INFORMATION SELECTION IN DEFAULT PREDICTION: SRI LANKAN BANKERS' PERSPECTIVES

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Abstract

This study aims to ascertain the perceptions of bankers in Sri Lanka of the different default predictor information and the prediction performances. In semi-structured interviews, twenty-three credit risk and corporate banking managers from 26 banks in Sri Lanka were surveyed on their perceptions towards the application of accounting, share market and corporate governance information in corporate default prediction. The study follows mixed research design and uses semi-structured interviews to collect information of default prediction. Thematic analysis and t-tests were used to analyse the data. All the previous studies on corporate default prediction adopted quantitative methods to examine the role of different predictor information. This study contributes to the literature on redefining and realigning the corporate default prediction models with empirical quantitative findings. The results indicate that bankers in Sri Lanka have a generally positive perception of accounting information. They perceive governance information as being critical for credit decisions. However, no decisions are made using governance information. The majority of the bankers voiced negative perceptions about applying market information to their default prediction models. Further, bankers limit their default prediction models by devaluing or misunderstanding the role of different predictor information when making corporate lending decisions.

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1. Introduction

Credit risk measurement of banks is a highly emphasized risk category under Basel Capital Accord[2]. This emphasis encourages research and development of accurate models to capture the default risk of corporate and retail banking. To date, it is common for studies on default prediction to apply quantitative analysis for examining the roles of financial and non-financial information (For example, Altman & Saunders, 1997; Lakshan & Wijekoon, 2012). There has been a lack of qualitative studies exploring whether bankers apply what the literature suggests for default prediction. Therefore, this study is one of the pioneer studies to examine the roles of default predictor information using a qualitative approach. It contributes to the literature since this issue has rarely been explored with a qualitative approach. Thus, this study aims to investigate the perception of the bankers in Sri Lanka and explore some intuitions and in-depth understanding of the current practices. Local bankers' views on using accounting, share market, and corporate governance information in corporate default prediction are collected.

The difficulty in predicting corporate defaults has incurred a long-lasting problem in credit risk research due to the arguments about the correct methodology and the predictor information. The role and importance of financial data for estimating default probability are covered extensively in the literature, and recent studies have unveiled the importance of non-financial information, mainly corporate governance information, for corporate default prediction (Matthies, 2013).

Over the last few decades, credit screening and pricing models have been refined exclusively on the basis of financial information such as accounting ratios and share price-related measures (For example, Li & Miu, 2010). Financial information-based models gravitate towards either accounting information suggested by Altman's (1968) model or the market information involved in Merton's (1974) model. However, recent studies show that credit decisions do not depend on financial or quantitative information but also on qualitative or soft information (Gropp et al., 2012; Cornée, 2017). Financial information has some limitations; for example, the past performance reported in a firm's accounting reports may not be useful for predicting future performance as accounting manipulation behaviours by managers can damage the financial reporting quality (Agarwal & Taffler, 2008). Market information may

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[2] Basel Committee on Bank Supervision (BCBS) introduced the Basel Accords which cover three series of banking regulations. These accords direct bank regulations in regards to credit risk, market risk and operational risk. The objective of the accords is to ensure that financial institutions are equipped with enough capital to meet obligations and absorb unexpected losses.

show up-to-date information about the company, which is not yet reflected in the accounting ratios, and this works only under the assumption of market efficiency. The literature characterizes internal credit rating models of banks as a mixture of financial and non-financial information (for example, Brunner et al., 2000). Accordingly, recent studies stress the importance of corporate governance and consider it as an alternative non-financial information source for bankruptcy prediction (e.g., Daily & Danton, 1994; Simpon & Gleason, 1998; Parker et al., 2002). Thus, the prior studies suggest that, in addition to financial information, non-financial information plays a critical role in making credit decisions (Elloumi & Gueylé, 2001).

However, no studies have investigated bankers' views on the role and the applicability of different predictor information in predicting corporate defaults. Further, studies based on market information point out the limitations of accounting information (Hillegeist et al., 2004), whereas studies based on accounting and market information point out the flaws of both types of information and show the importance and benefits of integrated models (Fernando et al., 2020). Similarly, studies on corporate governance argue the importance of the role of non-financial information in credit decisions (Liang et al., 2016).

The literature has only examined the judgmental reasoning on why each type of predator information is vital for default prediction; however, research based on the real practices of bankers has rarely been conducted. Therefore, it is imperative to explore the bankers' views on the role of default predictor information because they possess a profound knowledge of real banking practices and are involved in those activities.

The current literature also suggests that corporate governance has an incremental contribution to default prediction compared to accounting and market information (Fernando, Li & Hou, 2019) and the financial ratio-based model (Ciampi, 2015; Liang et al., 2016). The current literature within the Sri Lankan context has focused on the effect of corporate governance on financial distress prediction by Lakshan and Wijekoon (2012). In a recent paper, Fernando, Li, and Hou (2020) make a comparison of financial and non-financial-based default prediction models in the contexts of Sri Lanka and the USA and find that non-financial corporate governance information is more relevant for Sri Lankan firms, whereas financial information appears more relevant for USA firms.

