştir; toplam 142 milyar USD ihracat, 198 milyar USD ithalat yapılmıştır.

Tablo 1: Dış Ticaretin Gelişimi (Milyon USD)

Yıllar	Denizli			TR32			Türkiye		
	İhracat	İthalat	Denge	İhracat	İthalat	Denge	İhracat	İthalat	Denge
2012	2.623	2.262	360	3.577	2.676	900	152.461	236.545	-84.083
2013	2.741	2.208	533	3.724	2.606	1.118	151.802	251.661	-99.858
2014	2.815	2.177	639	3.902	2.549	1.353	157.610	242.177	-84.566
2015	2.516	1.902	614	3.535	2.315	1.219	143.838	207.234	-63.395
2016	2.403	1.666	737	3.436	2.130	1.305	142.529	198.618	-56.088
Yıllık Ort. Artış (%)	-1,97	-7,21	20,99	-1,00	-5,54	9,72	-1,67	-4,27	-9,63

Kaynak: TÜİK, Dış Ticaret İstatistikleri

Türkiye toplam dış ticaretinin aksine hem Denizli hem de Güney Ege Bölgesi dış ticaret fazlası vererek ülke ekonomisine katkı sağlamaktadır. 2012 – 2016 döneminde Denizli'de ihracattaki yıllık ortalama %1,97 azalışa karşın ithalatta %7,2 düşüş gerçekleşmesi dış ticaret fazlasının artmasına yol açmıştır. Benzer şekilde Güney Ege Bölgesi'nde de dış ticaret fazlası artış

göstermiştir; ihracattaki ortalama %1 düzeyindeki azalışa karşın ithalatta %5,5 düşüş meydana gelmiştir. Türkiye genelinde ise son yıllarda ithalatta meydana gelen düşüş ihracatta meydana gelen düşüşten daha fazla olduğu için dış ticaret açığı azalmıştır; ihracattaki ortalama %1,6 oranındaki düşüşe karşın ithalat %4,2 oranında azalmıştır.

Denizli ihracatı ana sektörler itibariyle incelendiğinde, il ihracatında başı çeken ana sektörün imalât sanayii olduğu görülmektedir. İmalât sanayi ihracatı son üç senede %15 oranında gerileme gösterse de, ilin toplam ihracatının yaklaşık %96'sını oluşturmaktadır. İlde 2016 yılı itibariyle dış ticaret fazlasının %97'si imalât sanayiinden kaynaklanmaktadır.

Denizli ithalatı ana sektörler itibariyle incelendiğinde, ihracatta olduğu gibi ithalatta da başı çeken sektör imalât sanayiidir. İmalât sanayii ithalatı, il toplam ithalatının yaklaşık %95'ini kapsamaktadır. Yıllar itibariyle il ihracat ve ithalatının ana sektörlere göre dağılımı aşağıdaki tabloda verilmiştir.

Tablo 2: Denizli İli İhracat ve İthalatının Ana Sektörlere Göre Dağılımı (Milyon USD)

ISIC Adı	İhracat			İthalat			Dış Ticaret Dengesi		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Tarım, Ormancılık ve Balıkçılık	44	44	47	106	115	72	-67	-76	-25
Madencilik ve Taşocakçılığı	60	46	57	0	17	7	60	29	50
İmalât Sanayi	2.711	2.426	2.299	2.061	1.770	1.587	650	656	712
Toplam	2.815	2.516	2.403	2.167	1.902	1.666	648	614	737
Yüzde Dağılım (%)									
Tarım, Ormancılık ve Balıkçılık	1,56	1,75	1,96	4,89	6,05	4,32	-9,57	-11,56	-3,39
Madencilik ve Taşocakçılığı	2,13	1,83	2,37	0,01	0,89	0,42	9,22	4,72	6,78
İmalât Sanayi	96,31	96,42	95,67	95,10	93,06	95,26	100,35	106,84	96,61
Toplam	100	100	100	100	100	100	100	100	100

Kaynak: TÜİK, Dış Ticaret İstatistikleri

Güney Ege Bölgesi ihracatı ana sektörler itibariyle incelendiğinde, bölge ihracatında başı çeken ana sektörün Denizli'de olduğu gibi imalât sanayii olduğu görülmektedir. İmalât sanayi ihracatı bölge toplam ihracatının yaklaşık %85'ini oluşturmaktadır. Bölgede 2016 yılı itibariyle dış ticaret fazlasının %65'i imalât sanayiinden kaynaklanmaktadır.

