

African Journal of Business Management

Volume 10 Number 19 14 October, 2016

ISSN 1993-8233



*Academic
Journals*

ABOUT AJBM

The African Journal of Business Management (AJBM) is published twice monthly (one volume per year) by Academic Journals.

African Journal of Business Management (AJBM) is an open access journal that publishes research analysis and inquiry into issues of importance to the business community. Articles in AJBM examine emerging trends and concerns in the areas of general management, business law, public responsibility and ethics, marketing theory and applications, business finance and investment, general business research, business and economics education, production/operations management, organizational behaviour and theory, strategic management policy, social issues and public policy, management organization, statistics and econometrics, personnel and industrial relations, technology and innovation, case studies, and management information systems. The goal of AJBM is to broaden the knowledge of business professionals and academicians by promoting free access and providing valuable insight to business-related information, research and ideas. AJBM is a weekly publication and all articles are peer-reviewed.

Contact Us

Editorial Office: ajbm@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: <http://www.academicjournals.org/journal/AJBM>

Submit manuscript online <http://ms.academicjournals.me/>

Editor-in-Chief

Prof. Wilfred Isioma Ukpere

*Department of Industrial Psychology and People Management,
Faculty of Management,
University of Johannesburg,
South Africa.*

Editors

Dr. Amran Awang

*Faculty of Business Management,
02600 Arau, Perlis, Malaysia*

Prof. Giurca Vasilescu Laura

*University of Craiova, Romania
13, A.I. Cuza, 200585, Craiova, Dolj,
Romania.*

Associate Editors

Dr. Ilse Botha

*University of Johannesburg
APK Campus PO Box 524 Aucklandpark 2006
South Africa.*

Dr. Howard Qi

*Michigan Technological University
1400 Townsend Dr., Houghton, MI 49931,
U.S.A.*

Dr. Aktham AlMaghaireh

*United Arab Emirates University
Department of Economics & Finance
United Arab Emirates.*

Dr. Haretsebe Manwa

*University of Botswana
Faculty of Business
University of Botswana
P.O. Box UB 70478
Gaborone Botswana.*

Dr. Reza Gharoie Ahangar

*Islamic Azad University of Babol,
Iran.*

Dr. Sérgio Dominique Ferreira

*Polytechnic Institute of Cavado and Ave
Campus IPCA, Lugar does Aldão, 4750-810. Vila
Frescainha,
Portugal.*

Prof. Ravinder Rena

*Department of Economics
University of the Western Cape
Private Bag: X17
Modderdam Road
Bellville 7535
Cape town, South Africa*

Dr. Shun-Chung Lee

*Taiwan Institute of Economic Research
No. 16-8, Dehuei Street, Jhongshan District,
Taipei City 104,
Taiwan.*

Dr. Kuo-Chung Chu

*National Taipei University of Nursing and Health
Sciences No. 365, Min-Te Road, Taipei,
Taiwan.*

Dr. Gregory J. Davids

*University of the Western Cape
Private Bag x17, Bellville 7535,
South Africa.*

Prof. Victor Dragotă

*Bucharest Academy of Economic Studies, Department
of Finance
Bucharest, Sector 1, Piata Romana no. 6, Room 1104,
Romania*

Dr. Maurice Oscar Dassah

*School of Management, IT and Governance
University of KwaZulu-Natal
Post Office Box X54001
Durban
4000
South Africa.*

Prof. Joseph Offiong Udoayang

*University of Calabar
P.M.B 1115, Calabar. Cross River State, Nigeria.*

Prof. Robert Taylor

*University of KwaZulu-Natal
Varsity Drive, Westville
South Africa.*

Dr. Nazim Taskin

*Massey University - Albany
Quad Building A, Room 3.07
Gate 1, Dairy Flat Highway (State Highway 17)Albany,
New Zealand*

Prof. João J. M. Ferreira

*University of Beira Interior (UBI)
Estrada do Sineiro, Pólo IV 6200 Covilhã,
Portugal.*

Dr. Izah Mohd Tahir

*Universiti Sultan Zainal Abidin
Gong Badak Campus, 21300 Kuala Terengganu,
Terengganu, Malaysia.*

Dr. V. Mahalakshmi

*Panimalar Engineering College
7-A,CID Quarters, Mandaveli,Chennai-600028,
Tamilnadu,
India.*

Dr. Ata Allah Taleizadeh

*Iran University of Science and Technology
Faculty of Industrial Engineering,
Iran University of Science and Technology,
Narmak, Tehran, Iran.*

Dr. P.S. Vohra

*Chandigarh Group of Colleges, Landran, Mohali, India
#3075, Sector 40 D
Chandigarh, Pin code 160036*

Dr. José M. Merigó

*University of Barcelona
Department of Business Administration, Av. Diagonal
690, Spain.*

Prof. Mornay Roberts-Lombard

*Department of Marketing Management,
C-Ring 607, Kingsway campus, University of
Johannesburg, Auckland Park, Johannesburg, 2006,
South Africa*

Dr. Anton Sorin Gabriel

*Carol I Boulevard, No. 11, 700506, Iasi,
Alexandru Ioan Cuza University Iași,
Romania.*

Dr. Aura Emanuela Domil

*31 Horia Creanga, zip code 300253, Timisoara,
West University from Timisoara,
Faculty of Economics and Business Administration, Romania.*

Dr. Guowei Hua

*NO. 3 Shangyuancun, Haidian District, Beijing 100044,
School of Economics and Management,
Beijing Jiaotong University, China.*

Dr. Mehdi Toloo

*Technical University of Ostrava,
Ostrava, Czech Republic*

Dr. Surendar Singh

*Department of Management Studies, Invertis University
Invertis village, Bareilly -
Lucknow Highway, N.H.-24, Bareilly
(U.P.) 243 123 India.*

Dr. Nebojsa Pavlovic

*High school "Djura Jaksic"
Trska bb, 34210 Raca, Serbia.*

Dr. Colin J. Butler

*University of Greenwich
Business School, University of Greenwich, Greenwich, SE10
9LS,
London, UK.*

Prof. Dev Tewari

*School of Economics and Finance
Westville Campus University of Kwa-Zulu
Natal (UKZN) Durban, 4001
South Africa.*

Dr. Paloma Bernal Turnes

*Universidad Rey Juan Carlos
Dpto. Economía de la Empresa
Pº de los Artilleros s/n
Edif. Departamental, Desp. 2101
28032 Madrid, España*

Dr. Jurandir Peinado

*Universidade Positivo
Rua Silveira Peixoto, 306
Zip 80240-120 Curitiba – PR – Brazil*

ARTICLES

Linking business intelligence to a knowledge-based sustainable competitive advantage in organizations 459

Nixon Muganda Ochara and Thato Mokwena

Relationship between institutional quality and stock market performance: Evidence from emerging economies 469

Ernest Christian Winful, David Sarpong and Jones Agyei-Ntiamoah

Full Length Research Paper

Linking business intelligence to a knowledge-based sustainable competitive advantage in organizations

Nixon Muganda Ochara^{1*} and Thato Mokwena²

¹Department of Informatics, Namibia University of Science and Technology, Windhoek, Namibia.

²Department of Informatics, University of Pretoria, Pretoria, South Africa.

Received 11 April, 2016; Accepted 4 August, 2016

This study looks at the use of sentiment analysis and opinion mining in business intelligence by organisations to develop and sustain a competitive advantage. It discusses variables such as organisation structure, business intelligence, knowledge management, and opinions mining as some sources of competitive advantage. The approach for this research is based on a positivist paradigm. A survey research strategy was used and a questionnaire was used to collect sample data. The analysis revealed that variables related to knowledge management (KM) and business intelligence (BI) can be used to explain sustainable competitive advantage (CA). The regression model showed that the surrogate variables related to KM and BI can be used to explain CA; while OM was insignificant, taking into account the sample, its size and the context within which the study was conducted. The finding may appear contradictory to literature, implying that OM may not be contributing to sustainable competitive advantage. However, on closer scrutiny, the surrogate variable that represents the dependent construct of sustainable competitive advantage directly 'speaks' to the role of OM orientated towards processes that utilize opinions geared towards integration of KM and BI for sustaining competitive advantage. Thus, while the regression model depicted OM as insignificant in CA, the significant surrogate variable used for representing the dependent variable specifically captured the import of OM. OM, while negated as an independent variable, found its way as the 'glue' in linking BI and KM to sustainable CA.

Key words: Business intelligence, competitive advantage, sentiment analysis, opinion mining, competitive advantage.

INTRODUCTION

In recent years, there has been an outstanding and overwhelming growth in technology and its application within organisations. Many of these organisations have adopted technology not only to have easier execution of processes, but to be at a better advantage than their

competition. Linking competitive advantage to business intelligence (BI) has emerged as one of the key topics in organizational science and information systems (Chen et al., 2012).

BI has seen many enhancements and significant

*Corresponding author. E-mail: nixon.muganda@gmail.com.

JEL classification: M150 IT Management.

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

improvements in the past few years. Strategically and from a decision making perspective, BI assists organizations in corporate performance management; optimizing customer relations, monitoring business activity, and traditional decision support; packaging standalone BI applications for specific operations or strategies and management reporting of business intelligence (Negash, 2004). Organisations use BI as a tool for these processes to produce measurable and quantifiable factual data to support their strategic decisions. To plan their strategies, these organisations need to consider the pressures and challenges caused by the business environment in order to succeed and thrive in their industry and the global economy as a whole (Pirttimäki and Lönnqvist, 2006).

In the current economic climate, organisations strive to find ways to be better than the competition and to remain profitable. A business intelligence approach provides organisations with the ability to provide information that assists in strategic planning and decision making, and is based on data specific to the organisation. This study is focused on exploring the following research question: *How can organisations use sentiments analysis in business intelligence and knowledge management to build a sustainable competitive advantage?* The main objective of this paper is to investigate the use of sentiment analysis to gain competitive advantage. The relationships between the constructs of business intelligence, knowledge management, and sentiment analysis are investigated. We also investigate how organizational structure influences or complements the relationships between these constructs.

REVIEW OF LITERATURE

The section also looks at the concept of sentiment analysis as a separate concept and how it integrates into both business intelligence and knowledge management. Competitive advantage is also explored and how it is linked to business intelligence, knowledge management, and sentiment analysis.

Business intelligence and knowledge management

Luhn (1958) describes intelligence as the ability to comprehend the interrelationships of presented facts in such a way as to guide action towards a desired goal. Over the years, BI has consequently borrowed from Luhn's description of intelligence and has been described as the ability by organisations to take all their historic data (and current data) and convert them into useful information. Ultimately, this information, through analysis, is converted into knowledge which is then conveyed to the organisations' main stakeholders and decision makers as promptly as possible. The question has

always been, "how can we use the information at our disposal better to assist in making better informed decisions?" BI primarily helps provide historical, current and predictive views of business operations from data stored in the data warehouse, which provides organizations with an opportunity to make effective business decisions (Wang and Wang, 2008). These technologies, processes, and applications analyze structured and unstructured organization data and business processes within the organisation. Demand for BI applications continues to grow even at a time when demand for most IT products is soft (Parenteau et al., 2016). According to Wang and Wang (2008), organisations utilising massive data to gain competitive advantage seems to be the central theme of business intelligence deployment.

There is a perception that business intelligence and knowledge management are two independent information systems domains (Wang and Wang, 2008). Elbashir et al. (2008) make the case that with business intelligence, organisations can improve decision making and through better informed decisions, gain competitive advantage. While this is true, Herschel (2005) argue that knowledge management can also be used to support decision making processes by providing new ways for sharing knowledge in organisations. Pollak et al. (2012) argue that these two fields may offer considerably more and better benefits if they are in synergy; with their integration resulting in improvement in decision support capabilities in organisations and promote the formation of 'organisational memory' repository. Wang and Wang (2008) put emphasis on the potential of integrating these two fields. Early efforts to find synergy between the two fields also considered data mining, not only as a business intelligence tool, but that the process of data mining is also a knowledge management process (Chen and Liu, 2005). The elaboration of data mining as a tool and a process results in a natural connection between business intelligence and knowledge management (Wang and Wang, 2008).

Sentiment analysis and opinion mining

Sentiment analysis or opinion mining is the computational study of natural language (including opinions, sentiments, and emotions) by applying computational linguistics, and text analytics to identify and extract subjective information from opinions by human beings (Mejova, 2009).

The objective is to try to understand opinions, whether spoken or written, with the aid of technological applications. Like business intelligence, it is used to gain insight, generally from customer and consumer commentary and opinions in order to help organisations using it. The techniques and technologies for sentiment analysis have been adapted in such a way that allows them to be automated allowing optimum, enhanced and

advanced sentiment analysis through automated sentiment analysis. There are different natural language approaches that allows automated process to detect the sentiment of short informal textual messages such as tweets and SMS (message-level task); and the sentiment of a word or a phrase within a message (term-level task) (Kiritchenko et al., 2014). There are also several measurement platforms which employ different statistical methodologies and techniques to evaluate sentiment which may be found across the web in various forms (You et al., 2016). A key challenge in sentiment analysis as a classification process is determining whether a particular sentiment is subjective or not, and whether the opinion expressed is positive or not (Pang and Lee, 2004; Medhat et al., 2014).

Classification is a key challenge since sentiments and opinions are predominantly unstructured in form, complex and large, existing in various databases, social media sites and in corporate websites. In linking sentiment analysis and opinion mining, we recognize that the competitive environment of organizations has changed and there is need to monitor and analyze not only the customer-generated content on their own social media sites, but also the textual information on their competitors' social media sites (He et al., 2013). Thus, sentiment analysis and opinion mining is increasingly forming part of the repertoire of tools that are used for generating competitive advantage.

