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Does Priority Sector Lending Affect Banks' Financial Performance?

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Abstract

The study investigates the impact of Priority Sector Lending (PSL) on the financial performance of 31 banks operating in Bangladesh from 2012 to 2021. Out of 31 banks, the study includes 27 Private Commercial Banks (PCBs) and 4 State Owned Commercial Banks (SOCBs). Banks' lending for agricultural sectors and Cottage, Micro, Small and Medium Enterprises (CMSME) are considered as lending for priority sectors. The study employs the Random Effect estimator to measure banks' profitability due to PSL. Also, it uses panel-corrected standard errors to verify the robustness of the estimation obtained from the Random Effect estimator with VCE robust standard error. The study shows no significant relationship between the banks' lending for priority sectors and the profitability of banks (ROA). Based on the primary survey, the study finds that bank lending in the priorities sector faces problems of a poor selection of PSL borrowers, a shortage of personnel at the bank level to supervise PSL loans, a lack of financial awareness among PSL borrowers, and an increase in NPL. The study also reveals that the size of the banks' assets (TA), NPL and ADR show a negative relationship with ROA. CAR, GDP, and INF show a significant and positive relationship with ROA. No significant relationship is found between CIR and ROA. The study suggests regulators should address weaknesses in regulatory oversights and implement stringent monitoring mechanisms so that banks increase significant involvement in PSL with adequate personnel and capacity development and borrowers' lack of financial literacy.

Keywords: Priority Sector Lending; Profitability; Random Effect Model; Panel Corrected Standard Errors
JEL Classification: H81

1. Introduction

1.1 Background

Based on ownership structure, the Bangladeshi banking sector may be roughly divided into three divisions. State-owned Commercial Banks (SOCBs), Local Private Commercial Banks (PCBs), and Foreign Commercial Banks(FCBs) make up the three categories. There are now six SOCBs, forty three PCBs, and nine FCBs. The central bank of the nation, Bangladesh Bank (BB), oversees and

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controls the operations of the 35 Non-bank Financial Institutions (NBFIs) that are now functioning in Bangladesh as well as all the scheduled banks.

Considering the importance of the financial performance of banks, economic growth is influenced favorably by bank profitability in both the short- and long term (Paul & Laurent, 2018). For a nation like Bangladesh, bank-based financial development helps to spur economic expansion and raise the nation's growth rate (Sumaira & Bibi, 2022). For an economy to be robust and resilient, banks must execute with consistency and positive profitability (Gaur & Mahopatra, 2019). Financial stability is improved by increased bank profitability, which may help economic growth since successful banks are better equipped to retain profits, boost core capital, provide greater returns to shareholders, and raise capital more readily in the markets (Flannery & Rangan, 2008).

In addition, a key component in explaining how policies affect the economy is the function that bank lending plays (Kishan & Opiela, 2000).

More crucially, bank management must comprehend bank lending behaviour in order to ensure the stability of a financial system. Developing nations have significantly injected large sums of money into state-controlled banks in the previous several decades to support economic development. This causes the banking sector in developing economies to significantly increase loan growth. The bank credits support these nations' economic growth. However, in these nations, government control over bank lending is significant (Qian et al., 2015). Therefore, any blip in the banking industry's performance might prove to be a significant barrier for the whole economy.

Banks provide loans for a variety of economic uses, including consumer finance, transportation, agriculture, industry, and construction. Banks often provide loans to various industries where the return is highest. Some industries, nevertheless, suffer operational and expansional financial challenges.

Approximately 41% of SMEs in the least developed nations, 30% of SMEs in middle-income countries, and 15% of SMEs in high-income countries said that access to financing was a key barrier to their growth and development in a World Bank survey from 2014. Numerous studies have shown that small businesses may

perform far better when they have access to outside funding. One of the most important elements affecting a company's capacity to develop is access to sufficient and timely financing (Kale, 2016).

Given the significance of agricultural credit and economic growth, using the ARDL technique, Ayeomoni & Aladejana (2016) examined the relationship between agricultural loans and economic growth in Nigeria for the years 1986 to 2014. This investigation demonstrated that there are long-term and short-term links between agricultural credit and economic growth.

Given the significance of agricultural lending and the expansion of the economy, using a co-integration bound testing methodology, Okosodo (2016) looked at the effects of agricultural credit on Nigeria's economic development from 1980 to 2014. According to this study, increasing bank credit distribution and lowering lending interest rates should be put into practice to support Nigeria's agricultural economy.

To determine how agricultural financing affects farmers' agricultural productivity, a case study on agricultural loans and their effects on farm output in Nepal's Kailali District was done in 2014 by Nepal Rastra Bank, the central bank of Nepal. The survey's findings suggested that agricultural financing aids in raising farmers' agricultural production in the research region.

Furthermore, using state-level data from 1995–1996 to 2011–12, Narayanan (2015) investigated the link between agricultural credit and agricultural GDP in India. Saleem and Jan (2011) explored the effect of agricultural credit on agricultural GDP in a particular area of Pakistan. According to the study's results, an increase in agricultural loans is quite sensitive to a rise in agricultural output. Saleem & Jan (2011) used a linear regression model based on the Cobb-Douglas function using data from 1990 to 2008 to examine the effect of agricultural credit on agricultural GDP in Pakistan. This research concluded that increased loan availability may boost agricultural output.

In the context of Bangladesh’s agricultural finance and agricultural production, For the years 2000 to 2019, Islam (2020) conducted an empirical investigation of the effects of agricultural financing on agricultural productivity

in Bangladesh. Along with other control variables, the research looked at the short- and long-term correlations between agricultural finance and agricultural production. The study's results showed that there were both short- and long-term correlations between agricultural loans and productivity, with other dynamic factors like inflation, interest rates, and government spending on agriculture also having an impact on agricultural productivity. The research concluded that there should be a rise in agricultural loan growth in order to promote agricultural productivity and support economic development.

Additionally, Sarker (2018) conducted research to ascertain the role of banks in Bangladesh's agricultural growth, and the study's findings demonstrate the importance of banks in agricultural development via the distribution of agricultural loans. This research revealed that agricultural loans from banks increase production of agricultural in the economy of Bangladesh.

Moreover, Miah et al. (2020) claimed that Bangladesh has historically had a mostly agricultural economy. Her population is mostly rural, with agriculture serving as the main source of income. They found that bank loans to SMEs that are provided by banks and financial institutions had a favorable effect on the production of the SME sector.

Priority Sector Lending (PSL) or directed lending initiatives ensure that financing is timely and sufficient for vulnerable societal groups (Kumar, 2016). Due to the significance of inclusive economic development and job creation, governments and regulators often work to increase access to disadvantaged sectors via tailored credit programs and incentives. Priority sectors are those that are most vulnerable. Priority Sector Lending (PSL), or directed credit programs, is widely used in both emerging and established nations to channel money at low-interest rates to certain sectors that are essential for the balanced and long-term growth of the respective economies (Kohli, 1997).

In the context of priority sectors, in its national industrial strategy, the government of Bangladesh (GoB) identifies key industries. According to the National Industrial Policy of Bangladesh, agriculture and the CMSME sectors are given top attention in order to achieve balanced development via national

economic, social, and environmental preservation. Additionally, GoB wants the nation to accomplish all of its Sustainable Development Goals (SDGs) by the year 2030. Bank finance and appropriate policies for the key sectors (CMSMEs and agriculture) are essential for the country's inclusive development in this respect.

The Priority sectors—CMSMEs and agriculture—play a substantial role in the Gross Domestic Product (GDP) for all kinds of economies. Statistics from the World Bank (2018) show that SMEs account for roughly 90% of all firms and more than 50% of all jobs globally. In developing nations, formal sector SMEs often contribute up to 40% of GDP, and the overall statistics are much greater when informal SMEs are included (World Bank, 2018). Beyond their contributions to the GDP and employment, SMEs also help to create new businesses, strengthen social networks, improve the living conditions of the poor, boost export revenues, lessen social discontent, meet the demands of several major companies, and so forth (Hossain & Ibrahim, 2020). Long-lasting SMEs may provide economic stability for owners, workers, and their families by delivering a consistent source of income (Bianca, 2016).

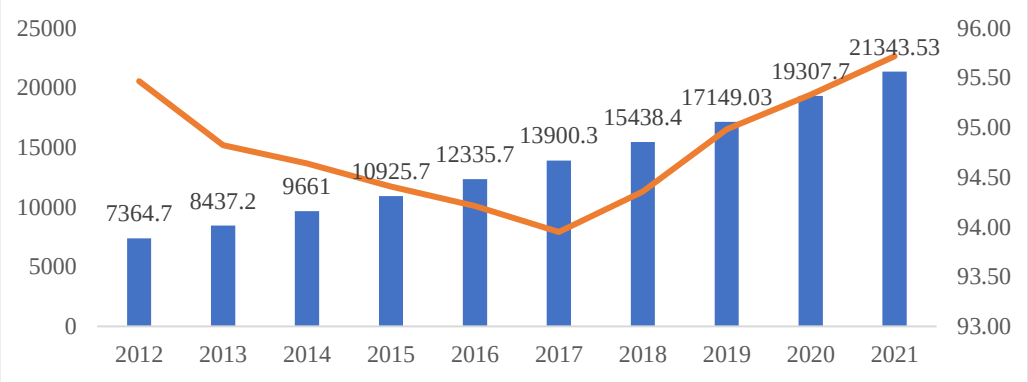
In Bangladesh, the agriculture industry directly contributes 11.63 percent of the GDP in 2021. Agriculture employs around 41% of all workers, according to the Bangladesh Bureau of Statistics 2017 Labour Force Survey (LFS). Additionally, the agricultural industry has been crucial in supplying the country with the nourishment it needs, guaranteeing food security, raising export revenues, and raising overall income levels. Additionally, agricultural finance is crucial for achieving the three main SDG pillars as part of achieving the SDGs.

1.1.1 Priority Sector Lending (PSL) and Financial Performance of Banks in Bangladesh

Figure-1.1 depicts the contribution of banks to total assets. Over the last 10 years, banks have contributed more than 90% of the assets. Despite a fall from 2013 to 2017 in the contribution of banks to assets, a trend toward growth began in 2018. According to the ownership criterion, PCBs accounted for 67% of all assets, followed by SOCBs (27%), and FCBs (3%). The y-axis on left side

represents amount of total assets in the financial sector in billion BDT and y-axis on right side indicates the contribution in percentage.

