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# AN INSTITUTIONAL APPROACH TO UNDERSTANDING THE LACK OF PRUDENCE IN RATING BY BANGLADESHI EXTERNAL CREDIT ASSESSMENT INSTITUTIONS (ECAIS)

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## ABSTRACT

The standardization of credit risk quantification methodologies under the Basel regulations has been promoted by Bangladesh Bank since 2009, where the Bangladeshi external credit assessment institutions (ECAIs) credit information has been expected to contribute to improved credit risk management by Bangladeshi banks and enhanced adequate capital buffer. However, the standardization seems not to bring positive outcomes to the banking industry in Bangladesh. This paper aims at investigating the ill-designed regulations for Bangladeshi ECAIs as the root cause of it, and to make sense of it under the failure of omission by the regulators. The study adopted an institutional approach and conducted in-depth interviews to investigate the research problem. This paper contributes to provide an alternative explanation for the highly accumulated non-performing loans in the regulated banks in Bangladesh.

JEL Classification: E02, E58, G28

Key words: Basel accord, ECAI, Failure of omission, Moral hazard, RWA

## 1. INTRODUCTION

National supervisors have their discretion in supervising external credit assessment institutions (ECAIs) recognized in the Basel regulation for supervising banks (Switzerland Bank for International Settlement, Basel Committee on Banking Supervision, 2017). Bangladesh Bank (BB), the Central Bank of Bangladesh, has recognized ECAIs' credit rating categories the same as the BB's rating grade (detailed in Appendix 5 and 6) for computing the capital requirement for credit risks (Bangladesh Bank, Revised Guidelines on Risk Based Capital Adequacy for Banks, 2010; Bangladesh Bank, Implementation of Basel III in Bangladesh, 2014). BB has prepared the rating grades with the range from 1 to 6 which is aligned with the rating notches offered and implemented by ECAIs (detailed in Appendix 5 and 6). In Bangladesh, the standardization of credit risk quantification methodologies among banks has been promoted by BB, aimed at the asset quality of the banking industry. As a result, Bangladeshi ECAIs have come to play a vital role in assessing the credit risk in bank exposure.

We should look at the expected role of ECAIs, in other words, external credit rating agencies (CRAs) in the Basel regulation for supervising banks. Under Pillar I of the Basel Accord II, an individual bank is required to compute three types of risk such as 'credit risk', 'market risk' and 'operational risk', while computing the total risk-weighted assets (RWA). Here, two ways are advised to quantify the credit risk under the Accord; one is the internal ratings-based approach (IRB approach) and the other is standardized approach (SA) (Switzerland Bank for International Settlement, Basel Committee on Banking Supervision, 2006). "The IRB approach for credit risk allows banks, under certain conditions to use their internal model to estimate credit risk and therefore RWAs" (Switzerland Bank for International Settlement. Basel Committee on Banking Supervision, 2017). In other words, under the IRB approach, the prime responsibility to quantify the credit risk is on "banks in house methodologies" based on the guidelines provided in the latest version of the Accord. The risk management and responsibility to keep minimum capital requirement goes to the individual bank's shoulders while the regulators simply vet the methodologies in due course. The main limitation of the IRB approach is that the bank management tends to have short-sighted incentives to underestimate the actual risk involved in each class of assets which require less minimum capital charges. As a result, the standardization of credit risk would be interrupted under the implementation of IRB approach, which is called as 'failure of internal risk model' where the equity capital is not kept enough to cope with the actual risk of bank exposure (Freixas, Laeven and Peydró, 2015,215).

On the other hand, the SA requires the supervisors to set the risk weights that banks apply to their exposures to determine RWAs (Switzerland Bank for International Settlement, Basel Committee on Banking Supervision, 2017). To determine the risk weights under the SA for certain exposure classes, the use of external ratings for regulatory purposes is allowed where banks are advised to use the assessments by ECAIs that are recognized as eligible for capital purposes by national supervisors (Switzerland Bank for International Settlement, Basel Committee on Banking Supervision, 2017). The terminology of 'ECAI' was introduced in Basel Accord II to assess capital requirement in relation to 'credit risk' (the risk of counter party failure). Only the CRAs recognized by the respective national supervisors are eligible as recognized ECAIs while the assessment of credit risk upon recognized ECAIs rating is advised under the SA under Basel II and Basel III (Switzerland Bank for International Settlement. Basel Committee on Banking Supervision, 2006; Switzerland Bank for International Settlement. Basel Committee on Banking Supervision 2017, 28).

Apparently, ECAIs play an important role under the SA. In the text of the latest Basel Accord, the ECAIs role is specified as follows; "banks must use the chosen ECAIs and their ratings consistently for all types of claim where they have been recognised by their supervisor as an eligible ECAI, for both risk-weighting and risk management purposes. Banks will not be allowed to 'cherry-pick' the ratings provided by different ECAIs and to arbitrarily change the use of ECAIs" (Switzerland Bank for International Settlement, Basel Committee on Banking Supervision, 2017, 30).

Nevertheless, while the Bangladeshi banking industry aggregate capital to risk-weighted asset ratio (CRAR) in 2010 and 2018 improved at 9.31 percent and 10.5 percent, respectively, the banking sector gross non-performing loans (NPL) in 2010 and 2018 deteriorated at 7.05 percent and 10.3 percent, respectively, which was 4.13 times higher in amount (Bangladesh Bank, Financial Stability Report Issue 9, 2018). This adverse relation with CRAR and NPL ratio has created a big puzzle in Bangladesh. This leads us to ask another question; who are to be blamed for the outcome? As mentioned earlier, the standardization of credit risk quantification methodologies has been promoted by BB since 2009, where the Bangladeshi ECAIs credit information has been expected to contribute to improvement credit risk management by Bangladeshi banks and to enhancing of their adequate capital buffer. However, the standardization seems not to bring positive outcomes to the banking industry in Bangladesh. Based on the abovementioned reality in the Bangladeshi Banking industry, this study aims at providing answers to the following research question: Why Bangladeshi ECAIs prudence of bank exposure rating fail to quantify the actual credit risk of the banking sector?

The methods adopted by the study to tackle the research question are both descriptive and qualitative in nature. Descriptive/institutional approach helps to analyze 'objectivity of rating' and 'liability regimes of ECAIs' for misrating/inflated rating in the existing ECAIs regulations whereas qualitative approach using in-depth and structured interviews endorse the descriptive findings. In fact, in-depth interviews and structured interviews provided us evidence on how institutions work in the real world.

This paper is structured as follows. In section two, we overview the history of credit rating agencies in Bangladesh. In section three, we discuss the research methodology. In section four, we review various provisions available in the two legal documents of CRAs in Bangladesh. In section five we discuss how ill designed rules for competition of ECAIs creates moral hazard to Bangladeshi ECAIs and we discuss the interview results. Both sections (section four and five) attest to the 'failure of omission' by regulators in our view. The paper ends with some policy implications to overcome the failure.

