
Two minds of credit professionals: accrual vs. cash accounting information

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Abstract: To explore in what ways and what elements of financial statement information is important for credit practitioners, we employ a survey method to obtain new evidence. We ask if there is evidence on the existence of two different types of views to accounting information, namely accrual accounting and cash accounting emphasis. The two views come out robustly throughout our analysis, and they are consistently linked both to credit professional's experience, and task complexity. We infer our evidence to be consistent with the explanations for co-existence of differential information preferences advanced in behavioural accounting literature related to individuals' cognitive constraints in use of accounting information. We discuss the implications of our results for credit professionals, accounting standard setters and researchers.

Keywords: financial statements; credit professionals; cash accounting; accrual accounting; accounting information; behavioural; rational inattention; limited attention; information preferences; experience; task complexity; survey.

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1 Introduction

It is well established that financial statement information is important for credit professionals. However, the question if all credit professionals use financial information in the same way, and if not, what is important for credit professionals in financial statement information is still little studied. We explore and obtain new insights into credit professionals' preference for presumably less informative cash accounting information over more informative accrual information in credit risk assessment, employing a survey to obtain our research data. Despite the fundamental nature of the issue, our understanding of the relative importance of accrual and cash accounting information not only in credit risk assessment, but also for other purposes, is still limited.¹

Understanding sophisticated users of financial statement information is important for the International Accounting Standards Board (IASB) in the process of developing high-quality accounting standards.² Similarly accounting scholars acknowledge the need to better understand financial statement users. For example, Lev (1989, p.155) called already in 1989 for research "aimed at understanding the actual use of reported data by investors" to better understand the usefulness of financial reports. Nevertheless, recently Lawrence (2013) suggests that our understanding of individual investors' preferences of the types of financial statement information is still relatively low. Similarly, Costello et al. (2019) suggest that human discretion in assessing loan outcomes is not well understood.

The IASB (2010, 2018) frameworks proclaim that financial statement information produced through accrual accounting provides superior information for various decision-making contexts. In contrast, the credit industry practice is commonly considered to emphasise cash accounting information over accrual accounting information in the spirit of 'cash is king, earnings are queen' (e.g., Donaldson, 1979; Ganguin and Bilardello, 2005; FitchRatings, 2018).³ Nevertheless, for example, Moody's (2003, p.4) Nordic companies rating methodology report suggests that "..., there has been much discussion about what constitutes the best measure of a firm's cash flow."

These conflicting views are also reflected by the extant accounting research. The archival accounting research persuasively demonstrates the prevalence of accrual accounting information in credit risk assessment and credit contracting at the aggregate level. However, extant experimental and survey evidence on individual credit professionals' preferences is more mixed.⁴

In this study we employ the survey method to collect new data on Nordic credit institutions to examine individual credit professionals' opinions on the relative importance of accrual vs. cash-accounting information in credit risk assessment.⁵ We find that our sample of Nordic credit professionals' opinions on the relative importance of

accrual and cash accounting information are divided (53.8% vs. 46.2%, respectively). To understand potential reasons for the existence of credit professionals' divergent views, and especially why some may prefer ostensibly less informative cash accounting information over more informative accrual accounting information, we ground our exploration on behavioural literature in accounting and economics.

The rational inattention studies in economics assume that decision makers' information processing capacity is limited. Consequently, their choice of decision-useful information, including its type and amount, is guided by their beliefs (priors), effort, as well as cost of information acquisition and learning (e.g., Sims, 2003; Matějka and McKay, 2015). Relatedly, the limited attention hypothesis in accounting literature postulates that decision makers' use of accounting information is constrained and influenced by cognitive capacity and behavioural biases especially when faced with vast information and complex tasks (e.g., Hirshleifer and Teoh, 2003; Hirshleifer et al., 2011; see also Libby and Emett, 2014). That is, they have a tendency to reduce their cognitive effort required by a task by utilising more salient and easier to process information. On the other hand, the behavioural literature indicates that more sophisticated and experienced individuals are better at selecting and using relevant information and, hence, less prone to biases in their use of accounting information (e.g., Bonner and Lewis, 1990; Libby and Luft, 1993; Simnett, 1996; Elliott et al., 2008; Drake et al., 2019; see also Campbell et al., 2019).

