INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE & MANAGEMENT

IJRCM

A Monthly Double-Blind Peer Reviewed (Refereed/Juried) Open Access International e-Journal - Included in the International Serial Directories

Indexed & Listed at:

Ulrich's Periodicals Directory ©, ProQuest, U.S.A., EBSCO Publishing, U.S.A., Cabell's Directories of Publishing Opportunities, U.S.A., Google Scholar, Indian Citation Index (ICI), J-Gage, India [link of the same is duly available at Inflibnet of University Grants Commission (U.G.C.)], The American Economic Association's electronic bibliography, EconLit, U.S.A., Index Copernicus Publishers Panel, Poland with IC Value of 5.09 (2012) & number of libraries all around the world.

Circulated all over the world & Google has verified that scholars of more than **5833 Cities** in **193 countries/territories** are visiting our journal on regular basis.

Ground Floor, Building No. 1041-C-1, Devi Bhawan Bazar, JAGADHRI – 135 003, Yamunanagar, Haryana, INDIA

http://ijrcm.org.in/

CONTENTS

CHIEF PATRON

Prof. (Dr.) K. K. AGGARWAL

Chairman, Malaviya National Institute of Technology, Jaipur

(An institute of National Importance & fully funded by Ministry of Human Resource Development, Government of India)

Chancellor, K. R. Mangalam University, Gurgaon

Chancellor, Lingaya's University, Faridabad

Founder Vice-Chancellor (1998-2008), Guru Gobind Singh Indraprastha University, Delhi

Ex. Pro Vice-Chancellor, Guru Jambheshwar University, Hisar

FOUNDER PATRON

Late Sh. RAM BHAJAN AGGARWAL

Former State Minister for Home & Tourism, Government of Haryana

Former Vice-President, Dadri Education Society, Charkhi Dadri

Former President, Chinar Syntex Ltd. (Textile Mills), Bhiwani

FORMER CO-ORDINATOR

Dr. S. GARG

Faculty, Shree Ram Institute of Business & Management, Urjani

ADVISOR

Prof. S. L. MAHANDRU

Principal (Retd.), Maharaja Agrasen College, Jagadhri

EDITOR

Dr. R. K. SHARMA

Professor & Dean, Bharti Vidyapeeth University Institute of Management & Research, New Delhi

CO-EDITOR

Dr. BHAVET

Faculty, Shree Ram Institute of Engineering & Technology, Urjani

EDITORIAL ADVISORY BOARD

Dr. CHRISTIAN EHIOBUCHE

Professor of Global Business/Management, Larry L Luing School of Business, Berkeley College, USA

Dr. JOSÉ G. VARGAS-HERNÁNDEZ

Research Professor, University Center for Economic & Managerial Sciences, University of Guadalajara, Guadalajara, Mexico

Dr. M. N. SHARMA

Chairman, M.B.A., Haryana College of Technology & Management, Kaithal

Dr. TEGUH WIDODO

Dean, Faculty of Applied Science, Telkom University, Bandung Technoplex, Jl. Telekomunikasi, Indonesia

Dr. M. S. SENAM RAJU

Professor, School of Management Studies, I.G.N.O.U., New Delhi

Dr. KAUP MOHAMED

Dean & Managing Director, London American City College/ICBEST, United Arab Emirates

Dr. D. S. CHAUBEY

Professor & Dean (Research & Studies), Uttaranchal University, Dehradun

Dr. ANIL K. SAINI
Professor, Guru Gobind Singh Indraprastha University, Delhi
Dr. ARAMIDE OLUFEMI KUNLE
Dean, Department of General Studies, The Polytechnic, Ibadan, Nigeria
Dr. SYED TABASSUM SULTANA
Principal, Matrusri Institute of Post Graduate Studies, Hyderabad
Dr. MIKE AMUHAYA IRAVO
Principal, Jomo Kenyatta University of Agriculture & Tech., Westlands Campus, Nairobi-Kenya
Dr. NEPOMUCENO TIU
Chief Librarian & Professor, Lyceum of the Philippines University, Laguna, Philippines
Dr. BOYINA RUPINI
Director, School of ITS, Indira Gandhi National Open University, New Delhi
Dr. ANA ŠTAMBUK
Head of Department of Statistics, Faculty of Economics, University of Rijeka, Rijeka, Croatia
Dr. FERIT ÖLÇER
Professor & Head of Division of Management & Organization, Department of Business Administration, Faculty of Economics & Business Administration Sciences, Mustafa Kemal University, Turkey
Dr. SANJIV MITTAL
Professor & Dean, University School of Management Studies, GGS Indraprastha University, Delhi
Dr. SHIB SHANKAR ROY
Professor, Department of Marketing, University of Rajshahi, Rajshahi, Bangladesh
Dr. NAWAB ALI KHAN
Professor & Dean, Faculty of Commerce, Aligarh Muslim University, Aligarh, U.P.
Dr. SRINIVAS MADISHETTI
Professor, School of Business, Mzumbe University, Tanzania
Dr. ABHAY BANSAL
Head, Department of Information Technology, Amity School of Engg. & Tech., Amity University, Noida
Dr. KEVIN LOW LOCK TENG
Associate Professor, Deputy Dean, Universiti Tunku Abdul Rahman, Kampar, Perak, Malaysia
Dr. OKAN VELI ŞAFAKLI
Professor & Dean, European University of Lefke, Lefke, Cyprus
Dr. V. SELVAM
Associate Professor, SSL, VIT University, Vellore
Dr. BORIS MILOVIC
Associate Professor, Faculty of Sport, Union Nikola Tesla University, Belgrade, Serbia
Dr. N. SUNDARAM
Associate Professor, VIT University, Vellore
Dr. IQBAL THONSE HAWALDAR
Associate Professor, College of Business Administration, Kingdom University, Bahrain
Dr. MOHENDER KUMAR GUPTA
Associate Professor, Government College, Hodal
Dr. ALEXANDER MOSESOV
Associate Professor, Kazakh-British Technical University (KBTU), Almaty, Kazakhstan
RODRECK CHIRAU
Associate Professor, Botho University, Francistown, Botswana
Dr. PARDEEP AHLAWAT
Associate Professor, Institute of Management Studies & Research, Maharshi Dayanand University, Rohtak
Dr. DEEPANJANA VARSHNEY
Associate Professor, Department of Business Administration, King Abdulaziz University, Saudi Arabia

Dr. BIEMBA MALITI
Associate Professor, School of Business, The Copperbelt University, Main Campus, Zambia
Dr. KIARASH JAHANPOUR
Research Adviser, Farabi Institute of Higher Education, Mehrshahr, Karaj, Alborz Province, Iran
Dr. SAMBHAVNA
Faculty, I.I.T.M., Delhi
YU-BING WANG
Faculty, department of Marketing, Feng Chia University, Taichung, Taiwan
Dr. MELAKE TEWOLDE TECLEGHIORGIS
Faculty, College of Business & Economics, Department of Economics, Asmara, Eritrea
Dr. SHIVAKUMAR DEENE
Faculty, Dept. of Commerce, School of Business Studies, Central University of Karnataka, Gulbarga
Dr. THAMPOE MANAGALESWARAN
Faculty, Vavuniya Campus, University of Jaffna, Sri Lanka
Dr. JASVEEN KAUR
Head of the Department/Chairperson, University Business School, Guru Nanak Dev University, Amritsar
SURAJ GAUDEL
BBA Program Coordinator, LA GRANDEE International College, Simalchaur - 8, Pokhara, Nepal
Dr. RAJESH MODI
Faculty, Yanbu Industrial College, Kingdom of Saudi Arabia

FORMER TECHNICAL ADVISOR

AMITA

FINANCIAL ADVISORS

DICKEN GOYAL
Advocate & Tax Adviser, Panchkula
NEENA
Investment Consultant, Chambaghat, Solan, Himachal Pradesh

LEGAL ADVISORS

JITENDER S. CHAHAL
Advocate, Punjab & Haryana High Court, Chandigarh U.T.
CHANDER BHUSHAN SHARMA
Advocate & Consultant, District Courts, Yamunanagar at Jagadhri

SUPERINTENDENT

SURENDER KUMAR POONIA

CALL FOR MANUSCRIPTS

We invite unpublished novel, original, empirical and high quality research work pertaining to the recent developments & practices in the areas of Computer Science & Applications; Commerce; Business; Finance; Marketing; Human Resource Management; General Management; Banking; Economics; Tourism Administration & Management; Education; Law; Library & Information Science; Defence & Strategic Studies; Electronic Science; Corporate Governance; Industrial Relations; and emerging paradigms in allied subjects like Accounting; Accounting Information Systems; Accounting Theory & Practice; Auditing; Behavioral Accounting; Behavioral Economics; Corporate Finance; Cost Accounting; Econometrics; Economic Development; Economic History; Financial Institutions & Markets; Financial Services; Fiscal Policy; Government & Non Profit Accounting; Industrial Organization; International Economics & Trade; International Finance; Macro Economics; Micro Economics; Rural Economics; Co-operation; Demography: Development Planning; Development Studies; Applied Economics; Development Economics; Business Economics; Monetary Policy; Public Policy Economics; Real Estate; Regional Economics; Political Science; Continuing Education; Labour Welfare; Philosophy; Psychology; Sociology; Tax Accounting; Advertising & Promotion Management; Management Information Systems (MIS); Business Law; Public Responsibility & Ethics; Communication; Direct Marketing; E-Commerce; Global Business; Health Care Administration; Labour Relations & Human Resource Management; Marketing Research; Marketing Theory & Applications; Non-Profit Organizations; Office Administration/Management; Operations Research/Statistics; Organizational Behavior & Theory; Organizational Development; Production/Operations; International Relations; Human Rights & Duties; Public Administration; Population Studies; Purchasing/Materials Management; Retailing; Sales/Selling; Services; Small Business Entrepreneurship; Strategic Management Policy; Technology/Innovation; Tourism & Hospitality; Transportation Distribution; Algorithms; Artificial Intelligence; Compilers & Translation; Computer Aided Design (CAD); Computer Aided Manufacturing; Computer Graphics; Computer Organization & Architecture; Database Structures & Systems; Discrete Structures; Internet; Management Information Systems; Modeling & Simulation; Neural Systems/Neural Networks; Numerical Analysis/Scientific Computing; Object Oriented Programming; Operating Systems; Programming Languages; Robotics; Symbolic & Formal Logic; Web Design and emerging paradigms in allied subjects.

