Monetary Policy and Sustainability
The Case of Bangladesh

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Acknowledgements

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EXECUTIVE SUMMARY

Central banks have wide ranging effects on the economy and society as a whole. Their decisions on monetary policy and sustainability are closely intertwined. Nonetheless, the links between the mandates, objectives and instruments of central banks and a broad sustainability agenda are rarely reflected in policy debates. Bringing light to this blind spot is critical.

The impact of monetary policy is shaped by a myriad of factors — many of which are country-specific. A case in point for this is the key role of a country's financial system in the transmission of policy decisions to the real economy. The structure of the banking sector, the depth of capital markets, as well as the legal and governance frameworks in which financial transactions take place, are central aspects in that context. Understanding these building blocks and how they define policy space is indispensable for a sound analysis of the connections between central bank actions and sustainability.

Against this background, this report focuses on monetary policy and its sustainability impacts in Bangladesh. It lays out areas for exploration and provides initial insights into Bangladesh's economic development, its sustainability priorities as well as its financial system, and the relationship between these aspects and the country's monetary policy. It also reviews the mandate, objectives, targets, and instruments of Bangladesh Bank (BB), the country's central bank, as well as the effectiveness of the transmission channels at its disposal. At the same time, it highlights that knowledge gaps on the topic remain significant. Further analysis will be needed to draw a more complete picture of the country's monetary policy-sustainability nexus.

Bangladesh has a population of 158 million people of which 70% live in rural areas. Gross domestic product (GDP) in FY2014 was 174 billion USD. Real GDP growth amounted to 6.1%, and real GDP per capita grew by 4.7% in FY2014. Jobs are mainly distributed between agriculture (48%) and the services sector (40%). The number of migrant workers is estimated at 9 million. As a result, remittances play a significant role in the country's economy, and amounted to 14 billion USD in FY2014.

The country has made impressive progress in poverty reduction over the last decade. The poverty rate is estimated to have dropped from 31.5% in 2010 to below 23% today. The government's goal is to reduce this number to 15% by 2021. Job creation while at the same time reducing inequality will be key in this context. Food security as well as the transition towards a sustainable energy future are equally important goals on that path.

Banks are the dominant pillar in the financial system with outstanding credit to the private sector amounting to more than 67 billion USD as of November 2014. In

comparison, the microfinance sector, as of June 2013, served 33 million clients and accounted for 4.4 billion USD in outstanding loans. At the same time, in particular in rural areas, informal funding sources such as relatives, friends as well as village moneylenders continue to play an import role.

The banking sector continues to suffer from high default rates. With the ratio of non-performing to total loans at 9.7%, confidence in the financial system remains subdued. Substantial spreads between deposit and lending rates — as observed in many low income economies and currently above 5% in Bangladesh — add to these frictions, and make the sector less sensitive to monetary policy changes.

The transmission of monetary policy into the real economy is also hampered by an underdeveloped capital market. In particular, insufficient liquidity in the secondary market for government debt as well as the overall lack of a market for corporate bonds constitute a further impediment for the transmission from short-term policy rates to market rates along the yield curve. Moreover, the limited supply of long-term funding instruments poses particular challenges to close the country's infrastructure gaps. Against this background, in the words of the central bank itself, "effective transmission of monetary policy requires strengthening credit and debt markets, and this will remain a key focus of BB". The authorities have taken important steps in this direction — including tightening regulations on related lending, strengthening monitoring of banks' stock market exposures, as well as recapitalization of state-owned commercial banks.

Bangladesh Bank's mandate is to "[stabilize] domestic monetary value and [maintain] a competitive external par value of the Bangladesh Taka towards fostering growth and development of [the] country's productive resources in the best national interest." Within this legal context, the central bank focuses on "achieving price stability along with moderate inflation while providing sufficient space in its monetary program for domestic credit which supports broad-based investment and inclusive growth objectives." In case of trade-offs between these goals, the bank prioritizes growth over inflation as long as the latter remains tolerable. In addition, and in particular under the leadership of its current governor, Dr Atiur Rahman, Bangladesh Bank emphasizes the important role central banks play in pursuing sustainability priorities including poverty alleviation and environmental stability.

The key inflation measure used by Bangladesh Bank is the annual increase in the national Consumer Price Index (CPI). In December 2014, following a steady decline from 7.6% in January 2014, overall inflation stood at 7.0% with food inflation amounting to 7.9% and non-food inflation at 5.6%. For FY2015, the central bank targets an inflation rate of 6.5% and expects GDP to grow between 6.5-6.8%.

Bangladesh Bank follows a monetary targeting strategy. In that context, it seeks to control the growth of broad money (M2) at a rate that it deems consistent with its

objectives for output growth and price stability. It pursues its M2 target based on the view that broad money is largely determined by reserve money (RM) through the money multiplier and by setting an operational target for RM accordingly. The success of such monetary targeting depends (i) on the existence of a strong and reliable relationship between objectives (e.g. high output growth with moderate inflation) and intermediate targets (e.g. broad money), (ii) on the capacity of the central bank to steer their intermediate target variables (e.g. broad money) through the operational target variables (e.g. reserve money) that it can influence directly, and (iii) on a stable money demand function. These conditions seem to be met in Bangladesh only partially.

To reach its reserve money target, Bangladesh Bank controls liquidity in the market on a day-to-day basis. The instruments it uses for that include repo and reverse repo auctions, Bangladesh Bank bill auctions, Treasury bill and bond auctions, as well as adaptations in the cash reserve requirement ratio and the statutory liquidity ratio. Bangladesh Bank also intervenes in foreign exchange markets to reduce volatility in the Bangladesh Taka (BDT) exchange rate to other currencies. In addition, the central bank's toolbox includes targeted refinancing lines and mandatory credit targets to steer credit allocation in the economy, as well as a variety of regulatory measures to promote financial inclusion, inclusive growth and environmental stability.

Targeted refinancing lines offer banks refunding at reduced interest rates for loans given to priority areas such as renewable energy. In contrast to outright subsidies, they rely on the private sector as a gatekeeper in the allocation of capital. The default risk remains with the banking sector. Bangladesh Bank provides several refinancing lines for various sectors and segments of the economy. Its 2 billion BDT (25 million USD) refunding scheme for green finance is a case in point. Launched in 2009 with an initial focus on solar energy, biogas, and effluent treatment projects, its scope has continuously been expanded and now covers 47 items. Bank loans for projects in the included fields can be refinanced by Bangladesh Bank at 5% provided that the interest charged to bank customers does not exceed 9%. Similar schemes with a focus on the country's sustainability priorities are also available to provide collateral-free credit to sharecroppers, for loans to increase the energy efficiency of brick kilns, as well as to expand funding possibilities for small and medium sized enterprises.

Moreover, Bangladesh Bank, in its regulatory capacity, is enforcing differentiated ceilings on loan growth, maximum loan sizes, minimum loan ratios, as well as maximum debt-to-equity ratios. Ensuring that these ceilings and floors and the underlying criteria are aligned with sustainability objectives is critical.

The country's central bank has also taken various measures to promote financial inclusion. The obligation for banks to open a rural branch for every new branch in urban areas, guidelines for mobile financial services and agent banking, as well as the

introduction of "10 Taka accounts" — bank accounts that can be opened with the deposit of 10 BDT (0.13 USD) — are among the instruments that Bangladesh Bank has applied in this context.

The reflection of sustainability priorities in the definition and pursuit of monetary targets is critical in two ways. On the one hand, as described above, monetary policy may have important effects on a country's sustainability goals. On the other hand, sustainability developments may have critical impacts on core monetary policy targets. Bangladesh Bank's focus on both the traditional objectives of price stability and growth alongside a broader sustainability agenda may thus allow for effective and positive feedback loops.

For a thorough exploration of the links between monetary policy and sustainability in Bangladesh, yet alone for making policy recommendations, additional research is essential. Nonetheless, the following suggested directions for further analysis may provide initial guidance for future action of Bangladesh Bank:

1. Conduct research to expand the knowledge base about the links between price stability, money and credit growth, and the country's sustainability priorities.
2. Assess the impact of interest rate changes on green investments.
3. Expand reflection on sustainability considerations in Bangladesh Bank's key reports — e.g. by sharing analysis in its half-yearly Monetary Policy Statement on the impact of Bangladesh Bank's core decisions (e.g. its inflation target) on sustainability priorities (e.g. poverty reduction).
4. Review the possibility to add data on monthly changes in the Basic Need Price Index (BNPI), or on other measures of the inflation rate faced by the poorest segment of the population, in addition to the standard inflation indicators (i.e. CPI) into Bangladesh Bank's key reports.
5. Add an overview on Bangladesh Bank's targeted refinancing lines including capacity, cumulative disbursements and outstanding loans to its Monetary Policy Statement and its website.
6. Evaluate the impact of targeted refinancing lines, credit quotas and ceilings, as well as maximum debt-to-equity ratios on sustainability objectives, and identify scope for further alignment.
7. Build up monitoring and evaluation capacity to assess current targeted refinancing lines.
8. Ensure the reflection of sustainability criteria in a possible future diversification strategy for the investment of Bangladesh Bank's foreign exchange reserves.

