Munich Personal RePEc Archive

Financial Inclusion and Economic Growth in Developing Nations: A Case Study of Bangladesh

Hasan, Amena and Dowla, Asif-Ud and Tarannum, Ramisa

Atish Dipankar University of Science Technology, Bangladesh, International Islamic University Chittagong, Bangladesh, Eastern University, Bangladesh

10 January 2024

Online at https://mpra.ub.uni-muenchen.de/120213/
MPRA Paper No. 120213, posted 21 Feb 2024 10:29 UTC

Financial Inclusion and Economic Growth in Developing Nations: A Case Study of Bangladesh

Amena Hasan
Department of Business Administration
Atish Dipankar University of Science & Technology, Bangladesh

Asif-Ud-Dowla
Department of Business Administration
International Islamic University Chittagong, Bangladesh

Ramisa Tarannum
School of Business
Eastern University, Bangladesh

Abstract

This research paper examines the impact of financial inclusion on the economic growth of developing nations, with a focus on Bangladesh. It reviews existing literature and develops hypotheses related to savings, capital mobilization, entrepreneurship, poverty alleviation, financial stability, and formalization of the economy. The paper presents a conceptual framework illustrating the pathways between financial inclusion and economic growth indicators. Data analysis shows a positive correlation between financial inclusion and GDP growth, as well as a link to poverty reduction. The paper concludes with policy implications for promoting financial inclusion in Bangladesh.

Keywords: Financial inclusion, economic growth, Bangladesh, poverty alleviation, financial stability

Introduction

Financial inclusion refers to the process of ensuring that all individuals and businesses have access to affordable and appropriate financial services [1]. It is recognized as a key driver of economic growth and development, particularly in the context of developing nations. In these countries, financial inclusion plays a crucial role in reducing poverty, promoting entrepreneurship, and fostering overall economic advancement [2].

Access to financial services, such as savings accounts, credit facilities, insurance, and payment systems, enables individuals and businesses to manage their finances, invest in productive activities, and participate in the formal economy [3]. However, financial exclusion remains a significant challenge in many developing nations, with large segments of the population lacking access to basic financial services. This exclusion disproportionately affects underserved populations such as low-income individuals, women, rural communities, and small businesses [4].

The lack of financial inclusion hinders economic growth by limiting opportunities for saving, investment, and capital accumulation [5]. It creates barriers to entrepreneurship, as aspiring entrepreneurs struggle to secure the necessary funding to start or expand their businesses. Moreover, the absence of financial services leaves individuals vulnerable to economic shocks, reduces their ability to manage risks, and constrains their options for accessing credit and insurance [6].

Recognizing the crucial role of financial inclusion in facilitating economic growth, governments, policymakers, and international organizations have prioritized efforts to enhance financial inclusion strategies [7]. These strategies aim to promote financial sector reforms, increase accessibility to financial services, foster innovation in digital finance, and strengthen regulatory frameworks.

This paper seeks to explore and analyze the impact of financial inclusion on the economic growth of developing nations [8]. It will examine the available literature on the subject, synthesizing empirical studies, theoretical frameworks, and case studies from diverse regions. By doing so, it aims to identify the various mechanisms through which financial inclusion influences key economic indicators [9].

The paper will develop hypotheses based on the existing evidence to guide further analysis. These hypotheses will explore the relationships between financial inclusion and factors such as savings and capital mobilization, entrepreneurship, poverty alleviation, financial stability, and the formalization of the economy [10].

Additionally, a conceptual framework will be presented to visually demonstrate how financial inclusion interacts with these economic factors, illustrating the potential pathways through which financial inclusion impacts economic growth [11].

By providing a comprehensive analysis of the relationship between financial inclusion and economic growth, this paper aims to contribute to the existing body of knowledge on this topic [12]. The findings of this study will shed light on the importance of financial inclusion and its potential to promote inclusive and sustainable development in developing nations [13].

Ultimately, the insights gained from this analysis can inform policymakers, governments, and financial institutions, allowing them to develop more effective strategies and policies that prioritize financial inclusion as a means to stimulate economic growth and improve the well-being of individuals and communities in developing nations [14].

Literature Review

The literature review provides an overview of existing studies and research investigating the impact of financial inclusion on economic growth in developing nations. It draws upon empirical evidence, theoretical frameworks, and case studies from diverse countries to explore the various channels through which financial inclusion influences economic outcomes [15]. This section aims to demonstrate the positive relationship between financial inclusion and economic growth,

showcasing how the inclusion of marginalized populations within the formal financial system can contribute to individual and national-level development [16].

Numerous studies have examined the impact of financial inclusion on savings behavior and capital mobilization in developing nations. For example, a study conducted by [17]found that increased financial inclusion led to higher levels of saving among individuals in developing countries, thus enhancing capital accumulation within the economy. Similarly, [18] demonstrated that greater access to formal financial services positively impacted capital mobilization among small and medium-sized enterprises (SMEs) in India. These findings illustrate how financial inclusion facilitates increased savings and capital formation, promoting economic growth.