Anybody can submit the **soft copy** of unpublished novel; original; empirical and high quality **research work/manuscript** ***anytime*** in ***M.S. Word format*** after preparing the same as per our **GUIDELINES FOR SUBMISSION**; at our email address i.e. infoijrcm@gmail.com or online by clicking the link **online submission** as given on our website (***FOR ONLINE SUBMISSION, CLICK HERE***).

GUIDELINES FOR SUBMISSION OF MANUSCRIPT

1. **COVERING LETTER FOR SUBMISSION:**

DATED: _____

THE EDITOR

IJRCM

Subject: **SUBMISSION OF MANUSCRIPT IN THE AREA OF _____.**

(e.g. Finance/Mkt./HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

DEAR SIR/MADAM

Please find my submission of manuscript titled '_____' for likely publication in one of your journals.

I hereby affirm that the contents of this manuscript are original. Furthermore, it has neither been published anywhere in any language fully or partly, nor it is under review for publication elsewhere.

I affirm that all the co-authors of this manuscript have seen the submitted version of the manuscript and have agreed to inclusion of their names as co-authors.

Also, if my/our manuscript is accepted, I agree to comply with the formalities as given on the website of the journal. The Journal has discretion to publish our contribution in any of its journals.

NAME OF CORRESPONDING AUTHOR	:
Designation/Post*	:
Institution/College/University with full address & Pin Code	:
Residential address with Pin Code	:
Mobile Number (s) with country ISD code	:
Is WhatsApp or Viber active on your above noted Mobile Number (Yes/No)	:
Landline Number (s) with country ISD code	:
E-mail Address	:
Alternate E-mail Address	:
Nationality	:

* i.e. Alumnus (Male Alumni), Alumna (Female Alumni), Student, Research Scholar (M. Phil), Research Scholar (Ph. D.), JRF, Research Assistant, Assistant Lecturer, Lecturer, Senior Lecturer, Junior Assistant Professor, Assistant Professor, Senior Assistant Professor, Co-ordinator, Reader, Associate Professor, Professor, Head, Vice-Principal, Dy. Director, Principal, Director, Dean, President, Vice Chancellor, Industry Designation **etc**. ***The qualification of author is not acceptable for the purpose***.

NOTES:

a) The whole manuscript has to be in ***ONE MS WORD FILE*** only, which will start from the covering letter, inside the manuscript. ***pdf. version is liable to be rejected without any consideration***.

b) The sender is required to mention the following in the **SUBJECT COLUMN of the mail**:

New Manuscript for Review in the area of (e.g. Finance/Marketing/HRM/General Mgt./Engineering/Economics/Computer/IT/ Education/Psychology/Law/Math/other, please specify)

c) There is no need to give any text in the body of the mail, except the cases where the author wishes to give any **specific message** w.r.t. to the manuscript.

d) The total size of the file containing the manuscript is expected to be below **1000 KB**.

e) Only the **Abstract will not be considered for review** and the author is required to submit the **complete manuscript** in the first instance.

f) ***The journal gives acknowledgement w.r.t. the receipt of every email within twenty-four hours*** and in case of non-receipt of acknowledgment from the journal, w.r.t. the submission of the manuscript, within two days of its submission, the corresponding author is required to demand for the same by sending a separate mail to the journal.

g) The author (s) name or details should not appear anywhere on the body of the manuscript, except on the covering letter and the cover page of the manuscript, in the manner as mentioned in the guidelines.

2. **MANUSCRIPT TITLE:** The title of the paper should be typed in **bold letters**, **centered** and **fully capitalised**.
3. **AUTHOR NAME (S) & AFFILIATIONS:** Author (s) **name**, **designation**, **affiliation** (s), **address**, **mobile/landline number** (s), and **email/alternate email address** should be given underneath the title.
4. **ACKNOWLEDGMENTS:** Acknowledgements can be given to reviewers, guides, funding institutions, etc., if any.
5. **ABSTRACT:** Abstract should be in **fully Italic printing**, ranging between **150** to **300 words**. The abstract must be informative and elucidating the background, aims, methods, results & conclusion in a **SINGLE PARA**. ***Abbreviations must be mentioned in full***.
6. **KEYWORDS:** Abstract must be followed by a list of keywords, subject to the maximum of **five**. These should be arranged in alphabetic order separated by commas and full stop at the end. All words of the keywords, including the first one should be in small letters, except special words e.g. name of the Countries, abbreviations etc.
7. **JEL CODE:** Provide the appropriate Journal of Economic Literature Classification System code (s). JEL codes are available at www.aeaweb.org/econlit/jelCodes.php. However, mentioning of JEL Code is not mandatory.
8. **MANUSCRIPT:** Manuscript must be in ***BRITISH ENGLISH*** prepared on a standard A4 size ***PORTRAIT SETTING PAPER***. *It should be free from any errors i.e.* ***grammatical, spelling*** *or* ***punctuation.*** *It must be thoroughly edited at your end*.
9. **HEADINGS:** All the headings must be bold-faced, aligned left and fully capitalised. Leave a blank line before each heading.
10. **SUB-HEADINGS:** All the sub-headings must be bold-faced, aligned left and fully capitalised.
11. **MAIN TEXT:**

THE MAIN TEXT SHOULD FOLLOW THE FOLLOWING SEQUENCE:

INTRODUCTION
REVIEW OF LITERATURE
NEED/IMPORTANCE OF THE STUDY
STATEMENT OF THE PROBLEM
OBJECTIVES
HYPOTHESIS (ES)
RESEARCH METHODOLOGY
RESULTS & DISCUSSION
FINDINGS
RECOMMENDATIONS/SUGGESTIONS
CONCLUSIONS
LIMITATIONS
SCOPE FOR FURTHER RESEARCH
REFERENCES
APPENDIX/ANNEXURE

The manuscript should preferably be in ***2000 to 5000 WORDS***, But the limits can vary depending on the nature of the manuscript.

12. **FIGURES & TABLES:** These should be simple, crystal **CLEAR**, **centered**, **separately numbered** & self-explained, and the **titles must be above the table/figure**. **Sources of data should be mentioned below the table/figure**. *It should be ensured that the tables/figures are referred to from the main text*.

13. **EQUATIONS/FORMULAE:** These should be consecutively numbered in parenthesis, left aligned with equation/formulae number placed at the right. The equation editor provided with standard versions of Microsoft Word may be utilised. If any other equation editor is utilised, author must confirm that these equations may be viewed and edited in versions of Microsoft Office that does not have the editor.

14. **ACRONYMS:** These should not be used in the abstract. The use of acronyms is elsewhere is acceptable. Acronyms should be defined on its first use in each section e.g. Reserve Bank of India (RBI). Acronyms should be redefined on first use in subsequent sections.

15. **REFERENCES:** The list of all references should be alphabetically arranged. ***The author (s) should mention only the actually utilised references in the preparation of manuscript*** and they may follow Harvard Style of Referencing. **Also check to ensure that everything that you are including in the reference section is duly cited in the paper**. The author (s) are supposed to follow the references as per the following:

- All works cited in the text (including sources for tables and figures) should be listed alphabetically.
- Use (**ed.**) for one editor, and (**ed.s)** for multiple editors.
- When listing two or more works by one author, use --- (20xx), such as after Kohl (1997), use --- (2001), etc., in chronologically ascending order.
- Indicate (opening and closing) page numbers for articles in journals and for chapters in books.
- The title of books and journals should be in italic printing. Double quotation marks are used for titles of journal articles, book chapters, dissertations, reports, working papers, unpublished material, etc.
- For titles in a language other than English, provide an English translation in parenthesis.
- ***Headers, footers, endnotes*** *and* ***footnotes*** *should* ***not be used*** *in the document.* However, **you can mention short notes to elucidate some specific point**, which may be placed in number orders before the references.

PLEASE USE THE FOLLOWING FOR STYLE AND PUNCTUATION IN REFERENCES:

BOOKS

- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

- Always indicate the date that the source was accessed, as online resources are frequently updated or removed.

WEBSITES

- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

COMPETITIVENESS CONDITION, MARKET POWER AND DRIVERS OF COMPETITION OF BANKS IN ETHIOPIA

MISRAKU MOLLA AYALEW
Ph. D. STUDENT
ACCOUNTING SCHOOL
DONGBEI UNIVERSITY OF FINANCE & ECONOMICS
CHINA

Dr. ZHANG XIANZHI
PROFESSOR, ACCOUNTING SCHOOL, DONGBEI UNIVERSITY OF FINANCE & ECONOMICS; &
DIRECTOR SINO-GERMAN MANAGEMENT CONTROL RESEARCH CENTER
CHINA

ABSTRACT

This study used structural and non-structural approaches to analyses the competitiveness condition and market power of banks in Ethiopia based the data 2000-2015. The results of concentration ratios and Herfindahl-Hirschman Index indicates during the study period the industry is highly concentrated. The Panzar–Rosse model results reveal that Ethiopia banking competition is monopolist and therefore lower competition is found. The long-run equilibrium test conduct successfully. In the long-run Ethiopia's banks Return on Asset (ROA) is inelastic of price of labor and price of capital. The result of market power indicators; Lerner index and Boone indicator shows that during the study period banks operated under higher degree of market power. Different approaches this study uses commonly evidence that the decreasing level of concentration and market power from 2000-2010 starts increasing 2011 onward. This study has also found negative and significant relationship between concentration and competition. Moreover, the development of non-bank financial sectors and general economic development improve competition of banks in Ethiopia. Low level of competition help the banks to earn high operating performance (ROA and ROE). Well capitalized banks tends to exercise greater market power and operate well in more concentrated environments The result of this study is robust under different specifications. Finally, policy implication and future possible research ideas are derived.

KEYWORDS

concentration, competition, drivers of competition, Ethiopia, Market Power.

INTRODUCTION

Using both Structural-Conduct-Performance (SCP) and Non-Structural approaches, this study analyses the level of competition, market power and drivers of competition in Ethiopian banks from 2000 to 2015. Research in banking competition is a well-defined but remain debating and hot issues among policy makers and regulator. In developing economics banking system undergone massive regulatory and structural changes aiming to improve competitiveness and efficiency of the sector. The impact of thus measures should be evaluated against their aims. So that, it's possible to appreciate if the policy measures achieve their desired aim or to find better policy solution if not. In this regard, tests are few on the competitiveness of banking systems for developing countries and transition economies. In particular, this analysis in Ethiopian's banks is missed.

The innovation of the present research is the following: first we focus on Ethiopian banking; second we intensively implement SCP approaches (Concentration ratios and Herfindahl-Hirschman Index) and Non-structural approaches (Panzar–Rosse, 1987) model, dynamic Lerner index and Boone indicator) to measure competition and market power of banks; third we investigate the drivers of banking completion using a model which incorporate bank-specific, structural and macro-economic variables. For all models, we adopted several equation specifications aiming to compare the robustness of the procedure adopted.