Linking sentiment analysis to business intelligence and sustainable competitive advantage

Competitive advantage is implementing a strategy currently not used by the competition, whereas sustainable competitive advantage implies that the implemented strategy cannot be duplicated (Barney, 1991). Duplication of strategy is made much more difficult if resources rare, non-substitutable, valuable, and inimitable. Organisations must develop and nurture core competencies in order to establish and sustain their competitive advantage (Prahalad et al., 1990). Organisations need to invest in capabilities such as active information acquisition, incorporation of customer's voice/opinions, and knowledge sharing and distribution (Kumar et al., 2011).

We envisage the 'glue' to linking sentiment analysis to sustainable competitive advantage to the knowledge management perspective in which knowledge is seen as a strategic asset with the potential to be a source of competitive advantage for an organization (Halawi et al., 2005). Thus it is necessary for organizations to innovate from the generic thinking of competitive strategy, and instead consider the use of knowledge management. Additionally, knowledge management enables the organisations to remain competitive in the changing environment with more focus on adaptability, survival, and abilities (Rahimli, 2012). Thus the key to developing

a sustainable competitive advantage lies in the ability to acquire and to transfer knowledge, which, as we had seen earlier, can be realized through the process of data mining.

Fuloria (2011) discusses the use of advanced analytics by organisations to maximize profits and build long-term sustainable competitive advantage. He identifies four forces that drive advanced analytics: consumer deleveraging, persistent consumer frugality, increased regulations and the surfeit of data. There is currently a surfeit of data generated by users connected to the World Wide Web (WWW) in various different platforms like social networks, blogs, forums, and products websites through different types of devices like mobile phones and desktop computers. Most of the data generated in these platforms is in a form of sentiment. This torrent of data has led to the evolution of analytics from just reporting to predictive analytics (Fuloria, 2011). As it has been discussed in the literature above, knowledge is a key component to building a sustainable competitive advantage. Business intelligence has also been identified as a key component to a sustainable competitive advantage. Integrating both business intelligence and knowledge management would enable organisations to create niche business intelligence in order to maintain a competitive advantage. We therefore seek respondents' opinions on the integration of the constructs of Sentiment Analysis, Business Intelligence, Knowledge Management and Sustainable Competitive advantage in this study.

METHODOLOGY

The research conducted was limited to South African Companies. Furthermore, it was limited to the knowledge of IT project managers and knowledge management experts working in projects geared towards realizing the use of BI in organizations. The researchers used a quantitative survey research strategy. Quantitative research is primarily used by positivist researchers and a survey is strongly linked to positivism. The sampling frame comprised of 79 organizations out of which responses were received from 30 firms from various sectors of South Africa. A convenience sampling technique was employed to identify those organizations that are currently using BI or some knowledge management application. The representatives of these companies comprised of a cohort of honors and masters part time students, employed in those organizations and knowledgeable about the focus of the study. The demographic profile of the respondents ranged from graduate trainees to senior managers in the 30 organizations that participated in the research.

Key constructs

The key constructs, motivated in the literature review section, were Business Intelligence, Knowledge Management, Sentiment Analysis/Opinion Mining and Competitive Advantage. Business Intelligence, Knowledge Management and Sentiment Analysis items were considered as the independent variables; while the Competitive Advantage items were the dependent variables (Table 1). Although the test items were sourced from instruments used in prior research (as per Table 1), the instrument was piloted among

Table 1. Constructs and test items.

Constructs	Test items	No. of items
Business intelligence	BI1 – BI7	7
Knowledge management	KM1-KM13	13
Sentiment analysis	OM1-OM11	11
Competitive advantage	CA1-CA8	8

Table 2. Reliability statistics.

Construct	Cronbach's Alpha	Cronbach's Alpha based on standardized items	N of items
Business Intelligence	0.927	0.927	7
Knowledge Management	0.947	0.947	13
Sentiment Analysis	0.924	0.924	11
Competitive Advantage	0.942	0.942	8

5 academics and minor corrections for purposes of clarification and better language use were done.

Data analysis tools

A descriptive and inferential analysis was used to identify patterns in the data and draw conclusions. A factor analysis based on a principal axis factoring with varimax rotation of the scale was conducted to investigate the internal structure as well as to determine the smallest number of factors that could be used to best represent the interrelations among the sets of variables for the construct. In deciding on the number of factors to extract, a combination of the Kaiser-Guttman Rule (K1 rule), and the scree plot were utilized to determine the most appropriate component solution.

RESULTS

Reliability analysis

In order to assess whether the data from which the 7 variables of Business Intelligence were reliable, Cronbach Alpha's were computed. The alpha for the 7 items of BI was 0.927, and was therefore retained for further analysis. The *Knowledge Management* (KM) construct had a Cronbach Alpha of 0.947, but had a number of the items scoring below 0.6, implying that their inclusion into the set was questionable. These were KM8 (0.643), KM 9 (0.668), KM10 (0.595) and KM13 (0.698). These four items were therefore deleted and were not considered for further analysis. The Opinion Mining (Sentiment Analysis) construct had 11 items, with a Cronbach's Alpha of 0.924; but with 7 items having coefficients between 0.7 and 0.6, which are therefore considered questionable. These seven items (OM1=0.683; OM4=0.605; OM5=0.648; OM6=0.638; OM7=0.683; OM10=0.637 and OM11=0.574) were

deleted and were not considered during further analysis. 7 of the 8 the Competitive Advantage variables had Cronbach Alphas of over 0.7 and were therefore acceptable, while the overall coefficient for the construct was 0.942. Thus after assessing the internal consistency of the test items and deleting those items whose coefficients fell below a certain threshold, the total number of variables that remained was 27 (Table 2).

Factors underlying opinion mining and competitive advantage

A factor analysis based on a principal axis factoring with varimax rotation of the BI, KM, OM and CA scales was conducted to investigate the internal structure as well as to determine the smallest number of factors that could be used to best represent the interrelations among the sets of variables. In deciding on the number of factors to extract, theoretical justification from the literature was used to indicate that four factors for the theorized constructs of BI, KM, OM and CA should be extracted. Factors considered significant were based on a criteria proposed in the literature.

Comrey and Lee (2013) suggests that the pattern/structures in excess of 0.71 loading are considered excellent, 0.63 as very good, 0.55 as good, 0.45 as fair, and 0.32 to be poor. Hair et al. (2010) reiterates that there should be due consideration of the sample size when deciding on the threshold for the loadings. According to their guidelines, the ideal factor loading for a study with a small sample size (29 in this case) should be in excess of 0.71 (excellent). This cut-off was considered appropriate, and given the exploratory nature of this study, we also employed the factor analysis mainly as a heuristic tool to intuitively unearth general tendencies related to variables of BI, KM, and OM that

Table 3. Explained variance.

Factor	Initial Eigenvalues			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	14.040	52.000	52.000	7.418	27.473	27.473
2	2.927	10.840	62.840	5.630	20.851	48.324
3	2.190	8.113	70.952	3.453	12.790	61.114
4	1.702	6.302	77.255	3.353	12.420	73.534
5	1.363	5.047	82.302	-	-	-
6	0.918	3.400	85.701	-	-	-
7	0.689	2.551	88.253	-	-	-
8	0.625	2.315	90.568	-	-	-
9	0.523	1.937	92.505	-	-	-
10	0.445	1.646	94.152	-	-	-
11	0.379	1.405	95.557	-	-	-
12	0.291	1.076	96.633	-	-	-
13	0.214	0.793	97.426	-	-	-
14	0.170	0.628	98.053	-	-	-
15	0.132	0.489	98.543	-	-	-
16	0.102	0.376	98.919	-	-	-
17	0.093	0.344	99.264	-	-	-
18	0.071	0.262	99.526	-	-	-
19	0.048	0.176	99.702	-	-	-
20	0.031	0.114	99.816	-	-	-
21	0.022	0.082	99.898	-	-	-
22	0.014	0.050	99.948	-	-	-
23	0.008	0.030	99.978	-	-	-
24	0.003	0.013	99.990	-	-	-
25	0.002	0.006	99.997	-	-	-
26	0.001	0.003	99.999	-	-	-
27	0.000	0.001	100.000	-	-	-

loaded heavily and can be considered for explaining CA.

The new 27 – item scale was factor analyzed and the resulting optimal factor solution interpreted. A summated scale was then constructed to form the basis for subsequent multiple regression analysis. According to Tabachnick and Fidell (2001) factors with a single variable can be described as poorly defined. Factors with two variables should be highly correlated with each at weightings of > .70. The optimal solution contained four factors, with an explained variance of 74% (Table 3).

In order to test for the suitability of the data to factor analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test were used. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in the variables that might be caused by underlying factors. The closer the value of KMO to 1.0, the more useful the results of the factor analysis are. Table 4 indicates that KMO value is 0.47. We indicated though that this was an exploratory factor analysis and the intention was to use it as a heuristic tool for uncovering the underlying structure.

Bartlett's test shows a value of 0.000, which is less than 0.05, indicating that the data is amenable for factor analysis (Table 4).

Table 5 presents the items, factor loadings, descriptive statistics and the names that were given the variables that loaded on the factors. The naming of the factors took into account the significance of the loadings. *Factor 1*, highlighting the *Knowledge Management* component, had six variables (KM7, KM6, KM3, KM2, KM4, and KM12) heavily loaded. The three heavily weighted variables focuses on integration of different types (KM7) and sources (KM6) of knowledge in the development of key organizational strategies (KM3). The other three KM processes seek to use KM in decision making (KM2), acquisition of customer knowledge (KM4) and in improving organizational performance. Given the high loadings (Table 5) recorded for the six variables, the means of the six KM variables will be used as surrogate values for further regression analysis in the next section.

Factor 2, related to *Competitive Advantage*, had four variables with high loadings (CA6 =0.86, CA5 = 0.83,

Table 4. KMO and Bartlett's test.

Kaiser-Meyer-Olkin measure of sampling adequacy		0.470
Bartlett's test of Sphericity	Approx. Chi-square	1075.200
	df	351
	Sig.	0.000

Table 5. Rotated factor matrix.

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Organization has a process of integrating different types of knowledge (KM7)	0.809	-	-	-
Organization has a process of integrating different sources of knowledge (KM6)	0.799	-	-	-
Organization has a process that uses KM to develop key strategies (KM3)	0.793	-	-	-
Organization has a process that uses KM for key decision making processes (KM2)	0.745	-	-	-
Organization has a process of for acquiring customer knowledge (KM4)	0.732	-	-	-
Organization has a process that utilizes KM to improve performance (KM12)	0.717	-	-	-
Organization has unique opinion utilization processes that are not easy for the competition to imitate (CA6)	-	0.857	-	-
Organization has unique KM processes that are not easy for the competition to imitate (CA5)	-	0.832	-	-
Organization has unique BI processes that are not easy for the competition to imitate (CA4)	-	0.829	-	-
Organization integrates BI and KM to maintain competitive advantage (CA7)	-	0.785	-	-
Organization has a process that uses BI for key decision making processes (BI3)	-	-	0.867	-
Organization has a process that utilizes BI to improve performance (B12)	-	-	0.745	-
Organization has a process for acquiring customer opinions (OM2)	-	-	-	0.873
Organization has a process for filtering customer opinions (OM3)	-	-	-	0.791
Organization has a process of using opinions to develop new products and services (OM8)	-	-	-	0.781
Organization has a process of matching opinions to challenges and problems (OM9)	-	-	-	0.774

CA4 = 0.83 and CA7 = 0.79) focused on unique opinion utilization processes of the organization, unique KM processes, unique BI processes and an integration of BI and KM for sustaining competitive advantage. Thus all the highly loaded items of competitive advantage captured an aspect of opinion mining, KM, BI and the integration of these processes. *Factor 3*, named *Business Intelligence*, had two highly loaded factors. The first item (BI3) had a weighting of 0.87 emphasized the use of BI in key decision making processes; while the second item (BI2) Organization has a process that uses BI for key decision making processes (BI3) linked to the use of BI(0.75) in improving organizational performance. Thus the two items emphasize that the use of BI in key decision making processes is likely to impact positively on organizational performance.

Factor 4, named *Opinion Mining/Sentiment Analysis*, comprised of four items (OM2 = 0.87; OM3 = 0.79; OM8 = 0.78; OM9 = 0.77) reiterating the importance of processes for acquiring, filtering, using and matching customer opinions to challenges and problems. Thus the opinion mining variables simply emphasize the need for developing the process of integrating sentiment analysis

into organizational processes. The four factor interpretation above suggests that three summated scales can be constructed to represent the three constructs of KM, BI and OM representing the independent variables; while a single summated scale for the CA construct is applicable to the dependent variable (Table 6). Each of the summated scales uses a surrogate variable with the highest factor loading. The reliability of the summated scale is best measured by Cronbach's alpha, which in this case is 0.94 for scale 1 (factor 1), 0.96 for scale 2 (factor 2), 0.86 for scale 3 (factor 3) and 0.90 for scale 4 (factor 3).

Multiple regression analysis

The 3 – item summated scale for KM, OM and BI representing the set of multiple independent variables and the 1 – item summated scale representing the set of multiple dependent variables was used in further multiple regression analysis, as a set, to explain the relationship between the predictor (IV) and the outcome variables (DV). The statistical problem involves identifying the

Table 6. Summated scale.

Construct	Summated scale mean	Cronbach Alpha
Factor 1: Knowledge management	4.385	0.936
Factor 2: Competitive advantage	3.833	0.959
Factor 3: Business intelligence	4.467	0.858
Factor 4: Opinion mining	4.767	0.904

Table 7. Model summary.

Model	R	R Square	Adjusted R square	Std. error of the estimate	Durbin-Watson
1	0.715 ^a	0.512	0.476	1.317	1.719

Table 8. ANOVA.