Güney Ege Bölgesi ithalatı ana sektörler itibariyle incelendiğinde, ihracatta olduğu gibi ithalatta da başı çeken sektör imalât sanayiidir. İmalât sanayii ithalatı, bölge toplam ithalatının yaklaşık %95'ini kapsamaktadır. Yıllar itibariyle Güney Ege Bölgesi'nde ihracat ve ithalatın ana sektörlere göre dağılımı aşağıdaki tabloda verilmiştir.

Tablo 3: TR32 Bölgesi İhracat ve İthalatının Ana Sektörlere Göre Dağılımı (Milyon USD)

ISIC Adı	İhracat			İthalat			Dış Ticaret Dengesi		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
Tarım, Ormancılık ve Balıkçılık	320	326	364	118	131	90	202	195	274
Madencilik ve Taşocakçılığı	198	181	198	8	27	17	190	154	181
İmalât Sanayi	3.385	3.028	2.874	2.414	2.158	2.024	971	870	850
Toplam	3.903	3.535	3.436	2.550	2.316	2.131	1.353	1.219	1.305
Yüzde Dağılım (%)									
Tarım, Ormancılık ve Balıkçılık	8,2	9,2	10,6	4,6	5,7	4,2	14,9	16	21
Madencilik ve Taşocakçılığı	5,1	5,1	5,8	0,3	1,1	0,8	14	12,6	13,9
İmalât Sanayi	86,7	85,7	83,6	94,7	93,2	95	71,7	71,4	65,1

| Toplam | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 | 100,0 |

Kaynak: TÜİK, Dış Ticaret İstatistikleri

4.2. Pazar Yoğunlaşma Oranı İle İl Dış Ticaretinin Analizi

Denizli, 2016 yılı itibariyle toplam 180 ülkeye ihracat yapmıştır. İhracatın büyük kısmı Avrupa ülkeleri ve ABD'yi kapsamaktadır. Başlıca en çok ihracat yapılan ülkeler, Almanya, İngiltere ve ABD'dir. Ülke yoğunlaşma oranı anlamına gelen CR değerinin ihracat kaleminde yüksek olması, ihracatın az sayıda ülkeye yapıldığı anlamına gelmektedir. İlde en çok ihracatın yapıldığı ilk dört ülkenin payını gösteren CR_4 değeri %37 olarak gerçekleşmiş olup bu oran orta derecede pazar yoğunlaşması olduğunu göstermektedir.

2016 yılı itibariyle Denizli ithalat verileri incelendiğinde, ithalatta en büyük payın Rusya Federasyonu'na ait olduğu görülmektedir. İlin en çok ithalat yaptığı ilk dört ülkenin payını gösteren CR_4 değeri, 2016 yılında %50 olarak gerçekleşmiş olup bu oran yüksek derecede pazar yoğunlaşması olduğunu göstermektedir. Hesaplanan yoğunlaşma oranları Denizli ihracat pazarının birkaç ülkeye bağlı olmadığını ve ithalat pazarının, ihracat pazarına göre daha dar olduğunu göstermektedir.

Tablo 4: Denizli İli İhracat ve İthalatının Ülkelere Göre Dağılımı (2016)

| CR_i | Ülke | İhracat | | CR_i Oranı (%) | Ülke | İthalat | | CR_i Oranı (%) |
		Milyon USD	Pay (%)			Milyon USD	Pay (%)	
CR_1	Almanya	268	11,2	11,2	Rusya Fed.	285,6	17,1	17,1
CR2	İngiltere	240	10,0	21,1	Kazakistan	275,1	16,5	33,7
CR_3	ABD	198,3	8,3	29,4	Özbekistan	145,9	8,8	42,4
CR_4	İtalya	174,1	7,2	36,6	Çin	132,4	7,9	50,4
CR_5	Fransa	119,5	5,0	41,6	Türkmenistan	83,3	5,0	55,4
CR_6	İsrail	104,2	4,3	45,9	Ukrayna	81,9	4,9	60,3
CR_7	Hollanda	98,8	4,1	50,1	Almanya	61,7	3,7	64,0
CR_8	Romanya	70,2	2,9	53,0	ABD	58,1	3,5	67,5
CR_9	İspanya	54,7	2,3	55,3	İspanya	56,7	3,4	70,9
CR_{10}	Avusturya	54,2	2,3	57,5	Bulgaristan	48,0	2,9	73,7
CR_{11}	Danimarka	52,9	2,2	59,7	Şili	43,0	2,6	76,3
CR_{12}	Çin	47,6	2,0	61,7	İtalya	36,0	2,2	78,5
CR_{13}	Suudi Arabistan	47,2	2,0	63,7	Hindistan	32,9	2,0	80,5
CR_{14}	Irak	44,8	1,9	65,5	Pakistan	32,8	2,0	82,4
CR_{15}	Mısır	39,7	1,7	67,2	Vietnam	30,4	1,8	84,3
	Diğer	789	32,8	100,0	Diğer	263	15,8	100,0
	Toplam	2.403	100,0		Toplam	1.666	100,0	