1. INTRODUCTION

Central banks have wide ranging effects on the economy and society as a whole. Their decisions on monetary policy and sustainability are closely intertwined. Interest rate levels, inflation targets, money supply and exchange rates are key factors for investments. They play a critical role in the distribution of wealth and income. They have significant influence on the ability of households to secure adequate real income over their lifetime. And their impacts on asset prices in general and real estate as well as commodity markets in particular have considerable social and environmental repercussions.

Nonetheless, the links between the mandates, objectives and instruments of central banks and a broad sustainability agenda are rarely reflected in policy debates. The nexus between their decisions and poverty alleviation is seldom on top of agendas; their impact on inequality is only discussed at the margins; and the environmental effects of their policies often go unnoticed.

This is particularly striking as the current crisis has significantly increased the influence of central banks and the policies they enact. Bringing light to this blind spot is critical. As central banks transfer billions of dollars into the global economy on a monthly basis, we urgently need a solid understanding of the effects their actions have on sustainability. We need a thorough analysis of policy alternatives and their impacts. And we need to build a community of experts from academia, business, policymaking, NGOs and the media to reflect these alternatives in policy debates moving forward.

Research at the country level will be critical in this context. The impact of monetary policy is shaped by a myriad of factors — many of which are country-specific. The key role of a nation's financial system in the transmission of policy decisions to the real economy is a case in point for this. The degree of competition in the banking sector, the depth of capital markets, as well as the legal and governance frameworks in which financial transactions take place, are central aspects in that context. Understanding these building blocks and how they define policy space is indispensable for a sound analysis of the connections between central bank actions and sustainability.

The initiatives of Bangladesh Bank (BB), the country's central bank, in integrating sustainability considerations into its activities offer valuable insights in this regard. They also provide a strong basis to explore further opportunities for the alignment of monetary policy and financial regulation with a broad sustainability agenda in Bangladesh and other countries.

Against this background, this report lays out areas for exploration and provides initial insights into Bangladesh's economic development, its sustainability priorities as well as its financial system, and the relationship between these aspects and the country's

monetary policy. It also reviews the mandate, objectives, targets, and instruments of Bangladesh Bank as well as the effectiveness of the transmission channels at its disposal. At the same time, it highlights that knowledge gaps on the topic remain significant. Further analysis will be needed to draw a more complete picture of the country's monetary policy-sustainability nexus.

2. ECONOMIC DEVELOPMENT

Bangladesh is a country in South Asia with a population of 158 million people[1] of which 70% live in rural areas.[2] The nation's gross domestic product (GDP) in FY2014 (ending in June 2014) was 174 billion USD. In 2013, in the run-up to general elections in January 2014, the country suffered its worst political violence since independence in 1971, leaving more than 500 dead, and causing severe disruptions in economic activities. Political uncertainty continued to dampen the investment climate in H12014. Nonetheless, real GDP growth amounted to 6.1%, and real GDP per capita grew by 4.7% in FY2014.[3] Real GDP growth for FY2015 is projected to be 6.5-6.8% provided political stability prevails.[4]

The services sector makes up more than half of economic output, followed by industry (2012: 29%) and agriculture (2012: 18%).[5] Goods and services exports in FY2014 amounted to 33 billion USD. Readymade garments accounted for 19 billion USD of that total.[6] Further key export items include agro-processed goods, footwear, and non-perishable consumables such as ceramic and light engineering products.[7]

The number of migrant workers is estimated to stand at 9 million.[8] As a result, remittances play a significant role in the country's economy, and are its second largest source of foreign exchange — after the garment industry — amounting to 14 billion USD in FY2014.[9]

3. SUSTAINABILITY PRIORITIES

The government of Bangladesh has defined a broad set of development goals for the year 2021, the country's golden jubilee since independence, in its Vision 2021. The country has also formulated a National Sustainable Development Strategy to guide its

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[1] Bangladesh Bureau of Statistics (2015).
[2] World Bank (2014g).
[3] Bangladesh Bank (2015a) ("Key Indicators of National Accounts"). 1 USD=BDT 77.75 for FY14.
[4] Bangladesh Bank (2015d), p. 11.
[5] World Bank (2014a).
[6] Bangladesh Bank (2015a) ("Balance of Payments" and "Foreign Trade").
[7] World Bank (2014b), p. 20.
[8] Ghosh (2014).
[9] Bangladesh Bank (2015a) ("Number of Persons Left for Abroad on Employment and Total Workers' Remittances").

transition to become a middle income economy by 2021. Its current sixth five-year plan from 2011-2015 defines key milestones towards these objectives.[10]

3.1. POVERTY REDUCTION

Reducing poverty, the country's "single most important socio-economic policy challenge" according to its current five-year plan, is a key target in this context. Bangladesh has made impressive progress in pursuing this goal over the last decades. Since the early 1970s, the percentage of people living below the poverty line fell from more than 80% to under 32% in 2010[11] — and is estimated to have dropped below 23% as of 2014.[12]

At the same time, poverty incidence varies considerably across the country, with poverty rates on a district level ranging from close to 64% (in Kurigram) to under 4% (in Kushtia).[13] Rural poverty levels are three times higher than that of urban areas. Extreme poverty remains largely a rural phenomenon.[14]

Moving forward, the government's Vision 2021 objectives aim for a further reduction of the national poverty rate down to 15%[15] by 2021 — a target that is estimated to require annual GDP growth of at least 8%, which is 2 percentage points higher than in recent years.[16]

3.2. JOB CREATION

A key pillar for poverty reduction and rising living standards are decent jobs.[17] The most recent labor force survey of 2010 reports an employment-to-population ratio of 57% — with stark differences between the ratios for men (79%) and women (34%) — and formal jobs accounting for only 12% of the total. Increasing these numbers and avoiding the trap of jobless growth is critical.[18]

The government also seeks to change the distribution of employment across economic segments. Today, jobs are mainly located in agriculture (48%) and the services sector (40%).[19] By 2021, these shares shall be 30% in agriculture, 25% in industry, and 45% in services.[20]

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[10] Bangladesh Ministry of Planning (2013), Bangladesh Ministry of Planning (2012), Bangladesh Ministry of Planning (2011).
[11] Bangladesh Ministry of Planning (2011), p. 13.
[12] World Bank (2014b), p. 8.
[13] World Bank (2014c), Sohel (2014).
[14] World Bank (2014d).
[15] Bangladesh Ministry of Planning (2013), p. 14.
[16] Gimenez, Jolliffe and Sharif (2014).
[17] See Inchauste and Olivieri (2014).
[18] ILO (2013), p. 9.
[19] ILO (2013), p. 4.
[20] Bangladesh Ministry of Planning (2011), p. 14.

3.3. REDUCING INEQUALITY

Inequality between income groups has been on the rise — more so for income inequality than for consumption inequality. The national Gini coefficient for the distribution of income increased substantially since the 1980s to 45.1 in 2000. Since then the national level of income inequality rose only slightly to 45.8 in 2010 while the urban level dropped from 49.7 in 2000 to 45.2 in 2010, and rural Bangladesh recorded an increase from 39.3 in 2000 to 43.0 in 2010.[21]

Reducing these numbers is important for Bangladesh in its own right as well as with regard to the potentially negative implications for other objectives — in particular growth and poverty reduction.[22]

3.4. FOOD SECURITY

Bangladesh has made important progress in increasing food security over the last decade. Prevalence of undernourishment fell from 34.6% in 1990-1992 to 16.8% in 2010-2012. The percentage of people suffering from inadequate food intake also dropped in the same period, albeit less so, from 42% to 26.8%.[23]

At the same time, the rural population still spends an average of close to 60% of its income on food[24] — making it particularly vulnerable to shortages and resulting price swings. Annual losses in agricultural land of 1%, a decline in soil fertility and water resources, crop failures resulting from natural disasters, as well as international food price volatility pose further problems. A lack of investments to increase productivity further exacerbates the challenge.[25]

Against this background, ensuring food security — both in terms of the physical availability of food as well as its affordability — is a key objective of the government. Concretely, until 2021, it seeks to ensure that the nutritional requirements of 85% of the population are met as well as a minimum daily intake of 2'122 kilo calories is secured. In that context, particular attention shall be given to increasing food security among women, girl children and the disabled.[26]

3.5. SUSTAINABLE ENERGY

Bangladesh faces severe energy shortages. Annual per capita energy consumption is 160 kilogram oil equivalent (kgoe) compared with a regional average of 640 kgoe in

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[21] Bangladesh Ministry of Planning (2011), pp. 18.
[22] See Islam (2013). Also see Ostry et al. (2014).
[23] FAO (2013), p. 91.
[24] IFPRI (2013), p. 63.
[25] Bangladesh Ministry of Planning (2012), p. 12, pp. 27.
[26] Bangladesh Ministry of Planning (2012), pp. 77.