Model	Sum of squares	df	Mean Square	F	Sig.
1 Regression	49.053	2	24.527	14.146	0.000 ^b
Residual	46.813	27	1.734	-	-
Total	95.867	29	-	-	-

Table 9. Correlations.

Variable		CA	KM	BI
Pearson correlation	Opinion Mining (CA)	1.000	0.591	0.668
	Knowledge Management (KM)	0.591	1.000	0.570
	Business Intelligence (BI)	0.668	0.570	1.000
Sig. (1-tailed)	CA	0.000	0.000	1.000
	KM	0.000	1.000	0.001
	BI	1.000	0.001	0.001

extent and nature of the link between the underlying latent relationships between the set of dependent and independent variables. The analysis in this study provides evidence linking BI, KM and OM to sustainable CA. The correlation matrix of the summated scale variables had significant correlations between the IVs and the DV, but with insignificant correlations between the IVs. The insignificant correlations amongst the IVs confirm that there are no multi-collinearity concerns in the remaining data for further regression analysis.

The model summary (Table 7) shows that the multiple correlation coefficient (R), after deleting insignificant predictors and using KM7 and B12 simultaneously, is 0.715 ($R^2 = 0.38$), and the adjusted R^2 is 0.476, meaning that 48% of the variance in *Competitive Advantage* can be explained and predicted by *Knowledge Management* and *Business Intelligence*. According to Cohen, Cohen, West, & Aiken (2013), this is a large effect. This explanation is in part related to the fact that only proxy

variables were used as well as the magnitude and the effect of the sample size (29). The proxy variables were used to minimize the effects of collinearity, which was evident when all the variables for each construct used.

The ANOVA summary (Table 8) shows that $F = 14.146$ and is significant, which gives an indication that the combination of the predictors significantly explain and predict competitive advantage. The correlations are shown in Table 9 which shows that the two predictors are significantly correlated to the independent variable. Table 10 suggest that the two predictors (KM and BI) are significantly contributing to the equation (see the sig column); thus implying that knowledge management and business intelligence contributes most to the attainment of competitive advantage, barring other factors unrelated to the constructs that were being taken into account in this study. Table 10, under collinearity statistics, also shows that we do not need to worry about collinearity since the VIF values are close to 1, thus there is minimal

Table 10. Coefficients^a

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Correlations			Collinearity statistics	
	B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
Constant	0.146	0.717	0	0.204	0.840					
1KM	0.314	0.166	0.310	1.895	0.049	0.591	0.343	0.255	0.675	1.182
BI	0.498	0.166	0.491	3.002	0.006	0.668	0.500	0.404	0.675	1.082

^aDependent variable: CA.

multicollinearity. Therefore, from a predictive perspective, KM and BI are critical for realizing CA; while OM has an insignificant role to play.

DISCUSSIONS

The results from the regression and correlation analysis linked *knowledge management, business intelligence and competitive advantage*. The knowledge management factor specifically highlighted that an organization requires *processes of integrating different types of knowledge (KM7) and processes that utilizes business intelligence to improve organizational performance (BI2)*. These two processes, based on the model results are likely to impact on sustainable competitive advantage if an organization has a *unique opinion utilization processes that are not easy for the competition to imitate (CA6)*. The impact of *Knowledge Integration Processes*, which had a factor loading of 81%, can be interpreted to be linked to the quest by organizations to achieve integration of the knowledge assets by establishing processes to optimize knowledge transfer within organizations. This finding is not new, and various researchers (Lee & Choi, 2003; Nahapiet & Ghoshal, 1998) have elaborated on the significance of knowledge processes as a foundation to organizational performance and one of the key capabilities is developing processes for knowledge transfer. However, the value from the finding links to the need not only to transfer knowledge, but also to consider types (characteristics) of knowledge transferred.

A possible implication is that, while development and integration of the processes of knowledge transfer is vital, the other aspect is to recognize that organizational knowledge assets may be diverse and the nature of these assets need to be understood. Again, there have been studies that have been done documenting the types of knowledge and what we take from the import of the finding is that the processes of knowledge transfer need to take into account the type of knowledge. Findings by Evans & Easterby-Smith (2001) identify how various knowledge types can be embedded in the process of knowledge transfer. So, in a preliminary sense, and from

a developing country's perspective, we recognize the importance attached to the influence of knowledge integration process on competitive advantage.

The other influence factor related to business intelligence (BI2) had a factor loading of 75% in the factor analysis, was significant (at 0.006) and had the largest beta value in the regression model. The business intelligence factor focused on the need to develop processes that *utilize business intelligence to improve organizational performance*. As it has been discussed in the literature, knowledge is a key component to building a sustainable competitive advantage. Business intelligence has also been identified as a key component to a sustainable competitive advantage. Cheng, Lu, & Sheu (2009) confirms that integrating both business intelligence and knowledge management would enable organisations to create niche business intelligence in order to maintain a competitive advantage, thus impacting on organizational performance. Business intelligence, considered as a data mining tool, and knowledge management, a process of data mining (Brachman and Anand, 1996), can impact on organizational performance.

Conclusions

This study was premised on the notion that opinion mining/sentiment analysis, knowledge management and business intelligence plays a role in influencing the competitiveness of organizations. The starting point was to theorize that there are linkages between the independent constructs of sentiment analysis, knowledge management and business intelligence with the dependent construct of sustainable competitive advantage. Firstly, the components making up sentiment analysis, knowledge management, business intelligence and competitive advantage categories were derived empirically using exploratory factor analysis. Even though the survey instrument was based on validated instruments from prior literature, it was found that the latent factors which were eventually uncovered did not map very well on the factors originally postulated in the literature. In particular, the knowledge management

cluster of items had four items out of seven having Cronbach alphas of less than 0.60 and were therefore dropped from the item set. In addition, items representing sentiment analysis had set items dropped due to their Cronbach alpha score; while only one item was dropped for those items representing competitive advantage. Thus from an item set of 37 items, 10 items were deleted based on “rules of thumb” related to Cronbach alpha resulting in a final item set of 27, with 30 valid cases used for analysis.

A further factor analysis of the 27 items that remained was undertaken to extract the latent factors and achieve reduction of the variables that can be used to increase the explanatory power. Four factors were confirmed extracted, with items loading correctly to the early theorized constructs. Under the construct of knowledge management, there were six items that were significantly loaded with the emphasis being the *integration of knowledge sources for the development of organizational strategies*. Under the construct of business intelligence, two variables were significantly loaded emphasizing the need to *integrate knowledge management and business intelligence for better decision making to realize organizational performance*. A third factor, focusing on sentiment analysis, had four factors highly loaded, orientated towards the need for organizational processes for acquiring, filtering, using and matching customer opinions to challenges and problems. Thus, the opinion mining variables simply emphasize the need for developing the process of integrating sentiment analysis into organizational processes. The fourth factor, consisting of the dependent variables, with four variables heavily loaded. The fourth factor was related to the utilization of opinion, KM and BI processes and an integration of BI and KM for sustaining competitive advantage. Thus as per the factor analysis, all the highly loaded items of competitive advantage captured an aspect of opinion mining, KM, BI and the integration of these processes. Thus, the use of factor analysis preliminarily confirms that the theorized constructs of KM, BI and OM are latent constructs that can be used to explain and possibly to predict sustainable Competitive Advantage in organizations.

Secondly, a regression analysis was undertaken after using a summated scale of the reduced variables from the factor analysis results above. Surrogate variables were used to represent KM, BI, OM and CA constructs. An analysis of the reliability of the summated scale was confirmed, after which proxy variables were used to represent the various constructs. The multiple regression analysis undertaken sought to explain the nature and the strength of the link between the independent and the dependent variables. The regression model summary highlighted earlier showed that the surrogate variables related to KM and BI can be used to explain CA; while OM was insignificant, taking into account the sample, its size and the context within which the study was

conducted. The finding may appear contradictory to literature, implying that OM may not be contributing to sustainable competitive advantage. However, on closer scrutiny, the surrogate variable that represents the dependent construct of sustainable competitive advantage directly ‘speaks’ to the role of OM orientated towards processes that utilize opinions geared towards integration of KM and BI for sustaining competitive advantage. Thus, while the regression model depicted OM as insignificant in CA, the significant surrogate variable used for representing the DV specifically captured the import of OM. OM, while negated as an independent variable, found its way as the ‘glue’ in linking BI and KM to sustainable CA. So overall, the study confirms the criticality of the dependent variable constructs in influencing the sustainability of organizational competitive advantage; though not as early theorized.

A number of limitations must be recognized. Firstly, the sample size is relatively small, though the exploratory nature of the study allows us to make the preliminary conclusions that we make in this research; but we do recognize that the statistical support for the proposed constructs is not as strong. There is no evidence for the generalizability of the specific findings in terms of factors uncovered to other developing countries where the context may be very different. Secondly, although a theoretical rationale is given for the theoretical model whereby the constructs appear to be linked, it must be recognized that, from a statistical point of view, the support is only for correlation (or association) between the factors as highlighted and the directionality cannot be substantiated. Future research is vital.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

- Barney J (1991). Firm Resources and Sustained Competitive Advantage. *J. Manage.* 17(1):99-120.
- Brachman RJ, Anand T (1996). The process of knowledge discovery in databases. In *Advances in knowledge discovery and data mining*. pp. 37-57.
- Chen H, Chiang RHL, Storey VC (2012). Business intelligence and analytics: From big data to big impact. *Mis Q.* 36(4):1165-1188.
- Cheng H, Lu Y.-C, Sheu C (2009). An ontology-based business intelligence application in a financial knowledge management system. *Expert Syst. Appl.* 36(2):3614-3622.
- Cohen J, Cohen P, West SG, Aiken LS (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*. Routledge.
- Comrey AL, Lee HB (2013). *A first course in factor analysis*. Psychology Press, 146
- Elbashir MZ, Collier PA, Davern MJ (2008). Measuring the effects of business intelligence systems: The relationship between business process and organizational performance. *Int. J. Account. Inform. Syst.* 9(3):135-153.
- Evans N, Easterby-Smith M (2001). Three Types of Organizational

- Knowledge: Implications for the Tacit-Explicit and Knowledge Creation Debates. *Organizational Learning and Knowledge Management: New Directions*, London Ontario, Canada. Retrieved on January, 16, 2011.
- Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL (2010). *Multivariate Data Analysis*. Prentice Hall.
- Halawi L, Aronson JE, Mccarthy RV (2005). Resource-Based View of Knowledge Management for Competitive Advantage. *Electron. J. Knowl. Manage.* 3(2):75-86.
- He W, Zha S, Li L (2013). Social media competitive analysis and text mining: A case study in the pizza industry. *Int. J. Inform. Manage.* 33(3):464-472.
- Kiritchenko S, Zhu X, Mohammad SM (2014). Sentiment analysis of short informal texts. *J. Artif. Intell. Res.* 50:723-762.
- Kumar V, Jones E, Venkatesan R, Leone RP (2011). Is Market Orientation a Source of Sustainable Competitive Advantage or Simply the Cost of Competing? *J. Market.* 75(1):16-30.
- Luhn HP (1958). A Business Intelligence System. *IBM J. Res. Dev.* 2(4):314-319.
- Medhat W, Hassan A, Korashy H (2014). Sentiment analysis algorithms and applications: A survey. *Ain Shams Eng. J.* 5(4):1093-1113.
- Mejova Y (2009). Sentiment Analysis: An Overview. *Comprehensive Exam Paper*. Computer Science Department. pp. 1-34.
- Nahapiet J, Ghoshal S (1998). Social capital, intellectual capital, and the organizational advantage. *Acad. Manage. Rev.* 23(2):242-266.
- Negash S (2004). Business intelligence. *Commun. Assoc. Inform. Syst.* 13:177-195.
- Pang B, Lee L (2004). A sentimental education. 42nd Annual Meeting on Association for Computational Linguistics. pp. 271-278.
- Parenteau J, Sallam RL, Howson C, Tapadinhas J, Schlegel K, Oestreich TW (2016). Magic Quadrant for Business Intelligence and Analytics Platforms. *Gartner Research*, (February) P 82.
- Pirttimäki V, Lönnqvist A (2006). The Measurement of Business Intelligence. *Inform. Syst. Manage.* 32-40. <http://doi.org/10.1201/1078.10580530/45769.23.1.20061201/91770.4>
- Prahalad CK, Hamel G, June MY (1990). The Core Competence of the Corporation. *Harvard Bus. Rev.* 68(3):79-91.
- Rahimli A (2012). Knowledge Management and Competitive Advantage. *Inform. Knowl. Manage.* 2(7):37-43.
- Tabachnick BG, Fidell LS (2001). *Tabachnick, Fidell_2001.pdf*. Using Multivariate Statistics. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Cleaning+up+your+act:+Screening+Data+Prior+to+Analysis#0>
- Wang H, Wang S (2008). A knowledge management approach to data mining process for business intelligence. *Ind. Manage. Data Syst.* 108(5):622-634.
- You Q, Luo J, Jin H, Yang J (2016). Cross-modality Consistent Regression for Joint Visual-Textual Sentiment Analysis of Social Multimedia. In *Proceedings of the Ninth ACM International Conference on Web Search and Data Mining - WSDM '16*. pp.13-22.
- Herschel RT, Jones NE (2005). Knowledge management and business intelligence: the importance of integration. *J.knowledge manage.* 9(4):45-55.

Full Length Research Paper

Relationship between institutional quality and stock market performance: Evidence from emerging economies

Ernest Christian Winful*, David Sarpong and Jones Agyei-Ntiamoah

Department of Accountancy, Accra Polytechnic, Ghana.