Consistently with these predictions, we find that our respondents working on high complexity tasks are incrementally more likely to prefer cash accounting information ('less voluminous, simpler, and easier to process, but also less informative') over accrual accounting information ('more voluminous, complex, and harder to process, but also more informative'). Moreover, more experienced respondents are incrementally more likely to consider accrual accounting information more important than cash accounting information. Our results are robust to a battery of univariate and multivariate tests. We infer that our results are consistent with the behavioural predictions that individuals' use of accounting information is affected by cognitive constraints, and that their information preferences are moulded by experience and task complexity.

Our study contributes to our understanding of a class of sophisticated financial statement users' perceptions of accounting information by focusing on credit professionals. Our study provides initial evidence that there can validly exist divergent opinions among sophisticated users of accounting information about the relative importance of accrual vs. cash accounting information in the credit decision context. The different views among individuals persist despite organisational factors (e.g., procedures and training). The evidence also suggests that there is a learning-curve among credit professionals in utilising more complex accrual accounting information as well as that they engage in adaptive use of accounting information.

We add to the recent survey studies on professionals' perceptions of a number of accounting issues by focusing on credit professionals' opinion about the fundamental accounting question regarding the relative importance accrual vs. cash accounting information (e.g., Elliott et al., 2008; de Jong et al., 2014; Gassen and Schwedler, 2010; Dichev et al., 2013; Cascino et al., 2017; Donelson et al., 2017; Drake et al., 2019). Donelson et al. (2017) is the only study that surveyed the related context; how commercial lenders evaluate financial statement quality in debt contracting.⁶

This study also contributes to the behavioural research in accounting on the effect of limited attention on individuals' use of accounting information in financial

decision-making (e.g., Hirshleifer and Teoh, 2003; Hirshleifer et al., 2011; Miao et al., 2016). In the credit decision context, Campbell et al. (2019) provide archival evidence on the impact of limited attention on loan officers' use of soft information. Lachmann et al. (2015) provide experimental evidence on the impact of financial statement salience on non-professionals' credit risk assessment. Our study adds to this line of recent inquiry by providing evidence on the effect of task complexity and experience on credit professionals' emphasis of accrual vs. cash accounting information in credit risk assessment.

This study is organised as follows. First, we discuss relevant literature and form our predictions. Second, we present our survey research design. Third, we report the analyses and results of the survey data. Next, we discuss potential implications of our results for the credit profession, accounting standard setters and researchers. Conclusions end the study.

2 Background and predictions

Assessment of a company's future capacity to generate cash flows to service its debt is a quintessential part of credit risk assessment, and accounting information has a significant role in it (e.g., Basel Committee on Banking Supervision, 2000). It is well-known, that accrual accounting information is considered to capture the economic consequences of transactions in a relatively more informative manner. It also provides more comprehensive and timelier, albeit also more complex and voluminous, information about a borrower's business and its credit risk. Instead, cash accounting is not able to capture economic consequences of business activities to the same extent as accrual accounting, but it provides simpler and easier to interpret and process information on perhaps the most fundamental and salient financial measure in credit analysis; namely, cash flows.

2.1 Professionals' views

The IASB's (2010, 2018) conceptual framework for Financial Reporting considers credit professionals as primary users of accounting information and recognises their need to assess prospects for future cash flows to make credit decisions. The IASB (2010, OB17, 2018, BC3.4b) framework asserts that accrual accounting provides a better basis than cash accounting for assessing the entity's past and future ability to generate net cash inflows. Nevertheless, the IASB (2018, framework BC3.6) does not view information in the statement of cash flows to be less important.