Kaynak: TÜİK, Dış Ticaret İstatistikleri

TR32 Bölgesi ihracatının 2016 yılı için ülkelere göre dağılımına bakıldığında, bölge ihracatının büyük bölümünün Avrupa ülkeleri ve ABD'ye yapıldığı görülmektedir. Bölgede 2016 yılında toplam 184 ülkeye ihracat yapılmıştır. Aynı yıl ihracat kaleminde gerçekleşen **CR_4** değeri %34 olarak gerçekleşmiş olup bu oran orta derecede pazar yoğunlaşması olduğunu göstermektedir.

Bölgenin 2016 yılı için ithalatına bakıldığında, ithalatın yoğun olarak Rusya, Kazakistan ve Çin'den yapıldığı görülmektedir. İhracatın aksine ithalatta Avrupa ülkeleri değil doğu ülkeleri önemli bir pazardır. 2016 yılında ithalat kaleminde gerçekleşen CR_4 değeri %45 olarak gerçekleşmiş olup bu oran orta derecede pazar yoğunlaşması olduğunu göstermektedir. Hesaplanan

yoğunlaşma oranları Güney Ege Bölgesi ihracat pazarının de birkaç ülkeye bağlı olmadığını ve ithalat pazarının, ihracat pazarına göre daha dar olduğunu göstermektedir.

Tablo 5. TR32 Bölgesi İhracat ve İthalatının Ülkelere Göre Dağılımı (2016)

CR_i	Ülke	İhracat		CR_i Oranı (%)	Ülke	İthalat		CR_i Oranı (%)
		Milyon USD	Pay (%)			Milyon USD	Pay (%)	
CR_1	Almanya	351	10,2	10,2	Rusya	297	13,9	13,9
CR2	İngiltere	277	8,1	18,3	Kazakistan	275	12,9	26,9
CR_3	İtalya	276	8,0	26,3	Çin	236	11,1	37,9
CR_4	ABD	263	7,7	34,0	Özbekistan	148	7,0	44,9
CR_5	Hollanda	176	5,1	39,1	Almanya	92	4,3	49,2
CR_6	Fransa	150	4,4	43,5	Ukrayna	87	4,1	53,3
CR_7	İsrail	143	4,2	47,6	Türkmenistan	83	3,9	57,2
CR_8	Romanya	98	2,8	50,5	İtalya	77	3,6	60,8
CR_9	İspanya	96	2,8	53,3	İspanya	67	3,2	64,0
CR_{10}	Çin	73	2,1	55,4	ABD	61	2,9	66,8
CR_{11}	Irak	69	2,0	57,4	Fas	56	2,6	69,4
CR_{12}	S. Arabistan	67	2,0	59,3	Bulgaristan	49	2,3	71,7
CR_{13}	Danimarka	67	2,0	61,3	Şili	47	2,2	73,9
CR_{14}	Avusturya	58	1,7	63,0	Hindistan	40	1,9	75,8
CR_{15}	Polonya	54	1,6	64,6	Vietnam	36	1,7	77,5
	Diğer	1.218	35,4	100,0	Diğer	480	22,5	100,0
	Toplam	3.436	100,0		Toplam	2.131	100,0	

Kaynak: TÜİK, Dış Ticaret İstatistikleri

4.3. Sektörel Yoğunlaşma Oranı İle İl Dış Ticaretinin Analizi

Alt sektörlere göre dağılıma bakıldığında Denizli ihracatında, Tekstil Ürünleri sektörü ilk sırada yer almaktadır. Sektör ihracatı 2014 yılında 921 milyon USD'nin üstüne çıksa da 2015 yılında 824 milyon USD seviyesine gerilemiş ardından 2016 yılında 915 milyon USD seviyesine çıkmıştır. Ana Metal Sanayi, Giyim Eşyası ve Metal Eşya Sanayi sektörlerinde ihracat sürekli bir azalış trendine girmiştir ve sırasıyla %34, %12 ve %38 düzeylerinde azalış gerçekleşmiştir. Diğer yandan Taşocakçılığı ve Diğer Madencilik, Tarım ve Hayvancılık ile Gıda Ürünleri ve İçecek sektörlerinde sürekli bir artış trendi oluşmuştur ve sırasıyla %75, %33 ve %13 düzeylerinde artış gerçekleşmiştir.

