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ARTICLE

Dazed and Confused: The Impact of Multinational Firms on Local Labor Markets

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ABSTRACT

In this high-speed globalization era, the opportunities for multinational companies (MNCs) have become vast. In such situation, these companies can obtain maximum profit only if they know how to use workforce properly. This paper aims at analyzing how these MNCs can use international workforce without violating ethics, universal labor rights, and human resource rules. For this purpose, two most favored countries i.e., China and Indonesia have been taken and compared throughout the paper. The first part of this paper deals with the introduction of the profile of above mentioned two countries and opportunities to the MNCs. The second part deals with the roles of institutions in dealing with labor workforce. The third part indicates divergent paths and the convergence of the globalization with its impact over host countries. The final part concludes the entire discussion in a few paragraphs. The entire paper has been developed keeping the scholarly work, journal articles and critical analysis factor under consideration.

1. Introduction

The rise of globalization, understood as the fast cultural, economy and institutional integration between countries furthered by the development of the Euromarkets and the Petrodollars gave prominence to the MNCs as protagonist actors in the international scenario [1]. Acquiring scale economy and acting globally, those companies have become rivals with governments in size and power that can be noted prominently. Although powerful, those companies face challenges when need to adapt to local markets, and, in the fluid society that emerged with globalization, the human resources become the flexible tool capable of reducing those costs. Labor and local institutions are the key variables of MNCs when they interact at national levels [2].

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Asia, one of the motors of the second wave of globalization due to its territorial size and population [3] was the leading receiver of Outward Foreign Direct Investments-OFDI-, since the 1970s, fueled by the "Asian Tigers" and more recently by China, since china has emerged as one of the countries having strong and low-cost labor for large production, it has been considered one of the best places for foreign investment by MNCs. MNCs have traditionally chosen the continent due to the cost of labor, its traditional competitive advantage, as part of their strategy to reduce production costs, under the global markets, creating tensions between the needs of the population, the existing legislation and institutions and the search for profit [4].

The present work will analyze the tensions between the globalization and the autonomy of the States, under the light of labor relations in People's Republic of China and Indonesia. It will highlight the divergences and convergences between the labor and employment relations in the target countries, aiming to understand how the trend towards the deregulation and free markets emphasized the unitarist vision in terms of workforce powered by the globalization, leading to a higher convergence of the human resources practices [5]. The above stated countries were chosen due to the existing contrast between them: the high intervention of the Chinese government in the management of the foreign firms and in the regulation of workforce through the presence of Unions, and, the discretionarily of the Indonesian government, closer to the laissez faire since the structural reforms of the 1990s, though of higher risk due to the absence of legal mechanisms which clarify the set of procedures which can be adopted. Hence, it is fair to offer a hypothesis that labor and workforce rules after the acceleration of the globalization in both countries are convergence in the practices.

2. Methods

A systematic review of the literature has been conducted. Inclusion criteria will be that (a) sources contain the key terms of "multinational companies/MNCs", "labor", "Indonesia", "China", and "foreign investment", (b) that sources are published in English, (c) that sources are published within latest 4 years of period. Exclusion criteria are that nonacademic sources will be omitted as sources published in languages other than English and no earlier than 2018. Electronic databases from Monash University Library Australia will be used. In general, the application of the results of the paper can be as a reference for the Government of Indonesia and other international economic players in determining regulations relating to international industrial relation, foreign investment, and labor welfare. This paper is employing a content analysis approach. It means that by reviewing the published works of other scholars, thus taken a descriptive argumentation based on the justifications given by the previous studies.

3. Results

MNCs companies reflect the culture of their home country. The globalization makes these different sets of practices used to solve firm's local problems interact with a new framework, where values and rules are different. This is the case of General Motors, for example, characterized by the individualism and pragmatism of the American society, which needs to adapt to the environment of each of 160 countries, which it is present.

3.1 China Profile

People's Republic of China rose from a middle power in the 1990s to the world biggest economy in 2014 [6], when it turned its strategy of "open doors" to "go out" being the higher receiver of OFDIs, mostly in the format of MNCs. The current labor structure of China has a workforce of 750.4 million [7,8], occupying almost a half of its labor force in agriculture, 23% in industry and 27% in services [9].

Chinese industrial relations reject autonomous workforce organization to prioritize central trade unions, putting the state enterprises in the center of production and distribution of resources. The ACFTU (All-China Federation of Trade Unions) is the official link between the worker's needs and the party-state. In China, the State-owned enterprises are the rule and the temporary employment, where the government controls and assigns each task is the predominant model [9]. Globalization impacted positively in the country's economy, transforming it from a developing nation in the 1970s into the leading trading nation in 2014. The employment relations were also transformed, through the flexibilization of the labor rules, as Joint-ventures and Private Owned Enterprises entered in the market. MNCs had a profoundly role, firstly acting as joint-ventures with the Chinese government, and, since the 2000s, as private entities [1].

One of the key points is that in a state planned economy as China, the work of reconciling the interests of groups as workers and owners is left to an admirative structure, with government guarantees. China, though, aiming to align its economy to the global markets, inside its "open doors" policy made diverge the work's interests and of its managers, what is expressed by an increase in the number of labor disputes, from 33,000 in 1995 to 155,000 in 2001, when the country passed through its higher opening in terms of regulation, when new institutions were introduced: contractual labor relations, tripartite labor disputes, collective consultation in workplace. The unions kept holding power, influencing, mostly the State-Owned Enterprises, where they are part of the management. Notwithstanding, the unions lost power in the private owned and joint-ventures. Nowadays, the Labour Law established changes towards the liberalization of the contracts, reducing the safety net of workers and increasing the firm's possibilities [10].

3.2 Indonesia Profile

Indonesia, by its turn, adopted policies to improve the financial and economic sectors, through foreign direct investment and international trade insertion, MNCs preference to Indonesia is due to low economic investment with maximum gaining [11]. The new economic policies, paired with a new transportation infra-structure and information technology, improved the Indonesian position in the world trade, though, the high intervention of the State in the economy, the political scenario and its discretionarily kept the risk of investing in the country high [8].

Since the 1980s, the Indonesia has deregulated its economy, becoming attractive to the MNCs due to the cost of labor, facing international criticism due the violations to the worker's rights. In the 1990s, the Asian financial crisis caused a significant impact on the country's economy [11-13]. Operating costs increased because of the collapse of the Indonesian Rupiah, when in June 1997 it depreciated from around 2,300 per US dollar to about 10,500 per US dollar in September 1998 [13,14]. The deregulated market reduced wages. In an environment where State action was already reduced, labor was subject to the oscillation of the market.

Aiming to recover from the crisis, there have been major changes in labor market policies Indonesia. A minimum wage was established in 1999, though it is not enforced [15]. Notwithstanding, after the crisis, the pressure of labor increases, existing constraints on trade unions were largely removed. Under the consecutive Ministers of Labor, the government increased the right of workers and wage claims. The minimum wage was increased by more than 90 percent in three years from 1999 to 2002. The regulations also introduced market rigidities in hiring process, guaranteeing employment rights, resulting that nowadays labor policy of Indonesia is one of the most stringent in Asia [16].

3.3 Role of the Institutions

Although the countries mentioned above are favored destinations for Multinational Corporations (MNCs) to invest their capital resources, due to the low cost of labor, the ease to obtain natural resources and, most importantly, the consumer market. Institutions matter, in this sense, because they reduce transaction costs, and for that reason MNCs will tend to choose to develop and expand their resources in a developing country that has minimal State intervention, which increases the capacity of the management process of the MNCs firms. It is noteworthy which the costs to adapt to different cultures can be minimized when there is a convergence in the labor practices [17].

MNCs were attracted by governments of developing countries, seeking investments both in terms of capital and resources, aiming to receive a spillover effect in their economies [18]. However, when a country is trying to attract foreign companies, the presence of the company can reduce or even eliminate the power and role of the state government itself, due to the capacity of imposing contracts, which in the practice means the control of social interactions [19]. There is an expected, thus, convergence worldwide brought by globalization and its main actors, the MNCs.