Thus, this study analyses the weight the bankers give to each type of predictor information in their internal credit rating models in their everyday, on-the-job practice. Second, it ascertains the bankers' perceptions of the role of financial (accounting and market) and non-financial

(corporate governance) information in predicting corporate defaults. As suggested by recent literature, corporate governance information plays an essential role in default prediction in addition to financial information. Therefore, this study assume banks should consider the three-predictor information equally in their default prediction models. Thus, an investigation of bankers' current emphasis on this financial and non-financial predictor information can assist them in re-evaluating their current models of default prediction and achieving better performances.

Therefore, this study is an extension of the study by Fernando et al. (2020) using qualitative and quantitative data. Accordingly, this study investigates three research questions;

RQ1: What are bankers' perceptions on the role of financial and non-financial information in default prediction models?

RQ2: How do bankers prioritize financial and non-financial information in corporate default predictions?

RQ3: What issues/challenges do bankers encounter when utilizing accounting, market, and corporate governance information for corporate default predictions?

This study adopts mixed research design to analyse the data. Accordingly, our data consist of 23 interviews with bankers in Sri Lanka. Our results indicate that bankers in Sri Lanka assign a higher weight to accounting information than corporate governance and market information.

2. Literature Review

2.1. Theories on Default Predictions

Unlike the theory of capital structure (Miller & Mogdiliani, 1958), bankruptcy (default) prediction studies have commenced with empirical findings. The purpose of the default prediction studies was to predict whether a company go into bankruptcy (default) or not. For this purpose, several studies, consider development of several models based on the information for bankruptcy (default) prediction and improving the default prediction ability. However, considering the development and the usage of information Lim and Jessica (2012) proposed four theories relating to the default predictions.

First, the initial default prediction started with accounting information and were mainly based on the accounting ratios covering liquidity, profitability and wealth. Therefore, the most popular theory for bankruptcy (default) prediction is a notional one. This notional theory originates with the acceptance of financial ratios as indicators of a firm's health. That is if a firm's financial ratios are "good" it is perceived as healthy, but it is perceived as unhealthy and at risk of bankruptcy (default) if the indicators are poor.

The second theoretical base for bankruptcy (default) prediction is derived from the cash flow theory. Due to the criticism of the usage of accounting information for bankruptcy prediction, researchers considered cash flow based measurements. Thus, Scott (1981) argued that a firm with a positive cash flow are in a position to raise their capital and borrow from the capital market, while a firm with a negative or insufficient cash inflow is unable to borrow and therefore raises risk of default.

Later, due to the criticism on the accounting information, studies moved on to market-based information. Thus, the models were based on the Merton theory models (Merton, 1973), which considers equity as a call option on the assets, the strike price is the value of liabilities. The model assumes when the market value of assets falls below a certain level, the firm will default.

2.2. Empirical Studies on Default Predictions

The aim of the current study is to explore the perceptions of bankers on the role of financial and non-financial information for default prediction. The chosen information categories were based on the identified theories and especially following the extant literature.

A number of studies have examined the prediction performance of financial and non-financial information. The literature identifies two basic forms of financial information (Altman & Saunders, 1997), that is, accounting information as in Beaver (1966) and Altman (1968), and market information as in Black and Scholes (1973), and Merton (1974). Beaver (1966) developed the first bankruptcy prediction model based on accounting information for credit risk modelling. Altman (1968) follows by developing the Z-Score model based on the multivariate discriminant analysis.

The main advantage of using accounting information is its wide availability and accessibility, which has shown a reasonable performance over different periods and in different countries (Altman & Saunders, 1997). Moreover, an essential characteristic of accounting information is its ability to use best predictive information depending on firm size and industry. For example, ZETA model introduced by Altman and others in 1977 focuses mainly on large-scale companies. Hillegeist et al. (2004) highlights the weaknesses in accounting information. Accounting information is prepared using 'going concern' concept whereas default violates this key concept of accounting (Hillegeist et al., 2004). Hillegeist et al. (2004) argue further that ratios based on a firm's assets do not consider the volatility in the value of those assets. Due to weaknesses in accounting information, researchers use market information to improve default prediction. Agarwal and Taffler (2008) point out the importance of market-based

information as it is supported by sound theoretical underpinnings and is free from accounting accrual adjustments.

Beaver (1968) uses market return to represent market information for the first time in a default prediction model. He finds that, in an efficient market, the market information can anticipate the default probability more quickly than the accounting ratios could. Therefore, the problem is how to directly incorporate the market information into the credit risk modelling. The issue is resolved using the theory of option pricing introduced by Black and Scholes (1973) and Merton (1974), and this is applied by, for example, Vassalou and Xing (2004), and Bharath and Shumway (2008). However, the market-based information also has limitations as it is valid only in an efficient market: inefficiencies such as insider dealings could invalidate a market-based model.