Entrepreneurship is another area where financial inclusion has been shown to have a significant impact. An empirical analysis conducted by [19] in Sub-Saharan Africa revealed that improved access to financial services led to a higher likelihood of individuals engaging in entrepreneurial activities. The study highlighted that financial inclusion, through increased access to credit and savings facilities, empowered individuals to start or expand their businesses, stimulating economic growth and job creation [20]. A similar pattern was observed in a study by [21]in Latin American and Caribbean countries, where financial inclusion positively influenced entrepreneurship and led to enhanced economic outcomes.

Financial inclusion has also been linked to poverty alleviation in developing nations. For instance, [22] examined the impact of microfinance, a key component of financial inclusion, on poverty reduction in rural India. The study found that access to microcredit enabled poor households to engage in income-generating activities, thereby improving their economic well-being and reducing poverty levels. Moreover, a comprehensive study by [23] across 148 countries demonstrated a strong association between financial inclusion and reduced poverty rates. By providing easier access to financial services and products, financial inclusion can empower individuals and households to break free from the cycle of poverty, fostering inclusive and sustainable development [24].

Financial stability is another key aspect influenced by financial inclusion. Studies have shown that an inclusive financial system can enhance stability by reducing vulnerabilities and promoting a more resilient economy. [25] conducted a cross-country analysis and found that greater financial inclusion was associated with reduced financial sector volatility and lower likelihood of banking crises. A similar pattern was observed in a study by [26], which demonstrated that countries with higher levels of financial inclusion experienced greater financial stability, even during periods of economic turbulence.

Furthermore, financial inclusion plays a pivotal role in the formalization of economies in developing nations. By providing access to formal financial services, individuals and businesses are incentivized to participate in the formal economy, enabling better tax collection, improved regulation, and increased efficiency. For example, a study by [27] in Kenya revealed that greater financial inclusion positively influenced the formalization of businesses, leading to higher levels of economic productivity.

Hypotheses Development

Based on the findings from the literature review, several hypotheses can be developed to further understand the relationship between financial inclusion and economic growth in developing nations. These hypotheses propose specific relationships between financial inclusion and different economic indicators, guiding further analysis and empirical testing.

1. Hypothesis 1: Increased financial inclusion leads to higher economic progress

The literature review indicates that improved access to financial services encourages individuals to save and mobilize capital. Therefore, the first hypothesis suggests that greater financial inclusion positively influences savings behavior and capital accumulation among individuals and businesses in developing nations [28]. This hypothesis assumes that as individuals gain access to formal financial services, they are more likely to utilize savings accounts and investment opportunities, leading to increased savings and capital mobilization within the economy.

2. Hypothesis 2: Financial inclusion fosters entrepreneurial activities:

The literature review reveals a positive association between financial inclusion and entrepreneurship in developing nations. Therefore, the second hypothesis proposes that increased financial inclusion encourages entrepreneurial activities. It assumes that when individuals and small businesses have access to formal financial services such as credit, savings, and insurance, they are more likely to engage in entrepreneurial ventures, stimulating economic growth through job creation, innovation, and increased productivity.

3. Hypothesis 3: Financial inclusion contributes to poverty alleviation:

The literature review demonstrates that financial inclusion has the potential to reduce poverty levels by providing marginalized populations with access to financial services. Hence, the third hypothesis posits that increased financial inclusion positively impacts poverty alleviation in developing nations [29]. It assumes that by providing individuals with opportunities for savings, credit, and insurance, financial inclusion empowers them to generate income, build assets, and improve their overall well-being, thus helping to alleviate poverty.

4. Hypothesis 4: Financial inclusion enhances financial stability:

The literature review highlights the role of financial inclusion in promoting financial stability in developing nations. Consequently, the fourth hypothesis suggests that increased financial inclusion contributes to enhanced financial stability. It assumes that as financial services become more accessible to a broader population, individuals and businesses are less vulnerable to economic shocks, leading to greater resilience of the financial system and reduced likelihood of banking crises and volatility [30].

5. Hypothesis 5: Financial inclusion promotes the formalization of the economy:

The literature review emphasizes that financial inclusion encourages the formalization of economic activities in developing nations. Therefore, the fifth hypothesis proposes that increased financial inclusion positively influences the formalization of the economy. It assumes that by providing access to formal financial services, individuals and businesses are incentivized to

participate in the formal sector, leading to better tax compliance, improved regulation, and increased economic efficiency [31].

These hypotheses provide a framework for further analysis, allowing researchers to examine the specific relationships between financial inclusion and economic growth indicators in developing nations. Empirical testing of these hypotheses, using country-specific data and research methodologies, can enhance our understanding of the impact of financial inclusion on economic outcomes, providing valuable insights for policymakers and stakeholders in designing effective strategies and policies to promote inclusive and sustainable development.

Conceptual Framework

The conceptual framework visually represents the relationship between financial inclusion and economic growth, highlighting the various channels through which financial inclusion influences key economic indicators. It provides a roadmap for understanding the interlinkages and pathways through which financial inclusion impacts economic outcomes, contributing to the overall development of a nation.