The motivation behind the research is as follows. First, test of competitiveness level and market power has not been made yet many regulatory measures are taking since 1994. The effect of these deregulation and structural measures in competitiveness level is not clearly known. Moreover, there has been widespread focus on banks in Africa (Barros and Mendes 2016, Angola; Abdelkader and Mansouri 2013, Tunisia; Simpasa 2013, Zambia; Biekpe 2011, Ghana; Malambo and Ncube 2011, South Africa; Hauner and Peiris 2008, Uganda), there has been no analysis by the research community of the situation in Ethiopia, a country that recorded two-digit economic growth for a decade (the fastest growing country in Africa). Second, the hall-mark of this study is exhaustive utilization of measure of competition and market power of which majority of prior studies lacks. Our present study boldly relies on the principle that different measurement of competition and market power has different unique insight. As a result, we intensively used SCP approaches (K-banks Concentration ratio and Herfindahl-Hirschman Index) and Non-structural approaches (Panzar–Rosse model, Lerner index and Boone indicator) to test competition and measure market power of Ethiopia's banks. Third, beyond test of competition we investigate drivers of competition in the industry. To our understanding, this study is the first in its nature and approach in the Ethiopian case.

This study has two major importance. First, it provide first hand empirical results which will be at most important to policy makers and regulator. Second, it contribute to the growing body of literature in the area of banking competition particularly by empirically examine a banking sector which is closed for foreign participation for four decades. Finally, this article is organized as follows. After this introduction, brief review of Banks in Ethiopia is presented, followed by the literature review. The methodology is then presented, followed by the hypothesis, data and results, and finally the conclusion and policy recommendation are made.

BANKING IN ETHIOPIA

Banking activity in Ethiopia started in 1905, named Bank of Abyssinia (later changed to Bank of Ethiopia in 1931) during Emperor Minilik II. Until the military government come to power in 1974, banking sector was open to foreign banks to operate and invest in Ethiopia. As the result, foreign owned banks like Barclays bank (British owned), and Banco Di Roma and Banco Di Napoli (Italian banks) have obtained the license and operated in the sector. During the 1974-1991, following nationalization of financial sectors the industry become fragile, inefficient and fully state owned sector. Especially up to mid-1990s, mismanagement, ineffective supervision and deep political interference puts the sector under developed. Aiming to tackle these problems, to improve competition and efficiency, many de-regulation and structural measures were taken starting from 1994. For example, opening the industry for domestic private investment, restructured the two development banks as commercial banks, and introduced a new Banking and Monetary Proclamation which gave more autonomy to National Bank of Ethiopia (NBE) were made. In April 2011, to finance development projects and promote long-term investment, NBE issued a directive requiring all commercial banks to hold 27% of new loan disbursements in NBE bills[1]. Thus, measures witnessed a proliferation of domestic private banks (from zero 16 new private banks created); remarkable decrease in non-performing loan of stated owned banks and population to branch ratio decrease from 247061:1 in 1998 to 28932:1 in 2015.

1. Currently, Ethiopia is in massive construction of infrastructures like dams and train ways, among thus Ethiopian Grand Renaissance Dam is the biggest project and will be the largest dam in Africa at completion.

Up June 30, 2015, in the banking industry of Ethiopia there were 18 commercial banks (2 state owned and 16 private owned banks), one development bank and a central bank (National Bank of Ethiopia)[2]. As presented on table 1, the number of commercial banks increase from 8 to 18. Total assets of commercial banks increase from Br. 23,959 to Br. 406,154; deposit Br.18, 423 to Br. 367,395 and loan and advance Br. 14,473 to Br. 217,580 (the amount is given in Millions of Ethiopian birr). Following capitalization of banking industry commercial banks together can accumulate 43 billion at the end of 2015.

TABLE 1: CHARACTERISTICS OF COMMERCIAL BANKS IN ETHIOPIA DURING THE PERIOD

Year	No banks	Amount in millions of ETB			
		Asset	Deposit	loan & advances	Capital
2000	8	23959	18423	14478	1782
2001	8	26493	21050	15662	1907
2002	8	28338	23212	15943	1551
2003	8	32110	25817	16463	2080
2004	8	38125	30401	18475	2497
2005	9	47254	36214	23515	2901
2006	10	54089	42243	27439	3608
2007	11	67571.5	51245.5	33498.5	7266
2008	11	82004.17	61366.09	48179	8557.533
2009	12	100970.8	75299.86	61074.3	10130.888
2010	14	127700.7	95541.38	73769.1	12119.681
2011	17	182757.2	137562.29	98079.1	15,900
2012	17	243613.7	179766.58	137512	23346
2013	18	302127.1	233108.75	162119	26437
2014	18	370273.5	287076.15	200114	30808.30
2015	18	406 154	367395	217580	43060.80

Source: calculated from NBE and banks annual report.

During the period 2000-2015 on average the industry recorded growth of 17% in asset, 16.6% loan and advances, 18% in deposit, 18.18% in capital and 13.5% in branching per year. The country's fastest economic growth help the industry to mobilize huge domestic deposit. The directive issued by the NBE to achieve minimum paid up capital of 500 million ETB, takes the average growth rate of capital relatively higher than others. Although the sector is still undeveloped, the growth figures showed like the general economy the banking sector is also growing fast. Uniquely, capital growth rate of commercial banks observed highly volatile; lowest in 2002 (-0.23) and highest in 2007 (0.50), while other growth metrics move relatively stable.

LITERATURE REVIEW

In the banking literature, there are two major empirical approaches for measuring competition: the Structural-Conduct-Performance (SCP) and the Non-Structural approach. The following sections discuss briefly about them.

STRUCTURAL CONDUCT PERFORMANCE APPROACH

The structural approach to measure banking sector competition grasps the Structure-Conduct-Performance (SCP) paradigm (Mason, 1949). The basic ground to this approach is that the market power of banking companies' increases with industrial concentration and thus creates a direct link from industry structure to competitive conducts. This approach assesses the competition environment that characterize market structure by using ratios of concentration of largest firms (CR) and Herfindahl-Hirschman index (HHI). Accordingly, a rise in concentration is regarded as increasing collusive opportunities between banks, and thus will cause higher prices and profitability (Abduh, 2017). The implication of higher CR and HHI is the industry is main dominated by few large firms which hamper the competitiveness condition.

Although it has been excessively used in the empirical banking competition literature, the approach is criticized on different grounds. The proxies to measure the K-bank concentration ratio (CR_k) and HHI are ambiguous because they ignore the relationship between market contestability and revenue at the bank-level (Berger et al., 2004b). Moreover, Vesala (1995) criticized the approach as direction of causality running from structure to conduct is not clear. Evidence from industrial organization literature reveal that measures of market structure, such as the number of institutions and concentration ratios, are not necessarily related to the level of competitiveness in an industry (Baumol et al., 1982). Scholars such as Beck et al., (2006a), Claessens and Laeven (2004), Demirgüç-Kunt et al., (2004) evidenced strength of the link between concentration and competitive conduct is weak. Schaeck and Čihák, (2009) argue that it is inappropriate to rely on concentration to assess the degree of competition in banking. These arguments puts the validity of empirical results widely conducted in structural conduct performance assumption.

To fill the above limitations related with the approach, researchers have recognized the problems and tried other methods that has small measurement problem. For example, Berger et al., (2004b) tested SCP and Efficient structure (ES) hypotheses in models of bank profitability. Recently, researchers have looked to other direct measure of competition like the literature on oligopoly and contestability (e.g., Shaffer 2001), and include some indicators for regulation, entry restrictions, and other legal impediments to bank competition (Berger et al., 2004).

NON-STRUCTURAL MEASUREMENT OF COMPETITION AND MARKET POWER

Non-structural measurement of competition and market power is based on The New Empirical Industrial Organization (NEIO) paradigm. The approach doesn't consider explicit information related the structure of the market. Instead, nonstructural measures focus on obtaining estimates of market power from the observed behavior of banks (Abduh, 2017). This approach explains that high efficiency banks will help in increasing their market share and realizing profits. Under this paradigm, there are three methods to test level of competition and market power; the Panzar and Ross model (PR-model), Lerner Index and Boone Indicator.

The Panzar-Rosse model (1987) is repeatedly used to empirically assess the degree of competition in banking. It indicate the transmission of input prices and marginal costs on firms' revenues. The approach showed that under certain assumptions, the transmission of input price to marginal cost and then to revenue performance differs according to the degree of competition in the market. Weak transmissions are interpreted to indicate the exercise of market power in pricing and higher values indicate more competition. The elasticity of bank revenues relative to input prices, also called the H-statistic, equals one means the market is under perfect competition. In this condition, an increase in input prices raises both marginal costs and total revenues by the same amount. In a market where firms collude, an increase in input prices results in a rise in marginal costs, a fall in output, and a decline in revenues, leading to an H-statistic less than or equal to zero. The H-statistic lies between 0 and 1 interpreted as the system is operating under monopolistic competition (Panzar and Rosse, 1987). However, the interpretation of the values of the H-statistic requires conforming of many assumptions regarding the market equilibrium, demand elasticity, cost structure or exogeneity of input prices. Results obtained from the models of perfect and monopolistic competition depend on the assumption that firms are observed in their long-run equilibrium (Panzar and Rosse, 1987). This hypothesis can be tested by calculating the H-statistic from estimate result in that return on assets used as the dependent variable in place of the total revenue. In this regard, input prices should not be significantly correlated with the dependent variable. A finding of $H<0$ would indicate disequilibrium, whereas $H = 0$ would tend to confirm equilibrium suggesting that input prices are not correlated with industry returns (Shaffer,

2. Recently, the bank named 'Construction and Business bank of Ethiopia' which was owned by the state emerged with another state owned bank; Commercial Bank of Ethiopia. This merger is the first in the industry after liberalization. The figure exclude this bank in consideration.

1982). Under conditions of freedom of entry and exit, the market reaches stability and equilibrium, regardless of its structure (monopoly, oligopoly or duopoly) as long as the market outcome is sustainable (Barros and Mendes, 2016).