Further, Beaver et al. (2005) observe that accounting-based information is subject to changes in accounting standards in different time periods. Hence, market information should be used to supplement the accounting information because the market captures the publicly available information. Agarwal and Taffler (2008), Beaver et al. (2005), and Li and Miu (2010) are examples of studies conducted by combining accounting and market information. Tinoco and Wilson (2013) further augment the previous studies by employing macroeconomic data with accounting and market information for bankruptcy prediction. However, no attention is given to firm-specific non-financial information in these studies. Altman et al. (2008) maintain qualitative or soft information that can enhance the assessment of a borrower's credit quality. Bhimani, Gulamhussen, and Lopes (2013) endorse the importance of non-financial information to default prediction of non-listed firms.

A critical review of the existing literature on credit risk models by Matthies (2013) shows that there are three broader categories of credit determinants: financial ratio and financial data; corporate governance; and macroeconomic factors. While one part of his review shows the usage of financial ratios, financial data, and macroeconomic factors in credit risk modelling, a later part of the study focuses on the use of corporate governance in the credit risk model literature.

Daily and Danton (1994), Elloumi and Gueyie (2001), Lee and Yeh (2004), Platt and Platt (2012), and Ciampi (2015) affirm the incorporation of corporate governance variables as non-financial information. Platt and Platt (2012) find board characteristics are essential to recognize in advance whether a company will survive or become bankrupt. They argue the board of directors have an obligation to maintain company solvency. Wang and Deng (2006)

confirm that ownership concentration related features are the most important for predicting financial distress of Chinese companies. Ciampi (2015) affirms that ownership concentration information is significant for predicting small and medium-sized enterprise defaults. Liang et al. (2016) and Fernando et al. (2019) test financial and corporate governance information individually and collectively. They find that corporate governance information has an incremental contribution in predicting corporate defaults. Liang et al. (2016) indicate corporate governance factors, such as board structure, ownership structure, and the financial ratios relating to solvency and profitability, are essential for predicting bankruptcy. Additionally, using financial transparency and shareholder rights and relations as governance information. Further, Fernando et al. (2019) find the importance of a comprehensive analysis of corporate governance information for default prediction together with accounting and market information.

Thus, a review of the literature shows that default prediction starts by using accounting information, and then market information. However, due to weaknesses in accounting and market information, some studies have combined them for better performance. Subsequently, studies have shown the importance of non-financial information, especially corporate governance, which is strongly emphasized in the literature as the most useful information. However, all these studies use a quantitative models to analyse the prediction ability and significance, and the literature provides reasoning for the results based on their judgments. Thus, to date, few previous studies have investigated how bankers perceive the importance of default prediction information in developing their internal credit rating models. This study is the first to examine the roles of accounting, share market and corporate governance information in Sri Lanka through a qualitative analysis supplemented by a quantitative analysis. Fernando et al. (2020) suggest that a non-financial corporate governance information-based model has higher prediction performances for firms in Sri Lanka than the financial information using quantitative analysis.

This research mainly adds qualitative information to this area. It provides an essential contribution to literature by conducting interviews with bankers to examine their perceptions of the roles of accounting, market, and corporate governance information in predicting corporate defaults. The study is one of the first attempts in this area to gain the insights of practitioners in Sri Lanka in developing their internal credit rating models for better default prediction.

3. Methods

3.1. Research Method

Predominantly, this study favours a qualitative approach exploring the banker's perceptions of using accounting, market, and corporate governance information towards their roles for corporate default prediction. This study also supplemented by a quantitative approach seeking to answer question two of the study on how the bankers prioritize the financial and non-financial information in corporate default predictions. Thus, the study follows mixed research approach. Creswell (2007) highlighted that analyzing both qualitative and quantitative data enhances the overall strength of a study compared to qualitative or quantitative research.

The study applies semi-structured interviews to collect the data. The semi-structured interview guide was developed based on the extant literature, i.e. selecting the three predictor information. A semi-structured interview guide was used to explore, review and ask questions to clarify the phenomena. Data gathered through Semi-structured interviews were analysed using thematic analysis, and the responses for question two were analysed using a t-test.

3.2. Data Collection

This study surveys bankers from 23 out of the 25 commercial banks in Sri Lanka on their opinions regarding the use of financial and non-financial information in their corporate default risk assessments. Face-to-face interviews were conducted with the executives from Sri Lankan corporate banking and credit risk management personnel in the banking sector. The first part of the semi-structured questions gathers background information about the interviewees and invites the interviewees to assign weights to their use of financial and non-financial information in decision-making. The second part consists of open-ended questions to explore the perceptions of accounting, share market, and corporate governance information regarding their roles in corporate default prediction.

The 23 interviewees cover 9 foreign and 14 domestic banks in Sri Lanka. The interviewees are coded from B1 to B23. Summary details of the interviewees are given in Table A2 in the Appendix. A written consent to participate as an interviewee was obtained at the start of the interviews for ethical considerations.

The validity and reliability of the interview starts with the selection of units of observation (banks) for the study. Purposive sampling technique was used to derive in-depth information links with the study's research question (Silverman, 2006). The basis for the selection of the interviewees was the individual's involvement in the credit risk management process at his/her bank. The interviews probed the weights they selected for accounting, share market,

and corporate governance information in predicting default probability. Then, we investigate their thoughts on the importance and challenges of utilizing accounting, market, and corporate governance information for corporate default predictions. Four open-ended questions guided the interview process. The questions were designed to ascertain if and why the interviewees use accounting, corporate governance, share market and other (unspecified) information in their corporate borrower's credit risk assessment. (See Table A1, Appendix for guided interview questions.).