## 2. DEFINITION OF CREDIT RATING AGENCIES AND ITS REGULATORY USE IN BANGLADESH

What are ECAIs, in other words, credit rating agencies (CRAs)? CRAs are expected as the experts on analyzing repeatedly the firms' credit information including the private one which is not publicly disclosed, and the information by CRAs is considered to be reliable for investors to reduce information asymmetries (Yang et al., 2017; Choi and Choi, 2016; Kammoun and Louizi, 2015; Boot, Milbourn, Schmeits, 2006). CRAs are regarded as 'reputational intermediaries' and their information is valuable because their client issuers disclose some confidential information only to CRAs (Coffee 2006, 288). CRAs are expected to provide interested parties with all the long-term implications of the firms' current risk posture (Santomero, 2009). Some scholars refer to CRAs as 'gatekeepers of capital' (Rahim, 2010; Strier, 2008).

The regulatory and legal definition of CRAs is a bit more concise than the definition used in academic circles. International Organization of Securities Commission (IOSCO) defines 'credit rating' or 'rating' as "an assessment regarding the creditworthiness of an entity or obligation" and 'credit rating agency' as "an entity that is in the business of issuing credit ratings" (International Organization of Securities Commission, Code of Conduct Fundamentals for Credit

Rating Agencies Final report, 2015, 7-8). The US CRA regulatory program defines credit rating as "an assessment of the creditworthiness of an obligor as an entity or with respect to specific securities or money market instruments" (United Stated Securities and Exchange Commission, Report to Congress Credit Rating Agency Independence Study, 2013). Japanese regulators define credit rating as the formal evaluation of credit and/or investment and capability of servicing obligations (Government of Japan, Financial Services Agency, Financial Instrument and Exchange Act, 2006, 2:36) and credit rating company as "an investment adviser company which intends to engage in or is so engaged primarily in the business of evaluation of credit or investment risk through a recognized and formal process of assigning rating to present or proposed loan obligations or equity of any business enterprise" (Bangladesh Securities and Exchange Commission. Credit Rating Companies Rules, 1996). As a whole, CRA is considered as a formal institution for providing authenticated information to contribute to the judgement by market participants.

In Bangladesh, the Bangladesh Securities and Exchange Commission (BSEC) issued Credit Companies (CRC) Rules 1996 vide Notification No. SEC/Section-7/117, dated 24 June 1996 and amended the rule in 2009 (Bangladesh Securities and Exchange Commission, Credit Rating Companies Rules, 1996). CRC Rules 1996 is considered as the first step to ushering credit rating in Bangladesh (Tsunoda, Ahmed and Islam, 2013). Later, BB issued the first recognition rules for ECAIs in 2009, in which the regulated banks are instructed to follow recognized ECAIs' risk rating to compute risk weighted assets (Bangladesh Bank, Guidelines for Recognition of Eligible External Credit Assessment Institutions, 2009). BSEC issued the first license to CRAs in 2002 under CRC Rules 1996, and some ECAIs were recognized by BB in April 2009. So far, there are eight CRAs with license from BSEC and all of them have been recognized as 'ECAIs' by BB (Bangladesh Bank, Financial Stability Report Issue 8, 2017). The list of ECAIs and their license approval date are listed in Appendix 4.

Tsunoda et al. (2013) analyze the history of regulatory uses of the credit rating in Bangladesh and point out five momentum transitions when ECAIs rating has been widely used by the Bangladeshi regulators. These are: (1) In 1996, BSEC has made compulsory to use credit rating companies rating when issuing any debt security by any company and public issue of share at premium (including right shares) by any public limited companies. (2) In

2004, BB has instructed to all unlisted banks to get themselves rated before they proceed to IPO. (3) Dhaka Stock Exchange 'Direct listing rules 2006' which made compulsory to carry BB rating from a recognized CRA while directly offloading shares in the stock exchange instead of IPO. (4) In 2007, The Office of the Chief Controller of Insurance (Now it is Insurance Development and Regulatory Authority-IDRA) simultaneously issued instruction to all general and life insurers to be rated by CRA every year and every two years respectively. (5) Capital adequacy framework (Basel II) implementation in 2009 by BB, provides a regulatory incentive to bank while CRAs rated bank exposure in calculation of total banks RWAs. From the above discussion on the history of CRAs and regulatory uses of CRAs ratings in Bangladesh, we observe that the demand for CRAs in Bangladesh was not dictated by market forces, but it was fueled by creating artificial demand of regulatory requirements or reliance on CRAs rating.

There is contemporary academic debate on 'incentive' and 'sanction' mechanism of CRAs institutions. For example Coffee (2006); Darbellay (2013); Partnoy (1999, 2006, 2017) argue that CRAs as private-sector entities with a quasi-governmental function and the regulatory uses of CRAs rating create 'wrong incentives' for the CRAs. More specifically, they (whom are all professors of law at the US and Swiss universities) claim that using CRAs rating as a regulation for financial institutions in one hand and CRAs issuer-pay business model on the other hand is contrary with the philosophy of regulation. Such a contradiction may create inefficiency in CRAs rating accuracy and quality (Ibid).

Let us elaborate on their arguments in detail. Coffee (2006, 2) considered CRAs' role in an economy as a 'gatekeeper' like auditors, corporate attorneys and security analysts who screen out flaws or defects or who verify compliance with standards or procedures as an 'outsider' or 'independent watchdog' or 'monitor'. He argued that in theory, the gatekeeper's business is based on 'reputational capital' and they should not risk the reputational capital built up over decades to maximize their earnings from a single client hence the logical premise is that the rational gatekeepers would always keep their reputational capital. However, when CRA ratings are used for regulatory purposes, they have no incentive for rating accuracy and monitoring the clients rather seeking more profit in selling 'regulatory licenses', than in protecting their 'reputational capital' (Ibid, 325-326). Besides, Partnoy's (2006, 1999) thesis is, due to lack of competition CRAs have less incentive to invest in their reputational capital. Partnoy (2017, 1470-1472) further argued that due to flawed methodologies used by the CRAs while rating the corporate clients, the credit rating has little informational value to investors. However, as "BCBS has not yet been able to propose any suitable alternative to external ratings, thus ratings continue to play an important role in bank capital requirement regulations" (Darbellay 2013, 48-49), ECAIs still are enjoying the 'regulatory license' status under the Basel framework. However, one of the proposed solutions in their studies is to increase the competition in CRAs' business which is expected to reduce the monopolistic or duopolistic rent in the rating industry. The rationale is competition might bring 'incentive' for CRAs to build 'reputational capital' which ultimately ensures their rating accuracy. We examine their hypothesis and adopt institutional analysis to investigate Bangladeshi ECAIs rating accuracy. We examine while investigating the research question how 'competition' and the existing 'pay model' provides 'disincentives' to the ECAIs to ensure rating quality, which helps us to understand how regulatory omission occurred in the Bangladesh case.