Limitation of PR-model is, unlike the HHI and the CR_K, the Panzar–Rosse method utilizes firm-level data and derives a test statistic-H to capture bank market power (Shaffer, 2004, Nguyen et al., 2016). The empirical implementation of H-statistic requires banking markets to be in long-run equilibrium, which may not always be the case in practice (Berger et al., 2009b). Using PR-model banks competition in Africa has been analyzed by Barros and Mendes (2016) in Angola, Abdelkader and Mansouri (2013) in Tunisia, Simpasa (2013) in Zambia, Biekpe (2011) in Ghana, Malambo and Ncube (2011) in South Africa, Huaner and Peiries (2008) in Uganda. Except Biekpe (2011) evidenced Oligopolistic tendencies all the above empirical works evidenced monopolistic competition.

The Lerner index is often used in empirical works to indicate market power. It measures the degree of market power by focusing on the pricing power apparent in the difference between price and marginal cost (Jimenez et al., 2007). It also captures the extent to which banks can maintain a price level above their own marginal costs. The higher values of the Lerner index are linked with higher levels of market power. The Lerner index's computation is based on individual bank observations for each bank and so can help overcome the small sample bias problem (Nguyen et al. 2016). In addition, it captures the influence of both market concentration and demand elasticity and thus is preferable to the concentration indicators (Maudos and Fernández-de-Guevara, 2007). While The PR-model provide an aggregate measure of competition Lerner index provide an individual measure of market power.

The approach criticize by Boone et al. (2013), that the Lerner index at the country level consistently has problems picking up increasing competition due to more aggressive conduct of incumbent firms. The Lerner index is sensitive to the reallocation of activity from inefficient to efficient firms when competition intensifies. This issue is particularly relevant in concentrated markets that encompass the banking industry in many developing countries (Leon, 2015). Recently, Abduh (2017), Amidu and Wilson (2014), Simpasa (2013), Chen (2009) apply this approach to measure banks market power.

Boone (2008) developed a new indicator called Boone indicator. It is based on the idea that efficient firms are more rewarded in more competitive markets. The Boone indicator is beginning to be used in banking literature (Leon, 2015).The basic intuition underlying this indicator is that more efficient firms achieve superior performance in the sense of higher profit or higher market shares, and that this effect is stronger the heavier the competition is. Boone et al. (2007) shows that the Boone indicator can be calculated as the elasticity of profits to marginal costs. The coefficient of marginal cost (the elasticity) obtained from the estimate result of the log of return on assets (dependent variable) regressed against to a log measure of marginal costs. The sum of coefficients the three input prices from estimated translog cost function gives marginal cost. The more negative coefficient of marginal cost in the regression is the higher the level of competition is in the market (Boone, 2008). However, in some cases a positive coefficient of marginal cost from regression estimation will be possible, implying that the higher a bank's marginal cost, the higher its market shares. This may arise if the market is characterised by collusion or because banks are competing on quality (Amidu and Wilson, 2014). According to Leon (2015), Boone indicator has two major advantages. On the one hand, it is based on strong theoretical foundations and catches competition due both to a fall in entry barriers and to more aggressive behavior on the part of incumbents. On the other hand, it captures the dynamics and non-price strategy in the market, while the Panzar-Rosse model and Lerner index are based on static price competition. These advantages come with short-comings. The Boone indicator approach focuses on one important relationship, affected by competition, thereby disregarding other aspects (Leon, 2015). Abdul (20170, Leon (2015) and Amidu and Wilson (2014) recently apply this indicator for their empirical study in banking competition.

Finally, the theory and empirical works clearly depict reliance on single measurement of competition and market power will lead wrong inference or create doubt to accept the result of an empirical work. One measurement has advantage over anther and different indicator catch different aspects of competition or market power. For instance, Lerner index measures the static pricing market power, the PR H-statistic measure the transmission of input price changes to revenues, and the Boone indicator indicate the dynamics of markets (Leon, 2015). Finally, the present no consensus on how best to assess completion in the literature, enforce researchers to apply all measurements intensively in a given study. In this regard, majority of previous studies fail to do this. We used all the above discussed measure of competition and market power on our present study.

DRIVERS OF BANKING COMPETITION

Regarding bank specific determinants Simpasa (2013) in Zambian banks found negative and significant relationship between bank competition and risk and inefficacy of banks, while capital ratio positively correlated. Abduh (2017) in his study on Islamic banks of Indonesian, found negative relationship between competition and ROE, capitalization and banking concentration. Further, he found positive and significant relationship between competition and ROA. Cost inefficiency in banking is often associated with high mark-ups because banks tend to mask their operating inefficiency through high spreads, the cost of which is borne by customers (Simpasa, 2013).

Regulatory restrictions; restricting foreign bank participation increase bank fragility and tighter entry and exit restrictions are negatively linked with bank efficiency, leading to higher interest rate margins and overhead expenditures (Barth et al., 2001 and 2004; Demirguc-Kunt et al., 2004). Demirguc-Kunt et al., 2004, from evidence of 77 countries they found bank concentration has a negative and significant effect on the efficiency of the banking system except in countries with well-developed financial systems. They also found implicit and explicit restrictions on bank activities, are associated with lower levels of bank margin.

RESEARCH METHODOLOGY

The methodology of this study is based on various measures of the competition and market power. First, SCP measures; CR_k and HHI index are used. Second Non-structural measure of competition (PR-Model) and the Lerner index and Boone indicators are used with the aim of measuring power in term of price setting.

STRUCTURAL-CONDUCT-PERFORMANCE (SCP) APPROACHES

Under this approach K-banks Concentration Ratio (CR_K) and Herfindahl-Hirschman Index (HHI) are used to measure banking concentration. The concentration of banks in terms of asset, deposit mobilization and loan disbursement was measured. Based on balance sheet data of banks the largest three and largest five largest banks concentration ratio calculated for asset, deposit and loan items of balance sheet. Its higher value interpreted as monopoly position of a few banks in the sector. These K-banks concentration ratios calculated as follow.

$CR_k = \sum_{i=1}^{n} Si$ ---------- (Eq 1)

Where *K* is the three or five largest banks, *Si* is each of the three or five bank's share in the total assets or deposit mobilized or loan and advance amount of the banking industry. The number of banks included in the concentration index is rather an arbitrary decision since there is no rule for the determination of the value of k (Abduh, 2017). The concentration ratio may be considered as one point on the concentration curve, and it is a one-dimensional measure ranging from zero to unity. The index close to zero for an infinite number of equally sized banks and it equals to unity if the banks included in the calculation of the concentration ratio make up the entire industry.

HHI was introduced by Hirschman (1945) and Herfindahl (1950). It is widely applied to estimate the degree of competition of a market. It computed as follow;

$HHI_k = \sum_{i=1}^{n} Si^2$ ---------- (Eq 2)

Where S_i^2 denotes the market shares of the company i and n stands for the number of banks in the industry. The more the value of the indication rises, the more the market is concentrated, and weaker is the competition between the market players. According to the current screening guidelines, the banking industry is regarded to be a competitive market if the HHI is less than 0.1, a somewhat concentrated market if the HHI lies between 0.1 and 0.18, and a very concentrated market if HHI is more than 0.18.

PANZAR–ROSSE (PR-MODEL)

The Rosse and Panzar (1977), which further expanded by Panzar and Rosse (1987) is an approach to measuring competition based on a reduced-form revenue equation (Barros and Mendes, 2016). The model allows for bank specific differences and measure competition by calculating the H-statistic which is obtained by summing the elasticities of revenue with respect to input prices. The model assumes that banks have revenue and cost functions that define the profit maximization path, whereby marginal revenue must be equal to marginal cost. The empirical PR model for this study is given by the following Equation:

$LnTR_{it} = \beta_{it} + \beta_L Ln(P_{Lit}) + \beta_F Ln(P_{Fit}) + \beta_K Ln(P_{Kit}) + \gamma_1 Ln(TA_{it}) + \gamma_2 Ln(CAPR_{it}) + \gamma_3 Ln(RISK_{it}) + \varepsilon_{it}$ ------ (Eq3)

where *TR* denotes total revenue (interest revenue plus other non-interest revenues) from *i* bank in period *t*, P_L is the unit price of labor proxied by the ratio Employees salary and benefit divided by total assets; P_F is unit price of fund proxied by the ratio of interest expense to total deposit and P_k is the unit price of fixed capital proxied by the ratio of other operating and administrative expense divided by fixed and other assets. All input price are expected to positively associate with revenues. ε represent the usual error terms which assumed normal distributed.

To control various effects, based on previous empirical studies we included firm-specific control variables in the model. Accordingly, Log of total assets (TA) to capture scale effect and aggregate demand which are expected to be positively associated with revenues. Ratio of equity capital to total asset (CAPR) to capture capitalization reflects the solvency risk born by the depositors and ultimately shareholders of the bank. A higher CAPR value reflects a lower risk in the sense that the bank's asset portfolio is not expanded beyond what the bank can afford in terms of capital adequacy. A higher CAPR value reflects a lower risk in the sense that the bank's asset portfolio is not expanded beyond what the bank can afford in terms of capital adequacy. Hence, the coefficient for this variable is expected to be negative. However, it should be noted that the relationship between capital adequacy and the income-generation potential of the banking firm is not very straightforward and strong (Gunalp and Celic, 2006).The capital adequacy ratio represents the solvency risk born by the shareholders on the right-hand-side of the bank's balance sheet and therefore does not have a direct bearing on the efficiency with which the bank generates interest and non-interest income in the asset portfolio. The RISK variable measures the amount of risk taken by the bank in its asset portfolio through extending of risky loans. Therefore, the coefficient of RISK is expected to be positive as more loans reflect more risk and potentially higher interest income. The definition and expected relationship of control variables are similar to Gunalp and Celic (2006), Barros and Mendes (2016), Abduh (2017).

The sum of the revenue elasticities with respect to input factor prices is called H-Statistics. It equation 4 present the computation of H-Statistics from reduced PR-model.

$H\text{-Statistics}_{it} = \sum_{i=1}^{n} (\beta L + \beta F + \beta k)$ ---------- (Eq 4)

If H≤0, Short-term oligopoly; 0<H<1, monopolistic and H=0, perfect competition. Finally, for the purpose of robustness, the dependent variable in the PR-model, TR is replaced by Log of TR scaled by total asset (LnTR/TA) and Log of interest revenue (LnIR). However, no change made on the independent and control variables. Unlike the monopoly model, the results for the models of perfect and monopolistic competition depend crucially on the assumption that firms are observed in their long-run equilibrium (Panzar and Rosse, 1987). Therefore, the PR-model in Eq 3 can only valuable if the long-run equilibrium is satisfied. This can be performed by calculating the H-statistic using the return on assets as the dependent variable in place of the total revenue in the equation to be estimated. The long-run equilibrium equation is present as follow:

$LnROA_{it} = \beta_{it} + \beta_L Ln(P_{Lit}) + \beta_F Ln(P_{Fit}) + \beta_K Ln(P_{Kit}) + \gamma_1 Ln(TA_{it}) + \gamma_2 Ln(CAPR_{it}) + \gamma_3 Ln(RISK_{it}) + \varepsilon_{it}$ ---- (Eq5)

Repeat Eq 4 to find the value of H-statistics after estimation of Eq 5. A finding of H<0 would indicate disequilibrium, whereas H = 0 would tend to confirm equilibrium suggesting that input prices are not correlated with industry returns (Shaffer, 1982). Shaffer, 1982, was the first to apply PR-model for banking sector. The assumption of long-run equilibrium may be difficult to sustain in transition and developing countries where banking sectors are still undergoing structural transformation (Simpasa, 2013). *ROA* proxied by the ratio of net income after tax to total asset. Because it can potentially take negative values, ROA it is adjusted by a factor of one before taking logarithmic transformation.