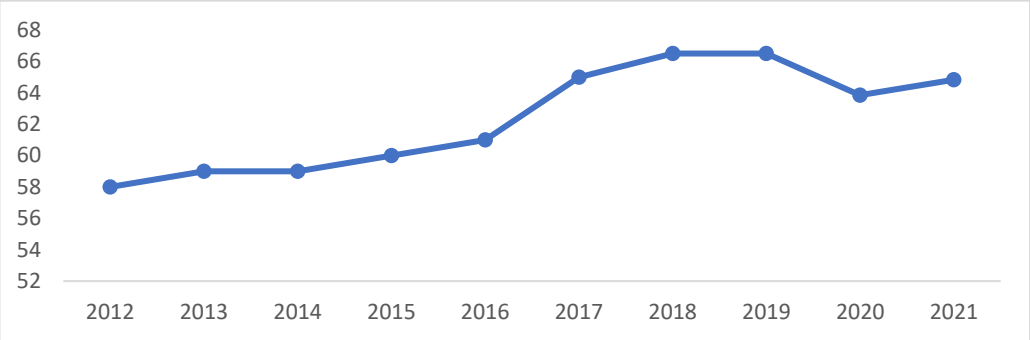
Figure 1.1: Trend of Banks' Contribution in Assets as Compared to Non-bank Financial from 2012 to 2021



Source: Bangladesh Bank, 2022

Historically, when looking at the asset structure of banks across time, loans and advances made up the largest portion of the assets of the banking industry. Figure 1.2 shows an increasing trend in loans and advances over time (2012 to 2021). In 2021, loans and advances were up 64.83 percent of total assets, up from 58 percent in 2012.

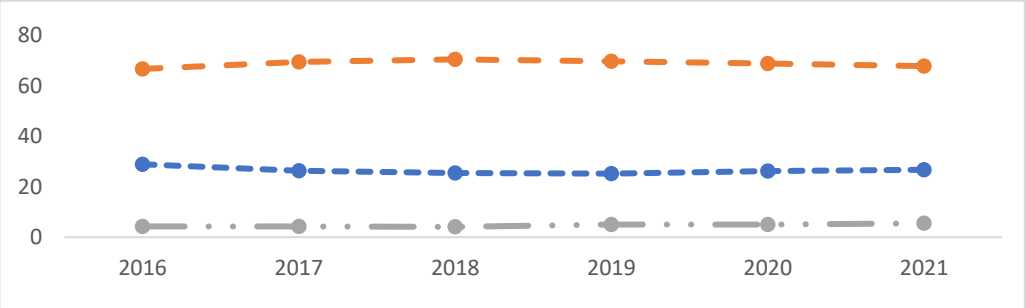
Figure 1.2: Trends of Bank Lending from 2012 to 2021



Source: Bangladesh Bank, 2022

Figure-1.3 shows the percentage of loans and advances allocated to each bank for the years 2016 to 2021. PCBs and SOCBs hold bigger proportions of loans and advances over time due to the distinct bank structures (2016 to 2021). The proportions of loans and advances made by SOCBs, however, reflect a falling trend starting in 2017.

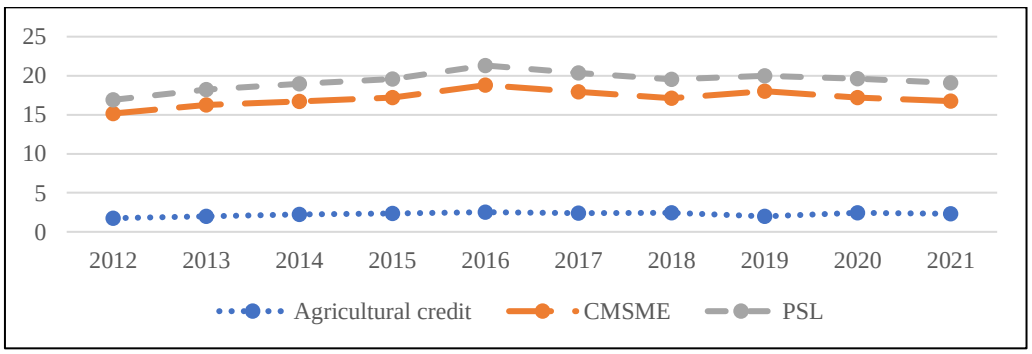
Figure 1.3: Bank Group-wise Lending (in percent) from 2016 to 2021



Source: Bangladesh Bank, 2022
Note: SOCBs stand for State Owned Commercial Banks, PCBs stand for local Private Commercial Banks and FCBs stand for Foreign Commercial Banks

Banks provide loans and advances to several economic sectors. The percentage of PSL in banks' overall lending from 2012 to 2021 is shown in figure 1.4. Figure 1.4 displays the PSL's insignificant upward rise. In 2021, banks lend the most money (42.08 percent) to industries associated with RMG and commercial purposes (Appendix-1).

Figure 1.4: Trend of Agricultural Credit, CMSME (in percent) from 2012 to 2021



Source: Bangladesh Bank, 2022
Note: PSL stands for Priority Sector Lending, CMSME stands for Cottage, Micro, Small and Medium Enterprises

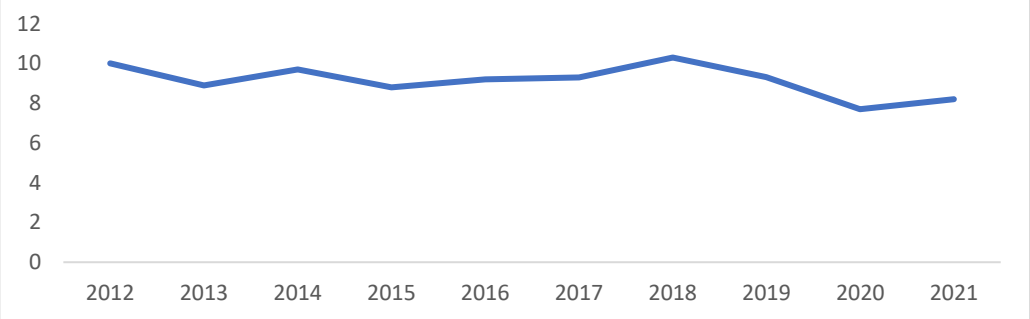
The percentage of GDP that Small and Medium-sized Enterprises (SMEs) contribute to in China is 60%. (Pandey, 2015). India's SMEs are responsible for 40% of the country's GDP (Weerakkody, 2015), while those in Thailand are responsible for 37% (Rojanasuvan, 2014), and those in Pakistan are responsible for 30%. (Shahzad, 2014). Despite this enormous potential, the SME sector's contribution to Bangladesh's GDP remains smaller than in many other nations. In Bangladesh, the contribution of SMEs to GDP is estimated at 20.25 percent (ICAB, 2021).

Moreover, from 2012–2021, there is a downward tendency in agriculture's contribution to GDP (Appendix-2). The agriculture sector's percentage of GDP was 16.58 percent in 2012 but is projected to fall to 11.63 percent by 2021 (Statista, 2022).

Non-performing Loans (NPLs) as a percentage of total loans and advances are a crucial indication of asset quality when evaluating the financial performance of the banking sector in Bangladesh. The banking industry's NPL ratio reached 8.2 percent at the end of 2021's December. At the end of 2021, the gross NPL ratio for FCBs was 3.9% while the ratio for SCBs was 32.1%.

For the same time frame, the PCB ratio was 5.4%. The ratio of NPL to total loans and advances shows a fluctuating banking industry from 2012 to 2021. The rate of Non-performing Loans (NPLs) rose steadily during the next four years. Even though it fell in 2020, it shot up to 8.2 percent the following year.

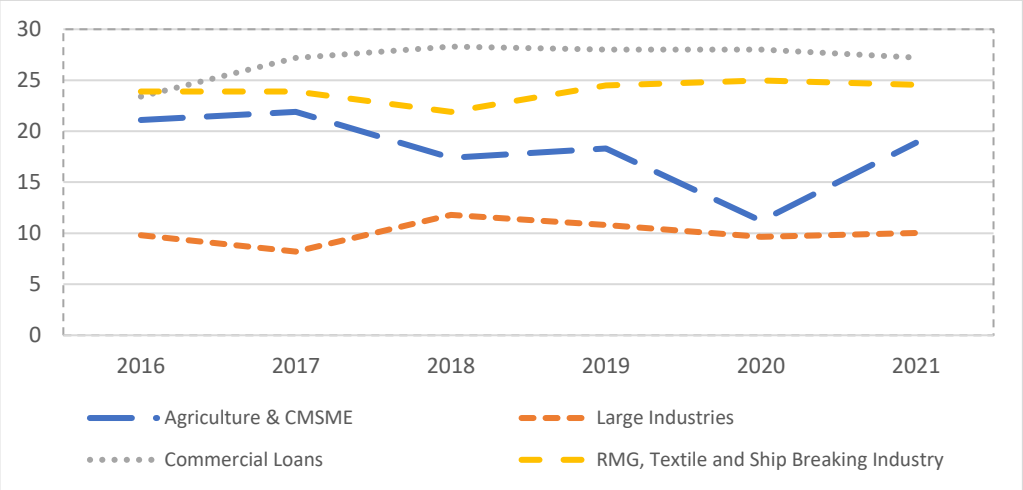
Figure 1.5: Trend of Aggregate (All Banks) NPL Ratio from 2012 to 2021



Source: Bangladesh Bank, 2022

Figure-1.6 shows the concentration of NPLs across different sectors of the economy for 2016 to 2021. As data for sectoral NPL are not available in the reports of Bangladesh Bank, the figure 1.6 does not include NPL data from 2012. The highest NPL was observed in commercial loans (27.22) in 2021, whereas NPL of Priority Sector Lending (PSL) was 18.88 in 2021, which is much below than Ready Made Garments and the textile industry.

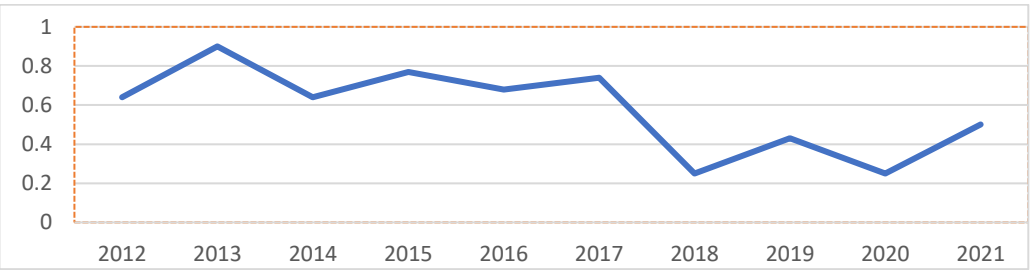
Figure 1.6: Trends of Sector-wise NPL Ratio from 2016 to 2021



Source: Bangladesh Bank, 2022

Although various indicators are used to determine earnings and profitability, the most representative and widely used one is Return on assets (ROA). Though ROA experienced an decreasing trend from 2012 to 2017, however it shows a decreasing trend afterward (Figure-1.7).

Figure 1.7: Trends of Aggregate (All banks) ROA of from 2012 to 2021



Source: Bangladesh Bank, 2022

With the aforementioned facts and numbers, it is clear that even if the National Industrial Policy has prioritized CMSMEs and agriculture, the portion of PSL is not significantly growing in comparison to the contribution of the key sectors to the nation. Furthermore, compared to other sectors, commercial loans, and RMG sectors, NPL in PSL is significantly lower. Thus, the following two inquiries are raised:

Q1: Does PSL affect the profitability of banks in Bangladesh?