4. Discussion

Divergent paths: the convergence of the globalization impacts asymmetrically in the host countries

Globalization, understood as integration of the markets, benefits from the convergence of rules and practices, reducing adaptation and transaction costs [20]. The driven actors of the globalization, the MNCs, provide employment opportunities, training and knowledge, transfer of technology and improve the skills of local workforce [21], which increases levels of labor productivity [22]. Notwithstanding, the successive financial crisis-1994 in Mexico, 1995 in Russia, 1997-1998 in Asia, 1999 in Brazil, 2001 the dot-com bubble and Argentina, 2008 the world financial crisis, de-legitimated the neo-liberal model and the globalization as its consequential process. The deregulation and opening of markets led to a creative destruction process, reducing the social welfare and increasing the frictional and cyclical unemployment through the path [23].

Industrial relations were deeply transformed by the globalization in the analyzed countries, where there is expected a convergence between labor law and the erosion of the State power towards the MNCs, which with its capacity to impose contracts in a transaction economy, would mold the new institutions. China and Indonesia followed divergent paths. The neoliberal model which emphasizes the individualism, A term indicating preference to the individual labor, and the Unitarian approach, lost terrain in Indonesia, where unions regained power, though, China reduced the role of the unions, mainly due the need to cut costs when privatize companies in the 1990s and early 2000s [1].

Contemporary Human Resource Management on an MNC does not require a third party to facilitate interests of investors and workers, where reducing costs, relations are understood as short-term contracts. The HRM, thus, prefers as policy replacement or eliminating labor union [24]. In China, to attract foreign investment, the government also issued a policy in favor of the owners of capital resulting in reduction of the role of unions. So far, the Indonesian government was pushed to force the revision of Law No. 13 of 2003 related to the issuance of Presidential Decree No. 3 of 2006, which concerning on the Regulation of Investment Climate Improvement Package, trying to reverse the post Asian crisis measures of increasing the labor rights [12,16]. It is relevant to note which both countries continued to be strongly regulated by the State, even though the labor's rights were flexibilized, where flexibilization is perceived as foreign investment attraction in terms of competitiveness, but not reduced State intervention, to improve the environment of the private sector, which includes the MNCs [17]. In Indonesia, the opening of the economy and the structural reforms were reversed due to the financial crisis of 1997-1998, giving power to unions and prioritizing the labor, though those measures are not enforced.

The globalization, the basis of growth of Indonesia and China, under the Industrial Relations did not behave as expected, which was the convergence of labor rules and practices, through the integration of those economies in the world market. It can be highlighted which both countries are fully members of the World Trade Organization and the ASEAN plus three, and, participated actively in the global economy. China, the country immune to the world financial crisis in 2008, established the Consensus of Beijing [6], exercising power in the international scenario. Even though, MNCs did not change the labor relations as profoundly as the State controlled economy did. The opening of the country was to further the entrepreneurship environment, already a cultural characteristic of China and not to conform with MNCs requirements [14,25]. Due to China size, it influences the MNCs more than is influenced by it.

Indonesia, also a heavily State intervened economy, does not have the strategic and economic importance of China, and, due to it, is subject to the MNCs pressures. The bargain between the labor rights and the firm's interests, though, can put in peril the fragile political institutions of the country [25] and, the government prioritizes, in the short run, the workforce interest, as it provides the legit the government needs. This institutional equilibrium can be reversed, when MNCs can provide establishment advantages overcoming the voters [17].

It is clear that globalization, enabled by financial, technological and communication tools impacts in the Industrial Relations in the labor and workforce. Unions, the resulting variable between governments and employees try to react to restructure the equilibrium between diverging interests. Globalization is an integrating factor, when expands markets in time and space, it also interconnects contracts. The a priori trend is that it makes all Industrial Relations aspects converged, as it would reduce costs and improve the competitiveness of the firms. In this highly competitive and short-term market, unitarism would be prominent over pluralism and decentralized power should be the rule.

The present paper hypothesis was not confirmed. The studied cases demonstrate clearly a divergence between labor and workforce rules after the acceleration of the globalization, which occurred after the 1990s [3]. Historically, both are State planned economies. Both started an opening process that was intensified in the 1980s and 1990s, attracting heavily MNCs. Though, Indonesia suffered deeply the consequences of the Asian Financial Crisis and the Financial Crisis of 2008, whilst China was practically immune, due to the control of capitals it imposed. It was in the decade, which catalyzed the globalization that the divergence increased. Unitarism was part of a reduction of costs policy of China whilst Indonesia saw the emergence of the unions. Therefore, globalization must be understood together to local institutions that react to the MNCs to synthesize new social practices, which will become rules. The globalization impacted differently in Indonesia and China, thus, the resulting processes concerning labor relations also were different. For the practical implications, authors highlight the State structure, mainly the higher State power of the Chinese, and its geographical and economical importance as causes of its unique production model, intervened, but flexible [6]. Indonesia, by its turn, with fragile institutions, depends upon the game of power with voters and economics groups. In the short run, the weights favor the voters, explaining the increasing in formal rights of labor [25].

5. Conclusions

With the rise of globalization, the entire world has become a small market where the resources of one country can be used in by second country's companies. Multinational companies are taking great advantage from such opportunities and expanding their production through use of low labour cost. Nevertheless, there are certain considerations that these MNCs have to take in view and this paper elaborates all such aspects. The main aspects, which have been discussed in this paper, are preference to labour rights, unitarism, individualism, and divergence. Though within the native region, MNCs can work within the cultural boundaries but expansion to countries like Indonesia and China makes it better for such companies to utilize labour and economic sources in a better and profitable manner. A complete discussion has been done in this paper comparing both the above-mentioned countries and the resources which these countries can provide to the MNCs who are intended to invest within the boundaries of these countries.

Author Contributions

All authors shared equal contribution to the manuscript writing. First author responsible in stimulated the discussions, developed the arguments among other authors and acted as corresponding author.

Conflict of Interest

The authors have no conflicts of interest to declare. All co-authors have seen and agree with the contents of the manuscript and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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ARTICLE

Influence of Board Mechanisms on Corporate Social Responsibility Disclosures in Nigeria: A Study of Oil and Gas Sector of the Economy

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ABSTRACT

The study examined the influence of board mechanisms on corporate social responsibility disclosure among oil and gas quoted companies in Nigeria for ten (10) years period (2012-2021). Board mechanisms variables of board independence, board size as well as board gender diversity were analyzed to determine their influence on corporate social responsibility disclosures. Data obtained from the financial statement of various sampled companies were suitably analyzed with the help of descriptive statistics, correlation as well as regression analysis by making use of E-view (9.0) econometric packages. Regression result reveals that board independence has significant and negative influence on corporate social responsibility disclosures while board size and board gender diversity have insignificant and negative influence on corporate social responsibility disclosures of various companies. The study therefore arrived at a conclusion that board independence on the board brings about improvement on corporate social responsibility disclosure among quoted oil and gas companies in Nigeria.

1. Introduction

The issues of corporate social responsibility disclosures (CSRD) have drawn the attention of several academic researchers all over the world due to its relevance. Much academic research has focused on CSRD since the mid-1970's [1]. CSRD involves corporate organization doing the needful by way of carrying out activities that will improve the living condition of host community, environment as well as the general populace. Corporate social responsibility entails supporting the surrounding community with social activities [2]. Corporate social responsibility information act in response to inquiries of different stakeholders, like the shareholders, investors, workers, clients and authorities. CSRD is additionally added to the system of financial information to provide information on economic performance, business strategies, environment and society [3].

Corporate social responsibility disclosures can be influenced by considering different factors, motives, choices

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and values of the ones that are included in the formulation of policy as well as decision-making processes of organizations. Board mechanisms or composition like board independence, managerial ownership, board size and women on board were considered as essential requirement or determinant factors of CSRD [4]. Factors like board size, CEO duality, board gender diversity, board independence, managerial ownership, independence, audit committee, board ownership and among others [5,6] can be used as board mechanisms that can influence corporate social responsibility disclosures. But the manner at which these various mechanisms influences corporate social responsibility disclosures remain a crucial issue to be examined.