LERNER INDEX

The Lerner index is one of the most popular indexes of market power. The Lerner index is a relative mark-up of price over marginal cost (Lerner, 1934) and measures the banks' exercise of market power. According to Coccorese (2009), the Lerner index is a true reflection of the banks' degree of market power because it represents the behavioural departure from monopoly and perfect competition. The Lerner index (*LI*) is computed as follow;

$LI = \frac{P-MC}{P}$ ---------- (Eq 6)

Where *P* represents the price of banking outputs and *MC* denotes the marginal cost. Following the approach in Fernandez de Guevara et al., (2005), Turk-Ariss (2009) and Abduh (2017). Bank output is proxied by total bank revenues over total assets, and MC is computed by taking the derivative from a trans-log cost function shown in the following equation.

$LnTC_{it} = \beta_0 + \beta_1 Ln(TA_{it}) + \frac{\beta 2}{2} Ln(TA_{it})^2 + \sum_{i=1}^{3}(\gamma_{kt} LnP_{k,it}) + \sum_{i=1}^{3}(\varphi_K LnTA_{it}) LnP_{k,it}) + \sum\sum_{i=1}^{3}(\delta Ln(P_{K,it}) Ln(P_{j,it}) + \sum_{i=1}^{3}(\delta/2) Ln(P_{t,ij})^2 + \beta_K Ln(P_{Kit})^2 + \mu_{it} + \varepsilon_{it}$ ---------- (Eq 7)

TC is proxied by the ratio of sum of interest and non-interest expense by total asset. Once the cost function is estimated, its first derivative with respect to the output evaluated for each bank in the sample, is the marginal cost; which can be computed as follow:

$MC_{it} = \frac{TCit}{TA} [\beta_1 + \beta_2 lnTA_{it} + \sum_{i=1}^{3}(\phi_K LnTA_{it}) LnP_{k,it})$ ---------- *(Eq 8)*

Where $\frac{TCit}{TA}$ is computed for each bank each year. The estimated coefficients of the cost function are then used for computing the Lerner index (Eq 6) the result generally lies between 0 and 1. Lerner index equals to 0 means a perfectly competitive behavior and the firm has no market power. Lerner index close to 1 shows the weakness of the competition at the price level and that the firm exercises a market power to a higher mark-up. An increase of price or decrease of marginal cost contribute to an increase in Lerner index. In condition of very strong competition banks oblige to propose price under marginal cost which bring down Lerner Index to negative.

BOONE INDICATOR

The most recent market power indictor which is used by few empirical studies is the Boone Indicator. The Boone indicator is based on the efficient structure hypothesis that links performance with differences in efficiency. It suggests that increased competition leads to an increase in the market shares of more efficient banks in relation to less efficient counterparts (Amidu and Wilson, 2014). The Boone indicator can be calculated as the elasticity of profits to marginal costs. To calculate this elasticity, the log of return on assets is regressed against a log measure of marginal costs.

$Ln(ROA_{it}) = \alpha + \beta_1 ln(MCi) + \beta_2 CON + \varepsilon i$ ---------- (Eq 9)

Where ROA is stands for return on asset and MCi a measure of marginal cost. Marginal costs are obtained from an estimated translog cost function with three inputs (Eq 7). The more negative the β_1-coefficient is, the higher the level of competition is in the market. As the Boone indicator is time dependent, β_1 is estimated separately for each year reflecting changes in competition over time. To allow for heterogeneity in the empirical model, a bank-specific effect is included to estimate the Boone indicator. *CON* stands for control variables. We use similar control variables included in Eq 3 and Eq 4.

DRIVERS OF COMPLETION

Finally, another objective of this study is to investigate the factors that drive competition in the Ethiopian banking industry. Based on an approach applied by Barth et al (2004), Turk-Ariss (2008), Masood and Sergi (2011), Sahut et al., (2012), and Abduh (2017) we develop the following model to estimate.

$COMP_{it} = \beta_{it} + \sum_{i}^{n}(\beta_1 Bankspecific_{it}) + \sum_{i}^{k}(\gamma_1 Structural_{it}) + \sum_{i}^{l}(\varphi_1 Macro_{it}) + \varepsilon_{it}$ ---------- (Eq 10)

Where variable *COMP* refers to the measure of competitiveness proxied by bank level Lerner. This study considers profitability measured by ROA (ratio of net income to total asset) and ROE (ratio of net income to total equity), the efficiency (EFF) measured by the ratio of total deposit to total assets and finally capitalization (CAPR) measured by the ratio of total equity to total assets included in the model as bank specific variables (*Bankspecific).* Based on previous works, we estimate all bank-specific variables included positively affect competition in the industry. The concentration as structure variable is captured by the Concentration Ratios (CR) of the largest 3 banks ratio of total loan and advance to total loan and advance of the industry. Our estimation to this structural variable is negative. For this particular study, to robust the regression result concentration ratio further proxied by total asset and total deposit and regressed again.

As a proxy competition from nonbank financial institutions, we use total insurance premium divided by GDP[3]. Based on Claessen and Laeven, 2004, and Demirgukunt et al., 2004, we expect to find positive coefficients for this variable since the more developed other parts of the financial sector are, the more competitive

3. In the financial sector of Ethiopia only banks, insurance companies and microfinance institutions are operate. Banks are the dominant in the sector followed by insurance companies. There are 17 insurance companies and 31 microfinance institutions. The share of insurance companies and microfinance institutions in the

pressure there will be on the banking sector. We include general economic development and macroeconomic stability as these can be expected to affect banking system performance. A proxy for the general level of development of the country, we use the log of per capita GDP. Based on Claessen and Laeven (2004), the banking system is less likely be more competitive when it is subject to high inflation as prices of financial service such as interest rates, will be less informative. As an indicator for macroeconomic stability, we use the GDP deflated inflation rate. The data regarding insurance premium to GDP, per capita GDP and inflation rate are obtained from the World Development Indicator.

DATA

Up to June 2015; the final sample period of our study, there were 19 banks (excluding National Bank) in the Ethiopian banking industry. The panel data from 2000 onwards can only be constructed for the 8 banks as the others are very recent. Because of the unavailability of data for Development Bank of Ethiopia (the only policy bank in the country), we excluded from the sample. Moreover, the inclusion of this bank to our study has no significant as far the bank only finance development projects of the state. Therefore, our analysis is based on annual data collected 2000-2015 from 8 banks (127 observations). Following merger of Construction and Business Bank to Commercial Bank of Ethiopia, we couldn't find data for Construction and Business Bank for the year 2015. As a result total observations reduced from 128 to 127. The financial statements of banks are sourced from National Bank of Ethiopia. We obtained macroeconomic data from World Bank Development Indicators. Finally, on average 2000-2015 the 8 banks included in the study takes 97%, 98%, 97% and 95.6% share of the industry asset, loan and advance, deposit and revenue respectively.

In the descriptive statistics, higher standard deviation observed particular TR, IR, TA, TC and PK. The result is because of huge variation between state-owned bank (Commercial Bank of Ethiopia, the largest bank in the country) and smaller effective private banks. In the regression estimation, these variables are include as a ratio, therefore would not have outlier effect in the regression estimations.

TABLE 2: DESCRIPTIVE STATISTICS: 2000-2015

Definition	variable	Obs	Mean	Std. Dev.	Min	Max
Total revenue at constant price 2000=100 (1,000,000 ETB*)	*TR*	127	1123.7	2623.8	5	18470.4
Interest revenue at constant price 2000=100 (1,000,000 ETB)	*IR*	127	744.1	2085.5	3	16769.4
Total cost at constant price 2000=100 (1,000,000 ETB)	*TC*	127	544.2	1201.9	4	9768.3
Total asset at constant price 2000=100 (1,000,000 ETB)	*TA*	127	16083.8	41996.3	143	305074.8
Return on Asset at constant price 2000=100 (1,000,000 ETB)	*ROA*	127	0.0234	0.0106	-0.0212	0.0484
Return on Equity at constant price 2000=100 (1,000,000 ETB)	*ROE*	127	0.2161	0.1446	-0.5681	0.7035
Price of labor	*PL*	127	0.0111	0.0041	0.0047	0.0236
Price of fund	*PF*	127	0.0261	0.0102	0.0106	0.0834
Price of capital	*PK*	127	1.90	0.999	0.2017	6
Loan to total asset ratio	*Risk*	127	0.4996	0.1232	0.1926	0.7761
Capital to total asset ratio	*CAPR*	127	0.1193	0.0475	0.0374	0.2943
Efficiency, Deposit to total asset	*EFF*	127	0.7451	0.0801	0.4936	0.8715
GDP per capita	*GDPCA*	127	296.2	166.75	111.53	619.16
Rate of inflation GDP deflated	*IFF*	127	0.1173	0.1088	-0.057	0.3354
Insurance premium to GDP	*INSGDP*	127	0.5799	0.1089	0.4164	0.8252

*Ethiopian Birr (currency)

FINDINGS AND DISCUSSIONS

RESULT OF CONCENTRATION INDICATORS

Table 3 shows that the concentration ratios of largest 3 and 5 banks in terms of asset, loan and advances and deposit. During 2000-2014, on average 80.67% of total asset, 67.38% of loan and advance, and 81.68% of deposit of the industry is shared by the largest three banks namely commercial bank of Ethiopia (public owned), Dashen Bank and Awash International bank (both private owned). This ratio increase to 88.4 %, 81.7% and 89.53% share of asset, loan and advance and deposit respectively when largest 5 banks assumed. The industry was at most and at least level of concentration ratio during the year 2000 and 2010 respectively. Table 3 reveal two interesting results; first, CRs continuously decrease from 2000-2010 and start increasing from 2011 onward. The implication this result can be interpreted as among others, recent regulatory measures or directives taken on the industry turned the downward moving concentration to upward. In other word, decrease competitiveness condition as higher concentration interpreted as lower competition. Second, compared to measure of concentration based asset and deposit, concentration measured based on loan and advance shows relatively lower level although still higher compared to the standard line. This indicate that the market power of large banks tends to decrease in loan market participation or small banks are better competitive and efficient in the loan market than financing (deposit mobilization). Although many regulatory measures aiming to improve competition are continuing taken and more new banks are entering to the market, the industry remain highly concentrated and dominated by few banks.