Tablo 6: Denizli İhracatının Alt Sektörlere Göre Dağılımı (Milyon USD)

ISIC Adı	2012	2013	2014	2015	2016
17 – Tekstil Ürünleri	866	836	921	824	915
27 – Ana Metal Sanayi	519	566	527	375	342
18 – Giyim Eşyası	356	388	373	322	312
31 – B.Y.S. Elektrikli Makina ve Cihazlar	269	300	334	378	247
28 – Metal Eşya Sanayi	243	234	205	159	150
26 – Metalik Olm. Diğ. Mineral Ürünler	142	156	173	162	161
15 – Gıda Ürünleri ve İçecek	56	60	69	89	66
14 – Taşocakçılığı ve Diğer Madencilik	33	58	57	46	57

1 – Tarım ve Hayvancılık	35	42	39	39	47
29 – B.Y.S. Makine ve Teçhizat	39	27	33	39	35
Diğer Sektörler	65	75	84	83	71
Toplam	2.623	2.741	2.815	2.516	2.403

Kaynak: TÜİK, Dış Ticaret İstatistikleri

2012 ve 2016 yılları için Denizli ihracatında ilk 4 sektörün toplam payını gösteren **CR₄** değerleri sırasıyla %77 ve %76 olarak gerçekleşirken, ilk 8 ülkenin toplam payını gösteren **CR₈** değerleri sırasıyla %95 ve %94 olarak hesaplanmıştır. %70'in üzerindeki CR değerleri çok yüksek derecede yoğunlaşma olduğunu gösterir ve bu durum bir taraftan o ilin o sektörlerde uzmanlaştığını gösterirken diğer taraftan ilin o sektörlere bağımlı olduğu anlamına gelir.

Tablo 7: Denizli İhracatının Alt Sektörlere Göre Dağılımı (%)

CR$_i$	2012		CR$_i$ (%)	2016		CR$_i$ (%)
	ISIC Adı	Pay (%)		ISIC Adı	Pay (%)	
CR₁	Tekstil Ürünleri	33,0	33,0	Tekstil Ürünleri	38,1	38,1
CR₂	Ana Metal Sanayi	19,8	52,8	Ana Metal Sanayi	14,2	52,3
CR₃	Giyim Eşyası	13,6	66,4	Giyim Eşyası	13,0	65,3
CR₄	B.Y.S. Elektrikli Makina ve Cihazlar	10,3	76,6	B.Y.S. Elektrikli Makina ve Cihazlar	10,3	75,6
CR₅	Metal Eşya Sanayi	9,2	85,9	Metalik Olm. Diğ. Mineral Ürünler	6,7	82,3
CR₆	Metalik Olm. Diğ. Mineral Ürünler	5,4	91,3	Metal Eşya Sanayi	6,2	88,5
CR₇	Gıda Ürünleri ve İçecek	2,1	93,4	Gıda Ürünleri ve İçecek	2,8	91,3
CR₈	B.Y.S. Makine ve Teçhizat	1,5	94,9	Taşocakçılığı ve Diğer Madencilik	2,4	93,7
CR₉	Tarım ve Hayvancılık	1,3	96,3	Tarım ve Hayvancılık	2,0	95,6
CR₁₀	Taşocakçılığı ve Diğer Madencilik	1,2	97,5	B.Y.S. Makine ve Teçhizat	1,5	97,1

Kaynak: TÜİK, Dış Ticaret İstatistikleri

Denizli ithalatında, alt sektörlere göre dağılıma bakıldığında Ana Metal Sanayi sektörünün ilk sırada yer aldığı görülmektedir. Sektör ithalatı, il toplam ithalatının 2016 yılında %61'ini oluşturmaktadır. Pek çok sektörde ithalat tutarının 2016 yılında 2012 yılına göre azaldığı görülmekle beraber B.Y.S. Elektrikli Makine ve Cihazlar ile Ağaç ve Mantar Ürünleri sektörleri ithalat tutarlarında artış meydana geldiği görülmektedir; söz konusu artış sırasıyla %68 ve %31 düzeylerindedir. En fazla düşüşün Kok Kömürü, Rafine Edilmiş Petrol Ürünleri ve Nükleer Yakıtlar sektörü ile Gıda Ürünleri ve İçecek sektörü, Kâğıt ve Kâğıt Ürünleri sektörlerinde meydana gelmiş olması dikkat çekicidir; söz konusu azalış sırasıyla %166, %122 ve %99 düzeylerindedir. Kok Kömürü, Rafine Edilmiş Petrol Ürünleri ve Nükleer Yakıtlar sektörü ithalatındaki azalışı Denizli'de doğalgaz kullanımının yaygınlaşmasına bağlamak yanlış olmayacaktır.