Issues that are related to CSRD have been investigated in several studies. Due to what it entails and the keen interest in corporate social responsibility concept, a lot of researches have been conducted in this particular area, mostly in the developed countries [7]. Despite some intense research on corporate social responsibility [8-10], studies in this very area are still found to be scarce and are slower in responding to the increased concern about the issues of CSR in the developing nations [7]. Nigeria oil and gas industry have been explored by few studies where the concerns of CSR like air pollution as well as exploitation of various employees have been prevalent [11]. It is against this backdrop that this very study stands to examine the gap in literature by investigating the influence of board mechanisms of board independence, board gender diversity as well as board size on CSRD among oil and gas quoted Nigeria firms. To this end, specific objectives and research hypotheses are stated.

2. Objectives of the Study

1) To assess the influence of board independence on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

2) To investigate the influence of board size on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

3) To determine the influence of board gender diversity on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

3. Research Hypotheses

$H0_1$: Board independence has no significant influence on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

$H0_2$: Board size has no significant influence on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

$H0_3$: Board gender diversity has no significant influence on corporate social responsibility disclosure among oil and gas quoted Nigeria firms.

4. Literature Review

Appropriate literature regarding the influence of board mechanisms as well as corporate social responsibility disclosures in Nigeria oil and gas sector of the economy is discussed in this very section. Clear relationship between the studied variables as well as the theoretical foundations of the research is also provided in this section.

5. Corporate Social Responsibility Disclosures

This has become an important area to be examined in developed as well as developing nations all over the world. The commitment of a firm to behave ethically (honesty and fairness) toward the society is refers to as social responsibility. An association between a firm and the society as a whole is said to be corporate social responsibility [12]. CSRD consist of the various information that are past to different stakeholders as regards the effect of social and environmental actions of a firm. CSRD, according to Saleh et al., (2021) is the means to make information available about the relationship between firms and community stakeholders [13]. CSRD is additionally added to the system of financial information to provide information on economic performance, business strategies, environment and society [3]. This involves presenting reports with regard to environmental impact of companies on the welfare of company's employees, the society as well as the rate of customer satisfaction.

6. Board Mechanisms

Corporate social responsibility disclosures can be determined by observing different mechanisms of the board, the manner at which these various mechanisms relate with corporate social responsibility remains a crucial issue to be discussed. Board mechanisms are corporate governance mechanisms (the ownership structure, compensation structure, audit structure and board structure, etc) which relates to board's activities such as board meetings, debt, audit committee, etc. [14]. Board mechanisms are related to board characteristics. Board characteristics entail certain mechanisms that can help in straightening management towards proper running of the firm on behalf of the owners. Rabi (2021) indicated that board characteristics are primarily investigated in terms of foreign directors, independence, size as well as composition of the genders [15]. In a study conducted by Isa and Muhammad (2015), they claimed in favour of seeing mechanisms of the board, like the board size, managerial ownership and board independence as essential determinant factors or pre-requisite of corporate social responsibility disclosures (CSRD) [6].

6.1 Board Independence

Normally, board of directors comprises of independent and dependent members. According to Akbas (2016), dependent members are either members of the family that owns the company or have direct responsibility for business management [16]. Independent members essentially are represented by the minor shareholders' interests as they are not involved directly in the activities of the company and their affiliation with the company is their directorship only [17]. Board independence has been reflected as a crucial mechanism of the board and it denotes the number of independent members on the board. Independent outside directors, according to Ntim and Soobaroyen (2013) tend to bring greater diversity to corporate boards and they include skills, knowledge as well as business contacts [18]. Amran et al. (2014) claimed that it is another major mechanism of corporate governance and it is widely examined in the literature of environmental disclosure [19].

6.2 Board Size

In different studies, size is being reported as essential determinant of CSRD with focus on social and environmental disclosure of enterprise [20]. According to Ntim et al. (2013), the size of the board can be seen as an essential mechanism of corporate governance that can influence corporate voluntary disclosure level, including environmental disclosure [21]. Number of outside and inside directors that serve on the corporate board is referred to as board size [2]. Elzahar and Hussainey (2012) reported in their study that increase in the size of board can lead to increase in directors number that have background of accounting or finance, which may have an influence that is positive on corporate environmental disclosure [22]. In a divergent view, it is submitted that as number of directors on board increases, board monitoring capacity increases also, but the benefit maybe outweighed by the cost of increment of poorer communication and slower process of decision making [23].

6.3 Board Gender Diversity

As men and women have culturally, socially and traditionally diverse backgrounds, board gender diversity has likewise been reflected to be an essential dimension of the corporate governance that can also influence the extent of environmental disclosure [24]. Women presence on boards of directors has been found to be of benefit to various companies. As ascertained by Huse and Solberg (2006), contributions may be made by women on corporate boards by taking part in decisions that are important, preparation and involvement, taking the role of leadership and being visible and creating alliances [25]. More women presence on board of directors, according to Khaireddine et al. (2020) is very beneficial for companies [2]. Diversity on the board of directors can offer a greater variety of knowledge and backgrounds, showing diverse viewpoints that can result in a better strategic decision making [26]. With respect to the literature on board mechanisms, board gender diversity has been known to be among the rising issues that researchers are now connecting with various outcomes including corporate social responsibility disclosures. Within board diversity, the male to female ratio is considered to be an important point to note when decisions are made by boards [27].

7. Theoretical Framework

Resource dependence theory is employed by this study to explain the influence of board mechanisms on CSRD of Nigeria oil and gas sector of the economy.

Resource Dependency Theory

This theory was formulated by Pfeffer and Salancik in the year 1978 to explain how organisations' behaviour can be affected by the external resources they possess [28]. This theory sees the availability of resources as the most imperative role of board members while examining the board resources. The theory claimed that board of directors offers resources to the companies from different diversity in terms of gender, qualification, experience, capital, executive directors, expertise and non-executive directors and so on [29]. According to Wang and Oliver (2009), this serves as the mechanism to form a link with the external environment that can assist management to achieve organizational goals [30]. It is very vital that for firms to continue in business, most especially in the environment they operate, there is a continuous need for the substitution and attainment of resources. Variety of scholars have used the resource dependency insight to dispute the fact that the present day's progressively more multifarious business environment demands leadership from persons who could construct obtainable resources which include legitimacy and diversity. This theory presents a hypothetical groundwork which enables and facilitates board of directors to function as resource materials to the company [31]. Engagement of outside directors on the board assists in fast entrance to resources significant for a company's success [31]. Consequently, boards are well thought-out as a link between company and the necessary resources the company requires from the immediate environment towards greater performance.

8. Review of Empirical Studies

Isa1 and Muhammad (2015) examined impact of board characteristics and corporate social responsibility disclosure of Nigerian food product companies [5]. Out of eleven (11) food product companies quoted on NSE, a sample of six (6) were studied. Secondary data gotten from the financial statement of various sampled firms were properly used in the study. The analysis of data was done with the method of regression analysis by making use of STATA 9.0 package. The study shows that board size as well as women on the board indicates significant and positive relationship with CSRD of sampled companies. Managerial ownership revealed significant and negative effect on CSRD. Board independence on the other hand shows an insignificant relationship with CSRD. Size which is the control variable indicates an insignificant and negative relationship with CSRD.

Naseem et al. (2017) investigated impact of board characteristics and corporate social responsibility disclosure of quoted firms in Pakistan. The study employed a sample of one hundred and seventy nine (179) firms from the financial and non-financial sectors of the economy for the particular period of (2009-2015). Multiple regression models were employed in the study. From the result, board size, board independence and number of meetings are significant and positively influence CSRD while female directors on board were found to have an insignificant effect on CSRD [32].