We argue in this paper that as ECAIs' rating is used for regulatory purposes, they enjoy regulatory incentive; hence, their liability regime should be specified. We chiefly scrutinize the liability regime of ECAIs in the institutions in the case of mis-rating or inflated rating i.e. how sanction mechanism works in the existing rules. Miglionico (2019), a prominent scholar in law who teaches at a UK university, in his study, comprehensively analyzed the liability of CRAs in the UK, The USA, European Union and Australia. He follows a two-step analysis: (i) identify the CRA's modus operandi – how the CRAs' business model worked in the regions studied (ii) analyze the CRAs' regulation in each country and the liability of CRAs regarding securities, bonds and exposure ratings in each regime. Miglionico (2019, 261) concluded that, "CRAs in the 'issuer-pays' business model raises concern about the potential collusive relationship between issuers and raters…favor 'rating shopping' and 'rating inflation'…the results have been severe disruptions and failure to predict corporate collapses during the global financial crisis. Further he mentioned, "although several legislative reforms have been adopted, there is strong argument that the lack of the rules of the game is the major factor in the accountability regime of CRAs" (Ibid).

Based on the abovementioned theoretical debate, to investigate our research question, we critically analyze the existing regulations in Bangladesh for regulating CRAs in section four and five.

## 3. METHODOLOGY

We use descriptive and qualitative methods to tackle the abovementioned research question. Our literature survey is mainly addressed to two legal CRAs related documents such as CRC rules 1996 and Guidelines for recognition of eligible ECAIs 2009 in Bangladesh. Upon the literature survey, we conducted in depth interview with 30 high officials of national regulators, experts, ECAIs and corporate professionals (list of in-depth interviewees is attached with Appendix 1) between 2018 and 2019. Besides, we took personal interview through structured questionnaires during the same period with 25 business practitioners who represent major industries. The questionnaires were structured for the respective interviewees. For instance, we tried to ask ECAIs about their bank exposure rating procedures and incentives, to ask the regulators about their supervisory procedures, and to ask the bankers regarding the uses of ECAIs information in their credit risk management. Also, we asked the business practitioners about the relevance of ECAIs rating in getting bank loans. Upon their request, we retained the anonymous answers from all the interviewees (questions asked during in-depth interview are attached with Appendix 2).

## 4. FLAWS WITHIN LEGAL DOCUMENTS FOR REGULATING CREDIT RATING AGENCIES IN BANGLADESH

In the clause 9 of chapter III in the CRC Rules 1996, the detailed operational procedures of CRCs are described. There are eight broad codes of conduct described where CRCs are asked to adopt, publish and follow these codes. These codes are: quality of rating process, monitoring and updating, integrity of rating process, CRC independence and avoidance of conflict of interest, CRC procedures and policies, CRC analyst and employee independence, CRC responsibility to the investing public and issuers and disclosures of these rules (BSEC,1996).On the other hand, Guidelines for Recognition of Eligible ECAIs 2009 refer to six general clauses for the recognition of ECAIs; 1) Recognition criteria, 2) Mapping process, 3) Application process, 4) On-going recognition, 5) Guidelines to banks regarding nomination of ECAIs, 6) General instruction.

We particularly note that while the 'Recognition criteria' is based six major criteria such as objectivity, independence, international access/transparency, disclosure, resources and credibility for determining the recognition of ECAIs, the way of enforcing these criteria is not well institutionalized. For example, the rules require ECAIs to disclose the internal information regarding their analysts' team, rating committee and internal verification system. However, the rules do not set up any minimum requirement or any benchmark on those yardsticks. There is no specific instruction for the disclosure on annual reports or financial statements to the public. The disclosure on default rating and transition matrix of the ECAIs is not sufficiently available in their public website, too. On the whole, although major criteria are set in the rules, the rule application and enforcement seem not to be well institutionalized.

BB evaluates and brings harmony among the ECAIs rating notch through numerals one to six Cumulative Default Rate (CDR) and the short-term rating is used for short term lending, whereas the long-term rating is used for long term lending (Bangladesh Bank, Guidelines for Recognition of Eligible External Credit Assessment Institutions, 2009). However, we should note that there is no rubric disclosed in the regulation regarding CDR and other qualitative factors; hence we presume that the judgement of BB on the mapping process is rather subjective.

Here, we point out the 'failure of omission' by the Bangladeshi regulators in the process of formulating CRAs regulations and supervising of ECAIs. In particular, we critically assess the following two dimensions; 1) internal governance system of ECAI and objectivity of rating, 2) liability of ECAIs.

### 4.1 INTERNAL GOVERNANCE SYSTEM OF ECAI AND OBJECTIVITY OF RATING

The rules do not clearly require that CRCs be publicly listed. Hence CRCs do not necessarily follow the corporate governance code that has been set up by BSEC since 2006, including the issues of appointment of board of directors, remuneration and other compliance. In addition, the rules do not set up any specific requirement for appointment, responsibility and remuneration for RC members. These issues are not addressed either in the CRC rules nor in the BB guidelines. The results of in-depth interview have attested to this statement (see sub-section 5.3).

The ECAIs exposure rating process and quality should be critically assessed because its outcomes look paradoxical. We conducted comprehensive interviews on the bank exposure rating methodologies and process with the chief rating officer (CRO) of all the ECAIs. We find that there are several steps are involved in the bank exposure rating process and all the ECAIs follow almost similar rating process. It should be noted that when asking about the total time required for completing the whole process, most of the CROs were responded that it needed 15 days. Our next query to the CROs was about the number of analysts working and the number of rating clients per month in 2017. Though the interviewees were not unwilling to disclose the exact number, we have got the information on average per month, which are described in Table 1.

TABLE 1
Rating Reports Prepared by Per Analyst in 2017

| Sl No. | Name of the Credit rating Agencies | No. of analysts | Total No. of rating reports prepared in 2017 (average Per month | No. of rating reports prepared per analyst per month |
|---|---|---|---|---|
| 1 | Credit Rating Information and Services Ltd (CRISL) | 20 | 315 | 16 |
| 2 | Credit Rating Agency of Bangladesh Ltd (CRAB) | 22 | 290 | 14 |
| 3 | Emerging Credit Rating Ltd | 18 | 233 | 13 |
| 4 | National Credit Ratings Ltd | 15 | 270 | 18 |
| 5 | ARGUS Credit Rating Services Ltd | 17 | 170 | 10 |
| 6 | WASO Credit Rating Company (BD) Limited | 15 | 125 | 8 |
| 7 | Alpha Credit Rating Limited | 16 | 285 | 18 |
| 8 | The Bangladesh Rating Agency Limited | 15 | 400 | 26 |

Source: Based on in-depth interview conducted with CROs in 2018 and 2019.

Table 1 reports the workload of each ECAIs rating analyst which creates doubts on prudence of ratings. It shows that almost all of analysts have a very heavy workload. This leads us to ask; how can they ensure the objectivity of the credit rating reports under such workload? At least, we can say that the regulators are not yet concerned about the workload on ECAI analysts.