The credit risk assessment practice strongly supports the significant role of financial statement information in its entirety, while emphasising the central role of cash flows in credit risk assessment (e.g., Donaldson, 1979; Ganguin and Bilardello, 2005; Standards & Poor's, 2013). Credit professionals, while potentially emphasising cash flow information, are expected to incorporate all relevant information including accrual accounting information into their credit assessment (e.g., Ganguin and Bilardello, 2005).

2.2 *Extant evidence*

The archival research persuasively and consistently with the IASB's views indicates that accrual accounting information is superior in informing about a borrower's credit risk as well as in enhancing the efficacy of credit contracting. In fact, empirical and professional models typically do not even incorporate any cash accounting measures to predict or explain a borrower's probability of default or bankruptcy.⁷

In contrast, the evidence from accounting research employing experiments and surveys, which provide more direct, granular, and nuanced evidence on individual sophisticated accounting information users' information preferences, is more mixed. In brief, extant survey and experimental evidence suggests that all financial statement sections – the income statement, the balance sheet, the changes in shareholders' equity, the statement of cash flows, and the notes to the financial statements – provide relevant information for credit decisions, but their prominence varies.⁸ Nevertheless, the literature does not explain why individual credit professionals' preferences for accrual vs. cash-accounting information may differ.

2.3 *Behavioural explanations*

While the extant experimental and survey evidence is inconclusive on credit professionals' preferences for types of accounting information and potential reasons for it, it clearly indicates that credit professionals as a whole do not necessarily share homogeneous views on the relative importance of accrual vs. cash accounting information. In fact, the evidence suggests that some credit professionals may prefer less complex, and perhaps more salient, cash accounting information over more informative accrual accounting information.

The behavioural research in accounting provides important cues for the existence of differences in individual credit professionals' information preferences.⁹ In particular, the limited attention hypothesis predicts that individuals have a tendency to reduce their cognitive effort (i.e., information processing costs) by making information choices among a set of relevant information for a particular decision. Especially, limited cognitive capacity induces less sophisticated individuals and individuals conducting complex tasks including vast amounts of information to weigh more salient, easier to process, and less voluminous accounting information (e.g., see Hirshleifer and Teoh, 2003; Hirshleifer et al., 2011; see also Libby and Emett, 2014).¹⁰ The behavioural literature also asserts that individuals' information choices including weighting of decision-useful information is influenced not only by task complexity, but also by their experience.¹¹

- 1 *Task complexity:* Already the early behavioural literature in accounting suggests that variation in task complexity is likely to change credit professionals' information processing. Credit professionals engage in selective and reduced information search strategies when faced with a relatively higher task complexity (e.g., Payne, 1976, 1982; Biggs et al., 1985; Paquette and Kida, 1988; Rodgers, 1999; see also Kerstholt, 1992). Payne (1976, 1982) suggests that such behaviour is associated with individuals' incentive to reduce cognitive efforts when faced with complex tasks. Thus, we predict:

P1 Credit professionals facing relatively more complex tasks are incrementally more likely to prefer cash accounting information than credit professionals facing less complex tasks.

- 2 *Experience*: On the other hand, behavioural research indicates that task-specific experience and related knowledge assists individuals in forming effective decision-making strategies and in identification, processing and interpretation of relevant information for context-specific decision-making (e.g., Bonner and Lewis, 1990; Libby and Luft, 1993; Payne et al., 1993; Simnett, 1996; Baldwin and Rice, 1997; see also Tam et al., 2006; Elliott et al. 2008; Drake et al., 2019). For example, Miao et al. (2016) find that more sophisticated investors are better at utilising information in accruals than less sophisticated investors in the absence of cash flow information.