Hosam et al. (2019) conducted study on impact of corporate social responsibility disclosure (CSRD) and board characteristics on corporate performance of global energy companies for 3 years period. Quantitative method of data collection was adopted in the study and analyzed by using the partial least squares regression. The study shows that board size as well as gender diversity had significant impact on corporate performance while CSRD and board independence were found not to have significant in impacting on corporate performance [33].

Olanrewaju et al. (2020) examined impact of board diversity on corporate social responsibility of quoted oil and gas companies in Nigeria. Hypotheses were tested by making use of data generated from the financial statement of eight (8) quoted oil and gas companies on NSE from the period of 2012 to 2018. Diagnostic test like multicollinearity, heteroscedasticity as well as Hausman tests were conducted for the results to be validated. Panel corrected standard error regression was applied in the study. From the result, board gender diversity, board independence as well as board diversity had positive as well as significant impact on corporate social responsibility. Board professionalism had an insignificant relationship with corporate social responsibility [12].

9. Methodology

The study investigated the influence of board mechanisms on CSRD among oil and gas sector in Nigeria. Panel survey was employed in the study for ten years period (2012-2021), as it relates to the oil and gas firms listed on Nigerian Exchange Group (NXG) PLC as at 31st December, 2021. Population of the study entails the various oil and gas firms in Nigeria. Secondary source of data was obtained from financial statement of sampled companies. Company annual reports were utilized in the study because they are readily available and accessible.

10. Conceptual Framework

Figure 1 below shows the conceptual framework depicting the schematic representation of the relationship between corporate social responsibility disclosures (dependent variable) and explanatory variables (board mechanisms) which consist of board independence, board size as well as board gender diversity in the study.

11. Model Specification

The model specified by Olanrewaju et al. (2020) is therefore adapted in this study as below [12]:

$$CSR_i = \beta_0 + \beta_1 BINDi + \beta_2 BGDi + \beta_3 BPROF + \beta_4 BNAT + \beta_5 PROF + E_{it} \quad (1)$$

Given the dynamic nature of panel data showing relationship, hence our model specification for this study is specified in a functional model as:

Corporate social responsibility disclosures = *f* (Board independence, board size and board gender diversity). While the econometric model for the study is expressed as:

$$CSRD_{it} = \beta_0 + \beta_1 BIND_{it} + \beta_2 BSIZE_{it} + \beta_3 BOGD_{it} + \mu \quad (2)$$

where,

$\beta 0$ = Constant

$\beta 1$ - $\beta 5$ = Coefficient of the independent variables

CSRD = Corporate social responsibility disclosures

BIND = Board independence

BSIZE = Board size

BOGD = Board gender diversity

μ = Error terms

Our a priori expectation is stated : $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$; such that:

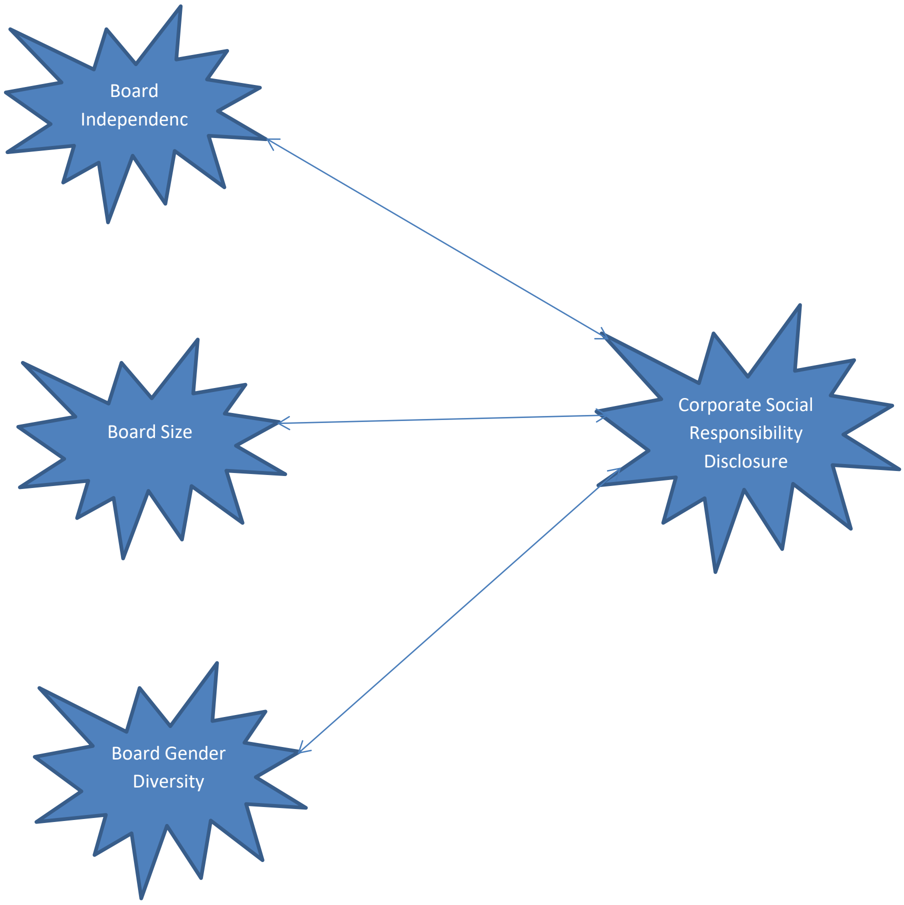

Figure 1. Conceptual Framework

Source: Author's analytical framework, 2021.

β_1>0 shows that a unit increase in board independence of the firm will result to an increase in corporate social responsibility disclosures.

β_2>0 shows that a unit increase board size of the firm, will result to an increase in board size.

β_3>0 means that a unit increase in board gender diversity of the firm will result to an increase in corporate social responsibility disclosures.

Table 1 shows the operationalisation of different variables that are used in the study. Corporate social responsibility disclosures (CSRD) is the dependent variable while board independence (BIND), board size (BSIZE) and board gender diversity (BOGD) are the independent variable with their different measures.

Table 1. Operationalisation of Variables

Variables	Notation and Measurement	Sources	Apriori Sign
CSRD	Corporate social responsibility disclosures is measured by using the score "1" if the firm discloses its CSR items, if otherwise "0"	[6].	
BIND	Board independence is measure as the number of directors that are independent divided by the total directors.	[34].	+
BSIZE	Board size is measured as the total number of directors on the board.	[35].	+
BOGD	Board gender diversity is measured with the percentage of women sitting on the board of directors.	[36].	+

Source: Researcher's compilation (2021).

12. Data Analysis and Presentation of Results

The mean value of corporate social responsibility disclosures (CSRD) from Table 2 above is 0.687288 with a range of 0.270000 to 2.010000. Looking at the various figures, it is obvious there is no large disparity in the volume of CSRD sampled firms financial statement. The explanatory variables indicate that percentage of independent directors from the entire directors on the board of various sampled companies varies from 0.000000 to 13.00000 with the mean value of 3.690847. This shows that majority of the sampled companies have dependent directors on boards and majority have no independent members on their boards. On the other hand, board size varieties from a minimum of 0.000000 to a maximum of 88.89000 with 11.47678 as mean value, and this represent about 11 members. Regarding the board gender diversity, average percentage of women on the board is 0.132288 and good number of the firms have no women members representation on board (median = 0.100000).

Table 2. Descriptive Statistics

	CSRD	BIND	BSIZE	BOGD
	0.687288	3.690847	11.47678	0.132288
Median	0.665000	0.750000	7.000000	0.100000
Maximum	2.010000	13.00000	88.89000	0.670000
Minimum	0.270000	0.000000	0.000000	0.000000
Std.Dev.	0.266935	4.319926	19.56826	0.173059
Skewness	2.883278	1.049941	2.809823	1.900835
Kurtosis	16.04155	2.587984	9.692692	6.260634
Jarque-Bera	999.7314	22.51470	375.4983	123.3318
Probability	0.000000	0.000013	0.000000	0.000000
Sum	81.10000	435.5200	1354.260	15.61000
SumSq.Dev.	8.336732	2183.426	44801.25	3.504082
Observations	118	118	118	118

Source: Researchers' computation using E-view (9.0).