Tablo 8: Denizli İthalatının Alt Sektörlere Göre Dağılımı (Milyon USD)

ISIC Adı	2012	2013	2014	2015	2016
27 – Ana Metal Sanayi	1.484	1.508	1.348	1.084	1.012
17 – Tekstil Ürünleri	250	250	255	219	211
24 – Kimyasal Madde ve Ürünler	137	97	104	111	97
29 – B.Y.S. Makine ve Teçhizat	107	103	129	70	89
1 – Tarım ve Hayvancılık	96	55	106	115	72
21 – Kâğıt ve Kâğıt Ürünleri	63	72	58	49	32
31 – B.Y.S. Elektrikli Makina ve Cihazlar	9	22	54	46	29
20 – Ağaç ve Mantar Ürünleri	14	15	22	20	20
23 –Kok Kömürü, Rafine Edilmiş Petrol Ürünleri ve Nükleer Yakıtlar	26	11	16	16	10

15 – Gıda Ürünleri ve İçecek	9	12	10	41	4
Diğer	67	64	76	131	91
Toplam	2.262	2.208	2.177	1.902	1.666

Kaynak: TÜİK, Dış Ticaret İstatistikleri

Denizli ithalatında 2012 ve 2016 yılları için ilk 4 sektörün toplam payını gösteren **CR₄** değerleri sırasıyla %87 ve %85 olarak gerçekleşirken, ilk 8 ülkenin toplam payını gösteren **CR₈** değerleri sırasıyla %96 ve %95 olarak hesaplanmıştır. %70'in üzerindeki CR değerleri çok yüksek derecede yoğunlaşma olduğunu gösterir ve bu durum o sektörlerdeki ürünlerin tedarikinde sıkıntı yaşanması halinde o ilin ekonomisinin zarar görebileceği anlamına gelir.

Tablo 9: Denizli İthalatının Alt Sektörlere Göre Dağılımı (%)

CRᵢ	2012			2016		
	ISIC Adı	Pay (%)	CRᵢ (%)	ISIC Adı	Pay (%)	CRᵢ (%)
CR₁	Ana Metal Sanayi	65,6	65,6	Ana Metal Sanayi	60,7	60,7
CR₂	Tekstil Ürünleri	11,0	76,6	Tekstil Ürünleri	12,7	73,4
CR₃	Kimyasal Madde ve Ürünler	6,1	82,7	Kimyasal Madde ve Ürünler	5,8	79,2
CR₄	B.Y.S. Makine ve Teçhizat	4,7	87,4	B.Y.S. Makine ve Teçhizat	5,4	84,6
CR₅	Tarım ve Hayvancılık	4,2	91,7	Tarım ve Hayvancılık	4,3	88,9
CR₆	Kâğıt ve Kâğıt Ürünleri	2,8	94,5	Radyo, TV, Haberleşme Cihazları	2,4	91,3
CR₇	Kok Kömürü, Rafine Edilmiş Petrol Ürünleri ve Nükleer Yakıtlar	1,1	95,6	Kâğıt ve Kâğıt Ürünleri	1,9	93,2
CR₈	Plastik ve Kauçuk Ürünleri	0,8	96,4	B.Y.S. Elektrikli Makina ve Cihazlar	1,7	94,9
CR₉	Metal Eşya Sanayi	0,7	97,1	Ağaç ve Mantar Ürünleri	1,2	96,1
CR₁₀	Ağaç ve Mantar Ürünleri	0,6	97,7	Plastik ve Kauçuk Ürünleri	0,6	96,7

Kaynak: TÜİK, Dış Ticaret İstatistikleri

4.4. Yoğunlaşma Katsayısı İle İl Dış Ticaretinde Öne Çıkan Sektörler

Yoğunlaşma analizi yapılırken, 2012-2016 dönemine ait dış ticaret verileri kullanılmış olup, öne çıkan sektörler hesaplanırken katsayının tüm yıllarda 1'in üstünde olması gerekliliği dikkate alınmıştır. Yoğunlaşma katsayılarının tamamı için, 1'in üzerindeki değerler sektörün Denizli'deki göreli üstünlüğünü (avantajını) ifade etmektedir. Buna göre Denizli ihracatına bakıldığında, yoğunlaşma katsayısı en yüksek sektör Tekstil Ürünleri sektörüdür. İlde diğer öne çıkan sektörler aşağıdaki tabloda verilmiştir.