Received 30 August, 2016; Accepted 21 September, 2016

The purpose of this study is to provide empirical evidence on the effect of institutional quality on stock market performance. In order to evaluate the effect of institutional quality on stock market performance, Calderon Rossell models have been estimated using generalized method of moment's technique. A panel data of 41 emerging countries for the period 1996 to 2011 is used to estimate the results. The results suggest that institutional quality has a positive and significant influence on stock market performance. Policy makers in emerging countries must follow a parallel policy agenda of improving the quality of their institutions as well as education. These are paramount to the performance of stock markets performance in emerging countries.

Key words: institutional quality, stock market, emerging economies, macroeconomic variables.

INTRODUCTION

Gani and Ngassam (2008) examine the links between institutional factors and stock market performance in a sample of eight Asian countries with developing as well as mature stock markets. These are enough to conclude that economic growth, technology, rule of law and political stability affect capital market performance while poor institutional quality negatively affect it. The results support the proposition that institutional quality is an integral part of enhancing the performance of stock markets in a country hence institutional quality matters for stock market performance.

Hearn and Piesse (2010) and Adjasi and Biekpe (2006)

finding support the fact the stock market performance relate positively with economic performance. For instance, Kemboi and Taru (2012) and Yartey (2008) established that confidence in investments is enhanced with improvement in property right. It is believed that a country with strong institutional structures leads to institutional efficiency and productivity. An improvement in institutional quality leads to higher gross domestic product (GDP) which implies more money for investment. Countries with strong institutional quality have more liquid stock markets. These articles reviewed very little literature of emerging economies on the effect

*Corresponding author. E-mail: ephameswinful@yahoo.com.

JEL: E44, F01, G28, O43.

Authors agree that this article remain permanently open access under the terms of the [Creative Commons Attribution License 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

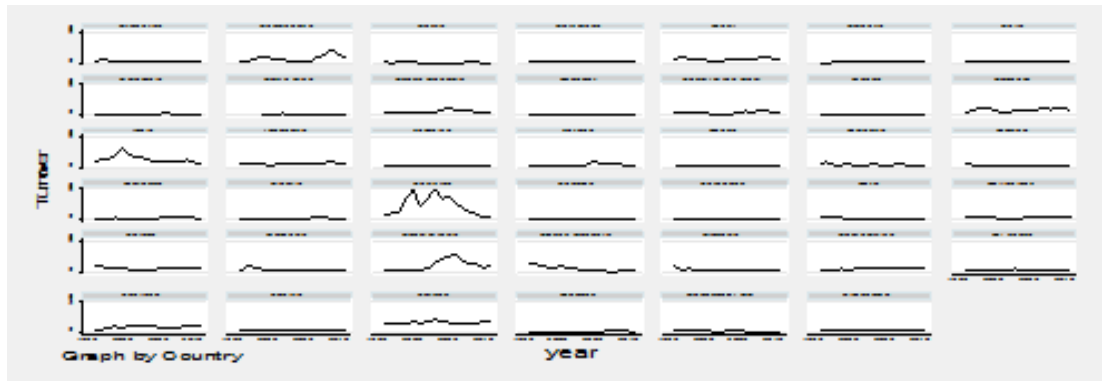


Figure 1. Trend of turnover by countries (1996-2011).

of institutional quality on stock market performance of emerging economies, using a panel data.

This study outlines the main determinants of capital market performance for an emerging economy. This study contributes to literature by confirming the evidence on the relationship between dimensions of institutional quality such as the efficiency of the government, the political climate, the level of corruption and the regulatory authority and performance of stock markets.

Emerging economies

As we can observe from Appendix 1, stock market performance indicators exhibit a considerable variability across countries, according to the stock market capitalization ratio. The top ten countries in terms of mean stock market capitalization for the period under review are South Africa, Malaysia, Jamaica, Jordan, Chile, Zimbabwe, Saudi Arabia, Thailand, Philippines and India in that order. The countries with lowest stock market capitalization are Ecuador, Slovak Republic, Bangladesh, Paraguay and least Uruguay. As we can see stock market performance in terms of total value trade as percentage of GDP, South Africa move from the first to third position with Saudi Arabia occupying the first position from our sample. Market capitalization does not relate with size of a country. Over the period under study China with the largest economy has smaller average market capitalization than Hong Kong while South Africa market capitalization is almost the same as China despite their smaller GDP and population. Again even though Nigeria has a larger economy than Ghana, Ghana is ahead of Nigeria in terms stock market capitalization as a measure of performance of the capital market.

Performance of stock markets in emerging economies does not imply that even the most advanced stock markets are mature. With developing economies, considerable part of their total market capitalization is

accounted by trading in few stocks. Most stocks on these markets often have informational and disclosure deficiencies hence weakness in the transparency of transactions of these markets. For this reason Tirole (1991) and El-Erian and Kumar (1995) established that share prices in emerging economies are considerably more volatile than advance markets. In spite of this high volatility, most corporations have benefited from stock market in less developed economies for instance Indian stock market.

Market liquidity is one the measures of stock market performance. Market Liquidity is ability for investors to buy and sell shares. We measure the activity of the stock market using total value traded as a share of GDP, which gives the value of stock transactions relative to the size of the economy. According to the work of Levine and Zervos (1998), this measure is used to gauge market liquidity. This is because it measures trading relative to economic activity. Of the 41 countries Pakistan, Saudi Arabia, Bangladesh, Turkey and India turnout to be countries with liquidity as shown in Figure 1. The liquidity in these countries were recorded around the late 90's and the early part of 2000 were most of these countries have undertaken successful financial liberalization (Figure 1).

Institutional quality

Institutional quality can broadly be explained as guidelines to govern and direct the formation of expectations of human beings by one another. Conventional growth models tend to focus largely on the role of physical and human capital in explaining the growth performance within and across time and countries. These have a lot to do with the cost and the ease of doing business. In particular, it has been found that there is a major role that is played by institutions in influencing the effects of either human or physical capital or both in influencing the growth path of economies. It is

a common knowledge that disparity in financial market performance and economic performance across countries is due to institutional factors the various countries. This view is also captured in Adam Smith work, *The Wealth of Nations*.

Many researchers like Williamson (1995), Acemoglu et al. (2001), Aron (2000), Collier (2006) and North (1990) established that institutional factors play vital role in economic performance of countries. Researchers like Collier (2006), World Bank (2007), IMF (2003) and Ndulu (2006) have confirmed the assertion by attributing the poor performance of countries in Africa to poor institutional factors. Subramanian and Roy (2001) and Sobhee (2009) on the other hand also confirmed it by saying that good institutional factors explain the impressive track record Mauritius. To operationalize the definition of institutional factors we say it pertains to elements that have to be in place to encourage an enabling business environment. Knack and Keeffer (1995), Hall and Jones (1999), Acemoglu et al. (2002) and La Porta, et al. (1998) all concluded that key determinants of economic development are institutional factors.

The encounter between neoclassical economics and developing societies served to reveal the institutional underpinnings of market economies. Clearly defined system of regulatory apparatus prevents worst fraud. In other words incentives would not work in the absence of adequate institutions, hence market need to be supported by non-market institutions in order to perform well. Example of this point is the Russia experience in price reforms and privatization in the absence of a supportive legal, regulatory and political apparatus. Other examples are Asian financial crisis which has shown that allowing financial liberalization to run ahead of financial regulation is an invitation to disaster, and also that of Latin America. The question therefore is that do institutions matter and how does one acquire them?

LITERATURE REVIEW

It is argued that weak institutional control mechanisms may expose investor's wealth (Khanna, 2009; La Porta et al., 1998; World Bank, 2005). For this reason Hearn and Piesse (2010) concluded that this situation is more prevalent in developing economies where weak regulatory institutions and poor systems of corporate governance are common feature.

Governments throughout the world have become aware of the importance of corporate governance for the efficient performance of the stock market. In the last few years' corporate governance has become an important issue throughout the world. A market that has sound institutional qualities proves to be very efficient. An efficient market in turn attracts more investment and increased transaction thus increasing market capitalization and liquidity.

Although economies are becoming increasingly global, firms with international operations are still subject to the principles and practice of national corporate governance. It has been rightfully seen that a firm's valuation does not only depend on the profitability or the growth prospects embedded in its business model, but also on the effectiveness of control mechanisms, which ensure that investors' funds are not wasted in value decreasing projects. Investors' however are encouraged to invest in sound, orderly and transparent markets. Numerous recent studies on transition economies have emphasized the relevance of law, judicial efficiency and the regulatory framework (Lombardo and Pagano, 1999; Pistor, 1999, 2000; Coffee, 1999; Hooper, 2009; La. Porta et al., 1997, 1999).

Empirical evidence suggests that better legal protection of outside shareholders is associated with easier access to external funds in the form of either equity or debt (La. Porta et al., 1997), higher valuation of listed firms (La. Porta et al., (2002), and lower private benefits of control (Zingales, 1994; Nenova, 1999). Moreover, it has been shown that the enforcement of law and regulations has much higher explanatory power for the level of equity and credit market development than the quality of the law on the books (Pistor et al., 2000; Coffee, 1999).

Edison (2003) found that institutions have a statistically significant influence on economic performance, substantially increasing the level of per capita GDP. These findings hold whether institutional quality is measured by broad-based indicators (such as an aggregate of various perceptions of public sector governance) or by more specific measures (for example, the extent of property rights protection or application of the rule of law). The findings are also consistent for all measures of institutions.

These results suggest that economic outcomes could be substantially improved hence stock market performance if developing countries strengthened the quality of their institutions. In other words, the results indicate that institutions have a strong and significant impact on per capita GDP growth.

METHODOLOGY

To understand the economic importance of the stock market in our sample of 41 countries, we examine the stock market capitalization ratio. The choice of countries and times series data for this article rests on the availability of data. Data for this article are from World Development Indicator (WDI) and Global Finance and Development (GEF). The stock market capitalization ratio is defined as the value of domestic equities traded on the stock market relative to GDP. Institutional quality is modeled by assuming that country believes there is probability of institutional quality not leading to stock market performance. The probability a country places on the likelihood that the institutional quality of a country will not yield returns is a function of institutional quality in the country. Using multiple indicators to measure institutional quality raises the problem multicollinearity. To develop the model, we take from existence causal factors and then concentrate on how to choose and optimally combine the factors to

inference on the unobserved underlying process. By this we get indicators that we believe is closest to the unobserved factors. Kaufmann et al. (1990) used a variant of this approach to combine factors. We assume that each observed score for a particular indicator is a linear function of unobserved institutional quality and a disturbance term, which is assumed to be uncorrelated across indicators. The variance of each factor shows how information that factor is with respect to unobserved institutional quality.

Empirical models

Using Cadeleron-Rossell (1990) behavioral structural model economic growth and stock market liquidity are considered the main determinants of stock market performance. We use market capitalization to measure stock market performance. In this study, we modified Cadeleron-Rossell model by introducing institutional quality. Cadeleron-Rossell (1991) revealed that macroeconomic are important determinants of stock market performance. The general econometric model used in the study is as follows:

$$Y_{it} = \alpha_1 + \delta Y_{it-1} + \beta M_{it} + \varphi P_{it} + \omega E_{it} + \epsilon_{it} \tag{1}$$

Where Y is stock market capitalization relative to GDP, α , is the unobserved country specific fixed effect, and ϵ_{it} is the white noise. M is a matrix of macroeconomic variables made up of GDP per capita, credit to the private sector as a percentage of GDP and its square, gross domestic investment as a percentage of GDP, stock market value traded as a percentage of GDP, private capital flow as a percentage of GDP, foreign direct investment as a percentage of GDP, macroeconomic stability (measured by current inflation and the real interest rate), and gross domestic savings. Cadeleron-Rossell (1991) also included one lag of the dependent variable as one of the right hand side variables because they believed that stock market performance is a dynamic concept. P and E are institutional quality variable and secondary school enrolment respectively.

To avoid multicollinearity problems (1) becomes (2) below. Panel regressions are estimated to test the importance of institutional quality on stock market performance.

$$\frac{\ln Y_{it}}{\sigma P_i} = \rho_1 \left(\frac{\delta Y}{\sigma P_i} \right) + \vartheta_1 \left(\frac{\beta M}{\sigma P_i} \right) + \vartheta_2 \left(\frac{\varphi P}{\sigma P_i} \right) + \psi_4 \left(\frac{\omega E}{\sigma P_i} \right) + [\alpha_i + \epsilon_{it}] \tag{2}$$

Where P represents institutional quality of country i, and σP_i is the standard error of institutional quality for country i.

Estimation technique

Arellano and Bond (1991) used a dynamic panel data

estimator based on Generalized Method of Moments (GMM) which is instrumental variable estimator that optimally exploits restrictions implied by the dynamic panel growth model. GMM can be estimated using the levels or the first differences of the variables. Arellano and Bond (1991) proposed two estimators—one step and two step estimators—with the two step being the optimal estimator. The practice is to estimate using two step estimator but base hypothesis tests on the one step estimator’s statistics.

However, before proceeding with the GMM the following identifying assumption is necessary. We assume that there is no second order serial correlation in the first differences of the error term. The consistency of the GMM estimator requires that this condition be satisfied. Given the construction of the instruments as lagged variables the presence of second order serial correlation will render such instruments invalid. The specification tests for the GMM estimator are the Sargan test of over identifying restrictions and the test of lack of residual serial correlation. The Sargan test is based on the sample analog of the moment conditions used in the estimation process and evaluates the validity of the set of instruments and, therefore, determines the validity of the assumptions of predeterminacy, endogeneity, and exogeneity. Since in this case the residuals examined are those of the regressions in differences, first order serial correlation is expected by construction and thus only second and higher order serial correlation is a sign of misspecification.