Table 3 shows the correlation matrix of different variables that are used in the study. When CSRD is at 1 unit, BIND = –0.394083, BSIZE = –0.394083 and BOGD = 0.126263 and they were negatively correlated at low values, apart from BODG that was positively correlated. It is observed that no one value is greater than 90%, meaning, absence of multi-colinearity is found.

Table 3. Correlation Matrix

Variables	CSRD	BIND	BSIZE	BOGD
CSRD	1.000000			
BIND	–0.394083	1.000000		
BSIZE	–0.183014	0.082328	1.000000	
BOGD	0.126263	–0.237438	–0.249218	1.000000

Source: Researchers' computation using (E-view 9.0).

Table 4 shows the outcome of panel least square regression. The result shows that BIND, BSIZE and BOGD could explain 17% of the overall changes in CSRD and after adjustment, the variables explained 15% of systematic variations in corporate social responsibility disclosures (CSRD) while 85% are not explained in the model. The implication of this is that the independent variables did not account for a reasonable disparity in corporate social responsibility disclosures in the companies that are sampled. It therefore means that other variables are also there that can explain the behaviour of corporate social responsibility disclosures. The F-statistic is observed to be significant, since the calculated F-value of 8.236161 is higher than the critical F-value at 5% significant level. Durbin Watson statistic value stood at 1.808823 and this shows an absent of autocorrelation. The result revealed that BIND, was found to be significant and negatively related with CSRD since the probability value of 0.0000 is lesser than absolute critical t-value of 5% level of significant while BSIZE and BOGD were found to be insignificant and negatively related with CSRD. By indication, the result shows that BIND agreed with our model a priori expectation but BSIZE and BOGD did not.

Table 4. Panel Least Squares Regression Results

Dependent Variable: CSRD
Method: Panel Least Squares
Date: 08/04/22 Time: 03:28
Sample: 2012 2021
Periods included: 10
Cross-sections included: 12
Total panel (unbalanced) observations: 118

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.798743	0.041270	19.35392	0.0000
BIND	–0.023612	0.005403	–4.370417	0.0000
BSIZE	–0.002076	0.001196	–1.734869	0.0855
BOGD	–0.003681	0.138784	–0.026522	0.9789

R-squared	0.178132	Mean dependent var	0.687288
Adjusted R-squared	0.156504	S.D. dependent var	0.266935
S.E. of regression	0.245158	Akaike info criterion	0.059484
Sum squared resid	6.851690	Schwarz criterion	0.153406
Log likelihood	0.490424	Hannan-Quinn criter.	0.097619
F-statistic	8.236161	Durbin-Watson stat	1.808823
Prob(F-statistic)	0.000052		

Source: Researchers' computation using E-view (9.0).

13. Discussion of Findings

The independent variable of board independence (BIND) was statistically found to be significant at the level of 5% and negatively related with the corporate social responsibility disclosures (CSRD) among oil and gas quoted firms in Nigeria. Outcome of the results is in agreement with that of (Baalouch, Ayadi & Hussainey, 2019) who reported that independent directors' presence on board is significant as well as negatively related with environmental disclosure quality [37]. The implication is that board independent director is a critical factor that influences CSRD among oil and gas quoted firms in Nigeria. Board size (BSIZE) as well as board gender diversity (BOGD) were statistically found to be insignificant at the level of 5% and negatively related with corporate social responsibility disclosures (CSRD) of oil and gas firms in Nigeria. The result is consistent with the one of Irianto et al. (2017) [38] and Pantamee (2014) [39] that found that board size (BSIZE) has an insignificant and negative influence on CSR disclosure. The results are in line with that of Naseem et al. (2017) [32] and Ghabayen, Mohamad and Ahmad (2016) who found that female directors on board have insignificant and negative impact on CSRD [40]. The implication is that board size (BSIZE) and board gender diversity (BOGD) are not critical factors that influences CSRD among oil and gas quoted firms in Nigeria. The outcome therefore accepted the hypotheses stated earlier which indicates that (board size and board gender diversity) have no significant influence on corporate social responsibility disclosure among oil and gas quoted firms in Nigeria.

14. Conclusions

The study examined the influence of board mechanisms on corporate social responsibility disclosures among oil and gas companies in Nigeria. CSRD have been the focus of so many academic researchers since the mid-1970's. The concept of ccorporate social responsibility disclosures involves corporate organization doing the needful by way of carrying out activities to improve the living standard of the host community, environment and the general populace. Corporate social responsibility disclosures can be influenced by considering different factors involve in formulation of policy and decision-making processes of formal organizations. Factors like board independence, board size as well as board gender diversity have been employed as board mechanisms that can influence CSRD in this study. But the manner at which these various mechanisms influences or relate to corporate social responsibility disclosures remain a crucial issues to be examined. As a result of the keen interest in the concept of CSRD and what it consists of, many research has been done in this area, mostly in advance nations. Despite some intense research on corporate social responsibility, studies in this area in the developing nations are still scarce and are slower in responding to the increased concern about the issues and a lot of studies have not examined Nigeria oil and gas industry where CSR concerns like the air pollution as well as exploitation of employees have been predominant. Corporate social responsibility disclosures (CSRD) has been used as dependent variable while board independence (BIND), board size (BSIZE) as well as board gender diversity (BOGD) were chosen as the independent variables and they are the board mechanisms that influences corporate social responsibility disclosures of oil and gas quoted companies in Nigeria. The result revealed that the independent variable of board independence (BIND) was statistically found to be significant at 5% level and negatively related with corporate social responsibility disclosures (CSRD) while board size (BSIZE) and board gender diversity (BOGD) were statistically found to be insignificant at 5% level and negatively related with Nigeria oil and gas firms. The implication of this is that board independent director is a critical factor that influences CSRD among oil and gas quoted firms in Nigeria while board size (BSIZE) and board gender diversity (BOGD) are found not to be.

15. Recommendations and Suggestions for Further Studies

This study therefore recommends that board independence needs to be given good attention when considering the issues of corporate board mechanisms as related to CSRD among oil and gas quoted firms in Nigeria since it is found to be significant in the study. Management of quoted oil and gas companies should sustain diverse stable boards and ensure more female directors are appointed on the board. In terms of further studies, the study suggests that future researchers can also investigate variables that are not included in this paper. The influence of board mechanisms on CSRD of other sectors in Nigeria can likewise be examined in upcoming research than oil and gas sector alone.

Conflict of Interest

There is no conflict of interest.

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ARTICLE

Bank Credit and Agricultural Output in Bangladesh: An Econometric Analysis

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ABSTRACT

In this study, the authors tried to identify the relationship between bank credit and agricultural output in Bangladesh. Simultaneously impact assessment of bank credit on agricultural output is also investigated. Different econometric techniques are used to determine the nature of the relationship between bank credit and agricultural output and the impact of bank credit. A total of 40 years (1981-2020) of annual time series data were collected from the Annual Reports of the Bangladesh Bank and World Bank's world development indicators. Stationarity and cointegration tests were performed initially and then analyzed with Vector Error Correction Model, confirming a long-run relationship between bank credit and agricultural output. Additionally, univariate and multivariate OLS models are performed to identify the magnitude of bank credit's impact on agricultural output. Both models revealed that bank credit positively and significantly affects agricultural production in Bangladesh. Based on these findings, the authors recommend additional fund allocation to the agricultural production system by the banks in Bangladesh.

1. Introduction

1.1 Background of the Study

In any developing country, economic and financial activities largely depend on smooth financial intermediation. Banks, as financial institutions, can play a vital role in this regard. Hence, Banks in Bangladesh can contribute to the economic development process through effective and efficient lending. On the other hand, the agricultural sector plays a crucial role in the overall economic development process of Bangladesh. This sector is regarded as the primary source of rural employment and income generation. As a priority sector of the Bangladesh economy, this sector, directly and indirectly, contributed to the industrial and service sectors. Moreover, the agricultural sector has been playing a significant role in fulfilling the nation's food and nutrition demands.