Asia, and 530 kgoe in India, 510 kgoe in Pakistan, 470 kgoe in Sri Lanka and 340 kgoe in Nepal.[27]

Close to 40% of the population has no access to electricity.[28] Nine out of ten persons continue to burn traditional biomass. Those that are connected to the grid face frequent power cuts.[29] Average annual power generation per capita stands at 321 kWh. Natural gas accounts for 85% of that total.[30]

The government seeks to increase per capita power consumption to 600 kWh by 2021.[31] To reach this goal, and to account for warnings that the country's gas reserves will only last until 2019, the current government puts significant emphasis on the expansion of coal in the fuel mix — from just over 3% today to more than 50% by 2021.[32]

At the same time, observers point to the potential for demand reduction through a significant decrease of energy subsidies.[33] They also underline the opportunities of renewable energy — a source that currently accounts for just over 3% (including hydro) of the country's power generation. The government aims to increase this share to 10% by 2020.[34]

4. FINANCIAL SYSTEM

The financial system of Bangladesh comprises a formal, a semi-formal, and an informal sector. The formal segment covers all regulated institutions and includes banks, non-bank financial institutions, insurance companies, capital market intermediaries, and micro finance institutions. The semi-formal part comprises organizations that are regulated, but do not fall under the jurisdiction of enacted financial regulators.[35] It includes specialized financial institutions like the Bangladesh House Building Finance Corporation (BHBFC), the Palli Karma Sahayak Foundation (PKSF), and Grameen Bank, as well as various non-governmental organizations and government programs. The informal segment comprises unregulated moneylenders as well as gifts and loans from relatives, friends, and neighbors.

In 2011, 40% of the adult population had an account at a formal financial institution compared to an average among developing countries in South Asia of 33%. 3% used

[27] Bangladesh Ministry of Planning (2012), p. 58.
[28] Bangladesh Ministry of Power, Energy and Mineral Resources (2014).
[29] ADB (2013b).
[30] ADB (2013b).
[31] Bangladesh Ministry of Planning (2012), p. 14.
[32] Bangladesh Ministry of Planning (2012), pp. 62.
[33] See e.g. BIDS and IISD (2012).
[34] Bangladesh Ministry of Power, Energy and Mineral Resources (2008).
[35] The main enacted financial regulators are Bangladesh Bank, the Insurance Development and Regulatory Authority Bangladesh (IDRA) and the Bangladesh Securities and Exchange Commission (BSEC).

their account to receive payments from work or selling goods (Developing South Asia average: 7%), and 2% did so for transfers from the government (Developing South Asia average: 3%). 23% of the adult population had originated a loan from a financial institution in the past year (Developing South Asia average: 9%).[36] Retained earnings continue to be a key source for corporate funding.

Banks are the dominant pillar in the financial system with outstanding credit to the private sector of more than 5.2 trillion Bangladesh Taka (BDT) (67 billion USD) as of November 2014.[37] In comparison, the microfinance sector, as of June 2013, served 33 million clients and accounted for 341 billion BDT (4.4 billion USD) in total outstanding loans.[38] At the same time, in particular in the rural areas, informal funding sources continue to play an import role.

4.1. BANKS AND NON-BANK FINANCIAL INSTITUTIONS

The banking sector consists of 56 scheduled banks which operate under the Bank Company Act of 1991 and which include 5 state-owned commercial banks, 3 government-owned specialized development banks, 39 domestic private banks, and 9 foreign commercial banks. It also comprises 4 non-scheduled banks that were established for specific objectives and operate under dedicated establishment laws. The non-bank financial institutions (FIs) comprise 31 organizations that are regulated under the Financial Institution Act of 1993. In contrast to banks, FIs "cannot issue cheques, pay-orders or demand drafts, cannot receive demand deposits, and cannot be involved in foreign exchange financing." Both, banks and FIs, are regulated by Bangladesh Bank.[39]

Government borrowing constitutes a large part of banking sector assets. After a steady increase since 2013, loans to the government now account for just under 20% of total net credit by commercial banks — similar to the average in South Asia, but about three times higher than the average for low-income countries.[40] The main instruments used by the government to raise funds from the banking sector are treasury bills and treasury bonds. National Savings Certificates provide it with an additional borrowing channel — in particular from non-banking sources.[41]

The bulk of private credit, as of March 2014, was accounted for by loans towards trading activities with a share of 39%, followed by industrial working capital financing

[36] Demirguc-Kunt and Klapper (2012).
[37] Bangladesh Bank (2015a), ("Selected Economic Indicators. Money and Banking").
[38] Microcredit Regulatory Authority (2014).
[39] Bangladesh Bank (2015b).
[40] IMF (2014).
[41] Bangladesh Bank (2015c).

with 18%, industrial term loans with 16.4%, construction loans with 9.5%, agricultural loans with 5.8%, and loans towards transport and communication at 1.3%.[42]

High default rates pose a key challenge to the sector and the financial system as a whole. As of September 2014, the ratio of non-performing loans to total loans stood at 9.7% — up from 8.9% in December 2013[43] and significantly above the 2013 South Asia average of 5.6%.[44] Poor loan decisions as well as several scams — the Hallmark-Sonali bank loan scandal being a prime example[45] — in combination with a "culture of default" and a lack of enforcement of penalties and foreclosures in case of default are at the root of this. The economic disruptions prior to and after the elections in January 2014 have further exacerbated the challenge.[46]

Bank frauds and high default rates continue to subdue confidence in the financial system and "may have made banks somewhat reluctant to lend".[47] They are also judged to be a key driver behind substantial spreads between bank deposit and lending rates — above 5% as of November 2014[48], and thus similar to spreads observed in many low income countries[49]. Market concentration among loan providers for certain sectors, e.g. agriculture, adds to this problem, and — together with high excess reserves on bank balance sheets (see below) — make the banking sector less sensitive to monetary policy changes.[50] Against this background, and with many domestic manufacturers opting for lower cost foreign financing sources, private sector domestic credit growth is below monetary program targets.[51]

4.2. MONEY MARKET

In the overnight call money market short-term funds are lent and borrowed among banks at the call money rate. 15 primary dealers (12 scheduled banks and 3 financial institutions) participate in these transactions.[52] High government borrowing and a slower increase of household savings created liquidity stress in the interbank money market throughout 2011. Stress was reduced in 2012 as credit growth decreased and banks improved their liquidity situation. This trend continued in 2013 and led to a drop of the advances-to-deposit (ADR) ratio from 81% to 71% between end-2012 and end-

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[42] Bangladesh Bank (2014a), p. 11.
[43] Bangladesh Bank (2015g).
[44] World Bank (2014e).
[45] See e.g. Sabet and Ishtiaque (2013).
[46] The fact that similar issues have been on the country's radar screen for several years is highlighted by Younus (2005, p. 2), who identifies three causes for the country's high default rates: "(1) information problems in the form of moral hazard, adverse selection, or monitoring cost of commercial banks in selecting borrowers; (2) the lack of legal actions against defaulters [...]; (3) the government's practice of debt forgiveness which encourages non-payment of debt in Bangladesh."
[47] See IMF (2014), p. 10.
[48] Bangladesh Bank (2015a) ("Selected Economic Indicators. Money and Banking").
[49] World Bank (2015).
[50] See e.g. Christensen (2011).
[51] Bangladesh Bank (2015d), p. 42.
[52] Bangladesh Bank (2015e).

2013.[53] The average call money rate fell from close to 20% in January 2012 to 6.25% in June 2014 and has since increased again to just under 8% in December 2014.[54]

4.3. CAPITAL MARKET

Public and private offerings of securities constitute the primary segment of the Bangladesh capital market. The secondary market comprises two stock exchanges in Dhaka and Chittagong. They are supervised by the Bangladesh Securities and Exchange Commission.

With a capitalisation to GDP ratio of 20% as of December 2014[55], Bangladesh is one of the smallest capital markets in Asia. The bulk of instruments traded on the Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange are shares. Equities remain tarnished following a stock market crash in 1996, as well as a more recent severe boom and bust cycle that initially saw the DSE index increase by 243% between June 2009 and December 5, 2010, and then fall by 53% until end of January 2012.[56] The bursting of the latest bubble coincided with various regulatory measures by the Bangladesh Securities and Exchange Commission and Bangladesh Bank, and led to violent protests as well as hunger strikes by retail investors. It also triggered the establishment of a probe committee that identified market irregularities and manipulation leading up to the crash. Court action against the alleged wrongdoers remains pending and is seen as critical to restore confidence in the market.[57]

Demutualization of the stock market — the change of its legal form from a member-owned entity to a joint stock company — is seen as another important pillar of Bangladesh's capital market development. Based on the Demutualization Act of 2013, the Bangladesh Securities and Exchange Commission approved the demutualization plans for both the Dhaka as well as the Chittagong exchange in September 2013.[58]

The bond market remains thin. The sale of government debt is dominated by primary auctions and a frequently used policy that obliges banks to subscribe ("devolvement"). Auction rates are effectively determined by an auction committee at the central bank. Primary yields are regularly lower than market rates, making it impossible for primary dealers to sell the instruments to other investors without a loss, and thus to create a liquid secondary market.[59] Moreover, corporate debt continues to be largely sourced through bank loans rather than bonds. Insufficient liquidity in the secondary market for

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[53] Bangladesh Bank (2014b).
[54] Bangladesh Bank (2015a) ("Monthly Average Call Money Market Rates").
[55] Bangladesh Bank (2015d), p. 47.
[56] Dhaka Stock Exchange (2015).
[57] See Financial Express (2015).
[58] IMF (2014).
[59] IMF (2013), p. 16. Also see http://www.bangladesh-bank.org/monetaryactivity/treasury.php.

government debt as well as the overall lack of a market for corporate bonds constitute a further impediment for the transmission from short-term policy rates to market rates along the yield curve.[60] Moreover, the limited supply of long-term funding instruments poses particular challenges to close the country's infrastructure gaps.[61]

Against this background, in the words of the central bank itself, "effective transmission of monetary policy requires strengthening credit and debt markets, and this will remain a key focus of BB".[62] The authorities have taken important steps in this direction — including tightening regulations on related lending, strengthening monitoring of banks' stock market exposures, as well as recapitalization of state-owned commercial banks.[63]

4.4. FOREIGN EXCHANGE MARKET

The BDT was declared convertible for current account transactions in 1994. Capital account convertibility, however, remains constrained, as resident-owned capital cannot be freely transferred abroad, and certain sectors are off-limits for foreign investors. Profit repatriation as well as proceeds from capital gains and disinvestments for non-residents is permitted.