Tablo 10: Denizli İhracatında Sektörlere Göre Yoğunlaşma Katsayıları

Sektör Adı	2012	2013	2014	2015	2016	Ort.
Tekstil Ürünleri	3,80	3,14	3,35	3,47	4,01	3,55
B.Y.S. Elektrikli Makine ve Cihazlar	2,67	2,57	2,94	3,98	2,80	2,99
Metalik Olm. Diğ. Mineral Ürünler	2,02	2,01	2,24	2,41	2,65	2,27
Metal Eşya Sanayi	2,14	1,84	1,55	1,40	1,45	1,68
Taşocakçılığı ve Diğer Madencilik	1,19	1,70	1,77	1,62	2,09	1,67
Giyim Eşyası	1,73	1,69	1,52	1,47	1,49	1,58
Ana Metal Sanayi	1,04	1,79	1,77	1,21	1,14	1,39
Balıkçılık		0,69	0,83	0,79		0,77
Maden Kömürü, Linyit ve Turb		0,05	0,01	0,00	2,09	0,54
Tarım ve Hayvancılık	0,40	0,42	0,37	0,39	0,52	0,42
Gıda Ürünleri ve İçecek	0,34	0,31	0,34	0,50	0,40	0,38
Kâğıt ve Kâğıt Ürünleri	0,23	0,19	0,17	0,18	0,14	0,18

Tabaklanmış Deri, Bavul, El Çan. ve Ayakkabı	0,22	0,17	0,14	0,21	0,16	0,18
Mobilya ve B.Y.S. Diğer Ürünler	0,20	0,18	0,15	0,18	0,16	0,18
B.Y.S. Makine ve Teçhizat	0,19	0,12	0,14	0,18	0,18	0,16

Kaynak: TÜİK, Dış Ticaret İstatistikleri

Denizli ithalatında Ana Metal Sanayi, yoğunlaşma katsayısının en yüksek olduğu sektördür. Tekstil Ürünleri sektörü ise tıpkı ihracatta olduğu gibi ithalatta da yoğunlaşma katsayısının yüksek olduğu bir sektördür; öyle ki ikinci en yüksek yoğunlaşma katsayısına sahiptir. Denizli'de ithalatın yoğunlaştığı diğer sektörler aşağıdaki tabloda verilmiştir.

Tablo 11: Denizli İthalatında Sektörlere Göre Yoğunlaşma Katsayıları

Sektör Adı	2012	2013	2014	2015	2016	Ort.
Ana Metal Sanayi	5,85	4,89	5,67	5,38	5,41	5,44
Tekstil Ürünleri	4,79	4,84	4,73	4,65	5,23	4,85
Kâğıt ve Kâğıt Ürünleri	1,90	2,20	1,66	1,55	1,09	1,68
Ağaç ve Mantar Ürünleri	1,01	1,20	1,75	1,55	2,07	1,52
Tarım ve Hayvancılık	1,38	0,03	1,39	1,78	1,24	1,16
Metalik Olm. Diğ. Mineral Ürünler	0,51	0,49	0,58	0,53	0,54	0,53
B.Y.S. Makine ve Teçhizat	0,54	0,50	0,66	0,39	0,51	0,52
Maden Kömürü, Linyit ve Turb				0,60	0,30	0,45
B.Y.S. Elektrikli Makine ve Cihazlar	0,12	0,29	0,74	0,64	0,41	0,44
Kimyasal Madde ve Ürünler	0,45	0,33	0,33	0,40	0,40	0,38
Plastik ve Kauçuk Ürünleri	0,43	0,37	0,38	0,28	0,24	0,34
Gıda Ürünleri ve İçecek	0,18	0,25	0,20	0,87	0,10	0,32
Atık ve Hurdalar	0,03	0,01	0,03	1,24	0,03	0,27
Metal Eşya Sanayi	0,40	0,22	0,22	0,28	0,22	0,27
Basım ve Yayım; Plak, Kaset vb.	0,02	0,08	0,41	0,45	0,35	0,26

Kaynak: TÜİK, Dış Ticaret İstatistikleri

5. SONUÇ

Bu çalışmada 2012-2016 dönemi için Denizli, Güney Ege (TR32) Bölgesi ve Türkiye bazında dış ticaret verileri incelenmiştir ve karşılaştırma yöntemi ile il, bölge ve ülke düzeyinde değerlendirmeler yapılmıştır.