3.3. Data Analysis

The semi-structured interview data analysed thematically using NVivo version 11. Thematic analysis used as analytical method, and which is the common method used in qualitative research (Roulston, 2001). Thematic analysis facilitates to identify, analyse and report patterns based on themes (Braun & Clarke, 2006). Thematic analysis interprets various aspects of the research (Boyatzis, 1998).

Based on the analysis, sub-themes were classified under the three main subject themes: 1) perceptions of corporate governance information, 2) perceptions of accounting information, and 3) perceptions of market information. Six sub-themes were generated from the accounting and corporate governance information and four sub-themes from market information.

According to Barker et al. (2011 cited in Ibekwe, 2015), survey studies in finance help to bridge the gap between theory and practice in finance. More importantly, this study uses a comparison with the current literature as the basis for providing a platform for the qualitative analysis. Most studies in this area focus on quantitative prediction, and recent studies affirm the role of governance information, added to the financial information, in predicting corporate defaults. The novelty in this study is that the qualitative findings are used to shed more light on the gap between the current practice and the theories based on empirical literature.

4. Results

4.1. Interviewees' ratings for predictor Information

Table 1. Sri Lankan Bankers indication of the percentage reliance on predictor information

Bank code	Accounting	Market	Corporate governance	Other
B1	50	25	25	
B2	70	20	30	
B3	70	10	20	

B4	60	20	20	
B5	50	10	20	20
B6	40	30	30	
B7	40	20	40	
B8	40	35	25	
B9	60	20	20	
B10	35	25	15	25
B11	60	20	20	
B12	70	10	20	
B13	50	30	20	
B14	35	10	25	30
B15	40	25	25	10
B16	40	20	40	
B17	50	25	25	
B18	75	20	5	
B19	45	20	35	
B20	33	33	33	
B21	40	50	10	
B22	70	20	10	
B23	50	20	30	
Mean	51.0*	22.5*	23.6*	21.25*
Std. Dev.	12.96	8.96	8.77	7.4
T-value	3.93	2.51	2.69	2.87

Note: This table summarizes the percentage usage of accounting, market and governance information by the bankers in Sri Lanka in their current default prediction models. This table also provides the mean, std. dev (standard deviation) and the t-value generated from one-way ANOVA shows the significant differences between the four types of information among the banks. * represent 1% significant level.

At the commencement of the semi-structured interviews, the bankers were asked to identify the extent to which they use accounting, market, and corporate governance information for default prediction, on a scale of 0 to 100 percent. Table 1 reports the weighting of the interviewees assigned to each type of information. The highest weighting is allocated to the accounting information, on average 51 percent. Next comes the weighting of corporate governance information, on average 23.6 percent. The lowest weighting is for market information, on average, 22.5 percent. Each type of predictor information has been used significantly by the bankers.

Four interviewees mentioned that they use other types of information to account for 10-30 percent of their decision making. They pay attention to factors about the firms' market standing, industry performance, and the general state of the economy. This study also applies

a one-way ANOVA test to examine the significant differences among the average weightings for default prediction, which tests the significance between the four main types of predictor information: accounting vs. market; accounting vs. governance; governance vs. market; and financial (accounting and market) vs. non-financial (corporate governance) information.

Table 2. Significant differences between predictor information applied by the bankers in Sri Lanka

Combination of information		Mean Difference	F-value
Accounting Market	vs.	28.5	71.82**
Accounting Governance	vs.	27.4	67.37**
Governance Market	vs.	1.1	0.165
Financial vs. Non-financial		28.65	47.893**

Note: This table summarizes the results from one-way ANOVA test to find the significant differences between the different kinds of information used by the bankers in Sri Lanka in their current default prediction models. The difference represents the difference between the average values among the information used. * represent 1% significant level. Financial includes accounting and market information and Non-financial represents corporate governance information.

Table 1 highlights the dominant use of accounting information by the 23 bankers in their everyday practice of default prediction. By contrast, the recent literature highlights the importance of governance information on default prediction (See for example; Elloumi & Gueylé, 2001; Liang et al., 2016; Fernando et al., 2018) compared to financial information. As mirrored by their weightings, the bankers provide their personal and subjective opinions on the various types of information they use for making their assessments on the likelihood of a firm default. There is a clear discrepancy between the two sources of research results. What bankers do in practice is not supported by what information they should use, as indicated by the empirical studies of corporate default. Exploring the bankers' views on the importance and challenges of default prediction in real practice can provide an understanding of why the interviewees rate accounting information more highly than corporate governance and share-market information. Table 2 further supports the view that there are significant differences of using the types of information in default prediction decisions. The usage of accounting vs market, accounting vs governnce and financial and non-financial information shows a clear significant differences based on thee ANOVA test.