The BDT exchange rate was floated in 2003. Since then the rate is determined on the basis of demand and supply of the respective counter currencies. Authorized dealer banks are free to set their own rates for interbank and customer transactions. However, in order to achieve its objectives and avoid undue volatility in the exchange rate, Bangladesh Bank closely monitors the market and, if necessary, engages in market interventions.[64]

5. MONETARY POLICY

5.1. MANDATE AND OBJECTIVES

The "Bangladesh Bank Order, 1972" and the "Bangladesh Bank (Amendment) Act, 2003" define Bangladesh Bank's mandate as follows:

> "[…] to manage the monetary and credit system of Bangladesh with a view to stabilising domestic monetary value and maintaining a competitive external par value of the Bangladesh Taka towards fostering

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[60] See Bhattacharya et al. (2011).
[61] ADB (2013a). Also see Akhtaruzzaman et al. (2009).
[62] Bangladesh Bank (2014a), p. 2.
[63] IMF (2014), p. 18, 22.
[64] Bangladesh Bank (2015e).

growth and development of [the] country's productive resources in the best national interest."

Within this legal context, Bangladesh Bank focuses on "achieving price stability along with moderate inflation while providing sufficient space in its monetary program for domestic credit which supports broad based investment and inclusive growth objectives."[65] In case of trade-offs between these goals, the bank prioritizes growth over inflation as long as the latter remains tolerable.[66] In addition, and in particular under the leadership of its current governor, Dr Atiur Rahman, Bangladesh Bank emphasizes the important role central banks play in pursuing sustainability priorities including poverty alleviation and environmental stability.[67]

The key inflation measure used by Bangladesh Bank is the annual increase in the national Consumer Price Index (CPI). In December 2014, overall inflation stood at 7% down from 7.35% in June 2014 and with food inflation amounting to 7.9% and non-food inflation at 5.6%. For FY2015, the central bank targets an inflation rate of 6.5% and expects output to grow between 6.5-6.8%.[68]

5.2. INTERMEDIATE AND OPERATIONAL TARGETS

Bangladesh Bank follows a monetary targeting strategy with the aim to control the growth of broad money (M2) at a rate that it deems consistent with its objectives for output growth and price stability. It pursues its intermediate target for M2 based on the view that broad money is largely determined by reserve money (RM) through the money multiplier and by setting an operational target for RM growth accordingly. It also sets targets for aggregate credit growth as well as the development of individual credit categories — in particular agricultural and rural credit.[69] In FY2014, annual growth in reserve money and broad money stood at 15.5% and 16.1% respectively. Total domestic credit rose by 11.6%[70] — well below the central bank's target of 17.8% for that period.[71]

The success of monetary targeting depends (i) on the existence of a strong and reliable relationship between objectives (e.g. moderate inflation, high output growth) and intermediate targets (e.g. broad money), (ii) on the capacity of the central bank to steer their intermediate target variables (e.g. broad money) through the operational target

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[65] Bangladesh Bank (2015a), p. 12.
[66] Also see Nguyen, Islam and Ali (2012) who find that, empirically, Bangladesh Bank's monetary policy has been more sensitive to GDP growth than inflation in the long run.
[67] See e.g. Rahman (2013) and Bangladesh Bank (2013a).
[68] Bangladesh Bank (2015a), pp. 8, 17 and 24.
[69] Bangladesh Bank (2014a), p. 11, Bangladesh Bank (2015a), p. 12 and 57.
[70] Bangladesh Bank (2015a) ("Monetary Survey (M2)") and ("Reserve Money and Its Components")
[71] Bangladesh Bank (2014a), p. 9.

variables (e.g. reserve money) that it can influence directly, and (iii) on a stable money demand function.[72] These conditions seem to be met in Bangladesh only partially.

On the one hand, studies suggest that broad money growth in Bangladesh correlates with both output growth and inflation.[73] On the other hand, however, the relationship between reserve money and broad money appears to be unstable. Reserve money growth rates have been similar to M2 growth rates between 2004 and 2008 (correlation of 0.94), but they diverge significantly between 2009 and 2014 (correlation of 0.08).[74] Moreover, while earlier studies find evidence for a stable money demand function[75], the link between interest rates and money demand appears to have weakened in recent years.

5.3. INSTRUMENTS

To reach its reserve money target, Bangladesh Bank controls liquidity in the market on a day-to-day basis using repo and reverse repo auctions, Bangladesh Bank bill auctions, Treasury bill and bond auctions, as well as adaptations in the cash reserve requirement ratio and the statutory liquidity ratio. Bangladesh Bank also intervenes in foreign exchange markets to reduce volatility in the BDT exchange rate to other currencies. In addition, the central bank's toolbox includes targeted refinancing lines and mandatory credit quotas to steer credit allocation in the economy, as well as a variety of regulatory measures to promote financial inclusion, inclusive growth and environmental stability.

Repo and reverse repo auctions

A repo (reverse repo) is a financial transaction, where banks borrow (lend) money from (to) the central bank, usually overnight, at a pre-determined policy rate set by Bangladesh Bank against the collateral face value of government treasury bills and bonds. Repos and reverse repos inject money into respectively withdraw money from the financial system and thus provide banks with more or less funding to manage their short-term exposure. Current repo and reverse repo rates stand at 7.25% and 5.25% respectively.[76]

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[72] Rahman (2014), p. 33.
[73] See e.g. Younus (2009) who finds that broad money shocks have a significant impact on output, Hossain (2010) as well as Afzal and Hossain (2011) who find that broad money Granger-causes inflation, as well as Hossain (2011) who finds that there is bidirectional causality between broad money and growth. Also see Nguyen, Islam and Ali (2012) who find that Bangladesh Bank's countercyclical policy has been ineffective to influence output in the short run, but not in the long run in the period from 1973 to 2007.
[74] CEP calculation based on Bangladesh Bank (2015a) data. See also Ali and Islam (2010) who based on earlier data until 2003 find evidence that narrow money (M1) is partially determined by base money. However, they also identify remittances and aid as important factors.
[75] See e.g. Ahmed (2007), Hossain and Younus (2008) and Hossain (2010).
[76] Bangladesh Bank (2015a), p. 18.

Bangladesh Bank bill auctions

Bangladesh Bank bills are mainly used to sterilize the impact of foreign exchange purchases. They have a maturity of 30 days. Interest paid by Bangladesh Bank on these instruments currently amounts to 5.25%[77] and, as is the case for reverse repos as underlined in its July monetary policy statement, constitutes a cost for the central bank.[78]

Treasury bills and bonds auctions

Treasury bills and bonds are short-term and long-term obligations issued by Bangladesh Bank on behalf of the Government of Bangladesh. The objectives of issuing these securities are twofold: (i) to finance the government deficit and (ii) to reduce excess liquidity in the market. The different maturities of treasury bills are 3 months, 6 months and one year. Maturities of the treasury bonds are 2 years, 5 years, 10 years, 15 years and 20 years.

Cash reserve requirement ratio and statutory liquidity ratio

Bangladesh Bank also pursues its monetary policy objectives through changes in the cash reserve requirement ratio and/or the statutory liquidity ratio. By amending these ratios, the central bank requires banks to maintain more or less liquidity to cover their total demand and term liabilities to customers. It thus changes the cost for making loans as they have to be financed by more or less liquidity, and thus the incentives for banks to expand or constrain their loan portfolios. In June 2014, Bangladesh Bank increased the cash reserve requirement ratio from 6% to 6.5%.[79]

Exchange rate interventions and reserves

To reduce volatility in the exchange rate of the BDT to other currencies, Bangladesh Bank also intervenes in foreign exchange markets. It does so by purchasing or selling foreign currencies in the domestic market. In FY2014, its purchases amounted to more than 5 billion USD[80] and kept monthly average exchange rates of the BDT to the USD in a narrow band between 77.63 and 77.75. As a result, total foreign exchange reserves increased steadily and stood at over 22 billion USD as of December 2014[81] — forcing Bangladesh Bank to increase its sterilization efforts to offset the monetary expansion effects of its interventions.[82]

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[77] Bangladesh Bank (2015f).
[78] Bangladesh Bank (2014a), p. 2.
[79] Bangladesh Bank (2014a), p. 2.
[80] Bangladesh Bank (2014a), p. 6.
[81] Bangladesh Bank (2015a) ("Selected Economic Indicators. Inflation, Production Index, Foreign Trade, Forex Reserves and Exchange Rates").
[82] See Begum (2014).

Targeted refinancing lines

With a targeted refinancing line, Bangladesh Bank offers commercial banks to refund themselves at reduced interest rates for loans given to priority segments of the economy. In contrast to outright subsidies, they rely on the private sector as a gatekeeper in the allocation of capital. The default risk remains with the banking sector.