Q2: What could be the possible reasons from banker's perspective if PSL did not have an impact on the profitability of banks?

To assess the influence of PSL on the financial performance of banks, very little research has been done in the context of Bangladesh. Therefore, it is essential for banks to analyse the connection between PSL and profitability so that they can continue to finance weaker industries without jeopardizing their financial stability.

1.1.2 Policy Initiatives for Priority Sector Lending: CMSME Financing

The policies and processes for the financing of CMSME in the country by banks and NBFIs are provided by BB, the nation's central bank. SME and Special Programs Department was established by BB in 2009 with the purpose of formulating policies for the CMSME sector, overseeing, and monitoring financing in this area. The SME & Special Programmes Department, with a particular focus on people who are financially excluded, unbanked, and women entrepreneurs, is playing a critical role in supporting the country's inclusive and sustainable economic growth through the establishment of CMSMEs. Though BB issued circulars related to CMSME financing since the inception of the said department in BB, however, in 2019, BB released a master circular or guideline on the operational aspects of CMSME financing by banks and other non-bank financial institutions, in keeping with the goals of the National Industrial Policy of Bangladesh. The following approaches are how CMSME has been defined in accordance with the guideline (Table-1.1):

The SME strategy also established goals for banks and sector-specific lending limitations for CMSME (Appendix-3). For bank financing of CMSME, BB has set certain goals and a deadline of 2024 (Table-1.2). As per the policy of CMSMEs financing by banks, banks are to set their CMSME financing target and will have to increase the total CMSME loans by 1% each year.

Based on banker-customer interactions, banks are permitted to offer 03 (three) months of grace period for loans with a term of 1 year and 03 (three) to 06 (six) months of grace period for loans with medium to long terms. In accordance with Bangladesh Bank's refinancing options, banks may also think about granting loans to women business owners up to BDT 2.5 million on personal guarantees rather than collateral (BB). The BB has provided a provision of a 2 percent incentive under which the lending banks partake of a 1 percent incentive and women entrepreneurs receive a 1 percent incentive in order to encourage more CMSME financing among women entrepreneurs.

Table 1.1: Definition of Cottage, Micro and Small Manufacturing and Service-Oriented Businesses

Industry Category	Industry	Criteria for Determining Industry Category	
		Total Fixed Asset	Number of Employees
Cottage	Manufacturing	Below BDT 1.00 mil	Not more than 15
Micro	Manufacturing	From BDT 1.0 0 mil to < BDT 7.5 mil	From 16 to ≤ 30
	Service	Below BDT 1.0 mil	Maximum 15
Small	Manufacturing	From BDT 7.5 mil to BDT 150 mil	From 31 to 120
	Service	From BDT 1.0 mil to < BDT 20 mil	From 16 to 50
Medium	Manufacturing	Above BDT 150 mil ≤ BDT 500 mil	From 121 to 300; Maximum 1000 for Ready Made Garments Industry
	Service	From BDT 20 mil to BDT 300 mil	From 51 to 120

Source: Bangladesh Bank, 2022
Note: BDT stands for Bangladeshi Taka, the currency of Bangladesh and mil stands for million.

Table 1.2: Targets and Time Limit to be Achieved by 2024 in CMSME Financing by Banks

Particulars	Targets to be Attained by 2024
Total Outstanding CMSME financing	25 percent of total financing in all sectors
Outstanding for Cottage, Micro, and Small	50 percent of total CMSME financing
Financing for Women Entrepreneurs	At least 15 percent of total CMSME financing
Financing for Manufacturing, Service, and Trade	At least 40 percent for Manufacturing, 25 percent for service, and 35 percent for trade
Provisioning Requirement for CMSMEs	0.25 percent for all unclassified loans

Source: Bangladesh Bank, 2022

1.1.3 Responses of Government and Bangladesh Bank During COVID-19

Nearly all industries, including the CMSME sector, have been impacted by COVID-19, which has resulted in firm closures, employment losses, and a decline in sales. The GoB and BB announced a number of stimulus initiatives for the CMSME sector in an effort to mitigate the effects of the COVID-19 outbreak (Table-1.3).

In addition, BB launched a loan guarantee program of BDT 2000 crore for small, cottage, and microbusiness owners to assist them in addressing the ongoing Covid-19 epidemic situation.

Table 1.3: Different forms of Stimulus Packages and Refinancing Scheme during COVID-19 in PSL (CMSME)

	Government-Funded Stimulus Package	BB Funded Revolving Refinancing Scheme
Nature	Working Capital Financing	Working Capital Financing
Target Group	CMSMEs Customers	CMSMEs Customers
Size of the Fund	BDT 200 bn	BDT 100 bn
Interest Rate for borrowers	4 percent	7 percent

Source: Bangladesh Bank, 2022
Note: BB stands for Bangladesh Bank, and bn stands for billion

1.1.4 Policy Measures for Priority Sector Lending (PSL): Agriculture Financing

BB releases its agricultural policy for the following fiscal year. In its agricultural strategy, BB designated the sector of agricultural lending as a priority. The yearly Agricultural and Rural Credit Policy 2022 to 2023 is the current agricultural policy. This policy's main goal is to increase access to agricultural financing for rural residents. The policy states that BB bases its yearly agricultural credit determination for SOCBs, PCBs, and FCBs on the demand for agricultural loans. As a result, agricultural credit limits change annually. BB bases its bank-wise aims for the agricultural sector on branch expansion and rural borrowers' demand.

The bank-wise cap for agriculture financing set by BB is displayed in table 1.4. The country's banking industry had a target of BDT 309.11 billion for agricultural and rural loans for the fiscal year (FY22), according to the central bank. The policy states that each bank must allocate at least 2.5 percent its overall loans and advances to agriculture finance. However, the BB sets agricultural credit at 2.10 percent of net loans and advances by banks in all sectors of the economy as of March 31, 2022. This is because most banks do not have enough capacity and do not have enough bank branches in rural regions.

SOCBs are essential to the distribution of financing for agriculture and rural areas. Compared to PCBs and FCBs branch networks, SOCBs branch networks are more dispersed in rural regions and span the entire nation. The cap on agricultural lending is 59.47 percent for PCBs because there are more PCBs than SOCBs and FCBs. There are no FCBs locations in rural areas.

Table 1.4: Agricultural Credit Targets for Banks (in billion BDT)

	FY2022-2023			
	SOCBs	**PCBs**	**FCBs**	**Total Target**
Disbursement Target	117.58	183.82	7.71	309.11
Bank Group Wise Target	38.03%	59.47%	2.50 %	100%

Source: Bangladesh Bank, 2022

Note: SOCBs = State-owned Commercial Banks, PCBs= Private Commercial Banks, FCBs= Foreign Commercial Banks

BB also determines how agricultural financing is distributed per sector. Three primary sectors have been selected under the policy as receiving greater attention than other agricultural sectors. Fisheries, livestock, and crops make up the three sectors. The sectoral goals for agricultural financing are shown in table 1.5 for the three primary agricultural sectors. The strategy also includes provisions for financial and non-financial rewards for the banks' lending to the agricultural sector in order to mobilize more credit to those industries.

Table 1.5: Regulatory Targets to Achieve Priority Sector Lending in Agricultural Sector

Particulars	Targets
Total Outstanding for Agricultural loan	2.5% of total loans and advance of each bank
Outstanding for Crop, Fisheries and Livestock	At least 60 % in the crop, at least 10% in fisheries and at least 10% in Livestock
Interest Rate at Borrowers' Level	8 percent, 4 percent for some specified products
Provisioning requirement	1% for all unclassified loans in agricultural sector

Source: Bangladesh Bank, 2022

However, if any bank fails to achieve the disbursement target, the policy has a provision of financial penalty to be borne by banks failing to attain the target in agricultural credit set by BB. The policy also has provisions for incentives for the banks that will achieve agricultural credit set by BB. A number of agricultural refinancing schemes are also available for banks providing agricultural credit.

Table 1.6: Different Forms of Refinance Scheme for PSL (Agriculture Sector)

Name	Purpose	Fund Size	Interest Rate	Banks' Income
Refinance Scheme for Agriculture	Ensuring food security	BDT 50 bn	4 percent	0.50 percent
Refinance Scheme for wheat and maize	For increasing the production of wheat and maize	BDT 10 bn	4 percent	0.50 percent
Refinance Scheme in Covid-19	To mitigate financial problems during the pandemic	BDT 30 bn	4 percent	1.00 percent

Name	Purpose	Fund Size	Interest Rate	Banks' Income
Refinance Scheme for Milk Production	To increase milk production	BDT 200 bn	5 percent	5 percent

Source: Bangladesh Bank, 2022

Note: The interest rate is charged at borrowers' level and banks' income is earnings provided by BB for lending in priority sectors.

1.2 Statement of Problem

The fact that the Government of Bangladesh (GoB) and Bangladesh Bank (BB), the central bank of the country, are supporting policy and refinancing through a series of stimulus packages that concentrate on the Priority Sector Lending (PSL), Cottage, Micro, Small and Medium Enterprises (CMSMEs), and agricultural sectors is positive, but the proportion of PSL to total loans is not rising as quickly as was anticipated. For instance, the amount of lending to CMSMEs by all banks in 2016 was 23% of the total loan in all sectors. This percentage dropped to 18% in 2021, but each bank must reach 25% in CMSME lending by 2024.

Additionally, under the previous regulations of the central bank, each bank was required to set aside 2.5% of its total loans for agricultural financing; however, due to a lack of staff and rural branch locations, Bangladesh Bank, the nation's central bank, now sets an annual target of 2.10 percent of all loans based on the outstanding balance in each quarter of all banks, which is less than the original target of 2.5%.

Now the problem arises while complying with the regulatory targets by keeping 2.1 percent of its overall loans towards the financing of agriculture and 24 percent for CMSME financing by 2024, banks might be losing investment opportunities for other profitable sectors if PSL does not have any positive impact on profitability. As banks deal with depositors' money and investors invest for more return from their investment, so depositors and shareholders of the banks would expect a good return from their deposits and investment. Considering all, it begs the issue of whether PSL has an impact on bank profitability.

Moreover, this calls into question what really matters for the declining trend of Priority Sector Lending (PSL) by banks. In this context, examining the effect of PSL on the financial performance of banks is crucial to boost the preferred sector for accomplishing the intended economic aim of the government of Bangladesh and Bangladesh Bank, the central bank of the country. As a result, the study's goal is to determine how PSL impacts bank profitability.

1.3 Research Objective

The study's main goal is to examine empirically whether Priority Sector Lending (PSL) affects profitability of banks. The paper also looks for regulatory framework of PSL and potential explanations for the empirical findings. Furthermore, by adjusting for a number of additional internal and external factors affecting bank profitability in Bangladesh, individual banks will be able to assess the significance of PSL to profitability. Additionally, by assessing how PSL affects profitability, commercial banks may be better able to take the necessary corrective action to satisfy PSL goals as periodically set by the government.