In the case of time-invariant country characteristics (fixed effects) correlating with the explanatory variables, we use the first difference GMM to transform (3) into

$$\ln \Delta Y_{it} = \rho_1 \ln \Delta Y_{it-1} + \vartheta_1 \ln \Delta M_{it} + \vartheta_2 \ln \Delta P_{it} + \psi_4 \ln \Delta E_{it} + \mu_{it} \tag{3}$$

Bringing in the specific variables in the matrix M and P, the (3) now becomes general empirical form as shown below;

$$\begin{aligned} \ln \Delta Y_{it} = & \rho_1 \ln \Delta Y_{it-1} + \vartheta_1 \ln \Delta SMVT_{it} + \vartheta_2 \ln \Delta CR_{it} + \vartheta_3 \ln \Delta SQCL_{it} + \vartheta_4 \ln \Delta INF_{it} + \vartheta_5 \ln \Delta GDB_{it} + \vartheta_6 \ln \Delta INV_{it} + \vartheta_7 \ln \Delta FDI_{it} \\ & + \vartheta_8 \ln \Delta CC_{it} + \vartheta_9 \ln \Delta VA_{it} + \vartheta_{10} \ln \Delta RL_{it} + \vartheta_{11} \ln \Delta RQ_{it} + \vartheta_{12} \ln \Delta PS_{it} + \vartheta_{13} \ln \Delta GEFF_{it} + \psi_1 \ln \Delta E_{it} \\ & + \vartheta_{14} (\ln \Delta P_{it} \times E_{it}) + \mu_{it} \dots \end{aligned}$$

Expected signs are:

$$\rho_1, \vartheta_1, \vartheta_5, \vartheta_6, \vartheta_7, \vartheta_{11}, \dots, \vartheta_{14}, \psi_1, \psi_2 > 0; \vartheta_2, \vartheta_3, \vartheta_4 < 0$$

Where P a vector institutional quality; CC, VA, RL, RQ, PS and GEFF

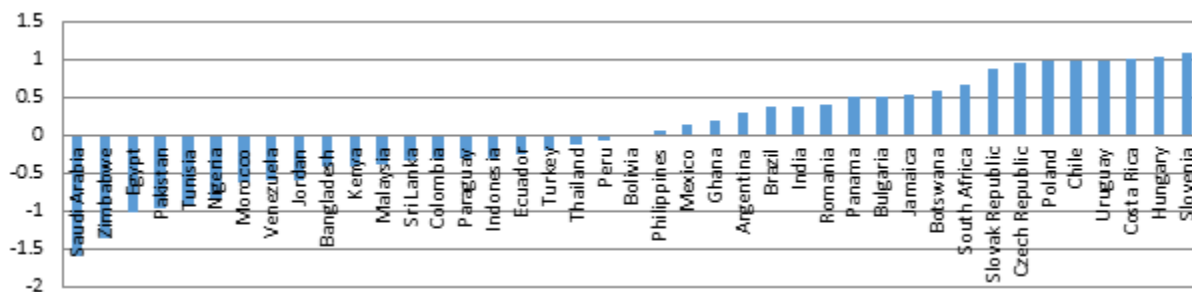
Descriptive analysis

Due to lack of data for institutional quality for periods before 1996, we limit this paper to cover 1996 to 2011

Table 1. Descriptive statistic of explanatory variables.

Variable	Obs	Mean	Std	min	Max
Control of corruption	615	-0.184	0.644	-1.488	1.553
Voice and accountability	615	0.0186	0.727	-1.857	1.318
Role of law	615	-0.153	0.676	-1.841	1.358
Regulatory quality	615	0.070	0.685	-2.210	1.645
Political stability	615	-0.357	0.873	-2.412	1.206
Government effectiveness	615	0.007	0.594	-1.516	1.278
Institutional quality index	615	-0.1	0.623	-1.579	1.248

Source: Field survey 2011, WGI and FDI 2011.

**Figure 2.** Voice and accountability (Source: Field survey (2011), WGI and FDI 2011).

(Table 1). The extremity of the institutional quality indicator range is approximately -2.5 and 2.5 with lower values representative of poorer institutional quality scores. Differences across countries in the margins of error associated with governance estimates are due to cross-country differences in the number of sources in which a country appears and or the differences in the precision of the sources in which each country appears.

Of 41 emerging economies studied, countries like Uruguay, Slovenia, South Africa, Slovenia, Romania, Slovakia Rep, Poland, Panama, Malaysia, Jordan, Hungary, Czech Republic, Costa Rica, Chile, Bulgaria, Brazil and Botswana on the average are classified as countries with good institutional quality. On the other hand twenty five (25) of countries were cited as countries with poor institutional quality because on the average were negative for these countries. Differences across countries in the margins of error associated with voice and accountability are due to cross-country differences and differences in the precision of the sources in which each country appears.

Of all the elements of institutional quality voice and accountability, regulatory quality and then government effectiveness had positive mean values for the period under consideration. In other words for the countries sampled for this article, institutional quality in relation to these areas were strong on the average. The element of

institutional quality with the highest standard deviation is political stability. There exists high correlation for each of the governance indicators for the entire period as a whole, and similarly for each individual period. The CC indicator and the RL indicator have the highest correlation amongst indicators for all periods.

Voice and accountability

Voice and accountability covers degree of involvement of citizens in government and in the policy making process. There are different types such as moral, administrative, political, managerial, market, legal, constituency, and professional accountability (Jabbara and Dwivedi, 1989). To enhance the quality of this indicator, civil liberties, political rights should be not only properly and systematically secured, but also significantly improved. Media should be able to publish or broadcast stories of their choice without fear of censorship. Countries with higher scores of WGI in voice and accountability have scores of positive 2.5 while those in lower scores have under negative 2.5 Figure 2 shows the mean value for the various countries sampled for this article. From Figure 2 slightly about 50% of emerging economies sampled have good voice and accountability. Slovenia came out as the country with good voice and accountability with

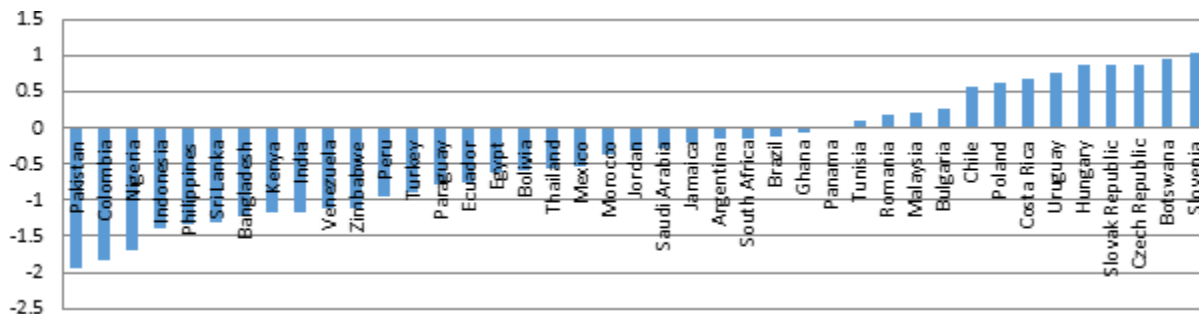


Figure 3. Political stability (Source: WDI and FDI, 2011).

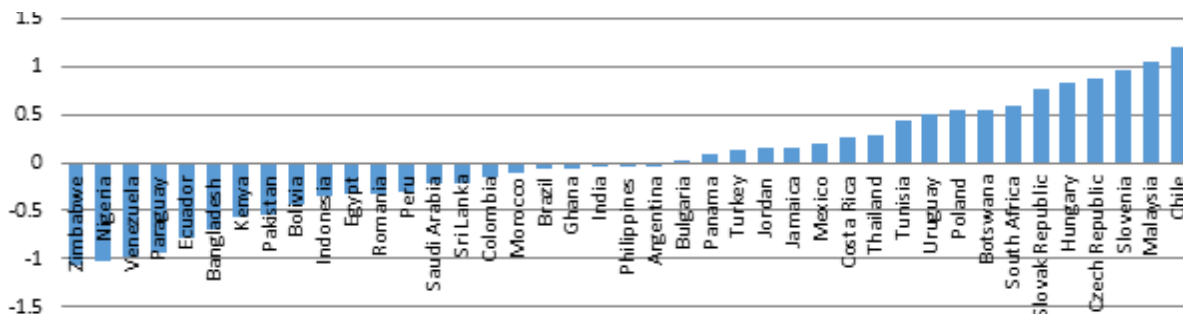


Figure 4. Government effectiveness. (Source: WDI & FDI 2011)

Saudi Arabia recorded as the country with worse voice and accountability. For African countries in the sampled South Africa, Botswana and Ghana came out with good voice and accountability index.

Political stability and absence of violence (PV)

This indicator addresses those factors which undermine political stability such as conflicts of ethnic, religious, and regional nature, violent actions by underground political organizations, violent social conflicts, and external public security. Also included are assessments of fractionalization of the political spectrum and the power of these factions, fractionalization by language, ethnic or religious groups and the power of these factions and restrictive measures required to retain power. Societal conflict involving demonstrations, strikes, and street violence are also considered in this indicator, as well as the military coup risk. Major insurgency and rebellion, political terrorism, political assassination, major urban riots, armed conflict, and state of emergency or martial law are also major determinants of this indicator.

Internal conflict like political violence and its influence on governance is assessed in this measure and external conflict measure is also employed to assess both the risk to the incumbent government and to inward investment. Government stability is measured for the government's ability to carry out its declared programs, and its ability to

stay in office. Ethnic tensions component measures the degree of tension within a country attributable to racial, national, or language divisions.

Figure 3 shows that 34% of emerging economies sampled have good political stability index with 66% having bad political stability record. Slovenia and Botswana are the two emerging economies with the highest recorded of good political stability and Pakistan, Colombia and Nigeria had the worst record for political stability respectively. Ghana and South Africa also had bad political stability record.

Government effectiveness (GE)

Government effectiveness measures the quality of public services and policy formulation and implementation, and thus indicates the credibility of the government's commitment to such policies. This covers government citizen relations, quality of the supply of public goods and services, and capacity of the political authorities. This variable being negative means there is low quality of bureaucracy with excessive bureaucracy or red tape, government ineffectiveness with low personnel quality, institutional failure which deteriorates government capacity to cope with national problems as a result of institutional rigidity that reduces the economic growth. The better the bureaucracy the quicker decisions are made and the more easily foreign investors can go about their business. Figure 4 also show that 46% of emerging

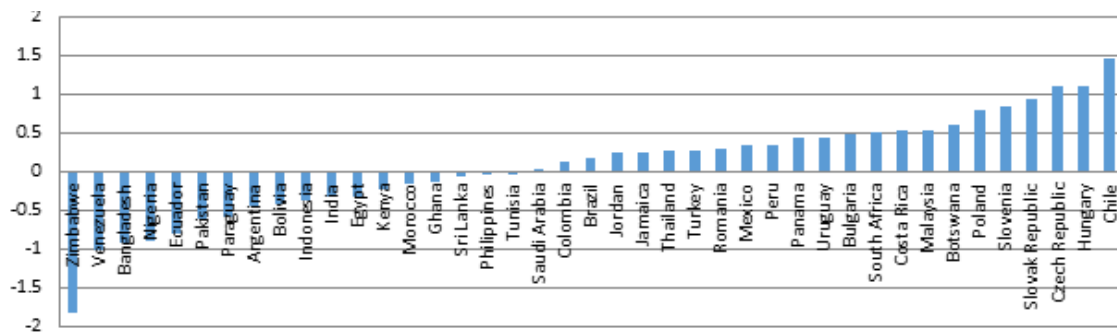


Figure 5. Regulatory quality (Source: WDI and FDI, 2011).

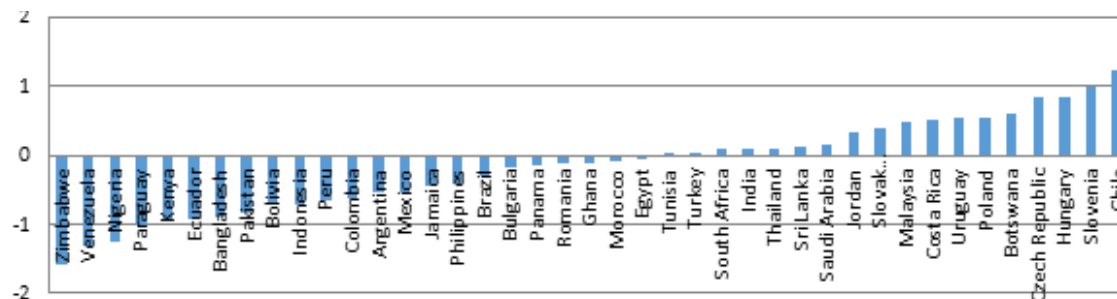


Figure 6. Role of law (Source: WDI and FDI 2011).

economies sampled for this article have positive government effectiveness. Chile and Malaysia have the highest positive value with Zimbabwe and Nigeria having the highest absolute negative value.

Regulatory quality (RQ)

The regulatory quality indicator of WGI defines the capacity for government to formulate and implement sound policies and regulations that permit and promote private sector development. It covers the concept of business start-up formalities set by government, the difference between government-regulated administrative prices and self-controlled market prices, the ease of market entry for new firms, and the competition regulation arrangements between or among businesses. In developing countries particularly, the rural region regulations on local financial services, local businesses, and agricultural produce market may determine the quality of this indicator as well. Other factors affecting regulatory quality indicators also include financial institutions' transparency, public sector contracts open to foreign bidders, anti-protectionism measures to other countries, and reduction of subsidies to specific industries. As portrayed in Figure 5, 56% of the emerging economies countries sampled had good regulatory quality and 44% bad. Chile, Hungary, Czech Republic, Slovenia, Poland and Botswana were identified as

countries with good regulatory quality respectively. On the other hand Zimbabwe, Venezuela, Bangladesh and Nigeria were tagged with bad regulatory quality.