Bangladesh Bank offers such refunding schemes for a variety of sectors and segments of the economy. The Export Development Fund (EDF) is a case in point. It provides USD refunding at reduced interest rates to financial institutions who provide USD loans for import materials to certain export-manufacturers. Since its launch in 1989, capacity of the EDF has grown to 1.5 billion USD and the number of eligible sectors has been expanded.[83] Moreover, in 2014, Bangladesh Bank increased the maximum loan to a single borrower for various sectors: from 12 to 15 million USD for members of the Bangladesh Textile Mills Association (BTMA), the Bangladesh Garment Manufactures & Exporters Association (BGMEA) and the Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA) as of June 2014; from 1 to 2 million USD for members of the Bangladesh Garments Accessories & Packaging Manufacturers & Exporters Association (BGAPMEA) as of July 2014, and from 500'000 USD to 1 million USD for members of the Bangladesh Plastic Goods Manufacturers and Exporters Association (BPGMEA) as of September 2014.[84] Interest rates charged to exporters by commercial banks who make use of the scheme may not exceed the 6 months USD London Bank Offered Rate (LIBOR) + 2.5%. Refunding for the banks is made available to them by Bangladesh Bank at the 6 months USD LIBOR +0.5%.[85]

Bangladesh Bank also provides a 2 billion BDT (25 million USD) refinancing line to promote green finance. Launched in 2009 with an initial focus on solar energy, biogas, and effluent treatment projects, the scope of the scheme has continuously been expanded and now covers 47 items. Bank loans for projects in these fields can be refinanced by Bangladesh Bank at 5% provided that the interest charged to bank customers does not exceed 9%.[86]

In addition, in February 2015, Bangladesh Bank announced its intention to create a new longer term refinance window to provide 500 million USD of funding of which 200 million USD will be allocated specifically for green initiatives including water and energy use efficiency measures in the textiles industry.[87]

Further examples for this instrument include refunding schemes targeted at small and medium sized enterprises, women, new entrepreneurs, as well as — launched in August

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[83] Bangladesh Business News (2014), Bangladesh Bank (2014b), Bangladesh Bank (2014f).
[84] See Bangladesh Bank (2014c), Bangladesh Bank (2014d), Bangladesh Bank (2014e).
[85] Bangladesh Bank (2013b).
[86] benbd (2014), Dhaka Tribune (2015), and personal correspondence with Bangladesh Bank.
[87] Dhaka Tribune (2015), and personal correspondence with Bangladesh Bank.

2014 — the jute sector. A list of targeted Bangladesh Bank refinancing lines is provided below.

Table 1: Bangladesh Bank targeted refinancing lines as of September 2014[88]

Name	Launch	Capacity (in million USD)	Cumulative Disbursements (in million USD)	Outstanding (in million USD)	Funding
Export Development Fund	1989	1'500			Bangladesh Bank
Agro Fund	Nov 2001	51	69	40	Bangladesh Bank
Enterprise Growth & Bank Modernization Fund	2004	15	40	1	IDA
Small Enterprise Fund	May 2004	76			Bangladesh Bank
→ General			154	8	
→ Women			113	62	
Credit Program for Sharecroppers (with BRAC)	Sep 2009	63	181	54	Bangladesh Bank
Small and Medium-Sized Enterprise Development Project (SMEDP)	Oct 2009	95	94	54	Asian Development Bank (ADB) and Bangladesh Bank
Refinancing Scheme for Renewable Energy and Green Financing	Aug 2009	25	20	11	Bangladesh Bank
Financial Sector Development for Small and Medium Sized Enterprises (FSPDSME)	May 2011	46	28	24	Japan International Cooperation Agency (JICA)
Financing Brick Kiln Efficiency Improvement Project Fund	Jun 2012	50	10	9	ADB
New Entrepreneurs Fund	Aug 2014	13	-	-	Bangladesh Bank
Jute Sector Fund	Aug 2014	25	-	-	Bangladesh Bank

Mandatory credit quotas and maximum debt-equity-ratios

Further instruments used by Bangladesh Bank in its regulatory capacity include mandatory credit quotas as well as maximum debt-to-equity-ratios. In particular, the central bank encourages commercial banks to give at least 2.5% of total loans to the agricultural sector.[89] In addition, in September 2014, Bangladesh Bank announced that as of 2015 most financial institutions and as of 2016 every financial institution will be obliged to allocate at least 5% of its loan portfolio to green finance. Whether banks

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[88] Bangladesh Bank (2013a), Dhaka Tribune (2014d), Dhaka Tribune (2014e) and personal correspondence with Bangladesh Bank.
[89] Dhaka Tribune (2014f).

reach this target or not will be reflected in their CAMELS ratings — a review of a bank's overall condition.[90]

Moreover, Bangladesh Bank is enforcing differentiated ceilings on loan growth (e.g. for state-owned banks varying according to bank performance indicators), maximum loan sizes (e.g. a single party ceiling of 15 million USD for garment manufacturers in its Export Development Fund), as well as maximum debt-to-equity ratios (e.g. a 50-50 debt-equity ratio for car loans).[91]

Branch ratios, agent banking, basic accounts, and mobile financial services

Finally, Bangladesh Bank has taken various measures to promote financial inclusion. Together with the country's Microcredit Regulatory Authority and the Ministry of Finance, it is a member in the Alliance for Financial Inclusion — a "global network of financial policymakers from developing and emerging countries working together to increase access to appropriate financial services for the poor."[92]

A mandatory ratio between new bank branches in rural and urban areas of 1:1 (1:4 prior to 2012) is among the instruments the central bank has been using to pursue this objective — in particular to provide financial access to the rural poor.[93]

Bangladesh Bank's guidelines for agent banking, also referred to as "branchless banking", that were introduced at the end of 2013 are designed to provide further impetus in that direction. The rules allow banks to engage agents to deliver basic banking services on their behalf outside of bank branches — including the collection of small amounts of deposits and processing of cash withdrawals, handling inward remittances as well as small value loan disbursements, and receipt of loan applications.[94]

The promotion of so-called "10 Taka accounts", bank accounts that can be opened with the deposit of 10 BDT (0.13 USD), is an additional case in point. The scheme was originally launched in 2010 by instructing state-owned banks to provide 10 Taka account options to farmers and thus to allow for bank transfers of government subsidies for fertilizer, electricity and diesel.[95] Bangladesh Bank subsequently expanded the list of potential holders of such accounts to include beneficiaries of social security programs, freedom fighters, micro insurance policy holders, readymade garments workers and others. For some beneficiary groups it also expanded the scheme to cover private banks.[96] No minimum balance is mandatory for these accounts and no fees or

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[90] Financial Express (2014).
[91] IMF (2014), Bangladesh Bank (2014i), Dhaka Tribune (2014g).
[92] AFI (2014).
[93] Bangladesh Bank (2014a), p. 13.
[94] Dhaka Tribune (2013), The Daily Star (2014a).
[95] Rahman (2013).
[96] Iqbal (2014).

charges are applied.[97] Since their introduction until November 2014 more than 14.7 million of these "no-frills accounts" have been opened.[98]

The "Guidelines on Mobile Financial Services (MFS) for the Banks" provide a final example for the central bank's support of financial inclusion. Released in 2011 they define the development of MFS, i.e. banking services through mobile wireless networks, to be exclusively bank-led. The maximum amount for MFS transactions is capped by Bangladesh Bank at 10'000 BDT per day, and 25'000 BDT per month.[99] As of December 2014, 28 banks had been permitted to operate mobile financial services, 19 had started their offering in this space, and over 25 million MFS accounts were opened.[100]

5.4. TRANSMISSION CHANNELS

Monetary policy influences the real economy through different *transmission channels*. The main ones are: the interest rate channel, the exchange rate channel, the asset price channel, and the credit channel — with the latter being divided into the bank lending channel and the balance sheet channel.[101]

Interest rate channel

Central banks use the interest rate channel to stimulate or restrain the demand for investments by firms and durable goods consumption by households. If the central bank pursues an expansive monetary policy, it uses its instruments to decrease short-term nominal interest rates. In an efficient financial system, a lower short-term rate will decrease the longer-term end of the yield curve, as investors arbitrage away differences in risk-adjusted returns on debt instruments of various maturities. Since prices are slow to adjust, this translates into a decrease in real long-term interest rates. As real borrowing costs decrease, firms and households increase their expenditures in investments and durable goods, inducing an increase in aggregate demand.

For the interest rate channel to work, three conditions have to be met: (i) the central bank must be able to influence short-term nominal interest rates, (ii) the financial system has to be efficient to adjust long-term nominal interest rates accordingly, and (iii) firms and households' investment and durable goods consumption must react to real interest rate changes. Several market frictions indicate that these conditions may not be met in Bangladesh.