Measurement of market power based on concentration of largest banks alone is not enough. We, therefore further analyzed by using another concentration measure called Herfindahl-Hirschman Index (HHI). Unlike, concentration ratio of largest banks (CR_K), HHI assume all banks operate in the industry during the period. Table 3 also shows that the HHI of banks measured using three proxies; asset, loan and advances and deposit. HHI decrease moving from early 2000 to 2010, and start increasing 2011 onward. During the study period, the average HHI of banking industry in Ethiopia were 0.491, 0.268 and 0.499 in terms of asset, loan and deposit respectively. The value of HHI is interpreted as competitive market if the HHI is less than 0.1, a somewhat concentrated market if the HHI lies between 0.1 and 0.18, and a very concentrated market if HHI is more than 0.18. The average value of HHI in the Ethiopian banking sector conclude that the sector is high concentrated or were at lower level of competition during 2000-2014. Similar to CRs of largest 3 and 5 banks (discussed in the previous section), the HHI result also evidenced that market power of large banks is lower in terms loan and advances than measured by asset and deposit. Finally, the result of the two dominants structural measure of competition and market power (CR_k banks and HHI) reveal the same conclusion; during 2000-2014, banking sector in Ethiopia was highly concentrated and large few banks exercise market power.

sector is less than 20% of the sectors asset. Because of data unavailability regarding Microfinance institution, we consider the share of premiums (life and non-life) of insurance companies to GDP only to measure competition of non-bank sector to the bank.

TABLE 3: MARKET CONCENTRATION AND HHI OF BANKS IN ETHIOPIA FOR 2000-2014

	Concentration ratios						Herfindahl-Hirschman Index		
	Asset		Loan and advances		Deposit				
Year	CR3	CR5	CR3	CR5	CR3	CR5	Asset	Loan and advance	Deposit
2000	0.8954	0.9468	0.8268	0.9119	0.9179	0.9643	0.69	0.526	0.732
2001	0.8869	0.9427	0.8086	0.9031	0.9077	0.96	0.664	0.48	0.694
2002	0.8732	0.9363	0.7746	0.8867	0.8897	0.951	0.619	0.4	0.644
2003	0.8593	0.9285	0.7256	0.8605	0.8733	0.9423	0.578	0.308	0.596
2004	0.8504	0.9219	0.6913	0.8388	0.8619	0.9326	0.55	0.254	0.561
2005	0.8214	0.8991	0.6465	0.8027	0.8323	0.9128	0.507	0.221	0.505
2006	0.8014	0.8956	0.6121	0.7977	0.8178	0.9114	0.457	0.184	0.467
2007	0.7892	0.891	0.586	0.7913	0.7971	0.9033	0.433	0.165	0.433
2008	0.769	0.8714	0.6224	0.7967	0.7766	0.8816	0.4	0.194	0.4
2009	0.7484	0.8533	0.6068	0.7803	0.7487	0.8579	0.37	0.183	0.36
2010	0.7399	0.834	0.6007	0.7637	0.7421	0.8369	0.361	0.174	0.352
2011	0.7608	0.8447	0.6195	0.7759	0.7588	0.8463	0.408	0.193	0.399
2012	0.7728	0.8409	0.6674	0.788	0.778	0.8477	0.439	0.246	0.435
2013	0.7669	0.8349	0.6548	0.7814	0.7755	0.8444	0.438	0.235	0.44
2014	0.7662	0.827	0.6637	0.7762	0.7754	0.8363	0.446	0.252	0.463
Average	0.8067	0.8845	0.6738	0.817	0.8168	0.8953	0.491	0.268	0.499

Source: own computation based on the data source.

PANZAR AND ROSSE MODEL RESULT

Panzar and Rossse (1987) is a direct measure of competition. We estimate the PR-model on three specifications; total revenue (LnTR) used as dependent variable (specification 1), total revenue scaled by total asset (Ln (TR/TA)) used as dependent variable (specification 2) and interest revenue (LnIR) as dependent variable (specification 3). It can be seen that TR in specification (1) increases, and is statistically significant at 1% level with all input prices (lnP_L, lnP_F and lnP_K). The H-statistic (sum of coefficients lnP_L, lnP_F and lnP_K) is 0.4387, which means that Ethiopian banking is a monopolistic competition. As expected, and consistent with the empirical result of most studies the coefficient of all input prices (under all specifications) are positive and statistically significant at 1% significant level. The first two specifications showed that the contribution of input prices to H-statistics is nearly equal. However, price of fund is the largest contributor (0.3349) to the H-statistic followed by price of labor (0.1682) when interest revenue used as dependent variable (specification 3). The value of H-statistics in specification 3 (0.55507) is higher than the first two specifications. This result indicates that banking market in Ethiopia is the more competitive in terms of interest rate, which affects interest income. This result is expected as interest-generating activities have been the tradition in developing banking sectors.

In relation to the control variables, all control variables (lnTA, lnCAPR and lnRISK) positively correlated with the dependent variables (lnTR, LnTR/TA, and LnIR) and statically significant at 1% significant level. The result suggest that more capitalized banks tends to earn higher income than less capitalized banks. Large banks size in terms of asset associated with higher profit (Barros and Mendes, 2016; Fusu, 2013; Al-Muharrami et al. 2006; and Mamatzakis et al. 2005). Finally, as it has been strongly supported by theory and empirical results, the result of this paper also concede the higher risk is matched with higher reward. Hence, based on all specifications, Ethiopian banks operated under monopolistic competition during the study period. The inference of similar conclusion obtained from regression when revenue equation regress with and without scaled of total revenue by total asset reduce the frustration of that the H-statistics could be biased when scaled rather than unscaled revenue equation is estimated (Bikker et al. 2009). The finding of 0<H<1 appears to be robust to different specifications of the dependent variable. The result of Wald-test for the hypotheses that during the same period, the banks enjoyed some monopoly power (H=0) and that they operated in a perfectly competitive or a perfectly contestable environment (H = 1) are clearly rejected at 1% level of significant. Finally, the use of fixed effect for this particular model is supported by Huasman test.

TABLE 4: ETHIOPIAN BANKING USING THE PANZAR–ROSSE MODEL (FIXED-EFFECT REGRESSION)

Descriptions	Specification 1 LnTR		Specification 2 Ln(TR/TA)		Specification 3 LnIR	
	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat
Constant	-1.1499 (0.3178)	-3.62*	-1.1499 (0.3178)	-3.62*	-0.7165 (0.3056)	-2.34*
Price of Labor (lnP_L)	0.1566 (0.0578)	2.71*	0.1565 (0.0578)	2.71*	0.16821 (0.0555)	3.03*
Price of Fund (lnP_F)	0.1449 (0.0442)	3.28*	0.1449 (0.0442)	3.28*	0.3349 (0.0424)	7.89*
Price of Capital (lnP_K)	0.1372 (0.0257)	5.34*	0.1372 (0.0257)	5.34*	0.0475 (0.0247)	1.93**
Log of total asset (lnTA)	1.071 (0.0134)	79.7*	0.0710 (0.0134)	5.29*	1.0738 (0.0129)	83.1*
Capital ratio (lnCAPR)	0.27 (0.0459)	5.88*	0.2699 (0.0459)	5.88*	0.1770 (0.0441)	4.01*
Net loan to total asset (lnRISK)	0.2724 (0.0578)	4.72*	0.2723 (0.0578)	4.72*	0.7525 (0.0555)	13.55*
Time (dummy)	-0.0066 (0.0199)	-0.33	-0.0065 (0.0199)	-0.33	-0.0250 (0.0191)	-1.3
H-statistic	0.4387		0.4387		0.5507	
overall R2	0.9927		0.627		0.9933	
F-stat	1992.1		20.27		2070.2	
Probability of F-stat	0.0000		0.00		0.00	
F-statistic for testing the hypothesis H = 0	14.90*		14.28*		35.36*	
F-statistic for testing the hypothesis H = 1	0.000*		0.000*		0.000*	
Observations	127		127		127	
Number of groups	8		8		8	

Note: SEs are given in parentheses. *and ** Significant at 1% and 5% level.

EQUILIBRIUM TEST RESULT

The validity of PR-model is based on the satisfaction of long-run equilibrium test. The equilibrium test showed that in the long-run banks earning is independent of price of labor and capital but dependent to price of fund. The value of H-statistics is near to but not equal to zero in all specifications. In all regressions the null hypothesis that H=0 cannot be rejected even at the 5% level. Therefore, the data appear to be in long-run equilibrium. This supports the conclusion drawn above regarding monopolistic competition. According to Shaffer (2004) the rejection of the test of equilibrium does not distort the inferences based on the results of the estimation of this indicator. He further argues that the hypothesis of the long-term equilibrium is not strictly necessary in the presence of the positive values of the statistics. Shaffer (2004) also underlines that the “no equilibrium” situation suggests a dynamic development of the industry. Moreover, the assumption of long-run equilibrium may be difficult to sustain in transition and developing countries where banking sectors are still undergoing structural transformation (Simpasa, 2013). Finally, in the long-run earing performance of banks negatively correlated and statically significant at 1% with asset, capital ratio and risk. According to the empirical result of this study, the recent capitalization measure taken on the banking industry of Ethiopia will reduce banks revenue generating power in the long-run. Currently, the industry is the most profitable and less competitive.