### 4.2 LIABILITY OF ECAIS

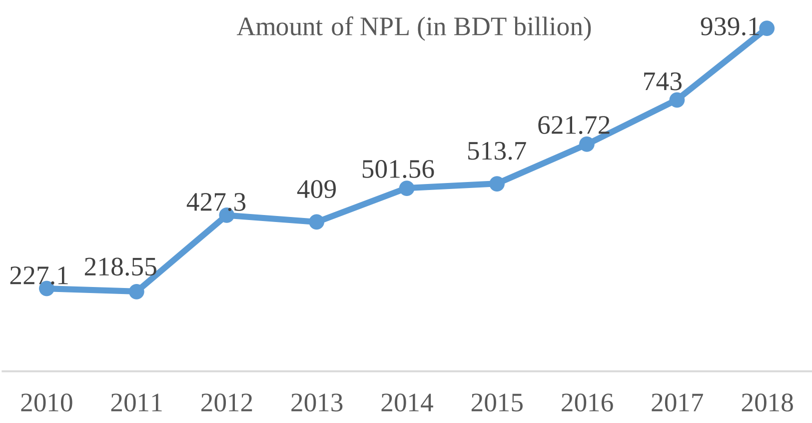
As was mentioned, there is contemporary debate in academic literature is on CRAs 'civil liability regime' in the existing CRAs regulations. Miglionico (2019) and Partnoy (2006) raised the issue more profoundly while analyzing the developed economies CRAs regulation. In this study, we follow the thesis of Miglionico (2019) that existing regulations still have a legal gap to locate the 'civil liability regime of CRAs/ECAIs'.

We find that both regulations of ECAI in Bangladesh and the liability of ECAIs are not clearly sought. According to CRC rules clause 9 (2) (b), a rated entity should be continuously monitored in the next three years as 'surveillance rating' by the same ECAI. However, there is no such obligation or instruction by the BB for the regulated banks to seek this condition. As a result, very few bank clients (which are initially rated by ECAI) are conducting surveillance rating. This is because once the loan is approved, the clients would rather not be bothered by 'surveillance rating', and the banks have less incentives to pressure the clients for surveillance rating because they are not expecting the downgrading. The capital charge would become higher for banks if the client gets lower notch in 'surveillance rating', hence banks would not monitor the clients for surveillance as long as there is no regulatory requirement. This regulatory failure of omission may lose ECAIs the liability in measuring their default rate or calculating the transition matrix. Figure 1 provides evidence in favor of this statement.

Figure 1 reports the percentage of corporate exposures rating of the banking system by Bangladeshi ECAIs between 2010 and 2018, while Figure 2 shows the amount of NPL (in BDT Billion) for the same period in Bangladesh. Figure 1 shows the trend of corporate exposure rating in the Bangladeshi banking sector and Figure 2 shows non-performing loan (NPL) of the banking sector for the period 2010-2018. The trend shows that percentage of corporate exposure rating was 16.4 percent in 2010 which rose to 81.8 percent at the end of 2018. This trend endorses how rapidly ECAIs business has grown over the years. On the other hand, the banking sector NPL has increased 4.13 times during the investigated period (the banking sector NPL was BDT 227.1 billion in 2010 and it stood at BDT 939.1 billion in 2018). The graphs also attest that while the percentage of corporate exposure rating has increased, the amount of NPL has rocketed. It seems that ECAIs ratings were not well reflected in the real credit risk associated with the exposures.

FIGURE 1
Trend of Corporate Exposure Rating 2010-2018


FIGURE 2
Trend of NPL During 2010-2018




Source: prepared by authors from the Financial Stability Report, 2010-2018.

The increasing corporate exposure rating is attributed to Bangladeshi banks being encouraged to rate their corporate client by ECAIs, which multiplied the ECAIs number of clients and business volume. We suspect that the regulatory failure of omission may have given an ill-incentive for ECAIs to simply sell their rating under the Basel accord implementation, and for commercial banks to use the rating for maneuvering ‘capital charge incentive’ under the Basel accord. For instance, the ‘unrated exposure’ has 125 percent risk weighted under BB’s Basel guideline whereas the risk weightage for B1 or below notch is 150 percent (as per guidelines of Bangladesh Bank, Revised Guidelines on Risk Based Capital Adequacy for Banks., 2014). If the client performance goes down to the category of B1 or below, banks would lose their incentives to monitor the clients for ‘surveillance rating’. BB admitted the seemingly ill-designed regulatory framework which has created the ill-incentives for the banks. “Few ratings in the low rating categories (i.e., four, five and six) suggest that poorly rated entities/exposures could be preferred to remain unrated rather than being rated with a poor score, perhaps due to the application of lower risk weight to unrated exposures in the current Capital Adequacy framework” (Bangladesh Bank, Financial Stability Report Issue 8, 2017). Presumably, the number of unrated firms is increasing and getting more significant in the process of calculating the cumulative default rate (CDR). The ECAIs transition matrix published in the Financial Stability Report 2017 and 2018 of BB shows that only 635, 612 and 389 entities/exposures are enlisted in the long-term (more than one year) transition matrix 2017-18, 2016-17 and 2015-16, respectively. Perhaps ECAIs have come to fail to capture the default rate of unrelated firms, which may be related to the uprising NPL in the banks who rely on the ECAIs credit information.

To sum up, it appears that BB as the regulator has been less concerned about the policy of enhancing the prudence of screening and monitoring in ECAIs. Simultaneously, the poorly designed regulatory framework may have discouraged the banks to continuously use the clients for ECAIs’ surveillance rating. This results to the situation where ECAIs fail to capture the default rate of unrated firms; in other words, this is the main reason ECAIs rating have failed to reflect the actual credit risk of the banking sector. This problematic outcome is, in our view, attributable to the ‘failure of omission’ by the regulator. The comments of the respondents during the in-depth interview support this analysis (see sub-section 5.3). In addition, stiff competition among ECAIs which provides disincentive to ECAIs has led us to explore our research question further from ECAIs point of view as discussed in section 5.

## 5. DISCUSSION ON ILL-DESIGNED RULES FOR COMPETITION OF ECAIS AND FINDINGS OF INTERVIEW RESULTS

ECAIs are, by nature, profit organizations. Nevertheless, their role is quasi-regulatory. BB admitted that their incentives may not always be aligned with the regulatory objectives (Bangladesh Bank, Revised Guidelines on Risk Based Capital Adequacy for Banks, 2010). There are eight ECAIs recognized by BB. The cut-throat competition among recognized ECAIs has been intensified to undermine the prudence in their rating, resulting in the ‘race to the highest notch’ or ‘race to bottom’ (Darbellay, 2013). In this section, we shed light on two dimensions; (a) the revenue model of ECAIs and (b) the competition among ECAIs that may have created a kind of moral hazard

### 5.1 REVENUE MODEL OF ECAIS

According to the CRC Rules 1996, main revenue sources for CRAs in Bangladesh can be broadly categorized into three sources; (a) the revenue from bank exposure rating, for instance, rating the corporate and SME loans of the commercial bank, (b) the revenue from entity rating (under the existing laws, all the banks, the non-banks financial institutions and the insurance companies must get rating by CRAs every year), (c) the revenue from entity rating for IPO and bond issuing. Among three sources, the revenue from bank exposure rating is the main source for Bangladeshi CRAs. In our interview, one of major CRA’s executive vice president (EVP) has admitted that in the following way:

> “In our case, 70 percent comes from bank exposure and 30 percent from other sources, but overall industry picture is 90 percent comes from loan exposure and ten percent from other sources.”(EVP, Management Team, ECAI, Dhaka, 2019, translated from Bengali).