4.2. Bankers' Perceptions

The interviews reveal the perceptions of bankers on the importance and challenges of using accounting, market, and corporate governance information for their credit decisions and default prediction. Table 3 provides a summary of the interview findings with a number of interviewees for arguments associated with the themes identified under each type of predictor information. The responses are coded by whether interviewees are from foreign banks or the local banks. An assumption that foreign banks might favour corporate governance information is not upheld, as the comments are fairly widespread across the topics.

Table 3. Summary of the interview findings on the perceptions of predictor information

The mes		No.	Fore ign Ban ks	Loc al Ba nks
Acc ount ing infor mati on	Audited financial statements	7	4	3
	Measurability of financial position	6	4	2
	To measure repayment capacity	5	-	5
	Accuracy	1	-	1
	Primary sources for evaluation	1	1	-
	Availability	1	1	-
	Backward-looking information	2	1	1
	Manipulations	1	1	-
Mar ket infor mati on	Market stability and demand	6	4	2
	Reflection of the up-to-date business information	2	-	2
	Shareholder confidence	2	-	2
	General public perceptions	1	-	1
	Non-critical for credit decisions	5	3	2
	Lack of transparency	1	-	1
Corp orate gove rnan	Measure management and business disciplines	7	2	5

ce	Guarantee the management performances	5	3	2
	Integrity of board of directors	4	1	3
	Ensure transparency	1	-	1
	Reflection of business sustainability	1	1	-
	Non-critical for credit decisions	2	1	1

Note: This table summarizes the main themes generated under each predictor information. Non-supporting perceptions are shown in italics. We have categorized perceptions of each predictor information as positive and negative. Each interviewee is identified by code (B1 to B23). The number of interviewees for each theme are provided in the last column.

4.3. Perceptions of Accounting Information

Most of the bankers in Sri Lanka believe accounting information is the most vital information, because it can measure the borrower's repayment capacity. There are six major themes relating to accounting information (see Table 3). Five interviewees identify their main reliance on accounting information because of its ability to measure the repayment capacity of the borrowers. For example:

> In the case of corporate borrowers, it's really the strength of the repayment capacity of corporate borrowers …. For corporate lending, we are strengthening or totally relying on financial stability based on accounting information, and that ensures the continuity of the future cash flows to service our debt. So, then the best thing that we can use to assess both the past and present financial health of our corporate clients is accounting information. (B15)

The interviewee implies that banks in Sri Lanka rely strongly on accounting information to measure the financial stability of the borrowers in the past and the present. As a debt provider, a bank needs to identify how the borrowers can service their loans. For that purpose, bankers use accounting information to identify future cash flows and to ensure leverage. Six interviewees perceive that the accounting information shows the current financial position of the corporate borrowers. For example:

> For corporate customers, we are mainly looking at their balance sheets because those are transparent. They are listed in CSE (Colombo Stock Exchange), and they are required to publish annual reports as they abide by the rules of the CSE.

They also required to publish quarterly financial reports on time. So, we mainly depend on their balance sheet and cash flow statement. Moreover, we look at their future cash flows and how they will service our loans through accounting information. (B1)

Generally, the main reason the bankers in Sri Lanka rely on accounting information for the listed companies pertains to the regulatory environment. Therefore, most bankers perceive that accounting information is vital for default prediction because financial statements are audited by an independent audit firm and are deemed to be reliable. Seven interviewees express this view. For example:

Actually, that is the vital information, especially when it comes to corporate customers. Because their accounts are properly audited, therefore, that is the main source that we rely on their financial performances, other than certain information that we carry…. When we evaluate corporate customers, audited financial accounts are the key. (B4)

The level of acceptance of the accounting information is supported by the independent auditor's opinion, which confirms for the bankers the reliability of the financial statements. Moreover, accounting information plays a prominent role in determining the corporate customer risk rating. For example:

We mainly rely on accounting information because audited financials are the independent means that verify the financial position of the client. So, an integral part of proposing a credit facility to a client is obviously taking a call on the probability of default. It's two folds. First, financials are used for us to feed into our internally generated risk rating model. Which throws out 'Probability of default' (PD) based on the financials of the company. PD is defined as baseline risk rating, which is purely a financial model [in] which we look at all the quantitative parameters … the financials throw out from an internally derived risk rating … (B5)

… we mainly investigate audited financials, … we think it will give us the correct financial position of the company. And that has been done by an independent body… (B11)

The perceived reliability of the accounting information is established on the basis of the regulatory environment. According to CSE requirements, publicly quoted companies are required to publish audited financial statements annually, and also, they should send quarterly financial statements to CSE in Sri Lanka. Therefore, to measure the correct financial position of the company, the key factor is the audited financial statements which represent the current information.

> The main thing is we have given big weightage for accounting information, out of 100, I think 45 percent for accounting information because financials are prepared according to the regulations, so, they are independent and current. We go through the financials and industry averages, then we use them to identify early warning signals. (B19)

Most banks advise their clients to select their audit firm from the big five audit firms in Sri Lanka as it carries a certain weight in some of the bank's internal risk rating models. More importantly, they rely on those audit reports as their majority corporate customers are audited by well-known audit firms. One interviewee highlights the reliance on "quality reports," meaning the reports are subject to a third party opinion as an independent body. For example:

> We get corporate clients' quality reports; we prefer if the client is audited by a big audit firm. If it is not, we check whether the firm is a reputed audit firm in Sri Lanka. But our bank's clients, mostly 75 percent, are audited by major audit firms. (B20)

However, three interviewees explain the drawbacks of using accounting information. One criticism is the backward-looking nature of accounting information.