Rule of law (RL)

There different interpretation given to rule of law due to the ethical nature of the word. This paper we are using the meaning given by legal profession as impartial judiciary, the right to fair and public trial without undue delay, equality of all before the law. These are fundamental of rule of law (IBA, 2009).

However, in Asian traditional and cultural contexts, they view good governance as rule by leaders who are benevolent and virtuous. Chu et al. (2008) indicated that throughout East Asia, only South Korea, Japan, and Hong Kong have societies that are robustly committed to a law bound state. On the other hand, Thi (2008) concluded that rule of law in Thailand, Cambodia, and most of Asia is weak or nonexistent. The term 'rule of law' is the enforceability of government, direct financial fraud, money laundering and organized crime, losses and costs of crime, quality of police, the independence of the judiciary from political influences of members of government, etc. Of the total sample 44% of the emerging economies sampled were tagged with practicing rule of law while the rest had bad records in relation to rule of law as depicted in Figure 6. Once again

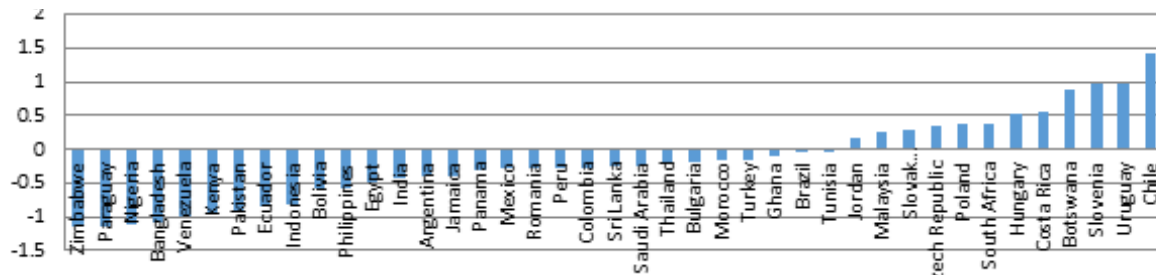


Figure 7. Control of Corruption Source: WDI and FDI 2011

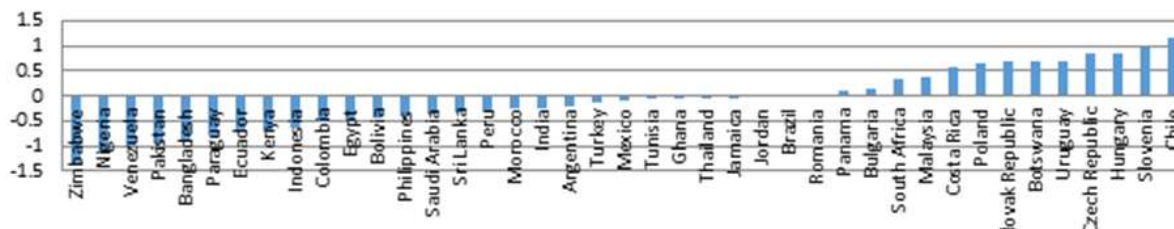


Figure 8. Institutional quality (Source: WDI and FDI 2011).

Chile and Slovenia were on top while Zimbabwe and Venezuela were at the tail end of countries with bad record on rule of law.

Control of corruption (CC)

Corruption can be explained in many different ways. Transparency International (2007) and Chihamo and Shumba (2007) explained corruption as the abuse of public power, office, or resources by government officials or employees for personal gain. The control of corruption indicator is measured by the frequency of corruption, cronyism, and government efforts to tackle corruption. 26% of emerging economies sampled were tagged as having good record on control of corruption. Brazil and Tunisia were neutral in relations to whether good or bad. As Chile, Uruguay, Slovenia and Botswana are ranked high in terms of good policies to control corruption, Zimbabwe, Paraguay and Nigeria were rank high for poor control of corruption as shown in Figure 7.

Institutional quality

This is a composite index computed by row average of component of institutional quality computed by the researcher. The data used to compute the composite index is from World Development Indicator (WDI). Figure 8 below shows how good an emerging economy is term of institutional quality. A value of 2.5 means very good and negative 2.5 means bad institutional quality. Of the

emerging economies sampled for this article 39% of them on the average are classified as having good institutional quality with the remaining 71% having bad institutional quality. Out of 39% countries like Chile, Slovenia, Hungary, Czech Republic, Uruguay and Botswana came on the top respectively in relation to good institutional quality. Zimbabwe, Nigeria, Venezuela, Pakistan and Bangladesh were also identified as emerging economies with bad institutional quality as depicted in Figure 8.

Statistical analysis

We examine the impact of institutional variables on stock market performance using different estimation techniques. Table 2 presents the results of pooled ordinary least square (OLS) estimate. We include as regressors institutional quality. The high correlation among the governance indicators motivates the use of separate regressions for each governance variable to avoid multicollinearity problems. When the explanatory variables are highly correlated, it becomes difficult to disentangle the separate effects of each of the explanatory variables on the dependent variable and would lead to substantial increases in the standard errors of the coefficient estimates of the governance indicators. Statistical inference based on these standard errors would be problematic. The use of each governance indicator separately for each regression overcomes these problems.

Column 1 in Table 2 is the baseline regression model where we used a composite index that takes into

Table 2. Result from OLS estimation.

Variable	SMC	SMC	SMC	SMC	SMC	SMC	SMC
Market liquidity	0.805***	0.828***	0.824***	0.815***	0.822***	0.805***	0.827***
Credit to private sector	0.496***	0.568***	0.591***	0.496***	0.591***	0.496***	0.568***
Credit to private sector squared	-0.001*	-0.005*	-0.004*	-0.007*	-0.003*	-0.002*	-0.005*
Consumer price index	-0.0904*	-0.098*	-0.089*	-0.091*	-0.086*	-0.094*	-0.097*
Secondary school enrolment	0.148**	0.112*	0.098*	0.148**	0.092*	0.171**	0.112*
GDP	4.181**	3.062*	2.081*	3.381**	2.814*	4.182**	3.112*
Investment	1.981	2.981	2.31	1.981	2.081	1.981	2.001
Institutional quality	4.601*	-	-	-	-	-	-
Control of corruption	-	25.15***	-	-	-	-	-
Voice and accountability	-	-	17.49*	-	-	-	-
Rule of law	-	-	-	30.61***	-	-	-
Regulatory quality	-	-	-	-	2.667	-	-
Political stability	-	-	-	-	-	5.882*	-
Government effectiveness	-	-	-	-	-	-	12.37*
Secondary school enrolment and voice and accountability	0.109*	0.289*	0.189*	0.112*	0.188	0.188*	0.183*
N	615	615	615	615	615	615	615
Sigma_u	0.786	0.801	0.802	0.876	0.831	0.772	0.786
Sigma_e	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rho	-	-	-	-	-	-	-

consideration all elements of institutional quality. The results show market liquidity, credit to private sector (banking sector development), GDP (economic growth), secondary school enrolment and institutional quality are all significant and the signs positive, indicating a percentage point increase in these variables will bring about an improvement in stock market performance. Investment in this case tends out insignificant. On the other hand consumer price index and square of credit to private sector are negative and significant indicating an inverse relationship with stock market performance. The variable of interest secondary school enrolment and institutional quality are all positive and significant as expected at 10 percent significance level indicating that a percentage point increase in secondary school enrolment and institutional quality increases stock market performance by 0.148 and 4.601 respectively. This outcome indicates that institutional environment is a good predictor of stock market performance in emerging economies. If we simply look at the coefficient on secondary school enrolment (E), we will incorrectly conclude that a percentage point increase secondary school enrolment will lead to 0.481 improvements in stock market performance. But this coefficient supposedly measures the effect when institutional quality is zero, which is not interesting because the minimum institutional quality from this sample is not even zero. Also since the p-value for the F test of this joint hypothesis is 0.003, so we certainly reject the null

hypothesis of $\varphi_1 = 0, \beta_{12} = 0$. Using the mean value of institutional quality we compute $\frac{\Delta SMC}{\Delta E}$. Because secondary school enrolment is measured as percentage, it means that a 1% percentage point increase in secondary school enrolment increase stock market capitalization of emerging economies by 0.506 standard deviations from the mean stock market capitalization. This finding is consistent with the results Winful et al. (2013).

The problem with institutional quality is that it tells us very little about which aspect of institutional quality attention should be directed towards. Also because of multicollinearity problem, we introduce the elements of institutional quality one at time to determine its effect on stock market performance. To remedy this deficiency, the article studies the effect of the components of the index of institution quality on stock market performance. The results are show in table 2 below from the second column onwards. In column two of Table 2 we replace the composite index of institutional quality with control of corruption to determine its effect on stock market performance. The results shows that control of corruption have significant effect on stock market performance. With effect of secondary school enrolment on corruption we determine the partial effect of control of corruption on stock market performance. The indication here is that as emerging economies put in place measures to reduce control of corruption they affect positively on stock markets of emerging economies. The sign is as expected. We fail to reject the hypothesis that there is

Table 3. Result from FE.

SMC	SMC	SMC	SMC	SMC	SMC	SMC
0.801***	0.788***	0.808***	0.902***	0.881***	0.803***	0.801***
0.408***	0.533***	0.408**	0.413***	0.406**	0.408***	0.348***
-0.005*	-0.001*	-0.004*	-0.041*	-0.017*	-0.003*	-0.004*
-0.0193	-0.0396	-0.0102	-0.031	-0.119	-0.0101	-0.0193
0.547**	0.322*	0.441**	0.422*	0.547*	0.417*	0.523*
5.043**	1.062*	5.043*	3.062*	5.043*	5.043**	5.043**
1.981	0.784	1.981**	0.784	1.981	1.981	1.981
0.801*	-	-	-	-	-	-
-	0.720**	-	-	-	-	-
-	-	0.767***	-	-	-	-
-	-	-	0.278	-	-	-
-	-	-	-	0.284	-	-
-	-	-	-	-	0.298**	-
-	-	-	-	-	-	1.138*
0.115*	0.229*	0.176*	0.443**	0.308**	0.437*	0.437*
615	615	615	615	615	615	615
36.13	28.21	34.01	35.66	28.95	36.13	36.63
17.75	17.24	14.75	16.54	13.75	17.65	17.65
0.805	0.716	0.805	0.715	0.616	0.805	0.634

positive effect between control of corruption and stock market performance of emerging economies. The ability of the judiciary to enforce contractual rights of shareholders impinges on the likelihood of managerial expropriation and ultimately the profitability of firms. All other dimensions of institutional quality with exception of regulatory quality are having positive coefficients and have an estimated coefficient that obtains statistical significance at the 10% level as shown in Table 2 below. Legal systems supportive of investor protections tend to increase the amount of funds risk-averse investors are willing to channel towards firms. Aggarwal et al. (2002) find that fund managers invest less in countries with poor legal environments and low corporate governance standards. This is supported by the higher shareholder returns in countries with better governance systems. If the quality of legal institutions is considered a sub-set of the quality of governance, then the results are consistent with Lonbardo and Pagano (2000) but contrary to Demircuc-Kunt and Maksimovic (1998).

However, the latter authors failed to control for global risk factors in their analysis, which could explain the variation in the results. If institutional quality influences transaction costs associated with firm operations, then it would be expected that the excess return on equity would be higher in countries which rate highly on institutional structure. Reduction in transaction costs would enlarge the profitable project opportunity set available to firms and thus the demand for equity. This, in connection with reduced agency costs due to better institutional enforcement increases return to shareholders.

We introduce an interactive term to allow as determine the partial effect of secondary school enrolment with respect to the dimensions of institutional quality. This is because of influence of institutional quality on secondary school enrolment. The result shows explicitly that there is statistically significant in all interaction between secondary school enrolment with respect to various dimensions institutional quality shown in Table 2.

AIC analysis confirms that the interaction term should be included in the model. The adjusted-R² for the OLS estimates shown in column one to seven respectively indicate the percent of systematic variations explained by the variables in the models. The F-values for the various models estimates are significant at the less than 1 percent level, indicating a significant linear relationship between the dependent variable (SMC) and the independent variables taken together.

Table 3 below presents different assumptions about the correlation structure of the errors which is used to analysis panel data the fixed effects and random effects. With the FE we explore the relationship between predictor and outcome variables with countries. Each emerging economies has its own individual characteristics that may or may not influence the predictor variables. Using FE the assume is that something within the individual emerging economies may bias the predictor or outcome variables and we need to control for this. The other assumption is that time-invariant characteristics are unique to individual emerging economies and should not be correlated with other emerging economies characteristics. An effect of the

features of fixed-effects technique is that they cannot be used to investigate time-invariant causes of the dependent variables.

Using RE we assume that the error terms are correlated. The rationale behind random effects model is that, unlike the FE model, the variation across emerging economies is assumed to be random and uncorrelated with the independent variables included in the model. A comparison of the consistent FE with the efficient RE estimates using the Hausman specification test, rejects the RE estimates at $p < 0.05$ in favor of the fixed-effects model. The results from random effect are not reported in this article.

The results of the FE are as shown in Table 3. The result confirms the pooled OLS results on economic growth, market liquidity, and credit to private sector, consumer price index, financial market performance and secondary school enrolment in Table 2. The composite index for institutional quality is again significant. As we considered the various dimensions of institutional quality using FE technique, rule of law and regulatory quality tend out to be insignificant in explaining stock market performance.