In other words, the revenue from entity rating for IPO and bond issuing for Bangladeshi CRAs stays at a marginal level. In fact, according to the BSEC Annual Report 2018, only 101 IPOs, 51 sub-debts and 16 debenture issues were in the capital market during last 10 years. All the sub-debts were issued by the commercial banks and these debt instruments did not need to be rated by CRAs because their issuers (banks) were already rated by CRAs. Hence only 117 (101+16) entities were rated by Bangladeshi CRAs during last ten years. Apparently, the number of entity rating for IPO or bond issuing is quite limited in Bangladesh. This market circumstance may have urged Bangladeshi CRAs to seek revenue from bank exposure rating. Here we should note that their rating activities are remunerated by their clients. Some academics refer to the potential conflict of interest which may undermine the prudence in the rating (Darbellay, 2013). We believe that this can explain the same dilemma faced by recognized ECAIs in Bangladesh.

## 5.2 COMPETITION

The relationship between the number of CRAs and the prudence in rating is still controversial in the academic debate. Some argue that so far as the remuneration matters for the prudence in rating, the number of CRAs does not matter (Chan, 2010; United Stated Securities and Exchange Commission, 2009). Others point out that the level of competition matters, for instance, an oligopolistic market creates a dominant CRA to enable it to keep its market share despite the unsatisfactory prudence in rating (Darbellay, 2013). Coffee (2012) argues that the intensifying competition brings negative outcomes because it urges the competing CRAs to relax their prudence in rating to seek more business opportunities. It is reported that the US CRA reforms policy is based on the assumption that the prudence in rating would be improved by removing the barrier of entry for new entrants so as to encourage competition (United Stated Securities and Exchange Commission, Report to Congress on Assigned Credit Ratings, 2012). Table 2 shows the number of CRAs in some selected countries.

Table 2 shows the number of credit rating agencies operating in some selected developed and developing counties. Table 2 attests that Bangladesh allows more CRAs to compete in the rating industry compared to other Asian countries. In our interview, the BSEC and BB officials hesitated to explain the reason behind it. Looking at the paradoxical relation between the number of rated exposure (Figure 1 and Figure 2) and the increasing NPL as discussed in the previous section, it seems that the case of Bangladesh may endorse the hypotheses by Darbellay (2013) or Coffee (2011). On the other hand, we should note that a conditional competition has been promoted by BB by setting up a ceiling price in which all the ECAIs must follow in their pricing for rating. This rule may have lost Bangladeshi ECAIs any incentive for improving the prudence in rating, for instance, by hiring the experts with high skill and knowledge in credit screening. This ill-designed competition may have urged Bangladeshi ECAIs to seek profit opportunity by producing the bulk number of reports, rather than by improving the prudence in rating.

TABLE 2

Number of CRAs in Some Selected Countries

| Sl No. | Name of the Country | Number of CRA (as at 30 June 2019) |
|---|---|---|
| 1 | United States (US) | 10 (NRSRO including 2 foreign affiliated) |
| 2 | European Union (EU) | 47 (including 4 non-EU) |
| 3 | Japan | 7 (including 5 foreign affiliated) |
| 4 | Malaysia | 2 (all domestic) |
| 5 | India | 6 (including 1 foreign affiliated) |
| 6 | Pakistan | 2 (all domestic) |
| 7 | Sri Lanka | 2 (including 1 foreign affiliated) |
| 8 | Bangladesh | 8 (all domestic) |

Source: Related countries SEC web portal.

Besides, more severe competition upon the price control allows the clients to do ‘rate shopping’ (Coffee, 2006). In Bangladesh, it appears that the clients have a bargaining power over ECAIs. Some clients could get higher rating notch than the rating reflected in the true credit profile. This situation undermines not only the prudence in rating by Bangladeshi ECAIs, but also the soundness in credit portfolio in Bangladeshi banks. To sum up, in our view the role of regulators seems to be counterproductive for accessing the credit risk of the firms by ECAI.

### 5.3 DISCUSSION AND FINDINGS ON INTERVIEW RESULTS

This study conducted in-depth interviews between 2018 and 2019 with 30high officials. There are four different cluster of respondents (number shown in parentheses) i.e. regulators (eight), professional bankers (nine), ECAIs officials (eight) and academics/experts (five). The discussions were aimed at understanding how each stakeholder views the research question of the study. More specifically we focused on our prior theoretical discussion on incentives and sanction mechanisms in the ECAIs regulations for assuring their rating objectivity and reasons for potential moral hazard. Several follow up questions were asked to understand how institutions really work in practice. In other words, we attempt to investigate in depth interview how law operates on books and how law performs in action. For instance, we asked how the regulators monitor and supervise the ECAIs. One of the top BSEC officials said:

> "We get them registration but cannot monitor fully. We have shortage of human resources. If they (ECAI) make any fault then we investigate." (Commissioner, BSEC, Dhaka, 2018, translated from Bengali).

In contrast, while asking the BB official regarding installation of liability regime of the rating agency in the existing institutions of ECAI to ensure their rating objectivity, the concerned official informed us:

> "We basically working to revise the ECAIs regulation, however, I cannot disclose it to you until officially declared." (DGM, BB, Dhaka, 2019, translated from Bengali).

The questions to the professional bankers (who represent largest commercial banks (conventional and Islamic) of the country) was, to what extent they rely on ECAIs credit information. One banker remarked:

> "Credit rating is now kind of compulsory as credit rating has impact on bank risk weighted asset. We provide incentive to clients, we provide discounted lending rate and if not rated, are not eligible to get so." (SPO, Branch Operation Manager, Chittagong, 2018, translated from Bengali).

This statement documents that banks naïvely relied on ECAIs rating specially the Basel accord implementation process. However, scholars argued that the regulatory uses of ECAIs rating might hinder the ECAIs incentive for improving their rating quality (Darbellay, 2013). The comments of an academic economist who worked as a professional economist for three decades, gave hints and expressed doubts about the rating quality and rating process of Bangladeshi ECAIs while discussing about their rating quality:

> "However, not all ECAIs in Bangladesh follow strict objective criteria and evaluation process." (Professor of Economics, School of Business, University, Dhaka, 2018). On the other hand, while in discussion with the ECAIs, regarding this issue, a CEO has mentioned to us that: "It depends…… they (regulators) are totally aware but kind of loopholes of supervision." (CEO, ECAI, Dhaka, 2018, translated from Bengali).