1.4 Significance of the Study

The study contributes in many different ways. First, in order to simplify PSL laws, the study's findings will help regulators and bankers better comprehend the connection between PSL and profitability. The study's results also help policymakers choose the best resources when they set goals for bank lending in high-priority industries. Finally, this research broadens our understanding of PSL.

1.5 Organisation of the Study

With the problem statement in chapter one, the remainder of the study is organized as follows: in chapter two, an extensive literature review and hypothesis development of PSL is placed. Chapter three covers the data and methodology of the study. Chapter four discusses empirical results and findings of the study. Finally, the chapter covers the conclusions and limitations of the study.

2. Literature Review

2.1 Introduction

With the exception of India, there has not been much research on the effects of PSL or government-directed lending on bank performance, despite the fact that PSL is practiced in a number of nations. Based on the literature reviews in this section, it is evident that numerous studies have been undertaken to determine how PSL affects bank financial performance in India.

However, almost no literature review on the effect of PSL on bank profitability in the context of Bangladesh is found. However, a sizable number of research studies on the variables affecting Bangladeshi bank profitability have been found. This section also provides a few studies on how green finance or SME financing affects bank profitability.

2.1.1 Priority Sector Lending: Conceptual Aspects and Country Experience

Priority Sector Lending

Priority Sector Lending (PSL) or Directed Credit Programs refers to providing loans to specific priority sectors with restricted access to formal credit at lower interest rates and on preferential terms and circumstances. Different formats of PSL or Directed Credit Programs exist. The most popular types of directed credit programs include loan guarantees, interest rate subsidies, mandated lending requirements, refinance plans, and development financial institutions.

Most Common Reasons Behind Priority Sector Lending

Banks are compelled, under mandated lending regulations, to lend a set percentage of their portfolio to particular industries. In refinancing programs, banks are given the opportunity to borrow money from the central bank at a rate that is lower than what other banks would typically charge for a specified purpose. Governments set interest rate limits (on deposits, loans, or both), which may vary by sector or loan length, and levy a below-market interest rate for a specified line of credit. In credit guarantees through guarantees, a portion of the

loan's risk is borne by the lending institution. institutions for financing development. Specialist credit is offered by specialized institutions. To support bank lending, the concept of priority sectors adaptation was introduced. That displays credit being extended to each bank with a national priority (Sudin et al., 2022).

Currently, the adoption of lending quotas by banks' regulatory bodies is the most widespread method of priority sector lending in Asia. Such quotas are also used in Thailand, the Philippines, India, Indonesia, and Thailand. Alternately, Malaysia and Vietnam require interest rate breaks for financing to prioritized industries.

Although the Priority Sector Loans (PSL) idea was originally introduced in India in 1967, the first PSL targets were first set in 1974 at a lower interest rate than non-priority sector lending. The Reserve Bank of India (RBI), the country's central bank, instructed all privately and publicly owned banks to reach the objective of at least 40% of total loans (Parida & Jain, 2016). Agriculture, micro, small, and medium-sized companies (MSME), education, export credit, renewable energy, and housing finance are priority industries. However, the process of including priority sectors changes over time based on national economic strategy (Bag & Islam, 2017).

Priority Secotr Lending in Global Context

The majority of Indonesia's directed lending came to an end when the country liberalized and deregulated its banking industry by eliminating interest rate caps, criteria for allocating loans, restrictions on branch network growth, and entrance hurdles. The key exception to this was the special "program credit," which allowed commercial banks to channel their funding to priority industries like MSMEs. The banks bared little, if any, of the credit risk for these loans because they were subsidized credit programs and they acted as channeling rather than executing institutions. In Indonesia, SMEs must receive 20% of the overall credit portfolio held by banks. (Prasetyantoko & Rosengard, 2011).

In Thailand, banks must provide SMEs with loans that are at least equal to 20% of their deposits. Banks will also need to lend to the agricultural sector at a rate of 14% and small businesses at a rate of 6%. In the Philippines, lending to SMEs must make up at least 8% of the total lending portfolio, with 6% going to small businesses and 2% going to medium-sized businesses. In Vietnam, banks are obligated to give credit not more than 200 basis points over the deposit rate ceiling to lending to the agriculture, SMEs, export, and technology sectors, which are considered priority sectors. The loan rate cannot be more than 200 basis points over the base lending rate for SMEs, which are regarded as the priority sector in Malaysia. The loans with this interest rate must be less than or equal to MYR 500,000 (Asia Focus, 2014).

By means of directive 17/067, Nepal Rastra Bank (NRB), the country's central bank, established rules for lending to the underprivileged. The definition of the "deprived" in NRB Directive 17/067 includes low-income and particularly socially backward women, Dalit people, blind, hearing-impaired, physically disabled individuals, marginalized and small-form workers, craftsmen, labourers, and landless squatters' families. The "A", "B", and "C" class licensed institutions were required to lend at least 3%, 2%, and 1.5% of the total amount of outstanding loans and advances, respectively, under Directive 17/067. All institutions with licenses for "A," "B," and "C" classes are now required to flow at least 5% of all outstanding loans and advances on a mandatory basis (Monetary Policy FY 2018/19) (Oli,2021).

Priority financing to industrial enterprises played a significant role in the rapid economic expansion of the governments of Japan and Korea in the second half of the 20th century. Although the government no longer runs significant priority lending programs, China has substantial experience with state-directed priority lending. Export, large-scale industry, small-scale industry, and agriculture are among Japan's priority sectors. Korea's priority industries include the export, heavy, and chemical sectors (Re-Prioritizing Priority Sector Lending, Economic Impact Analysis, December 2013).

Nearly half of all bank credit in Brazil is targeted lending, which is significant since banks are mandated to direct 65 percent of the liquidity from

savings accounts towards housing finance, with 80 percent of loan value at discounted interest rates. Brazil's government uses allocated loans and state-owned banks to intervene in the credit market. Because they are controlled, the interest rates charged on those loans are significantly lower than those in the unregulated loans market (Bonomo & Martins, 2016).

2.1.2 Priority Sector Lending and Bank Performance: Global Experience

As was mentioned earlier in this section, there have been numerous studies done in India on the impact of PSL on bank profitability. For instance, Anand (1992) analyzed the economics of priority sector lending after examining the associated costs and benefits and concluded that such advances have not been and do not currently have an adverse effect on profitability. According to Niranjana & Anbumani (2002), bankers worry that the advances to the priority sector cause them to lose interest income because the lending rates are so heavily subsidized.

In their 2018 study, Brahmaiah & Ranajee looked at the variables affecting Indian banks' profitability. The study used a balanced panel dataset of 89 Indian banks operating from 2005 to 2015 and used ROA as a measure of profitability. Their conclusions showed that PSL to total loans had little bearing on profitability.

For the years 2008 to 2019, Sudin et al. (2022) looked at the connection between the profitability of Indian public sector banks and PSL. Return on Assets (ROA) was the profitability metric employed in this study. Their research showed that there was no statistically significant correlation between PSL and profitability. The findings also led to the conclusion that banks might use the PSL as an indicator of India's economic and social growth.

Examining NPAs by sector According to Rajeev & Mahesh (2020), banks in India are renowned for utilizing the social welfare motive. According to the findings, the government-specified sectors' contribution of problem loans is higher than the non-performing assets of non-priority sectors. 46 commercial banks in India were the subject of this investigation over a 14-year period (2005-2018).

However, using a sample of 45 scheduled commercial banks in India from 2004 to 2018, Gaur & Mohapatra (2020) experimentally analyzed the effect of PSL on NPL. Both static and dynamic panel regression were used in their investigation. The results revealed a statistically negligible link between PSL and NPL, indicating that bank bad loan portfolios are not significantly impacted by credit granted to government-directed sectors.

In Vietnam, Thanh et al. (2021) looked at the variables influencing the profitability of the 12 commercial banks listed on the Ho Chi Minh Stock Exchange over a five-year period, from 2015 to 2019. According to their study's findings, a large proportion of agricultural finance in overall financing might have a favourable effect on banks' profitability. Agriculture financing is positively and significantly connected with bank performance.

Ahmed et al. (2013) investigated how the PSL, Advance Deposit Ratio (ADR), operational costs, interest rate spread, deposits, and NPL affected profitability in Indonesia. Their conclusions showed that lending to priority industries and operating costs had a positive impact on rural banks' profitability.

2.1.3 Bangladesh's Priority Sector Lending: Literature Review

Priority sector credit in Bangladesh began in the early 1970s, shortly after the nation gained its independence when Bangladesh Bank instructed banks to ensure the flow of available credit to vital industries like agriculture, jute, and tea (Annual report, Bangladesh Bank 1974–1975). Despite this, these industries were not formally recognized as priority sectors. CMSME and agriculture are designated as priority sectors in the government of Bangladesh's national industrial policy. According to the policy, banks are to prioritize financing to certain sectors. In accordance with this National Industrial Policy note, all banks, SOCBs, PCBs, and FCBs are required to distribute loans to CMSMEs and agriculture, which are economically underdeveloped sectors.

2.1.4 Priority Sector Lending and Bank Performance: Bangladesh Experience

There is a very little empirical study on PSL in Bangladesh. However, there isn't much research on the impact of bank sector lending on bank profitability.

However, no research on the effect of Priority Sector Lending (PSL) on bank profitability could be found. This industry has a stake in the study being done on the effectiveness of sectoral lending in Bangladesh.

For instance, Ali et al. (2021) examined the supply and demand sides of SME loans to assess its financial performance. The analysis concluded that there was no meaningful correlation between SME lending and Bangladeshi banks' ROA. The research highlighted important variables that have an impact on commercial banks when they lend to SMEs. A primary survey was carried out using a convenience sampling method on 60 respondents who were either bank managers or senior loan officers specialized in SMEs using a pre-tested structured questionnaire to determine the factors affecting SME loans. The study found that commercial banks have a cautious approach when giving credit to SMEs and that they are reluctant to do so since these companies lack collateral and other security and there is knowledge asymmetry.

Julia & Kassim (2016) looked on how green finance affected the financial results of 30 Bangladesh-based banks from 2012 to 2014. The study found that green financing had no effect on ROE for the Bangladeshi banks that were sampled.

Rahman et al. (2018) looked into how green finance affected Bangladeshi banks' bottom lines. They conducted their investigation using information from 11 private commercial institutions that had been purposefully chosen between 2013 and 2015. ROI, ROE, and ROA were employed as the dependent factors, and the ratios of green finance to total finance, assets, and equity were used as the independent variables. The ratio of green finance to total investment did not significantly correlate with ROA and ROE.

2.1 Additional Factors Affecting Bank Profitability

Though the study attempts to find out empirically the effect of PSL on the profitability of banks in Bangladesh, however, profitability depends on other factors such as bank-specific factors and macroeconomic sectors. This subsection of literature review is vested with the factors other than PSL.

2.2.1 Country Experience with Factors Affecting Bank Profitability

The elements influencing the profitability of banks for 13 post-Soviet nations from 1996 to 2016 were found by Yüksel et al. (2018). The analysis in the study used the Generalized Method of Moments and the Fixed Effect Model (GMM). Their results demonstrated a strong postive influence of GDP and non-interest revenue on the profitability of banks.