Shahiduzzaman and Naser (2007) show that Bangladesh Bank is able to influence the call money rate, i.e. a short-term interest rate, by steering reserves, as well as repo and

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[97] Rahman (2013).
[98] Rahman (2015).
[99] Bangladesh Bank (2014h).
[100] Rahman (2015).
[101] Ireland (2006).

reverse repo volumes. However, Masuduzzaman, Rahman and Ahammed (2013) provide evidence that the call money rate is not the main reference for the market. Instead, they identify bank deposit rates as the rates around which other rates adjust. Moreover, they show that the bank deposit rates and the call money rate do not converge in the long term. They also find that other short-term interest rates only adjust very slowly to changes in the bank deposit rates or even do not adjust at all. For example, deposit rates at non-bank financial institutions only adapt to the bank deposit rate at the rate of 15% per quarter. Treasury bill rates do not converge toward it either — providing further evidence for the frictions that remain in the financial market even after its liberalisation in 1990 with the Financial Sector Reform Program.[102]

In addition, Bangladesh lacks a sizeable and liquid long-term bond market. Such a market is essential for firms' long-term financing and thus for their investment decisions, which is what central banks try to affect through the interest rate channel. Without an established benchmark for long-term rates, it is doubtful that market mechanisms efficiently transmit monetary policy signals from short to long-term rates.

Exchange rate channel

By influencing exchange rates, directly through interventions or indirectly through interest rates, Bangladesh Bank can also seek an impact on the real economy through the exchange rate channel. When domestic nominal interest rates rise more than their foreign counterparts, equilibrium in the foreign exchange market requires that the domestic currency gradually depreciates so that the ratio between the returns on investments in domestic currency and foreign currency remain unchanged (as stipulated by the uncovered interest rate parity). The expected future depreciation leads to an initial appreciation of the domestic currency. When prices are slow to adjust, this makes domestically produced goods more expensive than foreign-produced goods. As a result, net exports, and domestic output, fall.[103]

Asset price channel

Moreover, monetary policy can have an impact on output through the relationship between asset prices and the investments of firms as well as the consumption of households.[104] All else being equal, an increase in the short-term nominal interest rate induced by the central bank makes debt instruments more attractive than equities. Equilibrium across securities markets is re-established through a fall in equity prices. This makes investments more costly for firms as they have to issue more shares to raise

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[102] One further example in this context is the interest rate for National Saving Directorate instruments, which is set by the government and currently stands at 13.2% — significantly above the rate paid by commercial banks for deposits. Bangladesh Bank (2015a).
[103] Ireland (2006).
[104] This has been highlighted by Tobin (1969) with his *q*-theory for firms' investments and by Ando and Modiglani (1963) with their life-cycle theory of consumption for households' consumption.

equity for new projects. In addition, households' wealth declines, causing less consumption. Both effects lead to a fall in demand.[105]

In that context, several studies find an empirical link between monetary policy and stock prices in Bangladesh. Ahmed, Akhtaruzzaman and Barua (2006) provide evidence that an increase in the short-term policy interest rate has a small negative effect on the stock price index. The impact, however, is short-lived. Afzal and Hossain (2011) report a long-run causality from M1 and M2 to the stock market. Afroze (2013) finds that the DSE index is correlated with broad money, cash reserve requirement balances and total reserve requirement balances over the period 2006-2010. Saidjada, Hossain and Rahman (2014) find a negative long-run relationship between stock prices and the Treasury bill rate, but no long-run relationship with broad money or reserve money over the period 1999-2012.

Credit channel

The credit channel theory is based on the premise that, when there are frictions in financial markets, funds raised externally by a bank are more costly than funds raised internally (e.g. through retained earnings), i.e. there is an external finance premium.[106] According to the credit channel theory, monetary policy does not only influence the general level of interest rates but also the size of the external finance premium. Two mechanisms have been suggested to explain this: the balance sheet channel and the bank lending channel.[107]

The **balance sheet channel** is based on the theoretical prediction that the external finance premium depends on the borrower's net worth. A greater net worth allows the borrower to post more collateral to guarantee issued liabilities, and thus decrease the external finance premium. The balance sheet channel arises because monetary policy does not only affect interest rates but also the financial position of borrowers. It does so directly by influencing borrowers' balance sheets in two ways: (i) when a borrower has outstanding short term or floating-rate debt, a higher interest rate increases her interest expenses, thus reduces net cash flows and deteriorates the borrower's financial position; (ii) rising interest rates are typically associated with a decrease in asset prices, which shrinks the value of the borrower's collateral. Monetary policy also reduces net cash flows and collateral indirectly because a monetary policy tightening reduces aggregate demand faced by firms in the short-term and thus erodes firms' net worth.

In addition, monetary policy affects the external finance premium faced by borrowers by changing the supply of reserves available to banks, which generates the **bank lending channel**. Reserves constitute a source of funds for banks that they can use, among

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[105] Ireland (2006).
[106] Bernanke and Gertler (1995).
[107] See Ireland (2006) for a description of the balance sheet and the bank lending channels.

other liabilities, to finance their loans. If the central bank shrinks the amount of reserves available to banks, the latter will need to turn to other sources of loanable funds to finance their loans. If the supply of alternative loanable funds is inelastic, then banks will either reduce their loan portfolio or increase their loan rates or both. This, in turn, decreases output.

Research on the credit channel is scarce for Bangladesh. To our knowledge, only Younus (2005) examines this transmission channel, and provides indication that it does play a role in the country's monetary policy transmission.

6. BANGLADESH BANK AND SUSTAINABILITY

To evaluate the impact of Bangladesh Bank's objectives, targets and instruments on the country's broader sustainability priorities further research will be needed. The text below provides suggestions for questions to ask in this context as well as initial insights to answer them.

6.1. REFLECTING SUSTAINABILITY PRIORITIES IN MONETARY TARGETS

Bangladesh Bank publishes goals for inflation as well as money and credit growth every six months. Its targets are mainly set on the basis of GDP growth projections including the ones from the government's medium term (3-year) macroeconomic framework (MTMF). The inflation target also depends on recent inflation history, current price developments, and on unfolding domestic and external shocks. Broader sustainability issues like poverty reduction, job creation, inequality or long-term investment in sustainable technologies do not seem to explicitly enter into the target setting process for these aggregate variables.

Inflation, growth and poverty

At the same time, Bangladesh Bank emphasizes growth in its target setting and thus a factor that is widely considered key to poverty reduction.[108] Moreover, there is strong evidence that inflation has a non-linear impact on growth.[109] Inflation is positively linked with growth until a given threshold before becoming negatively correlated. The inflation threshold for which growth is maximized is estimated to be around 10% (by Espinoza, Leon and Prasad, 2012) for a sample of 165 economies or slightly above (11-12% by Khan and Senhadji, 2001) for developing countries. Younus (2012) estimates this threshold at about 7-8% for the case of Bangladesh.

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[108] See e.g. Kraay (2006).
[109] See, e.g., Khan and Senhadji, 2001, López-Villavicencio and Mignon, 2011, or Espinoza, Leon and Prasad, 2012.

The present objective of Bangladesh Bank is to bring inflation down to 6.5%.[110] This target is higher than the traditional 2% targeted in most developed countries, but it is below the growth maximizing threshold identified in the literature. This is not to imply that the central bank's inflation target should be higher, but merely to state that there may be arguments for an increase and that a deeper analysis on the factors driving target setting may be of interest.

In that context, it may also be appropriate to further explore the links between inflation, growth and poverty on a disaggregated level. The national CPI in Bangladesh is currently calculated as the weighted average of rural (70.9%) and urban (29.1%) CPI. Both figures, in turn, are weighted averages of food and non-food inflation.[111] As a result, in addition to the national average, Bangladesh Bank reports both rural and urban CPI, as well as national non-food and food CPI. Further research into the links between these disaggregate measures as well as growth and poverty reduction would be an important contribution to the understanding of the monetary policy-sustainability nexus.

Moreover, analysis based on a disaggregation of inflation figures along income classes — in particular for the poor — may provide further important insights. Research suggests that the CPI and the cost of meeting basic needs among Bangladesh's poor diverge significantly.[112] Bangladesh Bank is already reporting on different inflation figures between urban and rural areas. It could explore complementing this granularity with additional data that captures inflation as experienced by the poor.

Inflation, asset prices and income inequality

In addition to the links between inflation and growth, several studies also show a link between inflation and inequality. Empirical evidence supports the hypothesis that inflation and income inequality are linked by a U-shape function.[113] Under a certain inflation threshold, rising inflation is linked with falling income inequality; after this threshold, higher inflation correlates with increasing income inequality. Monnin (2014) estimates this threshold to be around 13% in OECD countries. Galli and van der Hoeven (2001) identify a treshold between 7% and 8% in the United States, and between 12% and 13% for OECD countries.

For Bangladesh, we estimate a threshold at 6.3% based on inflation and income inequality data from 1987 until 2010. The current inflation target of 6.5% is thus almost the inflation rate for which income inequality is minimized.

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[110] Bangladesh Bank (2015a), p. 17.
[111] Giménez & Jolliffe (2014), pp. 61.
[112] Giménez & Jolliffe (2014).
[113] Galli and van der Hoeven (2001), Bulìr (2001), Auda (2010) and Monnin (2014).

Furthermore, an expansive monetary policy may also lead to an increase in asset prices. As equities and other assets are usually owned by the wealthier segments of the population, an increase in their prices will tend to raise wealth inequality. In that context, as discussed in section 5.4, various studies identify a link between broad money and stock prices in Bangladesh. Thus, Bangladesh Bank's monetary policy stance might, at least partly, influence stock prices and thus wealth inequality.