Türkiye toplam dış ticaretinin aksine hem Denizli hem de Güney Ege Bölgesi dış ticaret fazlası vererek Türkiye'nin dış ticaret açığına olumlu katkı sağlamaktadır. Denizli ve Güney Ege Bölgesi dış ticareti ana sektörler itibariyle incelendiğinde hem ihracatta hem de ithalatta başı çeken sektörün imalât sanayi olduğu görülmektedir.

Hesaplanan yoğunlaşma oranları hem Denizli hem de Güney Ege Bölgesi ihracat pazarının birkaç ülkeye bağlı olmadığını ve ithalat pazarının, ihracat pazarına göre daha dar olduğunu göstermektedir. İlde en çok ihracat yapılan ilk dört sektör, toplam il ihracatının %76'sına karşılık gelmektedir; en çok ithalat yapılan ilk dört sektör, toplam il ithalatının %85'ine karşılık gelmektedir. CR$_4$ yoğunlaşma düzeyin %70'ten büyük olması çok yüksek derecede sektörel yoğunlaşma olduğunu göstermektedir.

Yoğunlaşma katsayısı ile il ihracat ve ithalatında öne çıkan ve uzmanlaşmanın söz konusu olduğu sektörler tespit edilmiştir. Buna göre il ihracatında öne çıkan sektörler; Tekstil Ürünleri, B.Y.S. Elektrikli Makine ve Cihazlar, Metalik Olmayan Diğer Mineral Ürünler, Metal Eşya Sanayi, Taşocakçılığı ve Diğer Madencilik, Giyim Eşyası ve Ana Metal Sanayi'dir. İthalatta öne çıkan sektörler; Ana Metal Sanayi, Tekstil Ürünleri, Kâğıt ve Kâğıt Ürünleri, Ağaç ve Mantar Ürünleri, Tarım ve Hayvancılıktır.

Denizli'nin dış ticaretinde sektörel yoğunlaşmanın pazar yoğunlaşmasından daha yüksek olduğu görülmektedir. Sektörel yoğunlaşma eğer yoğunlaşılan sektörlerde gerçek bir uzmanlaşma olmasından ve bu sayede yüksek katma değerli üretim yapılmasından kaynaklanıyorsa olumsuz bir durum olarak değerlendirilmeyebilir. İlin üretim ve ihracat stratejisi belli sektörlerde katma değer artışı sağlanması üzerine kurulabileceği gibi üretim ve ihracatta sektör ve ürün çeşitliliğinin artırılması

üzerine de kurulabilir. Özellikle kaynakların sınırlı olduğu durumlarda, kısa vadede, yoğunlaşmanın en yüksek olduğu sektörlere odaklanılması uygulanan stratejilerden daha hızlı sonuç alınmasını sağlayacaktır.

KAYNAKÇA

Akal, M. (2009). Türkiye-Rusya ve Ukrayna Dış Ticaretinde Fasıl Yoğunlaşması, Karşılaştırmalı Üstünlükler ve Yapısal Değişimler. *Akademik Bakış*, 16, 1-15.

Akın, N.(2006). Bölgesel Kalkınma Araçları İle Kalkınma Ajanslarının Uyum, İşbirliği ve Koordinasyonu. *Bölgesel Kalkınma ve Yönetişim Sempozyumu*, TEPAV, 295-304.

Arip, M.A., Yee, L.M., Abdul Karim, B. (2010). Export Diversification and Economic Growth in Malaysia. *MPRA Paper 20588*, 1-10, University Library of Munich, Germany.

Ayrancı, E. (2009). Türkiye'nin Ekonomik Açıdan Küreselleşmesinin Yoğunlaşma Vasıtasıyla Ölçülmesi ve Konu Hakkında Bir Araştırma. *Anadolu Bil MYO Dergisi*. 4(16): 50-64.

Bayraktutan, Y., Tüylüoğlu Ş., Özbilgin M. (2012). Lojistik Sektöründe Yoğunlaşma Analizi ve Lojistik Gelişmişlik Endeksi: Kocaeli Örneği. *Uluslararası Alanya İşletme Fakültesi Dergisi.* 4(3): 61-71.