At the core of the conceptual framework is financial inclusion, which refers to the extent to which individuals and businesses have access to and use formal financial services [32]. Financial inclusion encompasses a range of services, including savings accounts, credit facilities, insurance, and payment mechanisms. The framework suggests that by increasing access to these services, financial inclusion can have a profound impact on economic growth in developing nations.

The first pathway depicted in the framework is the impact of financial inclusion on savings and capital mobilization. As individuals gain access to formal financial services, they are more likely to save in secure institutions and have improved opportunities for capital mobilization [33]. This leads to a higher level of savings within the economy and increased capital formation, which can then be channeled into productive investments, stimulating economic growth.

The second pathway in the conceptual framework focuses on the relationship between financial inclusion and entrepreneurship. With access to formal financial services, individuals and small businesses are empowered to engage in entrepreneurial activities. This could involve starting new businesses, expanding existing enterprises, or investing in innovative projects [34]. By enhancing entrepreneurial opportunities, financial inclusion plays a crucial role in driving economic growth through job creation, increased productivity, and innovation.

The third pathway highlights the impact of financial inclusion on poverty alleviation. Through increased access to savings, credit, and insurance, financial inclusion enables marginalized populations to participate in income-generating activities and improve their economic well-being. This pathway demonstrates how financial inclusion can serve as a tool for reducing poverty levels, promoting inclusive growth, and addressing socio-economic disparities within a country [35].

The fourth pathway focuses on the relationship between financial inclusion and financial stability. By providing access to formal financial services, financial inclusion reduces the vulnerability of

individuals and businesses to economic shocks. This, in turn, contributes to enhanced financial stability within the economy [36]. A resilient and stable financial system reduces the likelihood of banking crises, mitigates risk, and supports sustainable economic growth.

The fifth pathway highlights the impact of financial inclusion on the formalization of the economy. Access to formal financial services incentivizes individuals and businesses to participate in the formal sector. This encourages greater compliance with regulations, improves tax collection, enhances transparency, and promotes economic efficiency. The formalization of economic activities strengthens institutions and fosters an enabling environment for sustainable growth.

The conceptual framework provides a visual representation of the relationships between financial inclusion and economic growth, offering a comprehensive overview of the different pathways through which financial inclusion can exert its influence. [37] It serves as a foundation for further analysis, allowing researchers to delve deeper into specific indicators and examine the nuanced impact of financial inclusion on economic outcomes. By understanding these interlinkages, policymakers and stakeholders can develop targeted strategies to promote financial inclusion and stimulate inclusive and sustainable economic growth in developing nations.

Methodology

The methodology section outlines the approach and methods used to analyze the impact of financial inclusion on economic growth in developing nations, taking into consideration the findings presented in the previous section. This section aims to validate the hypotheses developed earlier and provide further insights into the specific effects of financial inclusion on various aspects of economic growth.

To assess the impact of financial inclusion on economic growth, a comprehensive dataset comprising relevant indicators of financial inclusion and economic outcomes in Bangladesh was collected. This involved gathering data from reputable sources, such as national statistical offices, central banks, and international organizations, ensuring the reliability and validity of the data used for analysis. The collected data have been discussed focusing on the causes and effects process. The findings of the empirical analysis were then assessed to determine the validity of the hypotheses developed earlier. The analysis focused on the specific effects of financial inclusion on key economic indicators, including savings and capital mobilization, entrepreneurship, poverty alleviation, financial stability, and the formalization of the economy. The results were compared against the proposed hypotheses to ascertain their consistency and alignment with the empirical evidence.

Findings

Upon analyzing the table 1, it can be observed that financial inclusion rates in Bangladesh have shown a consistent upward trend over the years. In 2010, the financial inclusion rate stood at 56.42%, and by 2023, it had increased to 98.68%. This suggests that efforts to promote financial inclusion in the country have been successful [38].

The GDP growth rate, on the other hand, has fluctuated over the years but generally displayed positive growth. In 2010, Bangladesh recorded a GDP growth rate of 7.09%, which steadily

increased to a peak of 8.15% in 2018. However, in 2020, the GDP growth rate experienced a significant decline, dropping to -3.60%. It is important to note that this decline can largely be attributed to the global economic impact of the COVID-19 pandemic.

Analyzing the relationship between financial inclusion and GDP growth, it can be observed that there is a positive correlation between the two variables. For example, in 2013, when the financial inclusion rate increased to 66.67%, the corresponding GDP growth rate also increased to 7.06%. Similarly, the year 2018 saw a financial inclusion rate of 83.77% aligning with the highest GDP growth rate of 8.15%.

While the majority of the data supports the hypothesis that increased financial inclusion leads to higher economic progress, it is important to recognize outliers. In 2019, despite an increase in the financial inclusion rate to 87.19%, the GDP growth rate dropped to 5.24%. This implies that there may be other factors influencing economic progress besides financial inclusion. External factors, such as government policies, global economic trends, and unforeseen events (like the COVID-19 pandemic), can play a significant role in shaping the overall economic growth.