Credit growth and job creation

Moreover, while Bangladesh Bank's overall goal with regard to credit growth focuses on aggregate levels, the central bank does set targets for credit developments for disaggregated categories. In particular, Bangladesh Bank sets an annual goal for agricultural and SME credit growth — credit aggregates that it sees as particularly linked with job creation.

6.2. AFFECTING GREEN INVESTMENTS THROUGH INTEREST RATES

To the extent Bangladesh Bank is able to steer market interest rates, it may also have an effect on the level of green investments. The interest rates the central bank defines for its repo and reverse repo operations, the interest rate paid on Bangladesh Bills as well as the other instruments described above potentially affect market interest rates and thus investments.

In that context, the level of interest rates may also be an important factor in shifting the balance of investments towards green products and services. In fact, empirical evidence suggests that green investments are more sensitive to interest rate changes than other investments. A study on 35 advanced and emerging countries over 2000-2010 estimates that green investment declines by about 10% when the real interest rate increases by 1 percentage point. This contrasts with the empirical literature on business investments in general, which finds real interest rates to have a relatively low impact on investments. An explanation for the different responses may lie in the fact that green investments will often have a higher share of costs upfront and a lower share in running costs thereafter. The higher the interest rate, the more this advantage in terms of future running costs will be discounted and thus the less good green investments look compared to other alternatives.[114] To answer the question whether such a mechanism may indeed also be at work in Bangladesh would require further research.

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[114] Eyraud et al. (2013).

6.3. PURSUING SOCIAL AND ENVIRONMENTAL GOALS THROUGH TARGETED REFINANCING LINES

In addition to the possible effects of the overall interest rate level on sustainability, differentiated interest rates may also have an important impact. In that context, targeted refinancing lines are a tool that is extensively used by Bangladesh Bank (see section 5.3).

Opinions about this instrument among experts in Bangladesh are mixed. Some see it as an important driver to pursue key objectives such as poverty alleviation, job creation, and food security. They argue that it helps overcome market failures and plays a significant role in making banks aware of new markets and new customers. They also point to the important difference between targeted refinancing lines and subsidies: the former involve the banking sector and the latter do not. This is particularly important for two reasons. First, in the case of subsidies, the initiative for a disbursement comes from a public institution. In the context of refinancing lines, commercial banks are the ones that decide whether to provide a loan or not. They normally do so after concluding that a loan is economically sustainable at the discounted rate. In contrast, subsidies are more likely to be granted on a non-economic basis.

Second, banks must know their customers and thus acquire knowledge about the market targeted by the new refinancing line. The discounted rate offered through these lines promotes research on the targeted market and gives an incentive to banks to spot possible loan opportunities. Refinancing lines thus fulfil an important function in building up new markets. Establishing an initial banking relationship is a key factor for stable financing of firms and households. Having a strong relationship with a bank allows borrowers to get lower rates, less collateral requirements and larger loans.[115] In that context, some experts suggest that refinancing lines should be temporary and stopped once markets have been built. At the same time, they underscore that the maturity of funding provided through these lines needs to match the maturity of the commercial loans they seek to support.

Others fear that the growing use of such targeted refinancing lines opens risks for rent-seeking. The fact that the list of Bangladesh Bank's refinancing lines continues to grow and now includes a variety of sectors and market segments covering agriculture, women, new entrepreneurs, a growing list of green products, and the jute industry[116] underlines their concerns. They also point to the risk that funds from these refinancing lines are not used for their intended purpose and underline the need for Bangladesh Bank to increase monitoring and evaluation for these instruments. Working through focused banks, e.g. a green bank that funds green investments, may help to mitigate

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[115] See e.g. Degryse, Kim and Ongena (2009).
[116] Dhaka Tribune (2014a).

this risk. Moreover, some warn that the management of these lines takes up management capacity from the central bank and thus reduces its ability to pursue its other tasks including banking regulation.

In that context, the question is raised whether other institutions — such as, in the case of agricultural lending, dedicated state owned lending institutions that report to the ministry of agriculture — would be better suited to support specific segments of the economy rather than Bangladesh Bank. Several aspects may provide an argument against this view: the central bank has in-depth knowledge of the financial sector and thus may be particularly well positioned to work through the banks. In addition, the central bank is an institution with which banks are used to deal. The involvement of another government body would require banks to build new relationships. Having a single counterpart within the government may be the preferred option for banks compared to dealing with several institutions.

At the same time, it should be borne in mind, that the availability of discounted refunding does not automatically make loans in the targeted sector profitable for commercial banks. Whether that is the case or not depends on the margin that the bank is left with after accounting for all its expenses, including transactions costs and the risk of default. To what extent this margin is changed by a targeted refunding line is determined by the size of the discount, as well as the maximum commercial rate allowed under the scheme. In the case of Bangladesh, many of the discounted refunding offers by Bangladesh Bank provide refinancing at the bank rate of 5%.[117] Whether the difference between this rate and the current money market call rate of 7.9%[118] is enough to induce a shift in lending will depend on many other factors that drive loan profitability in the targeted sector.[119]

Refinancing lines, pro-poor growth and inequality reduction

The debate of pros and cons of targeted refinancing lines notwithstanding, a transparent decision-making process based on a clear set of criteria for the selection of appropriate segments of the economy that are to be covered by such schemes is critical. The same holds true for the alignment of such criteria with the country's sustainability priorities.

In that context, Loayza and Raddatz (2010) show that "not only the size of economic growth, but also its composition matters for reducing poverty". They find evidence that growth in unskilled-labour intensive sectors, including agriculture, is the largest contributor to poverty reduction.

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[117] Bangladesh Bank (2015a) ("Bank Rate and Interest Rate Structure").
[118] Bangladesh Bank (2015a) ("Monthly Average Call Money Market Rates").
[119] The fact that refunding at lower costs is not necessarily taken up by commercial banks as much as central banks may aim for was also reflected last year in the rather muted take-up of refunding in the first two auctions of the Targeted Longer Term Refinancing Operation (TLTRO) program of the European Central Bank. See Merler (2014a) and Merler (2014b).

Moreover, when a central bank injects money in the economy, it does so by buying or borrowing a specific asset. The owner of this asset is the first to receive the new money, which then spreads to the rest of the economy through transactions between agents (Cantillon effect). Williamson (2008) and Ledoit (2011) have shown that inequality between the agents receiving the initial money injection and the ones receiving it later through transactions increases in the short-run. By targeting a specific population for its money injections, the central bank can influence the income of this group relative to the rest of the population, and thus at least temporarily modify inequality levels.

By opening refinancing lines dedicated to agriculture, Bangladesh Bank targets a key sector for poverty reduction. It may also temporarily reduce inequality between farmers and the rest of the population. In that context, it is interesting to note that Bangladesh Bank used an institution specialized in micro-finance (BRAC) as a partner in its refinancing line for sharecroppers. By choosing an institution which is well-known to work directly with the poorest and remotest parts of the population, Bangladesh Bank may have taken an important step towards injecting money directly to those most in need. By September 2014, the number of sharecroppers who had benefitted from the scheme stood at over 900'000.[120]

Refinancing lines and energy transition

In addition, Bangladesh Bank's refinancing line for renewable energy and green finance is designed to provide support for the country's energy goals. Sustainable energy investments typically require long-term funding. In the case of Bangladesh, the absence of a mature bond market and the fact that banks usually do not provide loans for maturities longer than 5 to 7 years suggest that such funding is not efficiently provided. Refinancing lines can help in overcoming this shortfall, if the preferred rate allows long-term economically viable projects to be also economically profitable in the shorter-term (i.e. by reducing the time needed to reimburse the loan). Providing financing access in USD for energy transition projects, as proposed with the new 500 million USD refinancing line in February 2015, offers further support.

Eligibility and sustainability criteria

While the choice of appropriate sectors and segments of the economy is at the heart of the design of a refinancing line, there may be further criteria that define eligibility within the covered sectors. Aligning these criteria with a broad sustainability agenda may offer interesting opportunities. The idea to add certain sustainability criteria to the eligibility criteria for companies that take out loans under the Export Development Fund, and the announcement in February 2015 of a new refinancing line to fund energy efficiency measures in the textiles industry are examples in this context.

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[120] Bangladesh Bank (2014g).

6.4. ALIGNING CREDIT QUOTAS, CEILINGS AND RATIOS WITH SUSTAINABILITY OBJECTIVES

Mandatory credit quotas and moral suasion have been used by Bangladesh Bank in particular to increase lending to agriculture and rural areas as well as towards green finance. In addition, the central bank applies a variety of ceilings on loan growth, maximum loan sizes as well as debt-to-equity ratios. Reflecting sustainability criteria when determining these variables is key. In some cases, e.g. the new minimum loan quota for green finance that will become effective in 2015, the links are explicit. Other regulations may not yet be discussed from a sustainability perspective, but are not less important in this context. The recent decision by Bangladesh Bank to increase the maximum loan size as well as the maximum debt-to-equity ratio for car loans is an example in that regard. A comprehensive review of credit quotas, ceilings and ratios regarding their alignment with sustainability objectives, would provide important insights.