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Given this sectoral importance, Bangladesh Bank has announced agricultural credit as a priority sector lending and mandatorily incorporated all scheduled banks to lend in this sector for agricultural production upliftment.

Every year Bangladesh Bank issues an Agricultural and Rural Credit Policy and Programme for every scheduled bank in Bangladesh. In this credit policy, Bangladesh Bank specified disbursement target, interest rate, loan sanctioning procedure and monitoring process. In Financial Year 2020, the actual disbursement of banks' agricultural credit was 227.5 billion BDT which increased to 255.1 billion BDT in 2021 [1].

The above-mentioned initiatives and indicators regarding the banks' agricultural credit disbursement and credit policy seem satisfactory. Nevertheless, the following research questions should be addressed.

1.2 Research Questions

(i) Is there any relationship between bank credit and agricultural GDP in Bangladesh? If so, what is the nature of the relationship (i.e., short run or long run) between banks' agricultural credit and agricultural gross domestic production?

(ii) Does bank credit significantly impact agricultural output in Bangladesh? If so, what is the magnitude of the impact of bank credit on agricultural GDP in Bangladesh?

1.3 Research Objectives

Hereafter, this study's following research objectives are specified based on the above research questions.

(i) Investigate whether any relationship prevails between bank credit and agricultural output and identify the relationship between bank credit and agricultural GDP.

(ii) Estimate the significance level, effect and magnitude of bank credit on agricultural production.

2. Literature Review

Banks' agricultural credit and other input variables are found positive and significant in explaining agricultural yield in Pakistan at a five percent level of significance [2-4]. A measurable positive and significant impact of agricultural bank credit and other macroeconomic factors on agricultural GDP revealed that banks' agricultural loans to the agricultural sector significantly influence agricultural output in Nigeria [5-8]. In many other previous studies, we found that non-bank agricultural credit positively impacts agricultural output. Agricultural and rural credit had a measurable positive impact on agricultural output in India [9,10]. Fund allocation in Agricultural Credit Guarantee Scheme positively influences agricultural yield [11]. In Pakistan, another study confirms that agricultural credit disbursement positively and significantly influences wheat production [12]. The VECM model based on annual time series data revealed that a long-run relationship exists between bank credit and agricultural yield in south African and south Asian economies [13-15]. Whilst in Nigeria, time series data of 1981-2013 is evident that bank credit and agricultural production had a short-run relationship using VAR estimation [16].

From the previous empirical evidence, we have seen a statistically significant and positive impact of bank credit on agricultural output and the nature of the association between bank credit and output in different parts of the world. In this section, some exceptions will be discussed. The impact of agricultural credit was positive on agricultural output but was found insignificant [17,18]. In another study in Nigeria, agricultural credit had a negative impact on agricultural output at a 5% significance level and confirmed the presence of agricultural credit fungibility [19].

Recent literature and empirical findings also robust the previous findings and disclosed a positive and significant relationship between agricultural credit and agricultural production. In Pakistan a positive relationship is found between bank credit and agricultural output by applying ARDL and Bound test method [20]. In Nigeria a long-run significant association is found between bank credit and agricultural output [21]. In Turkey it was found that agricultural GDP per hectare increased by 0.17 percent for a one percent increase in agricultural credit applying the spatial panel model [22]. The coefficient of the agricultural credit guarantee scheme fund to crop, livestock and fishery sector output is found to be 0.1607, 0.2320 and 0.2110 correspondingly in Nigeria [23]. Another study in Nigeria revealed that the elasticity of agricultural production to agricultural credit is found as 0.006 [24]. Simple OLS regression suggests a one percent increase in banks' agricultural credit rise in agricultural GDP by 0.045 percent in Turkey [25].

Based on the previous empirical findings, discussion and concepts, the following research hypotheses have been developed.

Hypothesis 1:

H_0: There is no significant relationship between bank credit and agricultural production.

H_A: There is a significant relationship between bank credit and agricultural production.

Hypothesis 2:

H_0: There is no significant impact of bank credit on agricultural production.

H_A: There is a significant impact of bank credit on agricultural production.

3. Methodology

3.1 Data and Variables

In this study, we considered both univariate and multivariate OLS model to estimate the magnitude of banks' agricultural credit on agricultural production. In the univariate OLS model, banks' agricultural credit is solely considered to estimate bank credit's possible effect on agricultural production and identify their relationship nature. Annual time series data from 1981 to 2020 is applied in this model. The highest available data are found from 1981 to 2020 for the variables considered in the univariate model. Hence, we have a total of 40 observations. Agricultural gross domestic production in billion BDT is the dependent variable that proxied Bangladesh's agricultural output and and is denoted as AGDP. Scheduled banks' credit to the agricultural sector is the proxy of bank credit which is our independent variable and also termed in billion BDT and denoted as ACRED. In the multivariate OLS model, in addition to our target variable banks' agricultural credit, foreign direct investment and inflation rate variables are considered as some control variables. Foreign direct investment is measured in billion BDT and termed FDI. On the other hand, the inflation rate is denoted as INF and expressed in percentage. Data has been collected from different secondhand sources, i.e., annual reports of the Bangladesh Bank and World Bank's world development indicators [26].

3.2 Data Analysis Techniques

In any econometric analysis, consistency checking of series data is mandatory. In the first phase of our data analysis, we go through with summary statistics. Maximum and minimum values gave us information about the presence of outliers. The mean and median values indicated central tendency, and standard deviation measured the dispersion. Finally, skewness and kurtosis values provided statistics about the normality of data distribution. The following econometric approaches have been applied in the subsequent phases of our data analysis, which are discussed below.

3.2.1 Stationarity Test

Econometric model selection for time series data requires some sequential statistical tests. Based on the data stationarity level, a further model can be chosen. The Augmented Dickey-Fuller (ADF) unit root and Phillip-Perron (P-P) unit root tests are widely applied. In our study, we performed the ADF unit root test to detect data stationarity. Within the ADF unit root test, there are three models, i.e., only intercept, trend and intercept; no trend and no intercept. Considering the nature of the data, only the intercept model has been deployed in our study.

3.2.2 Cointegration Test

After detecting the stationarity level of series data, further models can be selected based on the cointegration test results. Application of the cointegration test requires the stationarity of series data at their first difference value. The cointegration test was first introduced by Nobel laureates Robert Engle and Clive Granger in 1987. The engle-Granger two-step method was widely applied for cointegration tests earlier. Nowadays Johansen cointegration test is widely applied. In this paper, we have conducted the Johansen cointegration test. Johansen cointegration test has two primary forms, i.e., Trace statistics and Maximum Eigenvalue statistics. We have considered both statistics in this paper to find the number of cointegration equations.

3.2.3 VECM Estimation

Based on the outcome of the cointegration test, we have to select a subsequent econometric model. If the cointegration test indicates no cointegration equation exists between variables, then Vector Auto Regressive (VAR) model can be performed. The presence of at least one cointegration equation guided us to run the Vector Error Correction Model (VECM). We have accomplished the VECM model in our study, indicating the nature of the relationship (i.e., short run or long run) between the variables.

3.2.4 OLS Regression

The VECM model can identify the relationship between variables. In addition to this framework, we have applied the commonly used Ordinary Least Square (OLS) model to estimate the coefficient of the independent variable to identify the magnitude of the impact of the independent variable on the dependent variable. In this OLS estimation process, we have developed both univariate and multivariate models, where the agricultural gross domestic product is our dependent variable. OLS is a linear regression model based on the principle of least squares. Since our dependent and independent variables are continuous variables, we expect a linear relationship between them. Thus, we have performed OLS regression in this paper to identify the direction, significance level, and magnitude of bank credit on agricultural output in Bangladesh. Simultaneously OLS model has provided necessary information about the explaining power of the explanatory variables on the explained variable.

4. Results and Discussion

4.1 Descriptive Statistics

Table 1 shows that the mean and median values of AGDP and ACRED are within the highest and lowest values, indicating that the series data are consistent. Greater than one value indicates high positive skewness in AGDP and ACRED. However, both results are found within the acceptable range of +3 to –3. Later we have both the variables' have positive kurtosis values stating that leptokurtic distribution was found within an acceptable limit of +10 to –10.