TABLE 5: EQUILIBRIUM TEST ESTIMATION RESULT

Depended variable (LnROA factorized by 1)	Pooled OLS	Fixed effect without time dummy	Fixed effect with time dummy
Constant	-0.0026 (0.011)	0.0621 (0.0209)*	0.0638 (0.0211)*
Price of Labor (lnP_L)	-0.0054 (0.0027)	0.0054 (0.0038)	0.0053 (0.0038)
Price of Fund (lnP_F)	0.01174 (0.0029)*	0.0115 (0.0029)*	0.0117 (0.0029)*
Price of Capital (lnP_K)	0.00072 (0.0014)	0.0004 (0.0017)	0.0004 (0.0017)
Log of total asset (lnTA)	-0.0052 (0.0007)*	-0.007 (0.0009)*	-0.007 (0.0009)*
Capital ratio (lnCAPR)	-0.0136 (0.0024)*	-0.016 (0.003)*	-0.016 (0.003)*
Net loan to total asset (lnRISK)	-0.0152 (0.0037)*	-0.012 (0.0038)*	-0.012 (0.0038)*
overall R^2	0.473	0.352	0.3498
H-statistics	0.00703	0.0172	0.0174
p-value of F-statistic for testing the hypothesis H=0	0.0012	0.000	0.000
No-Observation	127	127	127

Notes: SEs are given in parentheses. * denote statistically significant coefficient at 1% level

THE LERNER INDEX

The Lerner index indicates the degree of market power and measures the capacity of a bank to increase its price with regard to its marginal cost. The computation of marginal cost is heavily based on estimate result of translog cost function. The estimate result of translog cost function is presented on table 6.

The industry marginal cost is computed from the estimated translog cost function based on Equation 8. Multiply industry marginal cost with bank level ratio of total cost to total asset result bank level marginal cost. Based on equation 6, we calculate bank level Lerner for each year. Finally, the result of average price, average marginal cost and Lerner Index of each year for the industry is given on table 7.

TABLE 6: ESTIMATION RESULT OF THE TRANSLOG COST FUNCTION (FIXED EFFECT REGRESSION)

Log of total cost (logTC)	Coefficient and SE	t-stat
Constant	-0.9919 (2.2999)	-0.43
Output (lnta)	1.0648 (0.1510)	7.05***
Price of Labor (lnpl)	0.9371 (0.8863)	1.06
Price of Fund (lnpf)	-1.2880 (0.6711)	-1.92*
Price of Capital (lnpk)	-1.3850 (0.3867)	-3.58***
Price of labor times total asset (lnplta)	-0.0773 (0.0356)	-2.17**
Price of fund times total asset (lnpfta)	0.1061 (0.0356)	2.98***
Price of capital times total asset (lnpkta)	0.0559 (0.0172)	3.25***
Price of labor times Price of fund (lnplpf)	-0.2917 (0.1288)	-2.26**
Price of labor times Price of capital (lnplpk)	-0.2861 (0.0871)	-3.28***
Price of fund times Price of capital (lnpfpk)	0.0402 (0.0866)	0.46
Time (dummy)	-0.0233 (0.0185)	-1.26

Note: SEs are given in parentheses. ***, ** and * Significant at 1%, 5% and 10% level.

The Lerner index move between 0.1038 and 0.7986 and the average during the sample period is 0.5388. Higher value of Lerner is observed, indicates banks have more market power to affect the price of the products and services they offered. To some extent, the result is consistent with the results of other market power indicators (CR_K and HHI, see table 3). Lerner value increase consistently from 0.2295 (2000) to 0.5967 (2009). Reached at maximum during 2010 (0.7986) and then start moving downward but with higher value compared to early 2000s. Summing up the result we found from concentration ratios with the average annual value of Lerner we can generalize that banks market power reduced from 2000-2010 and then started increase 2011 onwards. Increase market power negatively affect competition.

TABLE 7: CALCULATED ANNUAL VALUES OF AVERAGE PRICE, MARGINAL COST AND THE LERNER INDEX OF BANKING INDUSTRY OF ETHIOPIA 2000-2015

year	Average Price	Average marginal cost	Lerner Index
2000	0.0754	0.0613	0.2295
2001	0.0898	0.0699	0.2838
2002	0.0739	0.0669	0.1039
2003	0.067	0.0566	0.182
2004	0.0719	0.0529	0.3574
2005	0.0708	0.0451	0.572
2006	0.0787	0.0445	0.7712
2007	0.0844	0.0505	0.6712
2008	0.0854	0.0537	0.5907
2009	0.0792	0.0464	0.7054
2010	0.0828	0.046	0.7986
2011	0.0858	0.0479	0.791
2012	0.0889	0.0502	0.7697
2013	0.0853	0.0536	0.5913
2014	0.0923	0.058	0.5927
2015	0.0895	0.0556	0.6119
Average 2000-2015	0.0813	0.0537	0.5388

Source: Authors' calculation based on the result of translog cost function and other derivations.

BOONE INDICATOR

Our measurement to market power of banks in Ethiopia extended to the use of the most recent market power indictor; Boone Indicator. We estimate equation 9 three times; pooled OLS, fixed effect with and without time dummy. Table 8, presents the estimate result of econometric used to investigate the level of Boone value, which is the coefficient of marginal cost (lnMC). The coefficient of *LnMC* in the estimate result is -0.7523 (OLS), -1.181(fixed effect with time dummy) and -1.183 (fixed effect without time dummy) and significant at 1% level. The negative coefficient is as expected, because efficient structure hypothesis (the base for Boone indicator) suggests that increased competition leads to an increase in the market shares of more efficient banks. The higher negative coefficient of marginal cost (the Boone indicator) is the more competitive system. The control variables keep the expected sign and significant at 1% level of significant. Large banks (in terms of asset) and capitalized banks generate better operating performance (*ROA*) than smaller and non-capitalized banks. The positive significant coefficient of net loan to total asset (LnRISK) evidence banks charge higher return on high-risk loans and advances.

TABLE 8: ESTIMATE RESULT COEFFICIENT OF LERNER INDEX 2000-2015

Return on Assets (lnROA)	Pooled OLS	Fixed effect without time dummy	Fixed effect with time dummy
Constant	-5.9595 (0.5344)*	-8.28828 (0.8145)*	-8.341 (0.8263)*
Marginal cost (lnMC)	-0.7523 (0.2063)*	-1.1811 (0.2263)*	-1.183 (0.2271)*
Log of total asset (lnTA)	0.26109 (0.0476)*	0.28111 (0.047)*	0.2827 (0.0473)
Capital ratio (lnCAPR)	0.87506 (0.1362)*	0.54239 (0.194)*	0.5364 (0.1951)*
Net loan to total asset (lnRISK)	0.59055 (0.2495)**	0.37614 (0.2513)	0.3751 (0.2522)
overall R^2	0.3622	0.2904	0.2886
F-statistics	18.89*	22.02*	22.02*

Notes: Numbers in parentheses SE * denote statistically significant coefficient at 1% and 5% level respectively.

In order to explore the competitiveness condition over time using Boone, it requires to know each year Boone value. As a result, we regress equation 9 for each year. However, the value of Boone Index we find from each year estimation result seems biased due to small observations (each year for 8 cross sections = 8)[4]. Therefore, we fail to report this result in this section.

DRIVERS OF COMPETITION IN THE ETHIOPIAN BANKING INDUSTRY

The estimation results on the drivers of the degree of competition in Ethiopian banking sector is reported in Table 9. Bank level Lerner is used as a dependent variable to investigate factors that drive competitiveness in the Ethiopian banking industry. The two measurement of operating performance ROA and ROE are positively related with Lerner index (dynamic measure of market power) and statistically significant at 1% level. This implies that banks earn higher return under lower level of competition. The result is expected as strong competition leads banks to charge lower interest rate to loan and advance they offer, higher interest rate to attract time deposit and assumed to incur additional costs to delight customers. The coefficient of capitalization is significantly positive, which indicates that well capitalized banks tends to exercise greater market power and operate well in more concentrated environments. The result is as expected and consistent with many empirical studies (Abduh, 2017, Simpassa, 2013, Turk Ariss, 2008).

Concentration is included as a structural variable and result as expected is negative and significant. The implication of this result is straight forward; competitive-ness increase with a decrease in concentration. Further, we, re-estimate this model by replacing concentration which is measured on asset with concentration of large 3 banks based on loan and advances and deposit (financing). All the three specifications result are robust and consistent with finding of Demirguc-Kunt et al., 2004.

TABLE 9: DRIVERS OF COMPETITION AMONG ETHIOPIAN BANKS 2000-2015 (GLS-RANDOM EFFECT ESTIMATION)

Dependent variable bank level Lerner	Coefficient	Std. Err.	z-stat
Constant	1.41461	0.346	4.09*
Return on Asset (ROA)	7.91631	1.1188	7.08*
Return on Equity (ROE)	0.66857	0.0736	9.08*
Deposit to total asset (Efficiency)	0.06217	0.1088	0.57
Ration of equity to total asset (CAPR)	0.81575	0.2089	3.91*
Asset Concentration of large 3 banks	-0.9442	0.2798	-3.38*
Inflation GDP deflated	0.01474	0.0577	0.26
Log of GDP per capita	-0.2837	0.0553	-5.13*
Insurance companies total premium to GDP	-0.2132	0.107	-1.99**
overall R^2	0.8916		
Wald-x^2	1091.06		
Probability of x^2	0.000		
Number of observation	127		
Number of groups	8		

Note: *and ** statistically significant at 1% and 5% respectively

Regarding macro-economic variables, general economic development (measured by GDP per capita) tends to decrease market power and improve competitive-ness. However, we found no significant evidence between banks market power and inflation. Finally, the variable include to capture the influence of other financial sectors on banking sector competition found negative and significant correlated with banks market power. In other word, the development of non-bank financial sector increase the competition within banks. This result quite convincing because in developed financial system non-bank financial sectors involve in banking sector functions and vise-versa.

CONCLUSION

This paper investigates market power and competitive conditions of Ethiopian's banks during the period of 2000–2015. Based on the principle that different indicator catch different aspects of competition; we intensively apply measures of concentration (K-banks concentration ratio and Herfindahl-Hirschman Index), competition (Panzar–Rosse model) and market power (Lerner Index and Boone indicator). This is an essential contribution, as the literature lacks evidence on the level of competition in the Ethiopia's banking market.

The results of concentration measures reveal that the industry is highly concentrated. In addition, concentration in the industry decrease moving from 2000-2010 and start increasing 2011 onward. The result of Panzar-Rosse model reveal that competition in Ethiopia's banks is monopolist. The result is robust in different specifications and is similar with empirical studies conducted in African countries such as; Barros and Mendes, 2016; on Angola's banks, Simpasa, 2013; on Zambia's banks, Hauner and Peiris, 2008, on Uganda's banks). The test for long-run equilibrium successfully conducted. In the long-run Ethiopia's banks Return on Asset (ROA) is inelastic of price of labor and price of capital. Both the Lerner index and Boone indicator shows that during the study period banks in Ethiopia exercise market power. The average Lerner index during 2000-2015 is 0.54, which is higher compared to most African countries. This index was lower from 2000-2004 and higher from 2005 to 2015. Although rapid development of the sector time to time the competitiveness condition remain at average level. This affects the inter-mediary efficiency of banks and their contribution to economic growth.