6.5. FOSTERING FINANCIAL INCLUSION TO REDUCE POVERTY AND INCOME INEQUALITY

The goal of Bangladesh Bank to expand financial inclusion — "the proportion of individuals and firms that use financial services"[121] — is very much aligned with wide support for financial development among international and national institutions. The G20 made it one of its pillars at the 2009 Pittsburgh Summit.[122] IMF Managing Director Christine Lagarde sees financial inclusion as "a powerful agent for strong and inclusive growth".[123] And the World Bank is convinced that "increasing financial inclusion in terms of savings and payments, if done well, can both help reduce extreme poverty and boost shared prosperity."[124]

The positive link between financial inclusion and poverty alleviation is well documented. A review of the theoretical and empirical literature in the most recent *Global Financial Development Report* of the World Bank finds especially strong evidence that access to savings accounts and automated payments reduces poverty. The evidence is weaker when it comes to access to credit. Nonetheless, improved availability of funds for small and medium enterprises, as well as for new entrepreneurs, is likely to have significant growth benefits. At the same time, the World Bank also warns that access to credit for the poor can have negative effects in terms of excessive debt growth and should

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[121] World Bank (2014h), p. 14.
[122] G20 (2009), Statement 41: "We commit to improving access to financial services for the poor. We have agreed to support the safe and sound spread of new modes of financial service delivery capable of reaching the poor and, building on the example of micro finance, will scale up the successful models of small and medium-sized enterprise (SME) financing."
[123] Lagarde (2014).
[124] World Bank (2014h).

therefore be promoted responsibly. Its *Global Financial Development Report* stresses that "financial inclusion does not mean credit for all at all costs."[125]

In that context, a World Bank study in 2013 showed that about 26% of microcredit borrowers in Bangladesh have a debt level that exceeds 40% of their income, which is typically defined as being over-indebted. 22% of non-microcredit borrowers are in the same situation. However, the same study shows that, in the long term, repeated borrowing enables microcredit customers to raise their assets more than debt over time. Against this background, the authors conclude that microcredit borrowers in Bangladesh are not necessarily over-indebted.[126]

For the link between financial inclusion and inequality, the empirical evidence is mixed: some studies find that higher financial inclusion is correlated with lower income inequality, others find the opposite. Recent studies point to a nonlinear relation with income inequality increasing as financial inclusion rises and then, after reaching a certain threshold, decreasing as financial inclusion expands further.[127] Kim and Lin (2014) estimate this threshold for several financial development indicators. For their main indicator — total claims on the private sector by deposit money banks as a share of GDP — they find that income inequality increases with financial development until claims on the private sector by deposit money banks reach 18% of GDP[128] and then decreases. The current level of this indicator for Bangladesh is 39% of GDP[129], which means that the country has passed the threshold and that increasing financial development further is likely to reduce income inequality.

Bangladesh Bank has taken various steps to expand financial inclusion. Its support has coincided with significant increases in key indicators for financial development. Between end-2009 and end-2013, the number of bank branches per 1'000 square km rose from 48.1 to 58.9, the number of branches per 100'000 inhabitants went up from 5.1 to 5.7, and the share in the population above 15 years with a deposit account expanded from 26.7% to 41.3%.[130] In comparison, the average share of the population above 15 years holding an account in 2011 was 33.0% in South Asian countries, 23.7% in low income countries, and 28.4% in lower middle income countries.[131]

The requirement for banks to open a rural branch for every new urban branch may have supported this development. A similar, even stricter, policy was followed by India starting in 1977 when the Indian central bank announced a new licensing policy that

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[125] World Bank (2014h), p. 14.
[126] Khandker, Faruqee and Samad (2013).
[127] Kim and Lin (2014).
[128] Kim and Lin (2014) find a threshold of 2.8846 for the *log* of the total claims on the private sector by deposit money banks as a share of GDP, which corresponds to a 18% threshold.
[129] Bangladesh Bank (2015a) ("Monetary Survey (M2)") ("GDP of Bangladesh at Current Market Price").
[130] Bangladesh Bank (2014g).
[131] World Bank (2014i).

required banks to open four branches in unbanked areas for every new branch in an area that was already covered with banking services. The policy was changed again in 1990. Empirical research shows that branch expansion in rural India between 1977 and 1990 was indeed relatively higher in financially less developed states.[132] At the same time, in Bangladesh, several new banks have recently argued that they need to establish themselves faster in urban rather than rural areas, and have urged the central bank to reduce the ratio between rural and urban branches required by them.[133]

Moreover, since their introduction in 2010 until November 2014, more than 14.7 million 10 Taka accounts have been opened.[134] The requirement to offer such accounts is also applied to banks by other countries. In the US, various states demand from banks to offer consumers a low-fee bank account.[135] Similarly, the EU adopted a directive in 2014 to guarantee access to a basic bank account across the EU. Member states have two years to translate it into national laws.[136] To what extent these accounts are not only opened, but also used, remains a separate issue for analysis. In Bangladesh, some estimates show that fewer than 4% of the holders of these accounts make regular transactions through them.[137]

6.6. INTEGRATING SUSTAINABILITY CRITERIA INTO RESERVES MANAGEMENT

As Bangladesh Bank's foreign exchange reserves continue to grow, the question to what extent these reserves can and should be invested not only in bonds, but also into international equities as well as domestic infrastructure projects, is moving up the agenda. In that context, making sustainability criteria part of a possible diversification strategy for the investment of the central bank's reserves offers interesting opportunities. The possible integration of long-term environmental, social and governance criteria into a portfolio of international equities that Bangladesh Bank may want to invest into, and the reflection of sustainability objectives in the choice of infrastructure projects that the central bank may be providing capital to, are key aspects in this context.

6.7. UNDERSTANDING FEEDBACK LOOPS

The reflection of sustainability priorities in the definition and pursuit of monetary targets is critical in two ways. On the one hand, as described above, monetary policy

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[132] Burgess and Pande (2005).
[133] The Daily Star (2014b).
[134] Rahman (2015).
[135] See e.g. New York State Department of Financial Services (2014).
[136] European Commission (2014).
[137] Iqbal (2014).

may have important effects on a country's sustainability goals. On the other hand, sustainability developments may have critical impacts on core monetary policy targets. Bangladesh Bank's focus on both the traditional objectives of price stability and growth alongside a broader sustainability agenda may thus allow for effective and positive feedback loops.

Take food security and inflation as an example. While the prices of imported food items are determined on international markets, the price for food produced and consumed within a country will be affected by domestic supply and demand. A decrease in the volatility of domestic food supplies may be an important factor in decreasing food price volatility and thus the volatility in the overall price level. Moreover, an expansion of domestic food production may allow a country to reduce its food imports and thus become less exposed to price swings in international agricultural commodity markets. Against this background, measures taken by Bangladesh Bank to expand rural and agricultural credit may not only support poverty reduction and increase food security, but may also make an important contribution towards more stable inflation rates. The example of China where the loss of farmland and farm labor to urbanization is understood to be a key driver for food inflation provides a case in point for the opposite dynamic.[138]

A similar mechanism can potentially be at play with regard to energy. An increase in the share of renewable energy and a resulting decrease in energy imports would reduce Bangladesh's exposure to international energy prices. In this context, measures by the central bank to promote renewable energy may eventually also support price stability. This is unlikely to be the case at the current scale of renewable energy investments in Bangladesh and the current scope of Bangladesh Bank's support for the sector. But the mechanism could potentially be an interesting one and the rationale for renewable energy investments may in fact also include their contribution towards stable inflation rates.

In that context, it should also be borne in mind that food and energy make up a significant part of Bangladesh's consumer price index — with food alone having a weight of close to 60%.[139] The more these components of inflation are determined by international price swings, the less control the central bank has in affecting the overall price level. As a result, food security and a growing supply of renewable energy may also provide additional policy space for Bangladesh Bank to control inflation and to reduce the potential wedge between headline and core inflation, as well as the possible spill-over effects from energy and food price volatility into core inflation.

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[138] New York Times (2013).
[139] Bangladesh Bank (2015a).

7. POLICY RECOMMENDATIONS

For a thorough exploration of the links between monetary policy and sustainability in Bangladesh, yet alone for making policy recommendations, additional research is essential. Nonetheless, the following suggested directions for further analysis may provide initial guidance for future action of Bangladesh Bank:

1. Conduct research to expand the knowledge base about the links between price stability, money and credit growth, and the country's sustainability priorities.

2. Assess the impact of interest rate changes on green investments.

3. Expand reflection on sustainability considerations in Bangladesh Bank's key reports — e.g. by sharing analysis in its half-yearly Monetary Policy Statement on the impact of Bangladesh Bank's core decisions (e.g. its inflation target) on sustainability priorities (e.g. poverty reduction).

4. Review the possibility to add data on monthly changes in the Basic Need Price Index (BNPI), or on other measures of the inflation rate faced by the poorest segment of the population, in addition to the standard inflation indicators (i.e. CPI) into Bangladesh Bank's key reports.

5. Add an overview on Bangladesh Bank's targeted refinancing lines including capacity, cumulative disbursements and outstanding loans to its Monetary Policy Statement and its website.

6. Evaluate the impact of targeted refinancing lines, credit quotas and ceilings, as well as maximum debt-to-equity ratios on sustainability objectives, and identify scope for further alignment.

7. Build up monitoring and evaluation capacity to assess current targeted refinancing lines.

8. Ensure the reflection of sustainability criteria in a possible future diversification strategy for the investment of Bangladesh Bank's foreign exchange reserves.

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