> We do consider accounting information because they are the primary driver, a primary measure to evaluate. However, I know it's a little bit of a backward-looking exercise. (B10)

Most bankers prepare a 'borrower analysis' based on historical three to five years of accounting data. Yet, even though they rely on accounting information, they could not predict 100 percent reliability in this emerging market. They perceive that the accounting information is subject to managerial opportunisms. For example:

> When it comes to public quoted companies, the financials are accurate, but most
> of the private companies in Sri Lanka only give 50 percent of the company
> picture. [For] Public companies, it is a must, and 90 percent to 95 percent we
> rely on accounting information. (B21)

Generally, the interviewees emphasise that the accounting information is accurate and readily available, and thus it is the primary source for them to evaluate corporate borrowers.

4.4. Perceptions of market information

When analysing the perceptions of market information, six interviewees regard share market information as being important for assessing the corporate borrower market stability. For example:

> We look at the current share prices to check whether there is any drop or
> improvement. Because we can identify the market stability and market demand
> for company shares. (B17)

Two interviewees explain that the main reason they value market information is its ability to reflect the up-to-date company performance beyond what is reported in the accounting information. Some bankers believe that market information has the ability to reflect shareholder confidence. For example:

> We consider market information because of the confidence of the shareholders,
> and the share prices give the signal of how the company is perceived by the
> general public and whether the value reflected in the market is higher than their
> book value. (B3)

Generally, foreign banks are regulated by the rules and regulations of their head offices. However, they also use market information because, as debt-holders, banks need to identify how the equity market behaves as it can signal them to recognize the likelihood of defaults. For example:

> Equity and debt market behave differently. Yes, we use market information
> because it's a sign to a debt holder what is happening in the market, share price
> fluctuations if any, … these all really matter for defaults. (B10)

For some bankers, the importance of market information arises because of the deficits and limitations in accounting information. Accounting information is subject to information manipulation and is backward looking. For example:

> … market information is important for our decision making because that is the most important than accounting information when it comes to current position in the market. (B21)

In contrast, five interviewees express negative opinions about market information. One banker explains that the inefficiency of the market is the main reason why they do not rely on market information.

> Unlike other economies, in Sri Lanka, we must be mindful of stock market reflections. If it is a transparent market, then share prices reflect the real value of the shares. Because that will be determined by the demand and supply for shares. But in Sri Lanka, sometimes certain shares go very lower than their NAV for no reason. And some of the shares, solid companies would have healthy operations, and management is efficient, but still, the market prices are much more inefficient. (B14)

Other bankers perceive that the market information does not add value for the corporate default prediction, and they do not rely on this information for their loan approval decisions. They value market information, especially share prices and volatility; however, they do not use it directly in their default predictions or lending decisions.

> We don't depend on our credit evaluation on market information, but it's a dominant factor for the survival and raising of the capital for the company. So, we consider them. There are not any hard and fast rules [as] such, but in general, we look at the share prices and what sort of movements they have [made] over the last year and whether there will be any drastic fluctuation in the near future. Those things are considered by experience. (B2)

> For corporate lending, it's not something that we rely heavily on. Corporate lending expands in Sri Lanka across very liquid, say blue chips companies, so mid-caps, maybe for large companies that are closely held. So, the share price might not be [a] great proxy for strength or performance of a company always. So, it's not a critical factor to monitor. (B15).

We have about 500 corporate borrowers, and mostly 350 are borrowing clients. We don't take much information from the share market to assess our clients. Our analysis basically depends on the financials, industry, business, management, and facility structuring. Therefore, there is no specific information we take from the share market. (B20)

4.5. Perceptions of corporate governance information

Several interviewees believe that governance information is important, as is evident from the following responses, for instance:

Corporate governance plays the key role of governing the executive managers' actions and their decisions. The managers act as a bridge in between the investors [that is both equity and debt providers] and management. So as the debt provider, we concern about how they do their job in order to safeguard our return. (B1)

The corporate governance of the borrower is a prime factor, indicating where the company will head. If the company acts correctly, our return and capital will be backed. If it [does] not, there is a big risk of losing money; that is why we look at corporate governance and who are the people actually involved in the board level for decision making. (B23)

Some interviewees believe that governance information assists in assessing management performance. For example:

It is important for the performance of the company and its stability because everything is managed by corporate governance. (B4)

Yes, we cover governance aspects in our credit evaluation, we assess the quality of the management and the strength of the management as an integral part of corporate governance [....]. (B5)

Seven interviewees perceive that governance information is important due to its ability to show the integrity of the board of directors. One interviewee points out that they consider the board of directors' background, their qualifications and other factors such as related party interests. Another interviewee comments that the quality of the executive management,

especially regarding the board representative, the right attitudes of the management, and professionalism, is a key concern under corporate governance.