Moreover, the cognitive psychology literature suggests that experience may curtail the effect of task complexity with knowledge leading to adaptive and more focused use of information (e.g., Marewski et al., 2010). Relatedly, research on auditors indicates that domain-specific experience assists accounting professionals to perform better in complex tasks (e.g., Bedard and Biggs, 1991; Abdolmohammadi and Wright, 1987; Chang et al., 1997; Lehmann and Strand Norman, 2006). Nevertheless, the extant evidence also suggests that professional users of financial statement information do not necessarily use efficiently all relevant information (e.g., Bradshaw et al., 2001; Elgers et al., 2003; see also Libby et al., 2002). Thus, we predict:

P2 Relatively more experienced credit professionals are incrementally more likely to prefer accrual accounting information, than credit professionals with relatively less experience.

There is only limited evidence on the influence of limited attention on credit professional use of soft and hard information. Campbell et al. (2019) finds that individuals' behavioural biases and cognitive constraints are associated with loan officers' use of soft information and as a result their decision quality, while loan officer's experience alleviates the adverse effect. Lachmann et al. (2015) finds in an experimental setting that the salience of credit risk information in the financial statements impacts non-professional investors' use of accounting information. The evidence in these studies is consistent by and large with the limited attention hypothesis and our predictions.

Next, we discuss our survey methodology.

3 Research methodology

The main reason to employ the survey method is that empirical archival method does not enable a natural and relatively more direct measurement of individual credit professionals' perceptions. Unlike experiments, a survey is not constrained by a task-specific framing to the same degree as an experiment, and hence avoids those risks to generalisability that is due to the highly specific task of an experiment. Nevertheless, our sampling method is comparable to the ones commonly employed in extensive accounting literature utilising experimental research designs (e.g., Bonner, 2008).

We surveyed credit professionals in four financial institutions in four Nordic countries (Denmark, Finland, Norway, and Sweden). The survey form was sent to the institutions through the institution's contact person in the credit risk area. The contact person was the most senior person in charge of the credit analysis team. The contact person distributed the survey forms to potential survey participants. By this, we aimed to ensure that potential respondents were more motivated to participate and to minimise non-response bias as well as to place sufficient effort on answering the questions truthfully to reduce measurement error. As our survey was not task specific, i.e., questions were not on a specific credit case, the risk of respondents feeling of being tested or second-guessing responses was reduced.

Our survey approach, which aims to minimise non-response bias, may have resulted in threats to generalisability as the institutions were not randomly selected. However, a key issue with respect of the generalisability of survey findings is how representative the individuals in our sample are of the general population (e.g., Brown et al., 2015; Van der Stede et al., 2005; see also Libby et al., 2015).¹² We believe that the respondents working for the selected large Nordic financial institutions are representative of credit professionals in general for the following grounds.

All of the institutions are internationally active and the credit teams interact with international counterparts which exposes them to practices that are applied beyond their home markets.¹³ Our sample of credit professionals are involved in credit decisions and act, for example:

- 1 as credit originators, who typically have a duty of first line of defence
- 2 credit analysts performing risk analysis
- 3 credit approvers who as individual credit approvers, or members of credit committees review credits.

Frequently, seasoned professionals have worked in more than one area of credit. Moreover, based on our discussions with industry participants, we are confident that all these job descriptions entail a requirement to understand well a borrower's credit risk, as informed by financial statements and other relevant information.¹⁴

Limiting our survey pool to a single financial statement user segment is important as different decision contexts are likely to involve different perspectives on financial statement information and its analysis. For example, credit professionals are argued to emphasise cash flow information and downside risk (default risk and loss given default), while equity analysts are more concerned about earnings and upside potential of a firm (returns and valuation).¹⁵

Moreover, we conduct the survey among sophisticated users of financial statement information, as contrasted with novices or students, to enhance the validity of our results as professionals with practitioner experience on a subject matter are better able to extrapolate to the 'real world' (e.g., Elliott et al., 2007). Also, credit analysis using financial statements, especially in the process of granting loans to companies, is practically never conducted by unsophisticated users of financial statements.