4.2 Analytical Statistics

4.2.1 ADF Unit Root Tests (Only Intercept)

The ADF unit root test results are furnished in Table 2. In this ADF unit root test, we have considered the 'only intercept' model to identify the stationarity level of the variables. All the variables 't-statistics are lower than the variables' respective critical values at their level data. Hence, the H_0: Variables that are not stationary cannot be rejected. In the 2nd column of Table 2, we have found that after taking the level data's first difference value, the t-statistics of the variables are higher than the corresponding critical values at a one percent significance level. Therefore, the H_0 can be rejected, and the alternative hypothesis H_A: Variables are stationary can be accepted. Since the variables become stationary at their first difference value, we conclude that they attain their stationarity level at I (1). For time series data analysis, identifying the data stationarity level is essential because this stationarity level guides the other statistical model selection. For example, if the data are integrated in a different order, i.e., I (0) and I (1), the ARDL model is suitable. I (1) and I (2) ordered data should go through the AR model. The cointegration model can be applicable when data are integrated at I (1). Therefore, this study will perform the Johansen cointegration test to know the number of cointegration equations between the variables.

4.2.2 Results of Johansen Cointegration Test

The Johansen Test of cointegration determines the number of cointegration equations between the variables, indicating the chance of a long-run equilibrium relationship between the variables.

Table 3 represents the estimated outcomes of the cointegration test. In this test, we considered both the Trace and Max Statistics. In the 'zero hypothesized cointegration equation', both trace and max statistics' value exceeds their particular critical values. So, the H_0: No cointegration equation exists between the variables can be rejected, and the H_A: One cointegration equation between the variables can be accepted. At least one cointegration equation indicates there is a chance of a long-run equilibrium connection between the variables. Then 'At the most 1' level, the trace and max statistics are lower than their critical values. Meaning the non-rejection of the Null: One cointegration equation that indicates a long-run relationship may be between agricultural GDP and banks' agricultural credit. Detection of the cointegration equation is necessary to choose the subsequent statistical model. The presence of no cointegration equation guided us to run the VAR model, and the existence of at least one cointegration equation directed us to perform the VECM model. Having one cointegration equation, we can run the VECM model. In the next section, we will discuss the results of the VECM model.

Table 1. Summary Statistics

Variables	Observation	Maximum	Minimum	Mean	Median	Standard Deviation	Skewness	Kurtosis
AGDP	40	3472.74	105.72	990.37	623.25	934.37	1.24	3.42
ACRED	40	236.2	3.74	62.08	29.85	72.45	1.23	3.11

Table 2. Results of ADF unit root tests (Only intercept)

Variables	At level		First Difference	
	t-Stat.	Critical values	t-Stat.	Critical values
LnAGDP	–0.662	–3.621 (1%) –2.943 (5%) –2.610 (10%)	–4.004***x	–3.615 (1%) –2.941 (5%) –2.609 (10%)
LnACRED	–0.477	–3.610 (1%) –2.938 (5%) –2.607 (10%)	–5.751***x	–3.615 (1%) –2.941 (5%) –2.609 (10%)

Note: ***, **, * indicate 1%, 5%, and 10% of significance level respectively

Table 3. Results of Johansen Cointegration Test

Hypothesized no. of CE (s)	Trace stat.	5% critical value	Max stat.	5% critical value
None (r=0) *	18.5904	15.41	18.3695	14.07
At most 1	0.2209	3.76	0.2209	3.76

* rejection of theH_0 at 0.05 level.

4.2.3 VECM Estimation

In the VECM estimation, we have selected lag length as one since our lag order selection criteria suggest optimal lag as one. Then the number of cointegration equations is set as one because Johansen cointegration results provide the existence of one cointegration equation between the variables. Here we have applied Least Squares (Gauss-Newton / Marquardt steps) method. Thus, the software-provided system equation is found as:

$$D(LNAGDP) = C(1)*(LNAGDP(-1) - 0.7224*LNACRED(-1) -4.0249) + C(2)*D(LNAGDP(-1)) +C(3)*D(LNACRED(-1)) + C(4)$$

Here, D(LNAGDP) is the dependent variable. C(1) stands for the coefficient of the cointegration equation which is also labeled as an error correction term and indicates the speed of adjustment toward equilibrium. C(2) and C(3) indicate the coefficient of D(LNAGDP(–1) and D(LNACRED(–1), respectively, which are the independent variables of this estimation procedure. Lastly, C(4) is denoted as the residuals of the estimation.

The summary results of the VECM estimation have been exhibited in Table 4. Here we have estimated the F-statistic value as 6.6010, and the corresponding probability value is 0.0012, less than five percent. Consequently, we can conclude that the overall VECM estimation is significant. Moreover, the R-squared value is found as 0.3680, indicating that the regressors can explain the 36.80% variation of the outcome variable.

Table 4. Summary results of VECM estimation

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	–0.1150	0.0334	–3.4415	0.0016
C(2)	0.1349	0.1547	0.8719	0.3894
C(3)	–0.0396	0.0349	–1.1338	0.2648
C(4)	0.0814	0.0158	5.1245	0.0000
R-squared	0.3680	F-statistic		6.6010
Adjusted R-squared	0.3123	Prob(F-statistic)		0.0012

The VECM estimation encompasses two features, i.e., detection of long-run association and short-run association. Identification of the long-run relationship is subject to the probability value of the coefficient of the cointegration equation and its respective sign. Here, the coefficient of cointegration equation C(1)'s coefficient value is found as –0.1150, and the corresponding probability value is found as 0.0016, which is less than one percent.

According to the decision rule, if the coefficient values' sign is found as negative and the probability value is less than five percent, we can conclude that a statistically significant long-run relationship remains among the variables. Since the C(1) coefficient value is negative and the probability value is less than one percent, our concluding remarks regarding VECM estimation is that a long-run equilibrium relationship exists between agricultural GDP and banks' agricultural credit. This association is also found statistically significant at a one percent significance level.

In the previous discussion, we applied sequential statistical analysis one after another and finally detected the nature of the association between the variables. In addition, popular OLS estimation has been carried out in the next section to know the magnitude of banks' agricultural credit to explain agricultural GDP.

4.2.4 OLS Regression

Table 5 shows the results of the univariate regression analysis. OLS estimation, an econometric technique, is employed to estimate the regression analysis of the simple univariate model for the data from 1981 to 2020. The full implication of a model can be evaluated from the value of multiple determinations. In the present results, the F-stat's estimated value is 634.78, and the corresponding probability is 0.000, which is an acceptable level and highly significant. This result detects that this model's independent variable banks agricultural credit significantly influenced agricultural productivity. The calculated value of the R^2 is 0.94, which specifies that approximately 94% of the overall variation in agricultural GDP can be described by agricultural bank credit. The bank's agricultural credit intercept is 0.7263332, suggesting that a 10% rise in the bank's agricultural credit will raise the agricultural GDP by around 7.26%. These results are similar to the conclusions of other related studies, including Iganiga and Unemhilin, 2011; Ammani, 2012; Adofu et al., 2012; Obilor, 2013; Agunuwa et al., 2015. Those studies also showed a strong, positive, and significant effect on the agricultural GDP of the bank's agricultural credit. The probable reason behind the positive impact of bank credit on productivity is its close monitoring by bank officials. Farmers who get bank's agricultural credit cannot easily divert it into other unproductive sectors. Hence, credit acts as an enabling and mediating factor for variable and fixed inputs used at different agricultural production stages.