To shed more light on ECAIs rating objectivity and regulators role we consulted an expert in Dhaka who stated the supervisory lapses in the following way:

> "ECAIs are simply making money here. In a word, the whole matter (monitoring and supervision) is overlooked." (DG, Post Graduate Institute, Dhaka, 2018, translated from Bengali).

Similar view was expressed by another expert:

> "Rating agencies take the rating job simply a business and rate without proper judgement."(Former Deputy Governor, BB and industry expert, Dhaka, 2018, translated from Bengali).

In this study we conducted structured interviews with business practitioners (entrepreneurs and corporate managers) mainly to know their views regarding ECAIs rating quality and how effective the ECAIs rating is for getting a bank loan. There are 21 questions in the questionnaire of which three are ECAIs related, seven are bank loan related and 11 are business nature and size related (see Appendix 3 and 7-9 for detailed respondents list and interview results, respectively).

The way in which ECAIs related to our three questions were (i) did the respondent know about the ECAIs rating? (ii) how many ECAIs rated their business? (iii) how effective was the ECAIs rating for getting bank loan? The interview results are quite interesting. For example, all respondents (100 percent) know that ECAIs rating is essential for getting a bank loan especially when they seek large project financing from banks. However, some firms (12 percent) use multiple ratings (rating the firm by more than one ECAI) and the rest are single rated firms. Some 80 percent of our respondents agree that an ECAI rating is helpful for getting a loan. This acknowledgement attests that firms are interested to get rated by an ECAI with high notch, which will reduce their borrowing cost from banks. We mentioned before that a bank manager has confessed to us to offering low interest rates for high rated borrowers. In fact the structured interview results have shed more light that ECAIs rating quality must be ensured as all corporate are dully rated by ECAI and ECAIs rating notch is used by banks to compute risk weighted assets.

Therefore, the qualitative information we have from the interview (both in-depth and structured) endorsed our descriptive/institutional discussion that lack of proper supervision by national regulators and reliance on ECAIs rating by banks for regulatory purposes give ECAIs little incentive to improve their rating quality or allocate resources to improve credit risk screening skills. It attests to the failure of omission by regulators to create appropriate incentives and sanction mechanism for ECAIs in the institutions. Although the BB official has admitted to us in 2019 that they are also concerned and working to amend the regulations, however, at the time of writing (April 2020), there is no public disclosure on amending the regulations. Considering all, Bangladesh Bank is seen as partly responsible for this institutional failure. While responding to the overall irregularities and indiscipline in the market one of our interviewees has well said:

> "Why BB has no courage to stop this (regarding irregularities, indiscipline and fixing the problems). If you can't take the heat, don't go inside the kitchen. If BB fail, the whole country will suffer." (Former Deputy Governor, BB and industry expert, Dhaka, 2018, translated from Bengali).

## 6. CONCLUDING REMARKS – THE WAY FORWARD

The standardization of credit risk quantification methodologies under the Basel regulations has been promoted by BB, where the Bangladeshi external credit assessment institutions (ECAIs) credit information has been expected to contribute to improve credit risk management by Bangladeshi banks and to enhance their adequate capital buffer. However, the standardization seems not to bring positive outcomes to the banking industry in Bangladesh. Apparently, this is attributable to the 'failure of omission' by the regulator.

The regulators (BB and BSEC) should immediately restructure the regulatory framework of creating adequate incentives for recognized ECAIs to improve the prudence in rating. The remuneration control should be revoked. Simultaneously, the prudent guidelines for supervising recognized ECAIs and the rules-based close monitoring should be implemented. The internal governance structure, the transparency in operational structure, the appropriate remuneration incentive system should be installed to avoid any potential moral hazard in rating.

From another perspective, a naïve adoption of the standardized approach (SA) by the regulator may have lost the professional bankers' incentive to develop their own model to quantify credit risk upon using the IRB approach. We should note that the SA brings paradoxically negative outcomes in the credit portfolio by Bangladeshi banks. While the regulators should review the ways of implementing the SA prudently in Bangladesh, the banks should develop the IRB approach as complementary to the SA. Then 'failure of omission' by Bangladeshi banks should be monitored.

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## APPENDIX 1
### List of Interviewees for In-Depth Interview

| No. | Positions | Department | Industry/ Sector | Date(s) of interview |
|---|---|---|---|---|
| 1 | Commissioner | Top Management team | Regulator | 14 March 2018 |
| 2 | Director | Supervision and Regulation of Intermediaries | Regulator | 14 March 2018 and 20 March 2019 |
| 3 | Deputy Director | Banking Regulation and Policy Department | Regulator | 12 March 2018 |
| 4 | Deputy Director | Banking Regulation and Policy Department | Regulator | 12 March 2018 |
| 5 | Deputy Director | SME and Special programme Dept. | Regulator | 13 March 2018 |
| 6 | Deputy General Manager | Banking Regulation and Policy Department | Regulator | 14 March 2019 |
| 7 | Deputy General Manager | Banking Regulation and Policy Department | Regulator | 18 March 2019 |
| 8 | Joint Director | Financial Stability Dept. | Regulator | 21 March 2019 |
| 9 | General Manager | Management Team | Govt. Policy Institute | 5 March 2018 |
| 10 | Professor | School of Business | University | 18 March 2018 |
| 11 | Director General | Head of the Institute | Post Graduate Studies Institute | 18 March 2018 |

APPENDIX 1 (*continued*)

| No. | Positions | Department | Industry/ Sector | Date(s) of Interview |
|---|---|---|---|---|
| 12 | Professor | School of Bank Management | Post Graduate Studies Institute | 21 March 2019 |
| 13 | Chairman | Board of Directors | Bank | 11 March 2018 |
| 14 | Executive Vice President | Head, Credit Risk Management Div. | Bank | 13 March 2018 |
| 15 | Principal Officer | Corporate Investment Dept. | Bank | 13 March 2018 |
| 16 | Executive Vice President | Head, Risk Management Division | Bank | 14 March 2018 |
| 17 | Assistant Vice President | Group Finance | Bank | 20 March 2018 |
| 18 | Assistant Vice President | Inv. Risk Mgt. Div | Bank | 20 March 2018 |
| 19 | Senior Principal Officer | Branch operation Manager | Bank | 22 March 2018 |
| 20 | Executive Vice President | Head, Risk Management Division | Bank | 19 March 2019 |
| 21 | Assistant Vice President | Small Enterprise Finance | Non-Bank FI | 20 March 2018 |
| 22 | Chairman | Board of Directors | Manufacturing | 3 March 2018 |
| 23 | Chief Strategy Officer | Management Team | ECAI | 8 March 2018 |
| 24 | Chief Rating Officer | Management Team | ECAI | 8 March 2018 |
| 25 | Assistant Vice President | Team leader | ECAI | 11 March 2018 |
| 26 | Chief Executive Officer | Management Team | ECAI | 12 March 2018 |

APPENDIX 1 (*continued*)

| No. | Positions | Department | Industry/ Sector | Date(s) of Interview |
|---|---|---|---|---|
| 27 | Assistant Vice President | Team leader | ECAI | 14 March 2018 |
| 28 | Manager | Rating Division | ECAI | 20 March 2018 |
| 29 | Executive Vice President | Management Team | ECAI | 14 March 2019 |
| 30 | Chief Rating Officer | Management Team | ECAI | 16 March 2019 |

## APPENDIX 2
## Questions used in in-depth interview

Regulators (two Questions)
1. Are there any concerns for Bangladeshi Banking industry while implementation of Basel accord?
2. Can you please tell us about your regulation, supervision and monitoring process related with ECAI?