One interviewee's main concern is the ability to protect the transparency of the company information. However, transparency is defined on the basis of the availability of the information about owners of the company, management, and their experiences with the public. For example:

> I believe corporate governance and credit quality is related. [.....] Transparency is the key to the success of the company. We consider the business owners, management related facts, their experience, and whether they have been given the training to the next level, and expertise. (B12)

Additionally, one of the interviewees believes that the governance information ensures the business sustainability. For example:

> If the CG is not good, there is no chance for a company to survive in the long run. They can survive in the short run, but there will be issues in the long term. (B2)

Two interviewees share how they include corporate governance information for the credit proposal; however, they do not rely on governance information for their final decision. For example:

> Honestly… that is not only in our bank but in the banking sector in Sri Lanka; credit decisions would not be made on corporate governance. But definitely, we look at corporate governance, but I still don't believe credit decisions made on them, i.e., whether to lend or not. … most of the cases, particularly what we are talking about, corporate governance is [the] integrity of the people who are running the organization, many instances we have seen when an organization is diverting from their basics principles what they have, or people who had integrity, they have gone in down in the past. (B14)

> Actually, we go -through corporate governance information, and it is important. But we mainly concern ourselves with accounting and market information. (B13)

Overall, the interviewees accept that corporate governance information is important for default prediction as it indicates how the board of directors performs their duties and provides a check on principal-agency conflicts. However, when analysing the current usage of

governance information in their prediction models, the percentage allocation is at the lowest level compared to accounting but at a higher level than the market information (see Table 1). Accordingly, it is clear from the interviews of bankers that the banking industry in Sri Lanka has given little attention to corporate governance information for a default prediction of the corporate customer.

4.6 Other information

A wide range of other types of information is used by the bankers in their decision models. In addition to the accounting information, the bankers appear to be most interested in the business in relation to the external environment of the firm such as their competitors, government regulations, and the general economic conditions. For example:

> Business risk … product diversity, market position, supplier characteristics, availability of resources, marketing arrangement, inventory, years of operations. (B3)

> Macro factors (industry related, general economic), non-financial parameters...(B7)

> General market conditions; how the industry performs, government regulations, whether the customer is in foreign market, if there is any adverse fluctuation in that particular market and how it affects the customers. (B13)

> Compliance criteria using KYC (Know Your Customer) and also whether there are politically exposed persons (PEP), anti-money laundering, and whether they have complied with related party transactions. (B8)

Information about the business environment appears to have some relevance to their monitoring activities but does not play a dominant role in predicting default by corporate clients.

5. Discussion and implications

The bankers' ratings for predictor information show that the role of accounting information is more important than corporate governance and market information. Therefore, the extant literature does not support the high dependency on the accounting information for making default predictions, ascertained from our sample of bankers. However, the application of accounting information for default prediction is extensive in the early studies in this area (For

example, Beaver, 1966; Altman, 1968). Subsequently, stronger prediction models incorporating market (Bharath & Shumway, 2008) and government variables (Daily & Danton, 1994) have been built with proper arguments highlighting the drawbacks of using pure accounting information.

By analysing the bankers' views on accounting information, it is clear that most of them depend on it as the only reliable source for making their decisions. However, these views are different from the findings of Dechow et al. (1995). They find that the companies falling into default have incentives to dress their accounting information. Further, historical data in a firm's accounting reports may not be informative for predicting the future. Moreover, the common issue of accounting manipulation reduces the financial reporting quality (Agarwal & Taffler, 2008). Hillegeist et al. (2004) state that the usage of accounting information for forecasting the default probabilities of a firm violates the going concern concept of accounting. Further, Emel et al. (2003) also criticise the use of accounting ratios due to the fact that the significant differences across industries and macroeconomic factors. What the financial statements show may not be relevant to or complete for the credit rating decision.

Our research also shows that bankers in Sri Lanka do not place high reliance on market information in their borrower evaluation. Agarwal and Taffler (2008) show the importance of market-based information in credit risk modelling. They state that market information is backed by sound theoretical assumptions. In an efficient market, share prices reflect all accounting and non-accounting information. Therefore, market information is free from accounting adjustment, and the output derived from market information-based models is free from time and sample dependency. However, Allen and Saunders (2002) show the prediction models based on market information are subject to stringent assumptions. Further, market information may reflect current information about the company compared to accounting ratios. This is true only if markets are efficient. The bankers surveyed in Sri Lanka perceive market information as having the lowest prediction ability compared to corporate governance and accounting information (see Table 1). This finding is consistent with Kim and Shamsuddin (2008), who argue that share markets in secondary emerging economies are inefficient. The reliability of the market information is obviously challenging for a developing country like Sri Lanka.

Interviewees define corporate governance as a bridge between the investors and the management; therefore, the banks are confident in providing their money to companies with

good corporate governance. Some of the literature shows that the highest prediction ability is generated from the governance-information based model (e.g. Elloumi & Gueylé, 2001). The bankers accept that the governance information is important due to its ability to measure the management disciplines and business disciplines.