The survey instrument and questions were designed to measure respondents' perceptions about the importance of financial statement information in credit risk assessment.¹⁶ The questions were based on our review of relevant academic and professional literature. The survey instrument asked for participants' perceptions of different financial statement sections and line items in the context of credit risk

assessment. A key feature of our extensive survey instrument is that it facilitated verification of the validity of the respondents' opinions in multiple ways (discussed in Section 4.2.). In addition, we collected basic demographic information. The participants were asked to answer the questions by ranking their opinions on a Likert scale from 1 to 5.

We stated in the survey instrument that we examine "their personal opinions about the usefulness of accounting information in credit decisions." Our formulation of the stated purpose of the survey aimed to avoid strategic or self-serving behaviour from participants' part. Moreover, to mitigate potential non-responses and measurement errors in responses due to potentially unfamiliar terminology and expressions, we pre-tested the survey form with a head of credit analysis in a large Nordic commercial bank. This was to ensure that the terminology was in line with the professional terminology and the questions did not create ambiguity among the respondents. Finally, we informed the participants that their responses would be held in strict confidence, that no individual response would be reported.

The survey methodology has caveats. The main strength of the survey method in the context of our study is that it allows us to directly identify if individual users of financial statements differ in their preferences for financial statement information, as well as to analyse potential reasons for that. While we design our survey delivery for a high response rate, it may come at an expense of less generalisable results. Also, the results are based on the respondents' opinions and perceptions, which do not necessarily coincide with their true preferences and actions (e.g., Bertrand and Mullainathan, 2001). Finally, the survey method, like the archival method, may suffer from difficulties in establishing reliable causal relationships relative to experiments [e.g., Maines and Whalen, (2006), p.405].

4 Descriptive statistics and analyses of data

4.1 Descriptive statistics on the survey respondents

Table 1 reports the summary statistics on our respondents' demographics. The survey pool totalled 62 respondents. After eliminating unusable answers, the number of usable observations varies by responses available for analysis between 49 and 55 observations. Overall, the response rate in our empirical tests is high and varies from 79.0% (49/62) in our main multivariate tests up to 88.7% (55/62) in descriptive statistics and univariate tests.¹⁷

Table 1 presents the descriptive statistics (number of observations, average, median, and/or percentage) of the respondents' characteristics. Of the respondents, 69.1% are men. Their average age is 42.5 (median 43; range 27–62 years) years and they have, on average, 11.7 (median 8; range 1–35 years) years of experience. Majority (72.7%) of the respondents work as credit analysts, 10.9% as relationship officers, and 9.1% in a management position. Four (7.3%) respondents did not provide their exact position. However, all respondents are employed as specialists in their organisations' credit areas.

There is variety and overlap in types of firms that individual respondents follow. The respondents follow clients in various industries including retail, trade, and logistics (9.1%), utilities and infrastructure (9.1%), cyclical (manufacturing) and construction (23.6%), technology and communication (5.5%), food, agricultural, and consumer goods

(3.6%), and all or almost all types of industries, diversified, and finance (34.5%). Eight (14.5%) respondents did not specify the industries they follow.

Table 1 Characteristics of credit professionals

<i>Characteristic</i>	<i>Obs.</i>	<i>No.</i>	<i>Mean / %</i>	<i>Median</i>
Sex: % of males	55	38	69.1%	-
Age in years	53	-	42.5	43
27–30 years		9	17.0%	
31–40 years		16	30.2%	
41–50 years		14	26.4%	
51–62 years		14	26.4%	
Experience in years	53	-	11.7	8
1–5 years		17	32.1%	
6–10 years		15	28.3%	
11–20 years		12	22.6%	
20–35 years		9	17.0%	
Position	55	-	-	-
Credit analyst	-	40	72.7%	-
Market officer	-	6	10.9%	-
Managerial position	-	5	9.1%	-
Not available	-	4	7.3%	-
Type of firms followed				
Large firm	55	42	76.4%	-
SME firm	55	30	54.5%	-
Publicly listed firm	55	34	61.8%	-
Syndicated debt issuer	55	37	67.3%	-
Private debt only borrower	55	34	61.8%	-
IFRS reporter	55	41	74.5%	-
Local GAAP reporter	55	41	74.5%	-
Country	55	-	-	-
Denmark	-	9	16.4%	-
Finland	-	26	47.3%	-
Norway	-	9	16.4%	-
Sweden	-	11	20.0%	-
Industries followed	55	-	-	-
Retail, trade, and logistics		5	9.1%	-
Utilities and infrastructure		5	9.1%	-
Cyclicals and construction		13	23.6 %	-
Technology		3	5.5%	-
Food and consumer goods		2	3.6%	-
Other, diversified and finance		19	34.5%	-
Not available		8	14.5%	-