Academics and Experts (two Questions)
1. What is the reason for deteriorating of asset quality in the Bangladeshi banking sector and what would be the recommendation there against?
2. Are there any concerns for Bangladeshi Banking industry while implementation of Basel accord?

ECAIs (two questions)
1. Please brief us about your organization.
2. What is the process of bank exposure rating by your organization?

Professional Bankers (two questions)
1. Please briefly tell us about your bank's credit risk management process.
2. How do you comply the Basel accord in your bank? What is the role of ECAIs in this process?

# APPENDIX 3
## Respondents of Questionnaire survey*

| No. | Positions | Department | Industry/Location | Date(s) of interview |
|---|---|---|---|---|
| 1 | Director | Management Team | Steel Re-rolling, Chittagong. | 25 February 2018 |
| 2 | Head of Finance | Accounts | Steel Re-rolling, Chittagong. | 6 March 2018 |
| 3 | General Manager | Accounts and Finance | Steel Re-rolling, Chittagong. | 25 February 2018 |
| 4 | General Manager | Accounts and Finance | Cement Manufacturing, Chittagong. | 26 February 2018 |
| 5 | General Manager | Finance and Banking | Trading and Manufacturing, Chittagong. | 26 February 2018 |
| 6 | Chief Executive Officer | Management Team | Manufacturing, Chittagong | 27 February 2018 |
| 7 | Advisor | Management Team | Trading, Chittagong | 27 February 2018 |
| 8 | Chief Financial Officer | Management Team | Manufacturing and Trading, Chittagong | 28 February 2018 |
| 9 | Managing Director | Management Team | Trading, Chittagong | 28 February 2018 |
| 10 | Assistant Manager | Accounts and Finance | Trading, Chittagong | 1 March 2018 |
| 11 | Managing Director | Management Team | Trading, Chittagong | 1 March 2018 |
| 12 | Managing Director | Management Team | Trading, Chittagong. | 1 March 2018 |
| 13 | Chairman | Board of Directors | Spinning Industries, Dhaka | 3 March 2018 |
| 14 | Senior Vice President | Corporate Affairs | Manufacturing, Dhaka | 4 March 2018 |
| 15 | Senior Vice President | Corporate Affairs | Manufacturing, Dhaka | 4 March 2018 |
| 16 | Company Secretary | Corporate Affairs | Textile, Dhaka | 5 March 2018 |

APPENDIX 3 (*continued*)

| No. | Positions | Department | Industry/Location | Date(s) of interview |
|---|---|---|---|---|
| 17 | Chief Executive Officer | Management Team | Bric Industries, Dhaka | 5 March 2018 |
| 18 | Managing Director | Management Team | Spinning Industries, Dhaka | 6 March 2018 |
| 19 | Deputy General Manager | Accounts and Finance | Spinning Industries, Dhaka | 6 March 2018 |
| 20 | General Manager | Accounts and Finance | Textile and Spinning Indus., Dhaka | 8 March 2018 |
| 21 | General Manager | Finance | Textile and Spinning Indus., Dhaka | 8 March 2018 |
| 22 | Director | Management Team | Manufacturing, Dhaka | 8 March 2018 |
| 23 | Chief Financial Officer | Accounts and Finance | Manufacturing, Dhaka | 10 March 2018 |
| 24 | Manager | Import | Spinning Industries, Dhaka | 10 March 2018 |
| 25 | AssistantGeneral Manager | Accounts and Finance | Trading, Dhaka | 10 March 2018 |

*There are 21 (twenty-one) questions (related with business nature, bank loan and ECAIs) in the questionnaire.

## APPENDIX 4
List of Bangladeshi ECAIs with Registration and Recognition Date

| Sl No. | Name of the Credit rating Agencies | BSEC Registration date | BB Recognition date |
|---|---|---|---|
| 1 | Credit Rating Information and Services Ltd (CRISL) | 21 April 2002 | 29 April 2009 |
| 2 | Credit Rating Agency of Bangladesh Ltd (CRAB) | 24 February 2004 | 29 April 2009 |
| 3 | Emerging Credit Rating Ltd | 22 June 2010 | 25 October 2010 |
| 4 | National Credit Ratings Ltd | 22 June 2010 | 25 October 2010 |
| 5 | ARGUS Credit Rating Services Ltd | 21 July 2011 | 16 November 2011 |
| 6 | WASO Credit Rating Company (BD) Limited | 15 February 2012 | 29 October 2012 |
| 7 | Alpha Credit Rating Limited | 20 February 2012 | 2 August 2012 |
| 8 | The Bangladesh Rating Agency Limited | 7 March 2012 | 31 October 2013 |

Source: Various notifications of BSEC and Bangladesh Bank (BB).

# APPENDIX 5

## ECAI's Credit Rating Categories Mapped with BB's Rating Grade

| BB Rating Grade | Equivalent Rating of S & P and Fitch | Equivalent Rating of Moody | Equivalent Rating of CRISL | Equivalent Rating of CRAB | Equivalent Rating of NCRL | Equivalent Rating of ECRL | Equivalent Rating of ACRSL | Equivalent Rating of ACRL | Equivalent Rating of WASO |
|---|---|---|---|---|---|---|---|---|---|
| 1 | AAA to AA | Aaa to Aa | AAA, AA+, AA, AA- | AAA, AA1, AA2, AA3 | AAA, AA+, AA, AA- | AAA, AA+, AA, AA- | AAA, AA+, AA, AA- | AAA, AA+, AA, AA- | AAA, AA1, AA2, AA3 |
| 2 | A | A | A+, A, A- | A1, A2, A3 | A+, A, A- | A+, A, A- | A+, A, A- | A+, A, A- | A1, A2, A3 |
| 3 | BBB | Baa | BBB+, BBB, BBB- | BBB1, BBB2, BBB3 | BBB+, BBB, BBB- | BBB+, BBB, BBB- | BBB+, BBB, BBB- | BBB+, BBB, BBB- | BBB1, BBB2, BBB3 |
| 4 | BB to B | Ba to B | BB+, BB, BB- | BB1, BB2, BB3 | BB+, BB, BB- | BB+, BB, BB- | BB+, BB, BB- | BB+, BB, BB- | BB1, BB2, BB3 |
| 5 | Below B | Below B | B-, B, B-, CCC+, CCC, CCC-, CC+, CC, CC- | B1, B2, B3, CCC1, CCC2, CCC3, CC | B+, B, B- | B+, B, B- | B+, B, B-, CC+, CC, CC- | B+, B, B-, CCC | B1, B2, B3, CCC |