Almaqtari et al. (2018) looked at the factors that affected the profitability, or ROA, of 69 Indian commercial banks from 2008 to 2017. The study made use of independent variables that were both bank- and macroeconomics-related. Bank size, NPL, CAR, ADR, CIR, total deposits, and the number of branches were the independent factors that were particular to each bank. The study employed pooled, fixed, random effect models with yearly GDP growth rate and inflation as the macroeconomic independent variables. Standard errors for panel correction were utilized to test the robustness of the calculated model. According to the study's findings, there is a strong positive correlation between ROA and bank size, NPL, and ADR. The rate of inflation was positively related with ROA.

In Pakistan, 25 commercial banks operating were the subject of an empirical study by Farooq et al. in 2021. For the periods from 2009 to 2018, the analysis in the study utilized a fixed effect model. The study's conclusions showed that for the sample banks in Pakistan, ROA is highly impacted by CAR, ADR, and asset size.

For the years 2008 to 2018, Phan et al. (2020) conducted an empirical investigation into the determinants of factors affecting the profitability of 10 listed commercial banks in Vietnam. ROA was utilized in the study as a proxy of profitability. Their studies demonstrated that the CIR, loan volume, annual inflation rate, and yearly GDP growth had a strong positive impact on ROA. The link between CAR and bank asset size and ROA, however, was statistically insginificant.

In Malaysia, Iskandar et al. (2021) looked at the factors affecting the profitability of 8 Malaysian commercial banks from 2011 to 2017. As independent factors, the study looked at capital sufficiency, credit risk,

managerial effectiveness, and liquidity risk. ROA and ROE were the study's dependent variables. The panel data set for the sample banks served as the foundation for regression analysis. The study found no statistically significant effects of capital adequacy on profitability. Regression results show that the most important factors influencing the bank's profitability were credit risk, management effectiveness, and liquidity risk (ROA and ROE). The variables determining bank profitability and their anticipated effect on bank performance are shown in Table-2.1.

Table 2.1: List of the Variables: Dependent Variable: Return on Asset (ROA)

Variables	Priori Expectation	Sources
Total Asset (TA)	+/-	Kosmidou, 2008
Capital Adequacy Ratio (CAR)	+/-	Akbas, 2012
Cost Income Efficiency Measures	-	Akbas, 2012
Inflation (INF)	+/-	Abdel-Baki 2012
GDP	+/-	Chalermchatvichien et al. 2014

Source: Authors' Compilation from Various Journal Articles

2.2.2 Factors Affecting Profitability of Banks: Bangladesh Experience

A 2022 study by Ullah and Rahman evaluated the profitability of state-owned commercial banks and Shariah-based banks operating in Bangladesh. To examine major factors influencing the banks' financial performance, the study used panel data. The study found that the banks' profitability was positively impacted by total assets and CAR. ADR and b did not show any significant relationship with ROA.

Using panel data for the years 2014 to 2018, Jeris (2021) looked at the factors affecting the profitability of 27 private commercial banks operating in Bangladesh. The results showed that the ADR ratio was not statistically significant with bank performance, however amount of assets in banks and CAR had significant relationships with the profitability of banks. Bank profitability was unaffected by CIR and loan loss provisioning requirements. Banks' financial performance was influenced by their annual GDP growth rate, although inflation had no statistically significant impact on their profitability. whereas the impacts

of inflation on profitability are occasionally statistically minor, they have a major impact on profitability.

The variables influencing the financial performance (profitability) of Bangladeshi banks were empirically identified by Gazi et al in 2021. ROA and ROE were employed in the study as profitability indicators. 32 banks were included in the analysis for the years 2011 through 2020 based on a panel regression model. Their research revealed that profitability was influenced by the equity-to-asset ratio, deposit-to-asset ratio, debt-to-equity ratio, advance deposit ratio, and yearly GDP growth rate (ROA and ROE).

Islam (2021) examined how several bank-specific factors affected Bangladesh's banking industry's profitability. This study examines the effects of capitalization, non-performing loans, and cost on profitability using annual data from 1997 to 2019. Cost significantly and negatively impacts profitability, according to this study. There was a weak yet negative correlation with non-performing loans.

The impact of bank diversification (i.e., diversification of income and assets) on the profitability of Bangladeshi banks was examined by Uddin et al. in 2021. The authors explore unbalanced panel data from 32 banks that span 318 bank-year observations between 2007 and 2016 using a dynamic panel data model with system-generalized methods of moments. The results show a strong positive correlation between an asset and income diversity and bank profitability. The findings so demonstrate that banks can make money through asset and revenue diversification.

Hosen (2020) looked into internal bank-specific issues that affected the financial performance (profitability) of Bangladeshi banks. Based on panel regression analysis, as well as ROA and ROE as profitability indicators, the study used 23 local private commercial banks for the years 2014 to 2018. Significant relationships existed between NPL and CAR and ROA. ROA was not statistically significant by interest rate spread, bank asset size, ADR, or growth of deposits.

For the years 2007 to 2017, Akber (2019) looked at internal and external bank-specific factors that affect the profitability of Bangladeshi banks. Multiple

regression analysis served as the study's foundation. Profitability was assessed using ROE. NPL had a negative and substantial association with ROA, but CAR had a positive link with ROA.

Return on Investment (ROI) is also used as a of profitability, ROI identifies areas where money is being used efficiently, and this knowledge is useful for striking the right balance while using facilities (Terry, 1985). The ROI is most often used for the following three reasons: First of all, most individuals can readily comprehend ROI. In addition, it incorporates the three important performance metrics of size, profits, and investment. Third, it is well-liked by creditors, financial analysts, investors, and other consumers of external information (ROI Vs ROS, 2011). The ROI focuses on profits, is objective to costs and profits, also has easily accessible data, varied sized divisions, is fair to different sizes, and managers approve projects with better ROIs, to name a few benefits of employing ROI (MADPE, 2011). According to Alrafadi (2013), banks' financial performance does not dependent on ROI.

2.3 Research Gap

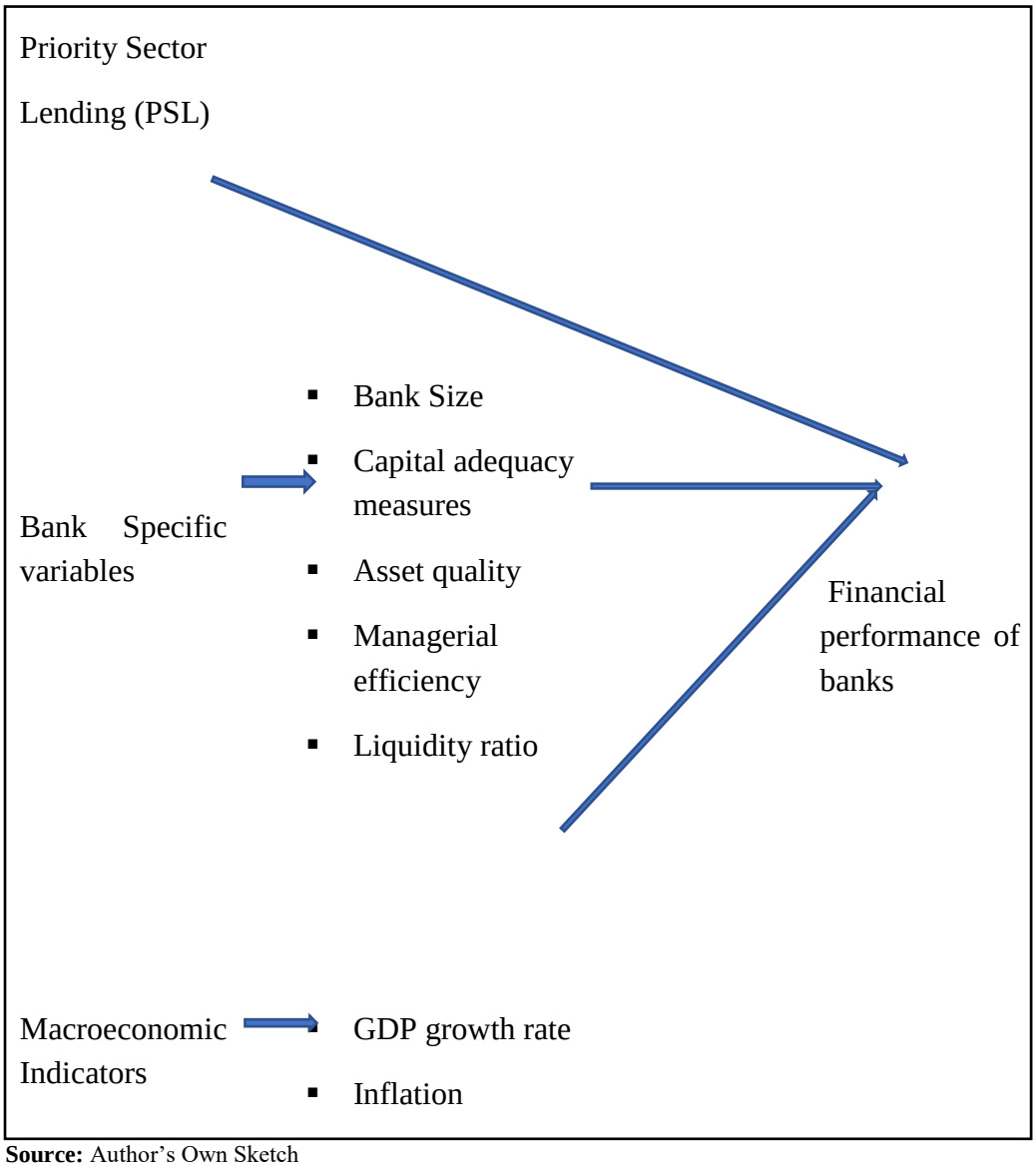
Based on a review of the literature for the global and Bangladesh contexts, it is discovered that extensive research is only available for the Indian context relating to the impact of PSL. However, no empirical study is conducted in the context of Bangladesh. Few types of research work in the context of Bangladesh have been found which are primarily concerned with the impact analysis on farm growth, whether agricultural farm or CMSME due to the Priority Sector Lending.

As banks in Bangladesh must meet the required Priority Sector Lending (PSL) target annually for agricultural finance and CMSME financing (24 percent of total lending of banks in all sectors), extensive empirical analysis on the performance of banks due to Priority Sector Lending (PSL) is crucial, however, no empirical research has been conducted in the context of Bangladesh. This gap in research relating to PSL motivates to conduct the study.

2.4 Conceptual Framework

Based on the stated theoretical underpinnings and the correlations between the variables, the conceptual framework for this study is as follows:

Figure 2.1: Conceptual Framework of Priority Sector Lending(PSL) and Bank Performance



Source: Author's Own Sketch

PSL has a positive effect on banks' profitability when it holds a lion share in lending, according to the literature review. When the sector has greater NPLs, higher monitoring expenses, and lower loan rates than other industries, PSL has a negative effect on banks' profitability.