Surprisingly, when voice and accountability is introduced investment tends out to significant in explaining stock market performance as shown in column three. F test of less than 1% for the columns of Table 3 implies that models are okay and all the explanatory variables are different than zero. A test for heteroskedasticity of a p-value of 0.000 for the seven estimates using fixed effect rejected the null hypothesis of homoskedasticity. To correct the problem of heteroskedasticity we used robust fixed effects. The robust fixed effect results are not different from Table 3. The robust fixed effect results are not shown in this article. Lagrange-Multiplier test of serial correlation fail to reject null hypothesis and we conclude that the data does not have first-order autocorrelation. Clustering the data by countries did not give different results from fixed effect.

Ramsey RESET test using powers of the fitted values of the dependent variable Stock Market Capitalization reject the null hypothesis that the model has no omitted variables at all the traditional significance levels. The article failed to reject the null hypothesis for the simple reason that the lag of the dependent variable which is expected to explain variation in dependent variable is missing in the model. According to Nickel (1981) introducing lag of the dependent variable into the model give rise to dynamic panel bias. The difficulty in applying OLS to this empirical problem is that lag of SMC is correlated with the fixed effects in the error term. Correlation between a regressors and the error violates an assumption necessary for the consistency of OLS.

To improve efficiency of our results from the previous techniques discussed above we introduce the GMM technique and the outputs are as shown in Table 4. Using

GMM estimation technique we address the endogenous problem by instrumenting the lag of the dependent variable and any other similarly endogenous variables with variables thought uncorrelated with the fixed effects. The first column of Table 4 is the baseline regression control for variables such as; market liquidity, credit to private sector, financial sector performance, consumer price index, GDP, investment, secondary school enrolment and institutional quality.

The results as shown in Table 4 column one below, shows that explanatory variables are positive and significant with the exception of credit to private sector squared and consumer price index which tend out to be negative and significance and signs as expected. Investment is insignificant but with the expected sign.

The implication of the results is that percentage point increases in market liquidity increases stock market capitalization by 0.792. The sign is as expected because although profitable investments require long run commitment to capital, savers prefer not to relinquish control of their savings for long periods. Liquid equity markets ease this tension by providing assets to savers that are easily liquidated at any time, while simultaneously allowing firms permanent access to capital that are raised through equity issues there by increasing the market value of firms. Market liquidity boosts investors' confidence. A negative coefficient of -0.008 for credit to private sector squared is expected since money market and capital market tend to substitute each other as financing vehicle for investors. That is very high levels of banking sector development have negative impact on growth of stock market because stock markets and banks tend to substitute as financing vehicles. It was also established that consumer price index influence stock market performance of emerging economies negatively as expected at significance level of 1%. This is because high inflation rate does not encourage long term financing for which the capital market seeks to address. These results do not contradiction the findings of Ali (2011) and Yartey (2008) as reviewed in this article.

Secondary school enrolment and economic growth has significant positive influence on stock market performance. An increase in the secondary school enrolment brings about 0.383 and 3.271 changes in stock market capitalization at 1% and 5% significant levels respectively. We fail to reject the null hypothesis that economic growth and secondary school enrolment have no significant effect on stock market performance. It is also established that composite institutional quality has 2.91 influences on stock market performance also at 1% significance level. The result suggests that policies that seek to improve institutional quality are important for stock market performance in emerging economies. Interestingly, investment which is not significant using the OLS and fixed effect tends significant from column one to seven in the Table 4. The null hypothesis that the population moment condition are correct is not rejected

Table 4. Results from GMM estimation dependent variable (SMC).

Variable	(GMM1)	(GMM2)	(GMM3)	(GMM3)	(GMM3)	(GMM3)	(GMM3)
Lag stock market capitalization	0.164***	0.189***	0.179***	0.179***	0.179***	0.179***	0.179***
Market liquidity	0.792***	0.764***	0.747***	0.732***	0.747***	0.801***	0.722***
Credit to private sector	0.407***	0.415***	0.349***	0.149***	0.366***	0.283***	0.349***
Credit to private sector squared	-0.008***	-0.005***	-0.006***	-0.008***	-0.013***	-0.011***	-0.009***
Consumer price index	-0.343***	-0.272***	-0.238***	-0.338***	-0.274***	-0.381***	-0.238***
Secondary school enrolment	0.383***	0.352***	0.463***	0.471***	0.375***	0.581***	0.477***
GDP	3.271**	4.112*	2.761*	2.761*	2.761*	2.761*	2.761*
Investment	1.973*	1.74**	2.03**	1.973*	1.911*	1.973*	1.74**
Institutional quality	2.91***	-	-	-	-	-	-
Control of corruption	-	2.937**	-	-	-	-	-
Voice and accountability	-	-	1.620**	-	-	-	-
Rule of law	-	-	-	2.67*	-	-	-
Regulatory quality	-	-	-	-	5.20***	-	-
Political stability	-	-	-	-	-	4.527*	-
Government effectiveness	-	-	-	-	-	-	9.022*
Interaction effect SE/IQ	3.291**	2.263**	2.327**	4.255**	3.290**	4.301**	4.291**
N	574	574	574	574	574	574	574
1st order autocorrelation	0.034	0.035	0.045	0.058	0.048	0.049	0.047
2nd order autocorrelation	0.864	0.773	0.653	0.753	0.588	0.583	0.657
Sargan test of overidentifying restrictions	0.382	0.551	0.754	0.771	0.731	0.728	0.731

t statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

because Sargan $p=0.382$ is greater than 0.05 as shown in column one of Table 4. For the test of autocorrelation in the errors, we expect to reject at order 1 but not at higher order for us to conclude that the errors are serially uncorrelated. AR(1) of (0.034) which is less than 0.05 and AR(2) of 0.864 implies that the error are not serially correlated. The F-value (which is a measure of the overall goodness of fit of the regression) of 0.000 is highly significant at 1% level thus the hypothesis of a significant linear relationship between dependent and independent variables is validated as a group.

The problem with the concept of institutional quality is that it tells us very little about the influence of specific components of institutional quality on stock market performance and hence which aspect of institutional quality should policy maker pay attention to if stock markets are to perform well. Yartey (2007) for instance, find that these components are important for stock market performance in African countries. To resolve this deficiency the article investigates the effects of the components of the index of institutional quality on stock market performance. This exercise is done in column 2 to 7 of Table 4 as shown. We examine the effect of all the six components of institutional quality on stock market performance one at a time. Results show that all the six components have positive significant influence on stock market performance in emerging economies. The signs are as expected. The article suggests that development of good policies to improve on components of institutional

quality is an important determinant of stock market performance in emerging economies. The finding also affirms that secondary school enrolment has positive significant influence of 0.352, 0.352, 0.463, 0.471, 0.375, 0.581 and 0.477 respectively from column one to seven respectively on stock market performance at different significant level. Increased investment in human capital is expected to affect income per capita positively. That is emerging economies with better educated work force or populace can easily adopt new technologies and innovate new technology domestically which leads to wealth maximization of firms thereby increasing their market value.

We also find that market liquidity, credit to private sector, credit to private sector squared, economic growth, consumer price index and lagged of the dependent variable to be significant and also with the expected signs for all the seven columns. It is interesting to note that by accounting for dynamic nature of the data and solving the endogeneity problem all components of institutional quality which were insignificant in Table 3 tend to be significant with the right signs.

The implication is that ability of institutional quality to enforce contractual rights of shareholders impinges on the likelihood of managerial expropriation and ultimately the profitability of firms. Legal systems supportive of investor protections tend to increase the amount of funds risk-averse investors are willing to channel towards firms. Managers invest less in countries with poor legal

environments and low corporate governance standards. The payoffs from institutional quality improvements include not only larger stock markets, but also greater integration with world capital markets via the influx of capital. Better governance environments increases returns to shareholders by reducing both transaction costs and agency costs.

Himmelberg et al. (2004) stated that lack of investor protection forces company insiders to hold higher fractions of the equity of the firms they manage. These high holdings subject insiders to greater levels of idiosyncratic risk, which in turn increases the risk premium and, therefore, the marginal cost of capital. The results of Lombardo and Pagano (2002) confirm the view of Shleifer (1999), who emphasizes that, in order to reap the benefits from market-oriented reforms, policy makers in emerging economies must make sure that a fair level playing field is established, so that investors can focus their attention on exploiting growth opportunities without fearing for their property rights.

Autocorrelation 1 (AR 1) of 0.035 which is less than 0.05 and AR (2) of 0.773 imply that the errors are not serially correlated for column two. The F-value (which is a measure of the overall goodness of fit of the regression) of 0.000 is highly significant at 1% level thus the hypothesis of a significant linear relationship between dependent and independent variables is validated as a group. Sargan test of over identifying restrictions of 0.551 supports the results. The same applies to the other columns of Table 4.

The inclusion of an interaction between secondary school enrolment and components of institutional quality is due to the fact that strong institutional quality creates the environment for more of the populace to have education. We are interested in the effects of secondary school enrolment on stock market performance in emerging economies so we need to determine the partial effect of secondary enrolment on stock market performance. If we simply look at the coefficient on secondary school enrolment (E), we will incorrectly conclude that a percentage point increase in secondary school enrolment will lead to 0.471 improvements in stock market performance for instance column four. But this coefficient supposedly measures the effect when institutional quality is zero, which is not interesting because the minimum value of institutional quality from this sample is not even zero. Also since the p-value for the F test of this joint hypothesis is 0.003, so we certainly reject the null hypothesis of $\varphi_1 = 0, \beta_{12} = 0$. Using the mean value of the various components of institutional, we compute the partial effect. For column two for instance we used the mean of control of corruption to compute the partial effect of secondary school enrolment on stock market performance.

Because secondary school enrolment is measured as percentage, it means that a 1% percentage point increase in secondary school enrolment increase stock market capitalization of emerging economies by 0.387 standard deviations from the mean stock market capitalization.

To determine the partial effect of secondary school enrolment on SMC for column two for instance we replace the interaction variable with $(CC - 0.186) * E$. We then run the regression which gives as the new coefficient on secondary school enrolment (E), the estimated effect at $CC=0.186$, along with its standard error. Running this new regression gives the standard error of 2.66 as 0.07, which yields $t=7.93$. Therefore at the average CC, we conclude that secondary school enrolment (E) has a statistically significant positive effect on Stock Market Capitalization of emerging economies. The sign is as expected. The sign for education is positive because school enrolment has been on the increase since early part 1990 in most emerging economies under study. The trend has been so because government contribution to education for emerging economies has been on the ascendancy over the last 10 decade. Most countries have introduced free and compulsory basic education and this have increased enrolment in many countries.

The results also established that market liquidity, economic growth, lagged dependent variable and credit to private sector have positive and significance influence on stock market capitalization. Credit to private sector squared and macroeconomic stability variable (consumer price index) on the other hand have negative and significance effect on stock market capitalization. The reasons that can be attributed to this inverse relation between consumer price index and stock market performance is that multinational corporations are set up after studying the macroeconomics of the host country. Any change in the macroeconomics of a country will affect a multinational corporation. For a multinational corporation to grow and thrive, the macroeconomics of the host country should be stable. The host country is like an anchor which gives a corporation the stability at its roots. When the corporation spreads its wings over developing nations, it is a known factor that the macroeconomics in a developing nation will be volatile. Hence stability of Macroeconomics in the host country is extremely important for a multinational corporation.

Stable low inflation (consumer price index) encourages higher investment which is a determinant of improved productivity and non-price competitiveness. Control of inflation helps to main price competitiveness for exporters and domestic businesses facing competition from imports. Stability breeds higher levels of consumer and business confidence. The maintenance of steady growth and price stability helps to keep short term and long term interest rates low, important in reducing the debt-servicing costs of people with mortgages and businesses

$$\frac{\Delta SMC}{\Delta E} = 0.352 + 0.189(0.186) = 0.387$$

with loans to repay. A stable real economy helps to anchor stable expectations and this can act as an incentive for an economy to attract inflows of foreign direct investment.

Market liquidity concerns such as why liquidity changes over time, why large trades move prices up or down, and why these price changes are subsequently reversed, and why some traders willingly disclose their intended trades while others hide them. These issues have been established to have positive and significant effect on stock market performance of emerging economies.

All six component of institutional quality had the right signs. According to the International Monetary Fund (IMF, 2007), Institutional quality is important for stock market performance because efficient and accountable institutions tend to broaden appeal and confidence in equity investment. Equity investment thus becomes gradually more attractive as political risk is resolved over time. Therefore, the development of good quality institutions can affect the attractiveness of equity investment and lead to stock market performance. This is because institutional quality supportive of investor protections tend to increase the amount of funds risk-averse investors are willing to channel towards firms. Managers invest less in countries with poor legal environments and low corporate governance standards. The payoffs from institutional quality improvements include not only larger stock markets, but also greater integration with world capital markets via the influx of capital. Better governance environments increases returns to shareholders by reducing both transaction costs and agency costs. All these go to improve on the performance of stock market. Policy makers in emerging economies must make sure that a fair level playing field is established, so that investors can focus their attention on exploiting growth opportunities without fearing for their property rights.

The p-value of Sargan test of overidentifying restrictions 0.731 and first and second order of autocorrelation of 0.048 and 0.631 support the results as consistent and efficient. The Sargan test for the null hypothesis of valid specification is used to test whether these instruments are valid. The test failed to reject the null hypothesis in all the regressions implying that the instruments are valid. This indicates that the model has high explanatory and predictive power. The Wald test for joint significance of the dependent variables strongly rejected the null hypothesis that the coefficients on all the variables are jointly equal to zero for all the models shown in Table 4.