Moreover, 76.4% of the respondents stated that they follow large firms, while 54.5% follow small and medium-sized firms (SMEs). Of the participants, 61.8% analyse firms

that are publicly listed, 67.3% firms that use syndicated or public debt markets, and 61.8% firms that have only private (bilateral) debt. Identically, 74.5% analyse firms that report under International Financial Reporting Standards (IFRS).¹⁸ Finally, the country distribution of among the 55 respondents based on their office location is as follows: Denmark 9 respondents (16.4%), Finland 26 (47.3%), Norway 9 (16.4%), and Sweden 11 (20.0%).

Overall, the demographics indicate that our respondents are, on average, experienced credit professionals. Their areas of experience cover various areas in credit analysis and their tasks can be considered to involve different degrees of task complexity.

4.2 Credit professionals' preferences of financial statement information

Three sets of questions covered our first research question: how credit professionals perceive the importance of financial statement information in general, and accrual versus cash flow information in particular, in credit risk assessment. First, we asked the participants' perceptions regarding the main sections of the financial statements. Second, we asked for opinions about the most important financial statement section. Third, we asked for preferences regarding the relevance of the main line items in the income statement, the balance sheet (as another important source of accrual information), and the statement of cash flows.

In addition, we used factor analysis to analyse whether the respondents' preferences for different sections of the financial statements reflect differences in their preferences in accrual versus cash accounting information. We consider this as important to validate the consistency of our measurement of the respondents' preferences.

4.2.1 Preferences of financial statement information

Table 2 reports the respondents' perceptions of the main financial statement sections. We asked the participants to rank the importance of the main sections of financial statements for credit risk assessment on a scale from one (not important) to five (very important).

Panel A of Table 2 shows the mean and median of the respondents' rankings as well as their distribution by the rating scale. All rankings are above the midpoint of our scale suggesting that the respondents consider all sections important and useful for credit risk assessment. The respondents perceive IS, BS, and SCF to have, on average, remarkably similar importance, while FN have slightly less importance and CSE has substantially lower importance. Panel A. also shows the results from one-sample t-test and one-sample Wilcoxon signed rank test for differences in rankings from the scale midpoint value of three. All five section rankings differ statistically significantly from the midpoint value (both tests p-value 0.000 for each section). These suggest that the rankings are above an average ranking ('average importance'). This is also corroborated by the distribution of respondents' individual rankings. Nevertheless, the respondents' opinions about the importance of the changes in shareholders' equity and the footnotes exhibit relatively more variation.

Table 2 Credit professionals' rankings of the importance of the financial statement sections for credit risk assessment

	Distribution by ranking category					[a]		[b]		
	Obs.	Mean	Median	1	2	3	4	5	p-value	p-value
Income statement (IS)	53	4.6	5	0	0	5	13	35	0.000***	0.000***
Balance sheet (BS)	53	4.5	5	0	0	5	14	34	0.000***	0.000***
Statement of cash flows (SCF)	53	4.6	5	0	1	4	12	36	0.000***	0.000***
Changes in equity (CSE)	52	3.5	4	0	8	16	22	6	0.000***	0.000***
Footnote (FN)	50	4.2	4	0	1	10	17	22	0.000***	0.000***