Our analysis towards the drivers of competition evidence that ROA and ROE are positively related with Lerner index and statistically significant at 1% level. This implies that banks earn higher return under lower level of competition. In addition, the result shows that high concentration of banks negatively affects the competition of banks. This result is consistent while concentration is measured by different metrics. Highly capitalized banks exercise market power and harm competition between banks. Moreover, we found an evidence that the development of non-bank financial sector increase competition in the banking sector of Ethiopia. An increase in banking competition positively and significantly associate with GDP per capita in Ethiopian case. Finally, we found no significant relationship between competition of banks and banks efficiency and inflation.

POLICY IMPLICATION AND SCOPE FOR FUTURE RESEARCH

The policy implication of the present study is that the industry should be open for foreign banks to operate. Based on our understanding on the facts of the industry half a century undergoing operation within closed and highly regulated system should be over. Indeed, few positive roles of the closed policy to date not under-mined. The empirical results of this study shows the need to further study in the following issues. First, continues decrease from 2000-2010 and increasing trend

4. To increase observations it is better to use quarterly or monthly data to estimate Boone index for a single banking system. We cannot find quarterly or monthly data for each bank from any source.

from 2011 onward of concentration measures and higher but volatile value of Lerner index from 2005 onward notices to go back and evaluate events happen in the industry and their effect on banks competition and market power. For example, regulatory measures taken, structural changes made, mandatory directives imposed, new entrant to the sector and the conditions of non-bank financial sectors should be evaluate against baking competition and market power in Ethiopia. Second, this study analyses the level of competition and market power for 16 consequent years. We recommend future researchers to evaluate the impact of banks competition on firms and households access to financial services. We believe, it's at most desirable to a nation access to credit is the frontline obstacle for development.

REFERENCES

1. Abdelkader, I. B., and F. Mansouri. (2013), "Competitive Conditions of the Tunisian Banking Industry: An Application of the Panzar–Rosse Model." African Development Review, Vol. 25, No. 4, pp. 526–536.
2. Abduh M., **(**2017), "Competitive condition and market power of Islamic banks in Indonesia," International Journal of Islamic and Middle Eastern Finance and Management Vol.10, pp.1-17.
3. Allen N. Berger et al., (2004b), "Bank Concentration and Competition: An Evolution in the Making," Journal of Money, Credit and Banking, Vol. 36 No. 3, pp. 433-451.
4. Al-Muharrami, S., Matthews, K. and Khabari, Y. (2006), "Market structure and competitive conditions in the Arab GCC banking system," Journal of Banking and Finance, Vol. 30, No. 12, pp. 3487-3501.
5. Amidu M., and John O.S. Wilson. (2014), "Competition in African Banking: Do Globalization and Institutional Quality Matter?" Working paper in responsible banking and finance, University of St Andrew, UK, No 14-004.
6. Barros P.C., & Mendes Z., (2016), "Assessing the competition in Angola's banking industry," Applied Economics, Vol.48 No.30, pp. 2785-2791.
7. Barth, James R., Gerard Caprio Jr., and Ross Levine. (2004), "Bank Regulation and Supervision: What Works Best?" Journal of Financial Intermediation.
8. Baumol, W. J., J. Panzar, and R. D. Willig. (1982), "Contextable Markets and the Theory of Industry Structure." New York, Harcourt Brac, Javanovitch.
9. Beck, Thorsten, Asli Demirgic-Kunt, Luc Laeven, and Vojislav Maksimovic. (2006), "The Determinants of Financing Obstacles," Journal of International Money and Finance, Vol 25, No. 6, pp.932-52.
10. Biekpe, N. (2011), "The Competitiveness of Commercial Banks in Ghana." African Development Review, Vol.23 No.1, pp.75–87.
11. Bikker, J. A., S. Shaffer, and L. Spierdijk. (2012), "Assessing Competition with the Panzar–Rosse Model: The Role of Scale, Costs, and Equilibrium," Review of Economics and Statistics, Vol. 94 No. 4, pp.1025–1044.
12. Boone, J. (2008), "A new way to measure competition," The Economic Journal, Vol. 118, No. 531, pp.1245-1261.
13. Boone, J., van Ours, J. C., and van der Wiel, H. (2013), "When is the price cost margin a safe way to measure changes in competition?" De Economist, pp.1–23.
14. Chen, C. (2009), "Bank efficiency in Sub-Saharan African middle-income countries," IMF Working Paper, WP/09/14.
15. Claessens, S. and Laeven, L. (2004), "What drives bank competition? Some international evidence," Journal of Money, Credit and Banking, Vol. 36 No. 3, pp.563–583.
16. Coccorese, P. (2009), "Market Power in Local Banking Monopolies," Journal of Banking & Finance, Vol.33, pp.1196-1210.
17. Demirgiic-Kunt, Asli, Luc Laeven, and Ross Levine. (2004), "Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation," Journal of Money, Credit, and Banking, Vol. 36, pp.593-622.
18. Demirguc.-Kunt, Asli, and Vojislav Maksimovic. (1998), "Law, Finance, and Firm Growth," Journal of Finance, Vol.53, No.6, pp.2107-37.
19. Fernandez de Guevara, J. and Maudos, J. (2011), "Banking competition and economic growth: Cross-country evidence," The European Journal of Finance, Vol.17, No.8, pp.739–764.
20. Fernandez de Guevara, J., Maudos, J., & Perez, F. (2005), "Market power in European banking sectors," Journal of Financial Services Research, Vol.27, pp.109-137.
21. Florian Leon, (2015), "Does bank competition alleviate credit constraints in developing countries?" Journal of Bank and Finance, Vol.57, pp.130–142.
22. Günalp B, & Çelik T., (2006), "Competition in the Turkish banking industry," Applied Economics, Vol.38, No.11, pp.1335-1342.
23. Hauner, D., and S. J. Peiris. (2008), "Banking Efficiency and Competition in Low Income Countries: The Case of Uganda," Applied Economics, Vol.40, No.21, pp.2703–2720.
24. Herfindahl, O.C. (1950), "Concentration in the US Steel Industry." Colombia University, New York, NY.
25. Hirschman, A.O. (1945), "National Power and the Structure of Foreign Trade." University of California Press, Berkeley, CA.
26. Jimenez, G., Lopez, J., & Saurina, J.(2007), "How does competition impact bank risk taking?" Working Paper Banco de Espana.
27. Lerner, A. (1934), "The concept of monopoly and the measurement of monopoly power," Review of Economic Studies, *Vol.1*, pp.157-175.
28. Mamatzakis, E., C. Staikouras, and N. Koutsomanoli Fillipaki. (2005), "Competition and Concentration in the Banking Sector of the South Eastern European Region," Emerging Markets Review, Vol.6, pp.192–209.
29. Mason, E. S. (1949), "The Current Status of the Monopoly Problem in the United States," Harvard Law Review, Vol.62, No.8, pp.1265–1285.
30. Masood, Omar & Sergi, Bruno S. (2011), "China's Banking System, Market Structure, and Competitive Conditions," Frontiers Economic in China*, Vol.*6, No.1, pp.22–35.
31. Mlambo, K., and M. NCube. (2011), "Competition and Efficiency in the Banking Sector in South Africa," African Development Review, Vol.23, No.1, pp. 4–15.
32. Nguyen M., Perera S., and Skully M. (2016), "Bank market power, ownership, regional presence and revenue diversification: Evidence from Africa," Emerging Markets Review, Vol.27, pp.36–62.
33. Panzar, J., and J. Rosse. (1987), "Testing for 'Monopoly' Equilibrium," The Journal of Industrial Economics, Vol.35, pp. 443–456.
34. Rosse, J., and J. Panzar. (1977), "Chamberlin Vs Robinson: An Empirical Study for Monopoly Rents," Bell Laboratories Economic Discussion Paper.
35. Schaeck, K., M. Cihak, and S. Wolfe. (2009), "Are Competitive Banking Systems More Stable?" Journal of Money, Credit,and Banking, Vol.41, pp.711–734.
36. Shaffer, Sherrill. (1982), "A Non-structural Test for Competition in Financial Markets, Structure and Competition," Conference Proceedings, Federal Reserve Bank of Chicago pp.225-243.
37. Shaffer, Sherrill. (2001), "Banking Conduct before the European Single Banking License: A Cross-Country Comparison," North American Journal of Economics and Finance, Vol. 12, pp.79-104.
38. Simpasa, Anthony Musonda. (2013), "Competition and Market Structure in the Zambian Banking Sector," Working Paper Series, African Development Bank, Tunis, Tunisia, No. 168.
39. Vesala, J., (1995), "Testing for competition in banking: behavioral evidence from Finland." Bank of Finland Studies, E.1.

REQUEST FOR FEEDBACK

Dear Readers

At the very outset, International Journal of Research in Commerce & Management (IJRCM) acknowledges & appreciates your efforts in showing interest in our present issue under your kind perusal.

I would like to request you to supply your critical comments and suggestions about the material published in this issue, as well as on the journal as a whole, on our e-mail **infoijrcm@gmail.com** for further improvements in the interest of research.

If you have any queries, please feel free to contact us on our e-mail **infoijrcm@gmail.com**.

I am sure that your feedback and deliberations would make future issues better – a result of our joint effort.

Looking forward to an appropriate consideration.

With sincere regards

Thanking you profoundly

Academically yours

Sd/-
Co-ordinator

DISCLAIMER

The information and opinions presented in the Journal reflect the views of the authors and not of the Journal or its Editorial Board or the Publishers/Editors. Publication does not constitute endorsement by the journal. Neither the Journal nor its publishers/Editors/Editorial Board nor anyone else involved in creating, producing or delivering the journal or the materials contained therein, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the journal, nor shall they be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of information/material contained in the journal. The journal, neither its publishers/Editors/ Editorial Board, nor any other party involved in the preparation of material contained in the journal represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources. The responsibility of the contents and the opinions expressed in this journal are exclusively of the author (s) concerned.

ABOUT THE JOURNAL

In this age of Commerce, Economics, Computer, I.T. & Management and cut throat competition, a group of intellectuals felt the need to have some platform, where young and budding managers and academicians could express their views and discuss the problems among their peers. This journal was conceived with this noble intention in view. This journal has been introduced to give an opportunity for expressing refined and innovative ideas in this field. It is our humble endeavour to provide a springboard to the upcoming specialists and give a chance to know about the latest in the sphere of research and knowledge. We have taken a small step and we hope that with the active co-operation of like-minded scholars, we shall be able to serve the society with our humble efforts.

Our Other Journals