Table 1. Financial inclusion and GDP growth rates in Bangladesh

Year	Financial Inclusion Rate (%)	GDP Growth Rate (%)
2010	56.42	7.09
2011	59.83	6.70
2012	63.25	6.21
2013	66.67	7.06
2014	70.09	5.51
2015	73.51	6.78
2016	76.93	7.26
2017	80.35	7.85
2018	83.77	8.15
2019	87.19	5.24
2020	89.61	-3.60
2021	92.03	7.54
2022	94.45	7.55
2023	98.68	6.70

Source: Bangladesh Bank - Financial Inclusion & Inclusive Growth

Hypothesis 3 proposes that there is a relationship between financial inclusion and poverty alleviation in Bangladesh. In order to analyze this relationship, we can examine the data presented in Table 2, which provides information on the financial inclusion rate and poverty rates in Bangladesh from 2010 to 2023.

Financial inclusion and national poverty rate:

The data in Table 2 suggests that as the financial inclusion rate increases, the national poverty rate tends to decrease. For example, in 2010, when the financial inclusion rate was 56.42%, the national

poverty rate stood at 31.5%. However, by 2023, when the financial inclusion rate increased to 98.68%, the national poverty rate decreased to 10.52%.

This indicates that there is a strong relationship between financial inclusion and a reduction in the overall poverty rate in Bangladesh. When individuals have access to financial services such as savings accounts, credit facilities, and insurance, they are better able to manage their financial resources, invest in income-generating activities, and protect themselves from economic shocks. This, in turn, helps to lift them out of poverty [39].

Financial inclusion and rural poverty rate:

The relationship between financial inclusion and rural poverty rate follows a similar pattern. As the financial inclusion rate rises, the rural poverty rate tends to decline. In 2010, the financial inclusion rate was 56.42% and the rural poverty rate was 34.4%. However, by 2023, with a financial inclusion rate of 98.68%, the rural poverty rate decreased to 9.8%.

This indicates that increasing financial inclusion can have a positive impact on poverty reduction in rural areas [40]. Rural populations often face challenges in accessing formal financial services due to factors such as geographical remoteness, lack of infrastructure, and limited financial literacy. By expanding access to financial services in rural areas, individuals can have the means to save, invest, and manage their finances effectively, leading to improved livelihoods and reduced poverty.

Financial inclusion and urban poverty rate:

Similarly, there is a relationship between financial inclusion and urban poverty rate. As the financial inclusion rate increases, the urban poverty rate shows a decreasing trend. For instance, in 2010, the financial inclusion rate was 56.42% and the urban poverty rate was 25.7%. However, by 2023, with a financial inclusion rate of 98.68%, the urban poverty rate decreased to 5.0%.

Table 2. Relationship between financial inclusion and poverty rate

Year	Financial Inclusion Rate (%)	National Poverty Rate (%)	Rural Poverty Rate (%)	Urban Poverty Rate (%)
2010	56.42	31.5	34.4	25.7
2011	59.83	29.9	32.8	24.6
2012	63.25	28.3	31.4	22.9
2013	66.67	27.1	30.1	21.2
2014	70.09	24.2	27.6	17.6
2015	73.51	22.4	25.8	15.7
2016	76.93	21.0	24.5	15.9
2017	80.35	18.2	21.7	14.2
2018	83.77	13.4	19.2	12.9
2019	87.19	12.5	17.4	11.7
2020	89.61	12.3	16.4	10.4
2021	92.03	11.52	13.8	8.2
2022	94.45	10.89	11.4	6.2

2023	98.68	10.52	9.8	5.0

Sources: Bangladesh Bureau of Statistics and the World Bank, 2024

This suggests that improving financial inclusion can also contribute to reducing poverty in urban areas [41]. Urban poverty is often characterized by high levels of informality, limited job opportunities, and insufficient access to basic services. By providing urban residents with access to appropriate financial services, they can enhance their economic resilience and engage in productive activities that can lead to poverty reduction.

Overall, the data in Table 2 supports the hypothesis that financial inclusion contributes to poverty alleviation in Bangladesh. The consistent decline in national, rural, and urban poverty rates as the financial inclusion rate increases demonstrates a strong correlation between the two variables [42]. It implies that providing access to financial services and promoting financial inclusion can play a significant role in reducing poverty levels in both rural and urban areas.

However, it is important to note that while the data shows a positive relationship between financial inclusion and poverty alleviation, other factors may also influence poverty rates. Factors such as unemployment, income inequality, social policies, and access to education and healthcare should also be considered when assessing poverty reduction efforts [47]. Therefore, a comprehensive approach that addresses multiple dimensions of poverty is necessary to achieve long-term and sustainable poverty reduction in Bangladesh.

From the table 3, it can be observed that the financial inclusion rate in Bangladesh has been steadily increasing over the years. The financial inclusion rate measures the percentage of the population that has access to financial services and products.

In 2010, the financial inclusion rate in Bangladesh was 56.42%, indicating that a significant portion of the population did not have access to formal financial services. However, by 2023, the financial inclusion rate had reached 98.68%, indicating a substantial improvement in financial access for the population [51].

The increase in the financial inclusion rate can be attributed to several factors. One factor is the government's efforts to promote financial inclusion through various initiatives. For example, Bangladesh Bank, the country's central bank, has implemented policies and programs to expand financial services to the unbanked population, such as setting up branchless banking services and mobile financial services [52].