Further, if banking assets are utilized effectively, the size of the assets has a favorable impact on profitability. Even though the balance sheet is quite large, it would have a substantial impact on the profitability of banks if the size of the assets included a sizable share of fixed assets and non-earning assets. If a larger quantity of ADR results in more capital costs, which would hurt the profitability of banks, then that might have an impact. Profitability is impacted by the Cost Income Ratio (CIR), since greater operational costs lower banks' gross profits. NPL declines when bank net revenue declines, which has a negative impact on financial performance of banks.

As a result, more banking activity is anticipated, which will have an impact on banks' performance and vice versa. The profitability of banks may also be impacted by inflation. Relatively greater inflation stimulates suppliers to create more goods in anticipation of increased sales revenues. As a result, there will be an increase in the need for bank working capital financing, which will have an impact on banks' profitability while other factors remain the same. Expected inflation may also increase wage and prices of non-labor inputs, drive up the cost of production and reduce supply, at least in the short run. However, when greater inflation decreases export and increases import, it might have a negative impact that results in less bank lending.

3. Data and Methodology

3.1 Theoretical Framework

Based on the previous literature review (Sudin et al., 2022; Saleh & Abu, 2020; Islam & Nishiyama, 2016) the theoretical framework includes PSL, bank-specific variables, and macroeconomic indicators based on the literature review and interest in the study. Using PSL as the primary independent variable, bank-specific independent variables include total assets, CAR, NPL, CIR, and ADR. Bangladesh's macroeconomic indicators include annual inflation and GDP

growth rate. ROA and ROI are used as the dependent variables to calculate a bank's profitability. Panel data are used to examine the financial performance of banks as a result of Priority Sector Lending (PSL). The following is the functional forms and regression specification for determining the effect of priority sector lending on bank profitability:

The functional form of the bank profitability model is as follows:

ROA =f (Volume of Priority Sector Lending, bank-specific internal variable, and macroeconomic factors)

The econometric model is as follows:

$$ROA_{it} = \beta_0 + \beta_1 PSL_{it} + \beta_2 LTA_{it} + \beta_3 CAR_{it} + \beta_4 NPL_{it} + \beta_5 CIR_{it} + \beta_6 ADR_{it} + \beta_7 GDP_t + \beta_8 INF_t + \beta_9 YEAR_t + \varepsilon_{it} \quad (1)$$

The functional form of the bank profitability model is as follows:

ROI =f (Volume of Priority Sector Lending, bank-specific internal variable, and macroeconomic factors)

$$ROI_{it} = \beta_0 + \beta_1 PSL_{it} + \beta_2 LTA_{it} + \beta_3 CAR_{it} + \beta_4 NPL_{it} + \beta_5 CIR_{it} + \beta_6 ADR_{it} + \beta_7 GDP_t + \beta_8 INF_t + \beta_9 YEAR_t + \varepsilon_{it} \quad (2)$$

Where,

ROA_{it}	:	Year-End Return on Average Asset of ith bank for the year 't'
ROI_{it}		Year-End Return on Investment of ith bank for the year 't'
ROE_{it}	:	Year-End Return on Average Equity of ith bank for the year 't'
PSL_{it}	:	Log of Priority Sector Lending of ith bank for the year 't'
LTA_{it}	:	Log of Year-End Total Assets of ith bank for the year 't'
CAR_{it}	:	Year-End Capital Adequacy Ratio of of ith bank for the year 't'
NPL_{it}	:	Year-End Non-Performing Loans in Percentage ith bank for the year 't'
CIR_{it}	:	Year-End Cost Income Ratio of ith bank for the year 't'
ADR_{it}	:	Year-End Advance Deposit Ratio ith bank for the year 't'
GDP_t	:	Annual GDP Growth Rate for the year 't'
INF_t	:	Annual Inflation for the year 't'

3.1.1 Hypothesis Development

Based on the key objective of the study in chapter 1 and literature review in chapter two, only one hypothesis can be developed. Based on the previous

literature review ROA and ROI are used as dependent variables while determining financial performance of banks duet to Priority Sector Lending (PSL). Though using the objectives in chapter one and the literature review in chapter two to assess the impact of PSL, bank-specific variables, and macroeconomic factors. As a result, the two hypotheses can be stated as follows:

H1: PSL affects the Return on Assets (ROA) of Banks.

H2: PSL affects the Return on Investment (ROI) of banks.

According to Uppal (2009), though the rise of priority sectors is essential, commercial banks are battling with PSL on concerns such as decreased profitability, increased NPL, and high operational expenses of keeping an account. An economy needs PSL, but a higher PSL raises NPL (Swami, 2012). Ganesan (2003) stated that credit to the priority sector subsidized interest rates has increased bank income loss ratios compared to profitability. Additionally, credits to priority sectors only come in modest numbers.

Most importantly, bank profitability greatly relies on the prompt repayment of the loan from its borrowers, while NPL results in considerable losses for banks, where the primary source of bank income is interest on loans. Sharma & Rathore (2016) investigated the impact of NPL on bank profitability and determined the negative influence on profitability of banks.

As the main variable of the study is Priority Sector Lending (PSL) and the other variables such as TA, CAR, NPL, ADR, CIR, GDP and INF are used as control variables. Finally, the stated hypotheses states that PSL may affect positively or negatively financial performance of banks, even PSL could show no relation at all with ROA, as evidenced by literature review.

3.2 Data

3.2.1 List of Variables

The study relies heavily on secondary data. Based on the availability of balanced panel data, a total of 31 commercial banks were considered for the study. Bank-level data are gathered from audited annual reports published on websites by banks. Bank-level data are collected for the years 2012 to 2021. The World Bank database is used to collect data on external factors, inflation, and GDP growth rate. Table 3.1 shows the sample selection procedure.

Bangladesh currently has 61 licensed banks in operation. FCBs are excluded from the analysis due to their different ownership structure from local PCBs and SOCBs in Bangladesh.. 13 of the 52 local PCBs and SOCBs were established after 2012, for which no data is available. Furthermore, data from eight banks—five SOCBs and three PCBs—is not included because it is not included in their annual reports. With these exclusions, the final sample consists of 32 banks. Table 3.1 depicts the sample selection techniques.

Data are manually extracted from the annual reports of the corresponding banks for the years 2012 through 2021. The study's dependent and independent variables each had 310 bank-year observations. Table 3.2 contains a list of the variables used in the study. The total Asset (TA) series is converted into a natural logarithm before estimating.

Table 3.1: Sample Selection Procedures

Description	Total No. of Banks	SOCBs	PCBs		FCBs
			Conventional	IBs	
Banks in All Categories	61	9	34	9	9
Banks Excluded as started operations after 2012	(13)	-	(11)	(2)	-
Banks Excluded for Data Incomplete	(8)	(5)	(3)	-	
Banks Excluded Due to Ownership Structure	(9)	-	-	-	(9)
Total Banks in the Study	31	4	20	7	0

Source: Author's Own Compilation

Note: SOCBs stand for State-Owned Commercial Banks, PCBs stand for Private Commercial Banks, FCBs stand for Foreign Commercial Banks, IBs stand for Islamic banks which are based on Islamic Shariah Based principles, and Conventional banks include the banks which are not Shariah-based principles.

Table 3.2: List of Variables

Variables	Descriptions	Unit	Source
ROA	Net Income to Total Assets	In Percentage	Audited Annual Reports
ROI	Net Income/Total Investment	In Percentage	Audited Annual Reports
ROE	Net Income/ Total Shareholders' Equity	In Percentage	Audited Annual Reports
PSL	Percent of Agriculture and CMSME Lending to Total Lending	In Percentage	Audited Annual Reports
TA	Total Assets of Audited Balance Sheet	In Natural Logarithm	Audited Annual Reports
CAR	Total Eligible Regulatory Capital to Total Risk-Weighted Assets	In Percentage	Audited Annual Reports
CIR	Total Operating Expense to Total Operating Income	In Percentage	Audited Annual Reports
NPL	Classified Loan as a percent of Loan Loans	In Percentage	Audited Annual Reports
ADR	Total Lending to Total Deposit	In Percentage	Audited Annual Reports
GDP	Annual Gross Domestic Product Rate	In Percentage	World Bank
INF	Annual Inflation	In Percentage	World Bank

Notes: Sample period: 2012 to 2021. The frequency of all the data is on a yearly basis.

ROA stands for Return on Assets. ROI stands for Return on Investment. ROE stands for Return on Equity. PSL stands for Priority Sector Lending. TA stands for Total Assets. CAR stands for Capital Adequacy Ratio. CIR stands for Cost to Income Ratio. NPL stands for Non-Performing Loans. ADR stands for Advance Deposit Ratio. GDP stands Gross Domestic Product. INF stands for Inflation.

3.2.2 Correlation Matrix

Before model estimation, the study finds correlation analysis to determine whether the explanatory variables are substantially correlated. The correlation matrix between the variables is explained in Table 3.3 For example, there is a

positive relationship between PSL and TA, PSL and CAR, and PSL and ADR. The relationship between PSL and NPL, on the other hand, is a negative one. PSL and CIR also have a negative correlation. NPL and TA also show a positive correlation. Table-3.3 shows that there is no strong correlation, either positive or negative, between the regressors.

Table 3.3: Correlation Matrix

	PSL	TA	CAR	NPL	CIR	ADR	GDP	INF
PSL	1.00							
TA	0.17	1.00						
CAR	0.17	-0.04	1.00					
NPL	-0.08	0.41	-0.51	1.00				
CIR	-0.04	0.33	-0.35	0.45	1.00			
ADR	0.14	-0.24	0.38	-0.61	-0.43	1.00		
GDP	0.02	0.01	-0.05	0.09	-0.03	0.12	1.00	
INF	-0.06	-0.43	-0.23	-0.05	-0.16	-0.17	-0.28	1.00

Notes: Sample period: 2012 to 2021. ROA stands for Return on Assets. PSL stands for Priority Sector Lending. TA stands for Total Assets. CAR stands for Capital Adequacy Ratio. CIR stands for Cost to Income Ratio. NPL stands for Non-Performing Loans. ADR stands for Advance Deposit Ratio.

3.3 Model Specification

The study proceeds by selecting an appropriate regression method for panel data in order to measure the relationship between bank profitability and priority sector lending. Initially, the study employs the Hausman test to comprehend the model's effects (Gujarati & Porter, 2009).

The Hausman test is used to determine whether the model is random or fixed effects, where H0 indicates that the model is random effects and H1 indicates that the model is fixed effects. According to the Hausman test analysis, the probability value ($p = 0.9279$) indicates that the chosen model will be random ($p > 0.05$). Based on the Hausman test, the random effects model is used in this study to determine the relationship between financial performance and priority sector lending for banks in Bangladesh. Table 4.4 shows the outcome of the Hausman test. Following the Hausman test analysis, the random effects model is used to evaluate the factors affecting the profitability of banks.

The study uses robust standards to adjust the standard errors in the regression results for better prediction to account for heteroskedasticity and autocorrelation. To account for the impact of the year on ROA and ROI, the study utilizes a time dummy in the estimate (Uddin et al., 2022).