APPENDIX 5 (*continued*)

| BB Rating Grade | Equivalent Rating of S & P and Fitch | Equivalent Rating of Moody | Equivalent Rating of CRISL | Equivalent Rating of CRAB | Equivalent Rating of NCRL | Equivalent Rating of ECRL | Equivalent Rating of ACRSL | Equivalent Rating of ACRL | Equivalent Rating of WASO |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Below B | Below B | C+, C, C-, D | C, D | C+, C, C-, D | D | C+, C, C-, D | CC+, CC, CC-, C+, C, C-, D | CC1, CC2, CC3, C+, C, C-, D |
| Short-Term Rating Category Mapping | | | | | | | | | |
| S1 | F1+ | P1 | ST-1 | ST-1 | N1 | ECRL-1 | ST-1 | AR-1 | P-1 |
| S2 | F1 | P2 | ST-2 | ST-2 | N2 | ECRL-2 | ST-2 | AR-2 | P-2 |
| S3 | F2 | P3 | ST-3 | ST-3 | N3 | ECRL-3 | ST-3 | AR-3 | P-3 |
| S4 | F2 | NP | ST-4 | ST-4 | N4 | ECRL-4 | ST-4 | AR-4 | P-4 |
| S5, S6 | B, C, D | | ST-5, ST-6 | ST-5, ST-6 | N5 | D | ST-5, ST-6 | AR-5, AR-6 | P-5, P-6 |

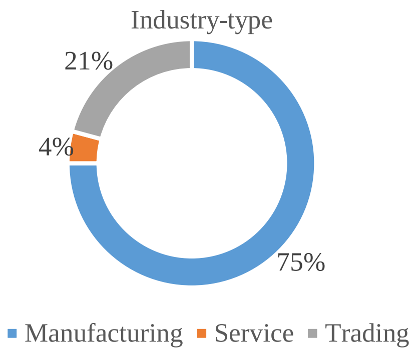
(Source: Bangladesh Bank 2014, 22)

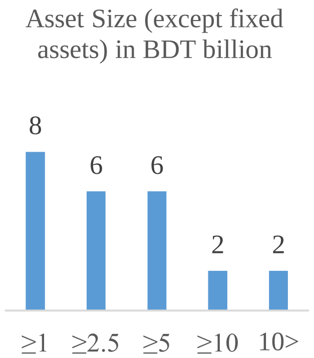
## APPENDIX 6
## ECAI's Credit Rating Categories Mapped with BB's SME Rating Grade

| BB Rating Grade | Equivalent Rating of BDRAL | Equivalent Rating of CRISL | Equivalent Rating of CRAB | Equivalent Rating of ECRL | Equivalent Rating of ARGUS | Equivalent Rating of ALPHA | Equivalent Rating of NCRL | Equivalent Rating of WASO |
|---|---|---|---|---|---|---|---|---|
| SME 1 | SE1, ME 1 | CRISL Me-1/Se-1 | CRAB-ME 1/SE 1 | ESME 1 | AQSE 1/ AQME 1 | ARSME-1 | NSME-1 | WCR SE 1/ME 1 |
| SME 2 | SE2, ME 2 | CRISL Me-2/Se-2 | CRAB-ME 2/SE 2 | ESME 2 | AQSE 2/ AQME 2 | ARSME-2 | NSME-2 | WCR SE 2/ME 2 |
| SME 3 | SE3, ME 3 | CRISL Me-3/Se-3 | CRAB-ME 3/SE 3 | ESME 3 | AQSE 3/ AQME 3 | ARSME-3 | NSME-3 | WCR SE 3/ME 3 |
| SME 4 | SE4, ME 4 | CRISL Me-4/Se-4 | CRAB-ME 4/SE 4 | ESME 4 | AQSE 4/ AQME 4 | ARSME-4 | NSME-4 | WCR SE 4/ME 4 |
| SME 5 | SE5, ME 5 | CRISL Me-5/Se-5 | CRAB-ME 5/SE 5 | ESME 5 | AQSE 5/ AQME 5 | ARSME-5 | NSME-5 | WCR SE 5/ME 5 |
| SME 6 | SE6, SE7, SE8, ME 6, ME 7, ME 8 | CRISL Me-6,7,8,9,10/Se-6,7,8,9,10 | CRAB-ME-6,7,8,9,10/SE 6,7,8,9,10 | ESME 6,7,8 | AQSE 6,7,8/AQME 6,7,8 | ARSME-6,7,8 | NSME-6,7,8 | WCR SE 6,7,8/ME 6,7,8 |

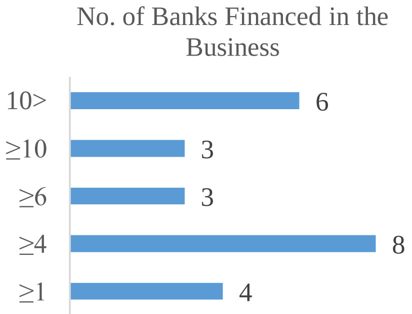
(Source: Bangladesh Bank 2014, 23)

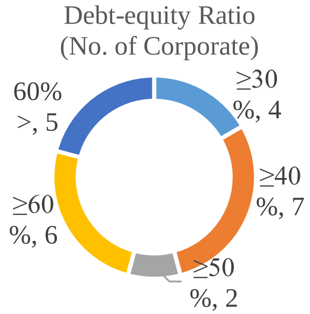
## APPENDIX 7
## Result of Structured Interview: Sample Type and Size

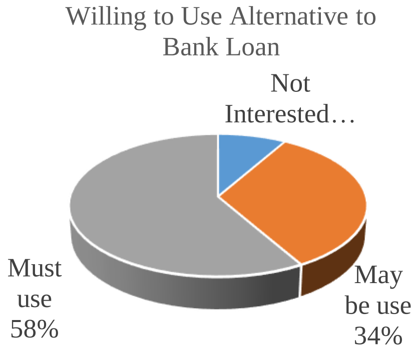


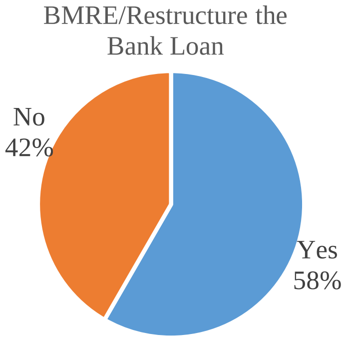




## APPENDIX 8
## Result of Structured Interview: Bank Loan Related



# APPENDIX 9
## Result of Structured Interview: ECAI Related