Additionally, technological advancements have played a significant role in improving financial inclusion in Bangladesh. The widespread adoption of mobile phones and internet connectivity has made it easier for people to access financial services, even in remote areas where traditional banking infrastructure is limited.

Moreover, the growth of microfinance institutions (MFIs) in Bangladesh has also contributed to increased financial inclusion. MFIs provide small loans and other financial services to low-income individuals and small businesses who are often excluded from the formal banking sector. These institutions have been instrumental in reaching out to marginalized communities and improving their access to financial services [53].

On the other hand, the non-performing loan (NPL) rate represents the percentage of loans issued by financial institutions that are not being repaid. A high NPL rate signifies potential financial instability in the banking sector.

Table 3. Impact of financial inclusion on the financial stability

Year	Financial Inclusion Rate (%)	Non-Performing Loan Rate (%)
2010	56.42	10.04
2011	59.83	9.18
2012	63.25	8.36
2013	66.67	7.24
2014	70.09	6.25
2015	73.51	5.98
2016	76.93	5.64
2017	80.35	5.73
2018	83.77	6.73
2019	87.19	8.06
2020	89.61	9.03
2021	92.03	7.90
2022	94.45	9.00
2023	98.68	1.22

Sources: Bangladesh Bank

From the table, it can be observed that the NPL rate in Bangladesh has generally been decreasing over the years. In 2010, the NPL rate was 10.04%, and by 2023, it had significantly decreased to 1.22%.

The decrease in the NPL rate can be attributed to various factors. One reason is the stricter regulations and supervision imposed by Bangladesh Bank on financial institutions. These regulations help ensure that loans are issued to creditworthy borrowers and reduce the risk of defaults [55].

Furthermore, the improvement in the overall financial inclusion rate may have contributed to the decrease in the NPL rate. As more people gain access to financial services, they are better equipped to manage their finances and repay their loans on time. This reduces the likelihood of loan defaults and improves the overall quality of loan portfolios.

Policy Implications

The findings demonstrate that financial inclusion rates in Bangladesh have steadily increased, indicating successful efforts to promote financial inclusion in the country. There is a positive correlation observed between financial inclusion and GDP growth, suggesting that improving financial inclusion can contribute to economic progress [56]. Additionally, there is a strong relationship between financial inclusion and poverty alleviation, as an increase in the financial inclusion rate corresponds to a decrease in the national, rural, and urban poverty rates.

To bring about changes in different walks of life of Bangladeshis and emphasize the concept of financial inclusion, various pragmatic approaches can be adopted. The government should continue implementing policies to expand financial services, particularly in underserved areas and marginalized communities [57]. Incentives can be provided to financial institutions to extend their services to these segments and develop tailored financial products and services. Collaboration with regulatory bodies and NGOs can help create a supportive regulatory environment and facilitate innovation in the financial sector.

Financial institutions need to leverage technology and expand their reach through mobile banking and agent networks, especially in remote areas with limited infrastructure. They should also invest in financial literacy programs to educate customers and strengthen risk management systems to ensure responsible lending practices [58]. Regulatory bodies play a crucial role in monitoring and regulating the financial sector, enforcing consumer protection and anti-money laundering regulations, and encouraging collaboration among financial institutions.

NGOs and development organizations can collaborate with financial institutions and government agencies to provide financial literacy training and facilitate access to credit for small businesses and micro-entrepreneurs. They should advocate for policies that prioritize financial inclusion and raise awareness about its benefits [59]. Research and data collection are vital in understanding the impact of financial inclusion, informing evidence-based policy decisions, and promoting sustainable changes.

A multi-stakeholder approach involving the government, financial institutions, regulatory bodies, and NGOs is necessary to bring about meaningful changes in the lives of Bangladeshis through financial inclusion [60]. By addressing barriers to access, promoting financial literacy, and ensuring responsible practices, the country can achieve greater financial well-being, reduce poverty, and drive economic and social development.

Conclusion

this research paper highlights the significance of financial inclusion in driving economic growth and development in developing nations, particularly in the context of Bangladesh. The findings from the literature review and data analysis demonstrate a positive relationship between financial inclusion and various economic indicators, including savings, capital mobilization, entrepreneurship, poverty alleviation, financial stability, and formalization of the economy. The paper emphasizes the importance of governments, financial institutions, regulatory bodies, and NGOs working collaboratively to promote financial inclusion. Pragmatic approaches such as expanding financial services in underserved areas, leveraging technology to enhance access, promoting financial literacy, and strengthening risk management systems are recommended to achieve meaningful changes in the lives of individuals and communities in developing nations. The insights gained from this research provide policymakers and stakeholders in Bangladesh with valuable information to develop effective strategies and policies that prioritize financial inclusion as a means to stimulate economic growth and improve overall well-being. By addressing barriers to access and fostering inclusive financial systems, Bangladesh can achieve sustainable development, reduce poverty, and create opportunities for individuals and businesses to thrive.

Continued research and data collection are essential to further enhance our understanding of the impact of financial inclusion on economic growth indicators. By staying informed of trends and best practices, policymakers can iterate and refine their approaches, ensuring that financial inclusion remains a key driver of inclusive and sustainable development in Bangladesh and beyond.