Conclusion

It has been established that components of institutional quality also have positive influence on stock market performance of emerging economies. By this findings

policies tailored to reduce corruption, government effectiveness, political stability, voice and accountability, regulatory quality and rule of law should be taken seriously and encouraged. The payoffs from strong institutional quality include not only larger stock markets, but also greater integration with world capital markets via the influx of capital. Better governance environments increases returns to shareholders by reducing both transaction costs and agency costs. All these go to improve on the performance of stock market. This study findings have important policy implications for emerging economies that development of good quality institutions can affect the attractiveness of equity investment and lead to stock market performance. Also emerging economies should improve their institutional framework because strong institutional quality reduces political risk which is an important factor in investment decision. Policy makers must sure that a fair level playing field is established, so that investors can focus their attention on exploiting growth opportunities without fearing for their property rights.

Policy implications

The findings of this article have important policy implications for emerging economies. The new phase of developmental economics has achieved much in helping us understand this unexplored channel of causation since Bagehot (1873).

The result suggests that policy makers in emerging economies must not concentrate all their efforts on technological innovation, investment in physical capital but rather emerging economies must follow a parallel policy agenda of improving the quality of their institutions and Labor force. In addition, these policies should focus on the institutional qualities that affect stock market performance most such as rule of law, government effectiveness, political instability, and voice and accountability. This implies that adopting market-friendly policies, providing an effective judiciary system, making contracts enforceable by law, building political stability, providing effective government service, and strengthening civil liberty and political rights should be the major policy agendas of these countries.

In situations where these factors were not significant in explaining stock market performance it suggests that emerging economies can set aside those variables at least in the short run but in the long run they have to work on them. Technical inefficiency is not the only channel through which bad governance may translate into poor performance of the stock market. Head of states should spearhead promulgation of fiscal responsibility act along the lines of Financial Administration Act of United States of America that would require the government to commit itself to fiscal discipline and provide for transparency and impose sanctions. To hence political accountability, we

need to establish political institutions which could hold the government accountable, as pertains in developed countries. Civil society should assume the lead role in amplifying the voice of the people and demanding greater domestic accountability, but said governments and donors should support this by ensuring that more relevant information is provided, and is in a format and language people can understand.

It is obviously costly to build institutions from scratch when imported blueprints can serve just as well. Much of the legislation establishing a SEC like watchdog agency for securities markets, for example, can be borrowed wholesale from those countries that have already learned how to regulate these markets by their own trial and error. The same goes perhaps for an anti-trust agency, a financial supervisory agency, a central bank, and many other governmental functions. One can always learn from the institutional arrangements prevailing elsewhere even if they are inappropriate or cannot be transplanted. Some societies can go further by adopting institutions that cut deeper.

Conflict of Interests

The authors have not declared any conflict of interests.

REFERENCES

- Acemoglu D (1998). Why Do New Technologies Complement Skills? Directed Technical Change and Wage Inequality. *Q. J. Econ.* 113(4):1055-1090.
- Acemoglu D, Johnson S, Robinson JA (2001). An African Success Story: Botswana, MIT Department of Economics Working Paper No. 01-37. Available at SSRN: <http://ssrn.com/abstract=290791> or <http://dx.doi.org/10.2139/ssrn.290791>
- Acemoglu D, Angrist J (2001). How Large are the Social Returns to Education: Evidence from Compulsory Schooling Laws" in B. Bernanke and K. Rogoff (eds.) *NBER Macroeconomic Annual*, (2000) (Cambridge, MA: The MIT Press) 9-59.
- Acemoglu D (2002). Directed Technical Change. *Rev. Econ. Stud.* 69(4):781-810.
- Acemoglu D, Aghion P, Zilibotti F (2006). Distance to Frontier, Selection and Economic Growth. *J. the European Econ. Assoc.* 4(1):37-74.
- Calderon-Rossell RJ (1991). The Determinants of Stock Market Growth," in S. Ghon, Rhee and Rosita P. Chang (eds.), *Pacific Basin Capital Markets Research Proceeding of the Second Annual Pacific Basin Finance Conference*, Vol. II, Bangkok, Thailand, 4-6 June, (Amsterdam: North Holland).
- Coffee J (1999). Privatization and corporate governance: the lessons from securities market failure. *Columbia Law School Center for Law and Economics Studies Working Paper 158*, New York, NY.
- Demirguc-Kunt A, Maksimovic V (1998). Law, finance and firm growth. *J. Financ.* 53:2107-2137.
- Edison H (2003). Testing the Links; How strong are the links between institutional quality and economic performance, *J. Financ. Dev.* 40(2):35-37. <http://www.imf.org/external/pubs/ft/weo/2003/01/index.htm>.
- Gani A, Ngassam C (2008). Effect of institutional factors on stock market development in Asia, *Am. J. Finance Account.* 1:2
- Hearn B, Piesse J (2010). Barriers to the Development of Small Stock Markets: A Case Study of Swaziland and Mozambique. *J. Int. Dev.* 22:1018-1037.
- Himmelberg C, Hubbard G, Love I (2004). Investor protection, ownership, and the cost of capital. *World Bank Policy Research Working Paper 2834*, Washington, DC.
- Hooper V, Sim AB, Uppal A (2009). Governance and stock market performance, *J. Econ. Syst.* 33:93-116. <http://ro.uow.edu.au/commpapers/115>.
- International Finance Cooperation (1991) *IFC Fact book*, New York : IFC International Finance Cooperation (1996) *IFC Fact book*, New York : IFC.
- Johnson S, Shleifer A (1999). Coase vs. the Coasians. *NBER Working Paper 7447*, Cambridge, MA.
- Kemboi JK, Taru DK (2012). Macroeconomic Determinants of Stock Market Development in Emerging Markets: Evidence from Kenya, *Research J. Financ. Account.* 3(5):57-68.
- Knack S, Keefer P (1995). Institutions and economic performance: La Porta R, Lopez-de Silanes F, Andrei S, Robert V (1998). *Law and Finance*, *J. Polit. Econ.* 106:1113-1155.
- La Porta R, Lopez-de Silanes F, Andrei S, Robert V (1997). Legal Determinants of External Finance, *J. Financ.* 52:1131-1150.
- Levine R (1996). *Stock Markets: A Spur to Economic Growth*, Finance & Development, International Monetary Institute, Washington, D.C.
- Levine R, Zervos S (1998). *Stock Markets, Banks, and Economic Growth*, *Am. Econ. Rev.* 88:536-558.
- Levine R, Zervos S (1996). *Stock Market Development and Long-run Growth*, Policy Research Working Paper 1582.
- Lombardo D (2000). Is there a cost to poor institutions? *SIEPR Discussion Paper 00-019*, Stanford, CA.
- Lombardo D, Pagano M (2000). Legal determinants of the return on equity. *CSEF Discussion Paper 24*, Naples.
- Lombardo D, Pagano M (2002). Law and equity markets: a simple model. *CSEF Discussion Paper 25*, Naples, MA.
- North DC (1995). The Adam Smith Address: Economic Theory in a Dynamic Economic World." *Business Economics*: 7.
- North D (1994). Economic performance through time. *Am. Econ. Rev.* 84:359-368.
- Sala-i-Martin X (1997). I Just Ran Four Million Regressions." *National Bureau of Economic Research (Cambridge, MA) Working Paper No. 6252*, November 1997.
- Sobhee SK (2009). Do Better Institutions Help to Shrink Income Inequality in Developing Economies? Evidence from Latin America and Sub-Saharan Africa.", Paper presented at the PEGnet (Poverty and Economic Growth network) Conference, The Hague, Netherlands, 3-4 Sept.
- Subramanian A, Roy D (2001). Who can explain the Mauritian Miracle: Meade, Romer, Sachs or Rodrik, *IMF working paper.* 7:3.
- World Development Indicator (2011), World Bank Group, World Bank, <http://data.worldbank.org/data-catalog/world-development-indicators>.
- William E, Ross L (1997). Africa's Growth Tragedy: Policies And Ethnic Divisions, *Quarterly Journal of Economics*. Retrieved on the 24th March 201; qje.oxfordjournals.org/content/112/4/1203.full.pdf.
- Winful EC, Kumi-Koranteng P, Owusu-Mensah M (2013). Investment Education" on Stock Market Performance: Case of GSE, *J. Contemp. Manage.* ID: 1929-0128-2013-04-29-17
- Yartey CA (2008). Determinants of Stock Market Development in Emerging Economies: Is South Africa Different? *IMF working Paper-WP/08/32* Washington, International Monetary Fund.
- Yartey CA, Adjasi CK (2007). Stock Market Development in Sub Saharan Africa: Critical Issues and Challenges, *IMF Working Paper, WP/07/209*.

Appendix 1. Mean of Indicators of stock market performance and elements of institutional quality 1996 – 2011.

Country	Total value traded (% of GDP)	SMC (% of GDP)	Turnover Ratio (%)	No. of Listed Comp	GDP per Capita \$	Institutional quality elements					
						Cc	Va	RoI	Rq	ps	geff
Argentina	3.75	30.10	23.36	135	4285.75	-0.4034	0.29274	-0.54595	-0.449	-0.158	-0.04
Bangladesh	3.77	5.47	54.44	216	377.21	-1.0853	-0.419	-0.88288	-0.9328	-1.236	-0.708
Bolivia	0.11	14.26	0.97	27	1020.64	-0.5842	-0.0207	-0.71315	-0.4165	-0.58	-0.441
Botswana	0.88	23.03	5.38	16	4981.22	0.89018	0.58373	0.604985	0.60495	0.9571	0.5529
Brazil	19.67	38.61	53.21	464	4582.71	-0.0226	0.38306	-0.30584	0.17987	-0.121	-0.062
Bulgaria	2.08	13.03	13.13	402	3437.66	-0.2042	0.50559	-0.18042	0.49189	0.2576	0.0326
Chile	12.06	95.18	12.66	252	6669.80	1.41986	0.97859	1.244058	1.47027	0.5722	1.2025
Colombia	2.65	25.02	9.93	117	3295.39	-0.2673	-0.3235	-0.62147	0.12835	-1.822	-0.146
Costa Rica	0.67	9.72	5.29	17	4683.95	0.55271	0.9973	0.50956	0.52709	0.6717	0.2557
Czech Republic	12.64	23.77	53.42	265	11852.47	0.35474	0.94333	0.84427	1.10567	0.8756	0.8707
Ecuador	0.38	7.16	5.20	47	2903.80	-0.8574	-0.2572	-0.91583	-0.8018	-0.744	-0.782
Egypt	12.29	34.88	27.11	690	1158.47	-0.4762	-1.0205	-0.06214	-0.3276	-0.627	-0.329
Ghana	0.45	15.37	3.29	26	486.02	-0.1112	0.19119	-0.09981	-0.1357	-0.071	-0.06
Hungary	15.57	20.22	66.30	46	9372.58	0.52146	1.03645	0.848601	1.10686	0.8661	0.8262
India	44.04	47.66	103.11	4845	641.97	-0.4185	0.38603	0.102799	-0.3277	-1.168	-0.051
Indonesia	11.72	26.66	47.89	294	1195.98	-0.8133	-0.3025	-0.70697	-0.3783	-1.395	-0.351
Jamaica	3.88	117.63	3.14	39	4178.91	-0.3978	0.54104	-0.44346	0.25653	-0.215	0.1539
Jordan	39.69	109.20	29.04	169	2135.87	0.16751	-0.5878	0.332669	0.25026	-0.305	0.145
Kenya	1.58	23.49	5.68	55	528.17	-0.9503	-0.4172	-0.96109	-0.2284	-1.18	-0.556
Malaysia	68.64	162.95	39.58	748	4919.38	0.26401	-0.3936	0.497353	0.53187	0.2162	1.0591
Mexico	8.52	27.38	32.97	168	7468.29	-0.2926	0.14942	-0.5209	0.33923	-0.529	0.193
Morocco	7.98	38.12	17.58	60	1796.14	-0.1556	-0.6245	-0.0692	-0.1643	-0.357	-0.112
Nigeria	1.73	14.40	8.53	189	684.49	-1.1099	-0.8482	-1.24584	-0.8989	-1.7	-1.021
Pakistan	31.50	19.38	167.50	683	631.11	-0.9354	-0.9798	-0.8272	-0.6124	-1.944	-0.549
Panama	0.55	24.84	2.75	22	4573.13	-0.3139	0.496	-0.14782	0.43084	0.029	0.0989
Paraguay	0.12	3.37	5.17	54	1558.13	-1.1311	-0.3213	-1.00916	-0.5856	-0.787	-0.938
Peru	3.58	31.72	16.37	225	2706.04	-0.2706	-0.0817	-0.65427	0.34411	-0.955	-0.309
Philippines	12.26	51.51	23.53	219	1123.98	-0.5756	0.04629	-0.42186	-0.0458	-1.336	-0.046
Poland	8.11	19.12	61.71	238	7199.95	0.36823	0.97555	0.560471	0.79406	0.6237	0.5508
Romania	1.45	10.79	21.14	2963	4280.12	-0.2833	0.40729	-0.10001	0.30437	0.1844	-0.328
Saudi Arabia	73.95	61.17	84.02	87	13402.12	-0.2407	-1.6093	0.156765	0.02081	-0.281	-0.219

Source: Computed by researcher using data from WDI and FDI 2011.

The background of the entire page is a photograph of a person in a blue business suit and tie, looking down at a tablet. The tablet screen shows a bar chart with several vertical bars of varying heights. The text is overlaid on this image.

African Journal of Business Management

Related Journals Published by Academic Journals

- Journal of Geography and Regional Planning
- Journal of Economics and International Finance
- Journal of Hospitality Management and Tourism
- International Journal of Sociology and Anthropology
- Journal of Public Administration and Policy Research
- African Journal of Marketing Management

academicJournals