Table 5. Results of univariate OLS model

Variables	Coeff.	Sd. Error	t-Stat.	Probability
Constant	4.009193	0.1041856	38.48	0.000
LnACRED	0.7263332	0.0288286	25.19	0.000***
R^2 0.9435	Adjusted R^2 0.9420	F-stat. 634.78	(F-stat.) Prob. 0.0000	DW Stat. 0.3694741

Note: ***, **, * correspondingly show 1%, 5%, and 10% significant level

In the following Table 6, the outcome of the multivariate OLS model has been furnished. To check the robustness of the OLS model, we developed a multivariate model alongside the univariate OLS model. In the multivariate regression model, foreign direct investment and inflation rate are considered as some control variables. Results showed that the F-stat's value is found as 373.38 with the corresponding probability of 0.000, which indicates the overall model is significant at a one percent level. The estimated value of the R^2 is 0.9851, which specifies that around 98.51% of the variation in agricultural GDP can be explained by the independent variables considered in this model. The coefficient of the bank's agricultural credit is found as 0.8423063, indicating that a one percent increase in the bank's agricultural credit will raise the agricultural GDP by 0.8423%. On the other hand, the coefficient of foreign direct investment and the inflation rate is found negative and statistically insignificant.

Finally, we can conclude that both models affirm banks' agricultural credit has a positive and statistically significant impact on the agricultural gross domestic product in Bangladesh.

Table 6. Results of multivariate OLS model

Variables	Coeff.	Sd. Error	t-Stat.	Probability
Constant	4.508307	0.5386841	8.37	0.000
LnACRED	0.8423063	0.0508791	16.56	0.000***
LnFDI	–0.0490672	0.039316	–1.25	0.229
LnINF	–0.0100843	0.0912313	–0.11	0.913
R^2 0.9851	Adjusted R^2 0.9824	F-stat. 373.38	(F-stat.) Prob. 0.0000	DW Stat. 1.227189

Note: ***, **, * correspondingly show 1%, 5%, and 10% significant level

5. Conclusions

This paper inspects the relationship between bank credit and agricultural output in Bangladesh. The impact assessment of bank credit on agricultural output is also considered. Different statistical models were performed sequentially over 40 years of annual time series data. In the first phase of data analysis, the unit root test confirms that series data obtain stationarity at their first difference value. Later cointegration test indicated that one cointegration equation remained in between the variables. In the third phase, VECM estimation was carried out, which affirms that long-run causation comes from the banks' agricultural credit to agricultural GDP. Hence, according to our first objective of the study, we can conclude that there is a significant relationship between bank credit and agricultural output, which is long-run in nature. Finally, we estimate the OLS regression. Both univariate and multivariate models affirm a significant positive impact of the banks' agricultural credit on agricultural GDP.

Bangladesh is one of the high populous countries in the world now. Food and nutrition demand fulfillment for this vast population is a very crucial task. Increasing agricultural production should be ensured thereby. Due to the huge population's housing demand and industrial expansion, agricultural land is decreasing gradually. Thus, high-yielding inputs and equipment are necessary to raise agricultural productivity from a given resource. Bank financing can play a vital role in this regard. This study evident that bank credit has a significant long-run relationship with agricultural production, and a measurable, significant positive impact of bank credit is found on agricultural output. Therefore, we conclude that banks in Bangladesh can elevate agricultural output through their effective and efficient lending.

Conflict of Interest

There is no conflict of interest.

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EDITORIAL

Boosting Local Competitive Advantages as a Response to the New Normal Challenges to Security

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The acceleration of the pace of life, progress, and transformations in all areas has become a typical feature of the modern global and increasingly globalizing world. Permanent changes are becoming familiar to us [1]. We live, work, and plan in a constantly changing world. Uncertainties and risks become integral factors in all our decisions and actions. This situation is described by the term "new normality", which was previously used to reflect the economic consequences of the global recessions of the XX century and the early 2000s [2]. Now, it is extremely widely applied to characterize not only economic, but also social, cultural, and political features of contemporary global development [3,4]. What was abnormal recently is becoming commonplace. Amid unprecedentedly high instability of world markets and uncertainty of the economic and social future of countries and communities, one of the key aspects of the new economic reality is the natural desire of governments, businesses, and common people to ensure security. The more variable threats become, the more numerous and complex security-related dimensions enter the current agenda.

Every government strives to ensure the economic security of its state. After several decades of systematic reduction of trade and economic barriers between countries as a result of the activities of international organizations (for example, the World Trade Organization) and the establishment of free trade zones and other trade and economic unions of countries, we are witnessing a return to protectionism, including in the leading developed economies. Under a banner of ensuring the fairness of international trade and correcting imbalances, certain countries initiate trade disputes, which grow into economic tensions and even political confrontations (the US-China trade tension of recent years). The new trade protectionism redefines the

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role of the biggest market tycoons in ensuring global economic development. Previously considered unquestionable drivers of globalization and development, multinational firms are now accused of distorting the principles of free competitive trade, exploiting local labor, depleting natural and economic resources of host countries, and even manipulating the governments, media, and public opinion. Can the new globalization progress without multinational companies? How will global supply chains transform, if transnational businesses are forced to deglobalize their activities and relocate their facilities back to home markets? What effects will labor markets experience? In the cases of China and Indonesia, the above controversies are discussed by Ikhwan Maulana Haeruddin and the coauthors in the paper entitled “Dazed and Confused: The Impact of Multinational Firms on Local Labor Markets”.

No less controversial is ensuring food security. Despite the efforts to sustain both the physical availability of staple agricultural products and the economic accessibility of a variety of food choices, the food insecurity problem has been aggravated again recently [5]. Even before the COVID-19 outbreak hit the world in 2020, the paces of combating hunger and alleviating poverty had been decelerating. Poverty and inequality as primary threats to sustainable economic development have been particularly exacerbated across developing countries, owing mainly to increases in food insecurity in Latin America, Asia, and Sub-Saharan Africa. The Russia-Ukraine crisis has further imbalanced food markets and affected prices. There is a strong need to find a workable (and appropriate in these new conditions) resolution to the food insecurity problem to avoid a global food crisis. In their paper “Bank Credit and Agricultural Output in Bangladesh: An Economic Analysis”, Md. Shahidul Islam and Md. Sazzad Hossain Patwary’s approach to addressing the food insecurity problem by exploring the effects of improving the financial capacity of farmers on their output. Capturing the specifics of agricultural production in Bangladesh in the past four decades makes the study particularly relevant to interpreting the food insecurity problem across developing and least developed countries from the angle of the poor financial and economic capacity of farmers.

The new normal economic reality particularly challenges sustainable development by aggravating global environmental and public health problems, such as climate change, deterioration of air, water, land, and other resources, reduction of biodiversity, and loss of many natural ecosystems [6]. Developing countries are on the path of accelerating economic development, becoming, along with developed countries, the primary consumers of natural resources. Population growth leads to the fact that the amount of other natural resources per capita decreases every year, despite scientific and technological progress in the main resource sectors. Globally, an additional three billion people will be added to the 1.8 billion existing middle-class consumers in the next two decades, while the discovery and extraction of new resources are associated with problems of their availability and high prices. Despite the increase in resource expenditure efficiency, the volume of the world’s GDP is growing in proportion to the volume of natural resources used. Limited essential resources and high prices limit economic activity, especially in industries dependent on natural sources. Many countries are concerned about ensuring resource security, especially energy security, and reducing their dependence on resource-supplying countries. All this leads to increased global competition for resources, especially energy, while energy-related issues penetrate into the spheres that have not been directly connected to those narratives before. For example, the paper “Influence of Board Mechanisms on Corporate Social Responsibility Disclosures in Nigeria: A Study of Oil and Gas Sector of the Economy” written by Godstime Osarobo Ikhu-omoregbe and Sunday Nosa Ugbogbo presents an entirely new look at building social responsibility in energy companies.

As demonstrated by the studies included in the current issue, the new normal challenges to economic, food, energy and other types of security could be responded to by boosting local competitive advantages. Especially, the security-related agenda could be used to promote the sustainable development of small-scale local producers, diversify economic advantages, and preserve the unique features of localities. Differences on economic, social, cultural, ethnic, and other grounds should be considered as conditions for improving the overall stability of the economic development on the basis of localization of competitive advantages and cross-localization of diversities.

Conflicts of Interest

The author declares no conflict of interest.

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