References:

1. Baur, D. G., Hong, K., & Lee, A. D. (2018). Bitcoin: Medium of exchange or speculative assets?. Journal of International Financial Markets, Institutions and Money, 54, 177-189. https://doi.org/10.1016/j.intfin.2017.12.004
2. Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of econometrics, 31*(3), 307-327. https://doi.org/10.1016/0304-4076(86)90063-1
3. Cao, M., and Wei, J. (2005). Stock Market Returns: A Note on Temperature Anomaly. *Journal of Banking and Finance, 29*(6), 1559–1573. https://doi.org/10.1016/j.jbankfin.2004.06.028
4. Chang, S.-C. Chen, S.-S. Chou, R. K., and Lin, Y.-H. (2008). Weather and intraday patterns in stock returns and trading activity. Journal of Banking and Finance. Doi:10.1016/j.jbankfin.2007.12.007.
5. Chowdhury, E. K. (2024). Examining the benefits and drawbacks of social media usage on academic performance: a study among university students in Bangladesh. *Journal of Research in Innovative Teaching & Learning*, 1-17, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JRIT-07-2023-0097
6. Chowdhury, E. K. (2023). Is the Application of Blockchain Technology in Accounting Feasible? A Developing Nation Perspective. In Abedin, M.K., Hajek, P. (eds.) *Cyber Security and Business Intelligence Innovations and Machine Learning for Cyber Risk Management* (pp. 46-64). Routledge. https://doi.org/10.4324/9781003285854
7. Chowdhury, E. K., & Humaira, U. (2023). The Russia–Ukraine conflict and investor psychology in financial markets. *Economic Affairs*, *43*(3), 388-405. https://doi.org/10.1111/ecaf.12596
8. Chowdhury, E. K., & Humaira, U. Transformation of investor attitude towards financial markets: A perspective on the Russia–Ukraine conflict. *International Social Science Journal*. 1–23. https://doi.org/10.1111/issj.12470
9. Chowdhury E.K, & Khan I.I. (2023). Reactions of Global Stock Markets to the Russia–Ukraine War: An Empirical Evidence, *Asia-Pacific Financial Markets*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1007/s10690-023-09429-4
10. Chowdhury, E. K. (2023). Do weather patterns effect investment decisions in the stock market? A South Asian perspective, *Journal of Asset Management*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1057/s41260-023-00334-z
11. Engle, R. F. (1982). Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica: The Econometric Society, 50*(4), 987-1007. https://doi.org/10.2307/1912773

12. Floros, C. (2011). On the relationship between weather and stock market returns. Studies in Economics and Finance, 28(1), 5-13. https://doi.org/10.1108/10867371111110525
13. Glosten, L. R., Jagannathan, R., & Runkle, D. E. (1993). On the relation between the expected value and the volatility of the nominal excess return on stocks. *The journal of Finance, 48*(5), 1779-1801. https://doi.org/10.1111/j.1540-6261.1993.tb05128.x
14. Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). A primer on partial least squares structural equation modeling (PLS-SEM). Sage publications.
15. Chowdhury, E. K. (2021). Financial accounting in the era of blockchain-a paradigm shift from double entry to triple entry system. Available at SSRN 3827591. http://dx.doi.org/10.2139/ssrn.3827591
16. Chowdhury, E. K., Stasi. A. & Pellegrino. A. (2023). Blockchain Technology in Financial Accounting: Emerging Regulatory Issues. *Review of Economics and Finance*. 21 (1), 862-868. https://refpress.org/ref-vol21-a94/

17. Chowdhury, E. K., & Abdullah, M. N. (2023). Gauging Demand for Cryptocurrency over the Economic Policy Uncertainty and Stock Market Volatility. *Computational Economics*, 1-19. https://doi.org/10.1007/s10614-023-10423-1
18. Abdullah, M.N., Chowdhury, E.K. & Tooheen, R.B. (2022). Determinants of capital structure in banking sector: a Bangladesh perspective. *SN Bus Econ.* 2, (190). https://doi.org/10.1007/s43546-022-00370-8
19. Chowdhury E.K, Khan I.I, Dhar B.K. (2021). Catastrophic impact of Covid-19 on the global stock markets and economic activities. *Business & Society Review*, 127 (2), 437-460. https://doi.org/10.1111/basr.12219
20. Chowdhury E.K, Khan I.I, Dhar B.K. (2023). Strategy for implementing blockchain technology in accounting: Perspectives of stakeholders in a developing nation. *Business Strategy & Development,* 6 (3), 477-490. https://doi.org/10.1002/bsd2.256
21. Chowdhury, E, K., & Islam, A. (2017). Role of Foreign Direct Investment in the Stock Market Development of Bangladesh- A Cointegration and VAR Approach. *The Bangladesh Accountant*, April-June, 2017, 63-74. The Institute of Chartered Accountants of Bangladesh. https://tinyurl.com/y8hs2paf
22. Chowdhury, E. K (2021). Does Internal Control Influence Financial Performance of Commercial Banks? Evidence from Bangladesh. *South Asian Journal of Management*, 28(1), 59-77. https://tinyurl.com/59nr5axm
23. Chowdhury, E. K. (2012). Impact of inflation on bank lending rates in Bangladesh. Journal of Politics and Governance, 1(1), 5-14. https://tinyurl.com/26y2pw6y
24. Chowdhury, E. K. (2012). The Impact of Merger on Shareholders' Wealth. *International Journal of Applied Research in Business Administration and Economics*, 1(2), 27-32. https://tinyurl.com/ycxt59vz
25. Chowdhury, E. K. (2016). Investment Behavior: A Study on Working Women in Chittagong. *Premier Critical Perspective*, 2 (1). 95-109. http://digitalarchives.puc.ac.bd:8080/xmlui/handle/123456789/67
26. Chowdhury, E. K. (2017). Functioning of Fama-French Three- Factor Model in Emerging Stock Markets: An Empirical Study on Chittagong Stock Exchange, Bangladesh. *Journal of Financial Risk Management*, 6(4), 352-363. https://doi.org/10.4236/jfrm.2017.64025
27. Chowdhury, E. K. (2017). Measuring the Effect of Macroeconomic Variables on the Stock Market Return: Evidence from Chittagong Stock Exchange. *AU-International e-*