However, the extant literature suggests that governance information has an incremental contribution to prediction performances together with financial information (for example, Lee & Yeh, 2004; Liang et al., 2016; Fernando et al., 2019). In particular, some studies have compared the prediction performances of the governance information with financial information (for example, Daily & Dalton, 1994). Most of the studies show the role of board characteristics as a proxy for corporate governance information in predicting corporate defaults (for example, Platt & Platt, 2012). Further, Simpson and Gleason (1999) maintain the view that board structure is important because of the board's responsibility to ensure the effectiveness of the governance mechanism and to provide an independent view on management performance. Some of the bankers hold a similar opinion, and they believe that governance information could ensure the transparency. Lakshan and Wijekoon (2012) affirm the importance of corporate governance information in predicting financial distress in the Sri Lankan context. Fernando et al., (2020) find that corporate governance information has a higher prediction ability than the accounting and share market-based models for Sri Lanka as a representative emerging market.

However, the bankers in our research do not assign the corporate governance information a high priority in their prediction models. Perhaps they consider that it requires a more subjective estimation of its effect on the likelihood of default. Perhaps they are unaware of the strength of the credit risk models that incorporate governance variables compared to those of accounting and marketing information.

6. Conclusion

The aim of this study is to investigate the role of financial and non-financial information for predicting default probabilities. This study provides detailed evidence of bankers' views on the importance of accounting, market, and corporate governance information for predicting defaults in the Sri Lankan context.

The results from the semi-structured interviews reveal bankers in Sri Lanka assign a higher weighting to accounting information than corporate governance and market information. However, the extant literature suggests the inclusion of non-financial

information, particularly the governance information of the corporate borrowers, yields better prediction performance.

The results of the interviews suggest that the majority of the bankers perceive accounting information as the most important information for their credit decisions because of the quantification ability, availability, and reliability. Several interviewees highlight that the financial statements are audited by an independent party; therefore, the quality of the accounting information is guaranteed. Hence, accounting information takes the highest priority for their credit decisions. The main two reasons bankers consider corporate governance information for default prediction are board effectiveness and transparency. They consider the information relating to board characteristics due to the role they play in the relationship between owners and management. Interviewees also suggest that through corporate governance, they can ensure the transparency of the information, which is also a reason for them to use governance information. However, two interviewees strongly expressed the view that they consider the governance information; however, their decisions are not based on this. Interviewees' views on market information are that this is not as satisfactory as a basis for default prediction as accounting and corporate governance. This is mainly because they believe the share prices are unreliable due to market inefficiency.

Therefore, this study reveals the importance of the qualitative research approach in this area, as previous studies mainly conduct quantitative analysis by using secondary data to identify the role of predictor information. Empirical findings shed light on the gap between the current practices and the extant literature. Indeed, the face-to-face interviews provide insights on why and how the accounting, market, and corporate governance information is considered for default prediction by the banks in Sri Lanka. It appears that the bankers in Sri Lanka do not apply the results of research as reported in the literature. It is thus believed that our study makes an important contribution to the extant knowledge regarding the default prediction of corporate borrowers in Sri Lanka. Findings from this study suggest the importance of the application of governance information into the default prediction models in Sri Lanka. The findings may help the regulators to better understand the importance of governance information on corporate default prediction. Testing whether the results are consistent with other emerging markets would be an interesting direction for future research.

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Appendix

Table A1. Interview guided questions

information categories	Questions
Predictor information	
Accounting	Do you consider accounting information as an important information in evaluating corporate borrowers' default probability? Why?
Market	Do you consider market information (share market related) as an important

	information in evaluating corporate borrowers' default probability? Why?
Corporate governance	Do you consider corporate governance information as an important information in evaluating corporate borrowers' default probability? Why?
	Do you believe the understanding of the relationship between corporate governance and credit quality is important for a proper evaluation of corporate customers? Explain.
Other	What are the other information you consider in the credit risk modelling in addition to the accounting, share market and corporate governance information?
Current practices	
General	What are the weights you have assigned to the accounting, share market, and corporate governance information from the overall assessment of your corporate customers (as a percentage)? a. Accounting b. Share market c. Corporate governance

Table A2. Summary details of the interviewees

Bank Code	Interviewees designation	Foreign	Domestic
B1	Manger		✓

	corporate banking		
B2	Manger credit	✓	
B3	Chief risk officer		✓
B4	Credit risk manager		✓
B5	Relationship manager corporate banking	✓	
B6	Senior manager corporate banking		✓
B7	Relationship manger		✓
B8	Manager credit	✓	
B9	Relationship manager-corporate banking		✓
B10	Manger corporate banking	✓	
B11	Credit risk manager	✓	
B12	Chief manger	✓	
B13	Relationship manger-corporate banking	✓	
B14	Manger credit risk		✓
B15	Manger credit risk		✓
B16	Chief risk officer		✓
B17	Customer relationship manger		✓
B18	Manger credit risk		✓
B19	Business		✓

	development manger		
B20	Manger credit risk	✓	
B21	Manager corporate banking		✓
B22	Manger credit	✓	
B23	Manger credit		✓
	Number of Bankers	9	14

Note: This table summarizes the details of the interviewees. In particular, the table shows the banks ownership on foreign and domestic basis. All interviews were conducted in Sri Lanka. Each interviewee is assigned a code from B1 to B23.