Çamlıca, Z., Akar, G., Şenkayas, H. (2016). TR32 Bölgesinin Lojistik Açıdan Analizi. *Aydın İktisat Fakültesi Dergisi.* 1(2): 73-88.

Doğan, S. ve Soyyiğit Kaya, S. (2011). Gümrük Birliği Sonrasında (1996-2009) Türkiye'nin AB ile Dış Ticaretinin Ülke ve Fasıl Bazlı Yoğunlaşma Analizi. *Ekonometri ve İstatistik*, 14, 1-18.

Erkan, B. (2012). Türkiye'nin Geleneksel İhraç Tarım Ürünlerinde Uzmanlaşma Düzeyi. *Sosyal ve Beşeri Bilimler Dergisi.* 4(1):75-83.

Erkan, B. & Sunay, Z. Fatih (2016). Türkiye'nin İhracatının Yoğunlaşma Perspektifinde Analizi. *İnsan ve Toplum Bilimleri Araştırmaları Dergisi.* 5(7):1823-1842.

GEKA (T.C. Güney Ege Kalkınma Ajansı) (2018). Aydın Serbest Bölgesi Fizibilite Etüdü. Yayınlanmamış Rapor, 76-83.

Gündem, F., Acar, S. (2011). Türkiye İmalat Sanayi'nde Bölgesel Uzmanlaşma(2003-2008). *Anadolu International Conference in Economics II.*

Hamid, Z. (2010). Concentration of Exports and Patterns of Trade: A Time Series Evidence. *The Journal of Developing Areas*. 43(2): 255-270.

Hesse, H. (2008). Export Diversification and Economic Growth. *The World Bank Commission on Growth and Development*, 21, 1-25.

İskenderoğlu, Ö. , Gülseren, M. (2017). Bölgesel Kalkınmada Etkili Faktörlerin Yoğunlaşma Katsayısı İle İncelenmesi: Niğde İli Örneği. *Nevşehir Hacı Bektaş Veli Üniversitesi SBE Dergisi.* 7 (2): 18-34.

Kalkınma Bakanlığı (2013). İllerin ve Bölgelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması (SEGE-2011), Bölgesel Gelişme ve Yapısal Uyum Genel Müdürlüğü, Ankara.

Kaya, A. A. (2006). İmalat Sanayi İhracatında Uzmanlaşma: Türkiye -Avrupa Birliği Analizi (1991–2003). *Ege Academic Review*, 6, 73-82.

Kaynak, S., Ari, Y. O. (2011). Türk Otomotiv Sektöründe Yoğunlaşma: Binek ve Hafif Ticari Araçlar Üzerine Bir Uygulama. *Ekonomik Yaklaşım.* 22(80): 39-58.

Lazzeretti, L., Capone, F., Seçilmiş, E. (2014). Türkiye'de Yaratıcı ve Kültürel Sektörlerin Yapısı. *Maliye Dergisi*, 166, 195-220.

Sungur, O. (2015). TR61 (Antalya, Isparta, Burdur) Bölgesinde Sektörel Yoğunlaşmanın ve Yoğunlaşma Dinamiklerinin Analizi. *Yönetim ve Ekonomi Araştırmaları Dergisi.* 13(3): 316-341. DOI: 10.11611/JMER695

Wolff, Edward N. (2000). Has Canada Specialized in the Wrong Manufacturing Industries? *Centre for the Study of Living Standarts (CSLS) Conference on the Canada-US Manufacturing Productivity Gap,* V:85, Ottawa, Ontorio, Canada.

Yıldız, Y. (2018). İhracat Yoğunluğu, Ar-Ge Yatırımları ve Firma Performansı: Türkiye Örneği. *Ege Akademik Bakış*. 18(2): 307-319.

TÜİK (Türkiye İstatistik Kurumu). Dış Ticaret İstatistikleri. http://tuik.gov.tr/UstMenu.do?metod=kategorist. Erişim: 22.08.2018

TÜİK (Türkiye İstatistik Kurumu). İl Göstergeleri. https://biruni.tuik.gov.tr/ilgosterge/?locale=tr. Erişim: 16.11.2018

Türkiye Kalkınma Planları. Erişim: 30.08.2018
http://www3.kalkinma.gov.tr/PortalDesign/PortalControls/WebContentGosterim.aspx?Enc=51C9D1B02086EAFBDCF6B4EA3F896DFD.