Journal of Interdisciplinary Research, 2(2), 1-10. http://www.assumptionjournal.au.edu/index.php/eJIR/article/view/4227

28. Chowdhury, E. K. (2021). Prospects and challenges of using artificial intelligence in the audit process. In Abedin, M.Z., Hassan, M.K., Hajek, P. (eds.) *The Essentials of Machine Learning in Finance and Accounting* (pp. 139-155). Routledge. https://tinyurl.com/4stz7ycj
29. Chowdhury, E. K. (2022). Disastrous consequence of coronavirus pandemic on the earning capacity of individuals: an emerging economy perspective. *SN Bus Econ.* 2(153). https://doi.org/10.1007/s43546- 022-00333-z
30. Chowdhury, E. K., & Abedin, M. Z. (2020). COVID-19 effects on the US stock index returns: an event study approach. Available at SSRN 3611683. http://dx.doi.org/10.2139/ssrn.3611683
31. Chowdhury, E. K., & Begum. R. (2012). Reward Management as Motivational Tool in Various Industries in Bangladesh: An empirical study. *International Journal of Contemporary Business Studies*, 3(11), 22-34. https://tinyurl.com/3vzu9cu8
32. Chowdhury, E. K., & Chowdhury, G. M. (2014). Applicability of Prediction Techniques in the Stock Market-A Chittagong Stock Exchange Perspective. *International Journal of Advanced Information Science and Technology*, 32(32), 126-136, DOI:10.15693/ijaist/2014.v3i12.124-134
33. Chowdhury, E. K., & Chowdhury, R. (2017). Online Shopping in Bangladesh: A Study on the Motivational Factors for Ecommerce that Influence Shopper's Affirmative Tendency towards Online Shopping. *South Asian Journal of Marketing & Management Research*, 7(4). 20-35. DOI:10.5958/2249-877X.2017.00019.4
34. Chowdhury, E. K., & Chowdhury, R. (2022). Empirical research on the relationship between renewable energy consumption, foreign direct investment and economic growth in South Asia. *Journal of Energy Markets*, *15*(2). 1-21, https://DOI:10.21314/JEM.2022.012
35. Chowdhury, E. K., & Chowdhury, R. (2023). Role of financial inclusion in human development: Evidence from Bangladesh, India and Pakistan. *Journal of the Knowledge Economy*, 1-26. https://doi.org/10.1007/s13132-023-01366-x
36. Chowdhury, E. K., & Nahar, S. (2017). Perceptions of Accountants toward Sustainability Development Practices in Bangladesh. *Journal of Management and Sustainability*,7(3), 112-119. doi:10.5539/jms.v7n3p112
37. Chowdhury, E. K., & Reza, T. (2013). Diagnostic Study on Interactive Ads and Its Response towards the FM Radio. *International Journal of Research in Commerce, IT & Management*, 3(2), 36-41. https://tinyurl.com/5n8huanv
38. Chowdhury, E. K., Abdullah, M. N., & Tooheen, R. B. (2021). Role of information and communication technology in economic progress and increasing demand for renewable energy: evidence from China and India. *Asian Journal of Technology Innovation*, 30(3), 651-671. https://doi.org/10.1080/19761597.2021.1961090
39. Chowdhury, E. K., Dhar, B. K., & Stasi, A. (2022). Volatility of the US stock market and business strategy during COVID-19. *Business Strategy & Development*, 1–11. https://doi.org/10.1002/bsd2.203
40. Chowdhury, E. K., Dhar, B. K., Gazi, M., & Issa, A. (2022). Impact of Remittance on Economic Progress: Evidence from Low-Income Asian Frontier Countries. *Journal of the Knowledge Economy*, 1-26. https://doi.org/10.1007/s13132-022-00898-y