Additionally, the study employs a primary survey based on empirical analysis findings. The primary survey's main goal is to identify some qualitative factors that may affect bank profitability as a result of PSL. In this context, a survey questionnaire for 100 mid-level officers working in PSL in various banks is being prepared. A semi-structured questionnaire is included in the study (Appendix-4). To obtain feedback from respondents, a purposive sampling technique was used.

4. Empirical Results

4.1 Descriptive Statistics

Table-4.1 displays descriptive data for the following variables: ROA, PSL, TA, CAR, NPL, CIR, ADR, GDP, and INF. Sample banks have an average ROA of 0.79 percent. The minimum and maximum ROA are -4.92 and 2.75 percent, respectively. Table 4.2 shows that 61.3 percent (19) of the sample banks' mean ROA is greater than the aggregate mean ROA (0.79).

The mean PSL percentage is only 19.35 percent, with a minimum and maximum of 1.40 percent and 56.05 percent, respectively. When compared to other lending sectors in Bangladesh, the average percentage of PSL is insignificant. Table 4.2 displays that the mean PSL of 61.3 percent of banks (19) is lower than the aggregate mean PSL (19.35)

The average CAR is 12.40 percent, with a low of 3.70 percent and a high of 17.93 percent. Table 4.2 shows that the mean ROA of 61.3 percent of banks (19) is higher than the aggregate mean ROA (0.79). The average LTA is 5.45 percent, with a low of 4.30 percent and a high of 6.28 percent. Table-4.2 shows that the mean LTA of 54.84 percent of banks (17) is less than the aggregate mean LTA (5.45).

The average NPL is 7.20 percent, with a low of 1.63 percent and a high of 35.28 percent. Table 4.2 shows that the mean NPL of 77.42 percent of banks (24) is less than the aggregate mean NPL (7.20). The average CIR is 53.56 percent, with low and high values of 20.63 and 104.11, respectively. Table 4 shows that the mean CIR of 67.74 percent of banks (21) is less than the aggregate mean CIR (53.56).

Table-4.2 exhibits 58.06 percent of banks' (18) mean ADR is more than the aggregate mean ADR (80.05). As shown by Table 4.1, among the variables, the least standard deviation is observed in TA (Total Asset) and the highest standard deviation is found in CIR (Cost-Income Ratio).

Table 4.1: Descriptive Statistics: Aggregate (All Banks in the Sample)

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
ROA	310	0.79	0.65	-4.92	2.75
ROI	310	7.41	3.48	-0.59	22.35
PSL	310	19.35	10.37	1.40	56.05
LTA	310	5.45	0.27	4.30	6.28
CAR	310	12.40	1.97	3.70	17.93
NPL	310	7.20	6.11	1.63	35.28
CIR	309	53.56	16.98	20.63	104.11
ADR	310	80.05	10.87	37.28	108.20
GDP	310	6.60	1.26	3.40	8.200
INF	310	6.04	0.66	5.50	7.5

Notes: Sample period: December 2012 to December 2021. TA is transformed into the natural logarithm. Obs. stand for a number of observations and std. dev stands for standard deviation

Table 4.2: Descriptive Statistics: Bank Wise

Variables	Less than all banks' mean	% of Banks	More than all banks' Mean	% of Banks
ROA	12	38.7	19	61.3
PSL	19	61.3	12	38.7
LTA	17	54.84	14	45.16
CAR	14	45.16	17	54.84
NPL	24	77.42	7	22.58
CIR	21	67.74	10	32.26
ADR	13	41.94	18	58.06

4.2 Multicollinearity Test

The study investigates multicollinearity, as suggested by previous research (Belkaoui & Karpik, 1989). According to Wooldridge (2013), a multicollinearity problem exists when the mean Variance Inflation Factors (VIFs) are greater than 10. The Table-4.3 shows that the mean VIF is 1.62, indicating that there is no multicollinearity (mean VIF10). The highest VIF is found in NPL (2.31) and the lowest VIF is found in PSL (1.10). As a result, the data are free of the multicollinearity problem.

Table 4.3: Variance Inflation Factors

Variable	VIF	1/VIF
NPL	2.31	0.39
TA	1.68	0.51
ADR	1.89	0.52
INF	1.66	0.53
CIR	1.49	0.56
CAR	1.64	0.63
GDP	1.18	0.83
PSL	1.10	0.88
Mean VIF	1.62	

4.3 Interpretation of Regression Outputs

Table-4.4 shows the regression result without VCE (robust) and with VCE (robust) for ROA. The regression output in Table 4.4 shows that the overall multiple regression is statistically significant as the chi-squared value of 111.16 which is statistically significant at a 1 percent level of significance. R squared value shows that 34.91 percent of the variation in ROA has been explained by the PSL and other independent variables. The table 4.4 shows the insignificant relationship between PSL and ROA, which indicates that PSL does not affect the financial performance of banks (ROA, a measure of profitability, which is consistent with Sudin et al., (2022).

Table 4.4: Panel Estimation Results: without VCE (robust) and with VCE (Robust)

Equation 1	Dependent Variable =ROA	
	Without VCE robust	With VCE robust
PSL	.0042	.0042
	(0.246)	(0.159)
TA	-0.3077*	-.3077*
	(0.057)	(0.093)
CAR	0.0447**	.0447
	(0.032)	(0.311)
NPL	-0.0493***	-.0493**
	(0.000)	(0.018)
CIR	-.00036	-.003
	(0.205)	(0.372)
ADR	-0.0098**	-.0098*
	(0.023)	(0.081)
GDP	0.0563**	.0563***
	(0.027)	(0.010)
INF	0.1244**	.1244*
	(0.036)	(0.051)
constant	2.0494	2.0494*
	(0.110)	(0.094)
Model Selection Test		
BP-LM test: p-value	0.0072	0.0072
Hausman test: p-value	0.9279	0.9279
Poolability F test: p-value	0.0000	0.0000
No. of banks	31	31
Number of Observations	310	310
R-Squared	34.91%	34.91%
Chi-Squared	114.30	232.95
Probability	0.000	0.000
Time Dummy	Yes	Yes

Notes: The asterisk ***, ** and * denotes statistical significance at 1%, 5% and 10 % level respectively. Values in parentheses are p-values. Sample period: December 2012 to December 2021

The size of the banks (total asset), adequacy measure (CAR), and liquidity measure (ADR) are found to be statistically significant at a 5% level of significance. At the 5% level of significance, the size of the banks' assets (TA) and ADR show a negative relationship (-0.0377 percent and -0.0098 percent) with ROA, implying that as the size of the banks' assets increases, ROA decreases, which are consistent with Jeris (2021).

It also implies that banks will face diseconomies of scale as a result of management inefficiencies, lowering their performance. The same interpretation

holds true for ADR. Furthermore, GDP and INF have a significant positive relationship with ROA, which are consistent with Phan et al. (2020).

Because CAR has a positive significant relationship with ROA, it means that capital provides adequate protection against potential bank failure, which reduces risk, the finding is consistent with Akbar (2019). A high CAR also signals to the market that the bank's future prospects are promising. It sends a positive signal about market value and improves the bank's financial performance.

Table-4.4 shows a significant negative relationship between NPL (-0.0493) and ROA for the sample banks in the country, indicating that a higher level of NPL will cause lower bank profitability, the finding is consistent with Majumdar & Uddin (2017) . It also shows that a higher level of non-performing loans will deteriorate bank profitability for commercial banks in Bangladesh. The Cost to Income Ratio has a negligible impact on profitability for the sample banks in the country.

Table 4.5: Panel Estimation Results: without VCE (robust) and with VCE (Robust)

Equation 2	**Dependent Variable =ROI**	
	Without VCE robust	**With VCE robust**
PSL	0.0224	0.0224
	(0.364)	(0.379)
TA	-1.0966	-1.0966
	(0.300)	(0.279)
CAR	-0.15584	-0.15584
	(0.200)	(0.195)
NPL	-0.0411	-0.0411
	(0.383)	(0.194)
CIR	-.0098	-.0098
	(0.592)	(0.510)
ADR	-0.0245	-0.0245
	(0.356)	(0.351)
GDP	-.2397 *	-.2397
	(0.073)	(0.132)
INF	0.2928	0.2928
	(0.383)	(0.255)
constant	12.5252	12.5252 *
	(0.116)	(0.049)
Model Selection Test		
BP-LM test: p-value	0.0000	0.0000
Hausman test: p-value	0.1846	0.1846

Equation 2	Dependent Variable =ROI	
	Without VCE robust	**With VCE robust**
Poolability F test: p-value	0.0000	0.0000
No. of banks	31	31
Number of Observations	310	310
R-Squared	19.77%	19.77%
Probability	0.000	0.000
Time Dummy	Yes	Yes

Notes: The asterisk ***, ** and * denotes statistical significance at 1%, 5% and 10 % level respectively. Values in parentheses are p-values. Sample period: December 2012 to December 2021

4.4 Robustness Test

Table-4.6 below shows the regression outputs of panels corrected standard errors (PCSEs). The robustness also shows insignificant relationship between PSL and ROA, as is the original model. The coefficients of panel-corrected standard errors have nearly the same significance and sign. At the 5% level of significance, the robustness check indicates that PSL has no effect on bank financial performance.

Table 4.6: Regression Results: Dependent Variable: ROA

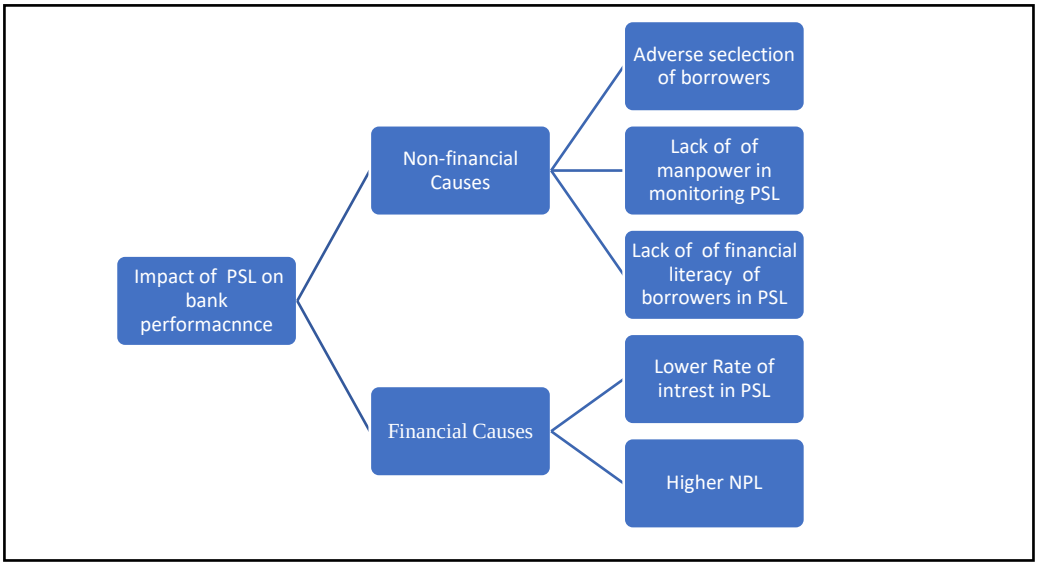
Specification	ROA
PSL	0.0036
	(0.103)
TA	-.3411 **
	(0.048)
CAR	.0519 **
	(0.011)
NPL	-.0464 ***
	(0.000)
CIR	-.0036
	(0.172)
ADR	-.0086
	(0.126)
GDP	.0550 *
	(0.066)
INF	0. .1267 **
	(0.038)
constant	2.0375 *
	(0.085)
Number of Observations	310
R-Squared	0.34
Wald Chi-Squared	66.66
Probability	0.000

Notes: The asterisk ***, ** and * denotes statistical significance at 1%, 5% and 10 % level respectively. Values in parentheses are p-values. Sample period: December 2012 to December 2021

4.5 Respondent's Opinions on the Empirical Findings for PSL and ROA

The study's primary goal is to determine the impact of PSL on the bank performance (ROA). The study found no statistically significant relationship between PSL and ROA. The study attempts to identify possible explanations for the insignificant relationship between PSL and ROA. As the goal of the primary survey is to find out reasons for insignificant relationship between PSL and ROA, the scope of the analysis is very limited. The respondents' feedback provided the most likely explanations for the study's findings. Financial and non-financial causes were identified by respondents (Figure-4.1).

Figure 4.1: Causes of Bank's Unwillingness for PSL



Source: Author's own compilation based on primary survey

4.5.1 Adverse Selection of Borrowers in PSL

Because PSL is mostly government-directed and the central bank sets a time limit for disbursing a certain amount of funds to the underprivileged sector (Priority Sector), banks usually try to follow central bank regulations when disbursing loans to priority sectors to avoid financial and non-financial penalties from the regulators. In many cases, banks lack an appropriate appraisal process for selecting the right borrowers during this process. According to respondents, many unscrupulous people use bank loans to divert funds.

4.5.2 Lack of Manpower to Monitor the Loans in PSL

Banks are required to disburse large sums of money to borrowers in small amounts under PSL. Banks must employ a large number of bank employees to monitor borrowers and fund utilization. However, banks lack sufficient manpower to supervise PSL loans.

4.5.3 Lack of Financial Literacy of Borrowers in PSL

Another reason for banks' reluctance to invest in PSL is a lack of financial literacy. Because borrowers in priority sectors are undereducated and lack financial literacy, they are hesitant to repay loans on time. Respondents claim that a larger proportion of borrowers believe that because the lending is government-directed, it will be waived by the government later, discouraging more PSL lending.

4.5.4 Lower Rate of Interest in PSL

PSL typically required a lower interest rate than other economic sectors such as the corporate sector and transportation, but monitoring costs are extremely high. As a result, it has an impact on bank profitability. Bangladesh Bank, the central bank of the country, has instructed banks to provide bank loans at the rate of 9 percent to all sectors, however, the maximum interest rate is 8 percent for the agricultural sector. Moreover, in some sectors of agriculture, banks will have to provide lending at a concessional interest rate. For instance, banks cannot charge more than 4 percent while lending to salt cultivation. Additionally, a number of refinance schemes are available for agriculture sectors, where lending banks earn a commission from the central bank.

4.5.5 Higher NPL in PSL

Because supervision and monitoring are difficult in PSL, the amount of non-performing loans increases in comparison to other economic sectors, affecting bank performance. According to the Financial Stability report of the central bank, the ratio of NPL in priority sectors is 18.88 percent at the end of 2021, which is much higher than the aggregate NPL of all sectors.

5. Conclusion

This chapter focuses on the summary of key findings and policy implications of the study. The study's limitations and recommendations for further research are also included in this chapter. According to the study's problem statement, even though GoB and BB require banks to lend to priority sectors, the proportion of PSLs in overall bank loans is quite small-around 20% on average. The purpose of this article is to experimentally investigate the effect of PSL on Bangladeshi banks' profitability. The dependent variable in the research is measured for profitability using ROA and ROI. Priority Sector Lending (PSL) Percentage is regarded as a critical independent variable.

According to the research study, in addition to PSL, macroeconomic variables and bank-specific variables also have an impact on ROA. The size of the asset, CAR, CIR, ADR, and NPL are among the independent variables included in the research that are special to banks. The list of independent variables also includes GDP, and INF. The research considered 310 observations from 31 banks with diverse ownership structures that operate in Bangladesh. In chapter two, the selection procedure for 31 banks is detailed. Panel data from 2012 to 2021 is used in the research. The yearly audited report of banks is where the study gets all the information, except GDP and INF. The World Bank data base is used to get information on GDP and INF.

5.1 Summary of Key Findings

As the key purpose of this research is to analyse the link between PSL and ROA for commercial banks in Bangladesh from 2012 to 2021. The study also tries to find out the regulatory framework of Priority Sector Lending (PSL). After going through regulatory framework for priority sectors, agricultural and CMSMEs, it has been found that PSL is mostly regulatory driven. In this context, BB, the central bank of Bangladesh has instructed all categories of banks to attain the target set.

According to the regulation governing the financing of CMSMEs by banks, banks must define their target for CMSME financing and must grow the total amount of CMME loans by 1% annually. Additionally, banks will be required to

provide 24 percent of their overall loans to CMSMEs by 2024. Each bank should devote to agricultural financing at least 2.5 percent of its total annual loans and advances annually. The descriptive statistics in this situation show a little upward trend in the percentage of PSL over time. The majority of the rise, nevertheless, may be attributed to legislative requirements.

Eight hypotheses are developed by the research for empirical examination. According to the literature assessment, every hypothesis claims that every independent variable—aside from NPLs—affects bank profitability. NPL, however, has a detrimental effect on banks' profitability, according to the theory. The Hausman test selects the Random Effect (RE) estimator to estimate the empirical framework of the investigation based on model selection tests.

As ROA is dependent on other bank-specific and macroeconomic parameters, LTA, CAR, ADR, NPL, CIR, GDP, and INF are used as independent variables in this analysis. The contribution of PSL to GDP has been about 20% throughout the years, which is negligible compared to the contributions of these other sectors.

According to panel estimation results in chapter 4, no significant relationship is found between PSL and ROA. While using ROI as the dependent variable, it also shows no significant relationship between PSL and ROI. The research used a primary survey to determine the causes for the negligible association between the variables (100 mid-level officers of banks). According to the feedback of respondents, the primary cause includes lower earnings from PSL as compared to other sectors, resulting in less amount of lending by banks in priorities sectors. The respondents also opine that bank lending in the priorities sector faces problems of a poor selection of PSL borrowers, a shortage of personnel at the bank level to supervise PSL loans, a lack of financial awareness among PSL borrowers, and an increase in NPL.

As the profitability of banks is influenced by other factors, the study reveals that the size of the banks (total asset), adequacy measure (CAR), and liquidity measure (ADR) are found to be statistically significant with ROA. The size of the banks' assets (TA) and ADR show a negative relationship with ROA,

implying that as the size of the banks' assets increases, ROA decreases. Additionally, if banks provide more advance to total deposits, the study shows that profitability decreases, which indicates inefficient management of funds by banks. GDP and INF have a significant positive relationship with ROA.

Because CAR has a positive significant relationship with ROA, it means that capital provides adequate protection against potential bank failure, which reduces risk. A high CAR also signals to the market that the bank's future prospects are promising. It sends a positive signal about market value and improves the bank's financial performance.

A significant negative relationship is found between NPL and ROA for the sample banks in the country, indicating that a higher level of NPL will cause lower bank profitability. The Cost to Income Ratio has a negligible impact on profitability for the sample banks in the country. Thus, there may be more factors that impact the profitability of a bank. Therefore, banks may see priority sector lending as a vital sector for Bangladesh's economic and social growth.

5.2 Policy Implications of the Study

Bangladesh's monetary and financial policy has relied heavily on PSL. As the data indicate no substantial correlation between PSL and the profitability of banks, policymakers should take the necessary steps to make efficient use of public funds. As banks demonstrate a reluctance to engage in PSL due to a lack of personnel and capacity development in selecting borrowers for PSL, regulators should address weaknesses in regulatory oversights and implement stringent monitoring mechanisms so that banks to increase significant involvement in PSL with adequate personnel and capacity development and borrowers' lack of financial literacy.

5.3 Limitations and Suggestions for Future Study

This study is not an exception to the rule that all studies contain limits and need for additional research; this study is no exception either. First, the study includes priority sectors only, by passing other economic sectors where banks' lending is almost 80 percent of total lending. Second, the study covers bank-level

data for 31 banks out of 61 banks for empirical analysis due to data unavailability and ownership structure. Third, the study uses a very short questionnaire (primary survey) to find out the probable causes of the insignificant relationship between PSL and ROA. Finally, the study is based on the supply side not on demand side, at borrowers 'side.

Overcoming the limitations of the study, further research can be conducted for more comprehensive and specific findings so that policymakers can take appropriate initiatives to widen the scope of Priority Sector Lending (PSL) and encourage lenders to provide more lending in PSL.

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Websites of Sampled Banks

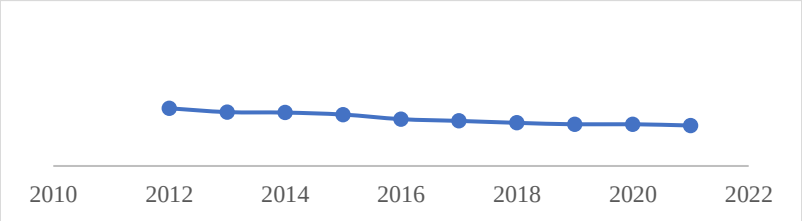
Appendixes

Appendix 1: Sector Wise Loans other than CMSME

	Large Industries	Commercial Loans	RMG, Textile and Ship Breaking Industry
2016	14.90	23.60	21.10
2017	14.70	23.10	21.00
2018	15.90	22.40	21.10
2019	14.70	21.90	21.00
2020	14.25	21.27	22.17
2021	12.29	21.00	22.08

Source: Bangladesh Bank, 2022

Appendix 2: Contribution of Agricultural Sector to GDP in Percent



Source: Bangladesh Bank, 2022

Appendix 3: Sector Wise Maximum Loan Limit for CMSME (BDT)

Sector	Manufacturing	Service	Trade
Cottage	15 lacs	-	-
Micro	1 crore	25 lacs	50 lacs
Small	20 crores	5 crores	5 crores
Medium	75 crores	50 crores	-

Source: Bangladesh Bank, 2022

Appendix 4: Short Questionnaire to Validate the Finding of Empirical Results about PSL and ROA

1. Do you agree that Priority Sector Lending does not affect the profitability of banks?

Yes	No

2. Do you believe that banks are just lending to the priority sector to fulfill the BB target?

Yes	No

3. What are the challenges you are facing while giving loans to priority sectors?