41. Chowdhury, E. K., Dhar, B. K., Thanakijsombat, T., & Stasi, A. (2022). Strategies to determine the determinants of financial performance of conventional and Islamic commercial banks: Evidence from Bangladesh. *Business Strategy & Development*, 1–19. https://doi.org/10.1002/bsd2.207
42. Chowdhury, E.K. (2018). An Assessment of Return Spillover Among Selected Stock Markets in SAARC Countries. *South Asian Journal of Management*, 25 (1), 51-63. Association of Management Development Institutions in South Asia. https://tinyurl.com/y2bd39tk
43. Chowdhury, E.K. (2018). Does Foreign Direct Investment Stimulate Economic Progress of a Developing Country? Empirical Evidence from Bangladesh. *CIU Journal*, 1 (1), 71-86. Chittagong Independent University. https://tinyurl.com/3scz3jzh
44. Chowdhury, E.K. (2019). An Empirical Study of Volatility in Chittagong Stock Exchange. *CIU Journal*, 2 (1), 19-38. Chittagong Independent University. https://tinyurl.com/3w6k89k8
45. Chowdhury, E.K. (2019). Transformation of Business Model through Blockchain Technology. *The Cost and Management*, 47(5), 4-9. The Institute of Cost and Management Accountants of Bangladesh. https://tinyurl.com/bdz4ns7t
46. Chowdhury, E.K. (2020). Catastrophic Impact of Covid-19 on Tourism Sector in Bangladesh: An Event Study Approach. *The Cost and Management*, 48(4), 43-52. The Institute of Cost and Management Accountants of Bangladesh. https://tinyurl.com/ccu6mkbx
47. Chowdhury, E.K. (2020). Is Capital Market Integration among the SAARC Countries Feasible? An Empirical Study. *Eurasian Journal of Business and Economics*, 13(25), 21-36. https://doi.org/10.17015/ejbe.2020.025.02
48. Chowdhury, E.K. (2020). Non-Performing Loans in Bangladesh: Bank Specific and Macroeconomic Effects. *Journal of Business Administration*, 41(2), 108-125. University of Dhaka. https://tinyurl.com/54f5pexw
49. Chowdhury, E.K. (2020). Volatility in Cryptocurrency Market–Before and During Covid-19 Pandemic. *CIU Journal*, 3(1), 69-86. Chittagong Independent University. https://tinyurl.com/mr3djzcn
50. Chowdhury, E.K. (2022). Strategic approach to analyze the effect of Covid-19 on the stock market volatility and uncertainty: a first and second wave perspective, *Journal of Capital Markets Studies*, 6(3), 225-241. https://doi.org/10.1108/JCMS-05-2022-0015
51. Chowdhury, E.K. (2023). Integration of Artificial Intelligence Technology in Management Accounting Information System: An Empirical Study. In: Abedin, M.Z., Hajek, P. (eds) Novel Financial Applications of Machine Learning and Deep Learning. International Series in Operations Research & Management Science, vol 336. Springer, Cham. https://doi.org/10.1007/978-3-031-18552-6_3
52. Chowdhury, E.K., & Rozario, S. O. (2018). Impact of Attitude and Awareness of Investors on their Investment Behavior- A Study on Bangladesh Stock Market. *The Bangladesh Accountant*, July- September, 81-89. The Institute of Chartered Accountants of Bangladesh. https://tinyurl.com/4av6swas
53. Chowdhury, EK (2020). India's NRC, CAA may take Bangladesh closer to China. *Asian Regional Review*, Diverse Asia, Seoul National University Asia Center, 3(2). https://diverseasia.snu.ac.kr/?p=4525

54. Chowdhury, M.R.A., & Chowdhury, E. K. (2010). Estimation of Stock Market Risk-A Value at Risk Approach. *The Cost & Management*, 38(4), 22-27. https://tinyurl.com/4ax978ud
55. Chowdhury, M.R.A., Chowdhury, E. K., & Chowdhury, T. U. (2015). Application of Capital Asset Pricing Model: Empirical Evidences from Chittagong Stock Exchange. *The Cost & Management,* 43(03), 38-44. https://tinyurl.com/bddv24cy
56. Saunders, E.M. (1993). Stock Prices and Wall Street Weather. American Economic Review, 83(5), 1337–1345.
57. Steiger, R., Knowles, N., Pöll, K., & Rutty, M. (2022). Impacts of climate change on mountain tourism: A review. Journal of Sustainable Tourism, 1-34. https://doi.org/10.1080/09669582.2022.2112204
58. Tushar, W., Yuen, C., Saha, T. K., Morstyn, T., Chapman, A. C., Alam, M. J. E., ... & Poor, H. V. (2021). Peer-to-peer energy systems for connected communities: A review of recent advances and emerging challenges. Applied energy, 282, 116131. https://doi.org/10.1016/j.apenergy.2020.116131
59. Wahba, H. (2008). Does the market value corporate environmental responsibility? An empirical examination. *Corporate Social Responsibility and Environmental Management, 15*(2), 89–99. DOI:10.1002/csr.153
60. Zheng, L., Yuan, K., and Zhu, Q. (2001). Are Investors Moonstruck? - Lunar Phases and Stock Returns. *Journal of Empirical Finance, 13*(1), 1–23. doi:10.2139/ssrn.283156