	Most important section					[c]		[d]	
	Obs.	IS	BS	IS + BS	SCF	CSE	FN	p-value	p-value
Obs.	52	17	11	28	24	0	0	-	-
% of all	100.0	32.7	21.2	46.2	46.2	0.0	0.0	-	-
Income statement (IS)	52	4.9	4.7	4.8	4.3	-	-	0.021*	0.007**
Balance sheet (BS)	52	4.7	4.8	4.8	4.3	-	-	0.078	0.026*
Statement of cash flows (SCF)	52	4.4	4.2	4.3	4.9	-	-	0.005**	0.001***
Changes in equity (CSE)	51	3.6	3.7	3.7	3.3	-	-	0.386	0.175
Footnote (FN)	49	4.4	4.3	4.3	4.1	-	-	0.665	0.392

Notes: Ranking refers to respondents' opinion about the importance of different sections of the financial statements for credit risk assessment. The rating scale ranges from one (1) 'Not Important' to five (5) 'Very important'. The sections are the income statement (IS), the balance sheet (BS), the statement of cash flows (SCF), the changes in shareholders' equity (CSE), and the footnotes to financial statements (FN). In Panel A, p-values are based on [a] one sample t-test and one-sample Wilcoxon signed rank test with a hypothesized test value of 3 (rating scale midpoint). In Panel B, [c] is Kruskal-Wallis test for differences in rankings among IS, BS and SCF, and [d] is Mann-Whitney test for differences in rankings between IS plus BS (accrual statements) versus SCF (cash flow statement). * is significant at 0.050, ** at 0.010, and *** at 0.001 level. Rotated principal component matrix factors with eigenvalues greater than one are produced using Varimax rotation method with Kaiser normalization. The sections loading for each factor are bolded. Factor 1 loads to accrual-based financial statement information. Factor 2 loads to cash flow-based financial statement information.

Table 2 Credit professionals' rankings of the importance of the financial statement sections for credit risk assessment (continued)

Most important section	IS + BS					SCF					All				
	% in 1-2	% in 3	% in 4-5	% in 1-2	% in 3	% in 4-5	% in 1-2	% in 3	% in 4-5	% in 1-2	% in 3	% in 4-5	% in 1-2	% in 3	% in 4-5
% distribution of rankings	0.0%	0.0%	100.0%	0.0%	0.0%	79.2%	0.0%	20.8%	79.2%	0.0%	9.6%	90.4%	0.0%	9.6%	90.4%
Income statement (IS)	0.0%	0.0%	100.0%	0.0%	0.0%	79.2%	0.0%	20.8%	79.2%	0.0%	9.6%	90.4%	0.0%	9.6%	90.4%
Balance sheet (BS)	0.0%	3.6%	96.4%	0.0%	0.0%	83.3%	0.0%	16.7%	83.3%	0.0%	9.6%	90.4%	0.0%	9.6%	90.4%
Statement of cash flows (SCF)	3.6%	14.3%	82.1%	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%	1.9%	7.7%	90.4%	1.9%	7.7%	90.4%
Changes in equity (CSE)	7.1%	32.1%	60.7%	26.1%	26.1%	47.8%	26.1%	26.1%	47.8%	15.7%	29.4%	54.9%	15.7%	29.4%	54.9%
Footnote (FN)	0.0%	14.8%	85.2%	4.5%	22.7%	72.7%	4.5%	22.7%	72.7%	2.0%	18.4%	79.6%	2.0%	18.4%	79.6%
<i>Panel D. Rotated component matrix of rankings by financial statement sections</i>															
	<i>Factor 1</i>														
Income statement (IS)	<i>0.835</i>														
Balance sheet (BS)	<i>0.844</i>														
Statement of cash flows (SCF)	<i>0.024</i>														
Changes in equity (CSE)	<i>0.637</i>														
Footnote (FN)	<i>0.836</i>														
	<i>Factor 2</i>														
Income statement (IS)	<i>-0.117</i>														
Balance sheet (BS)	<i>0.055</i>														
Statement of cash flows (SCF)	<i>0.986</i>														
Changes in equity (CSE)	<i>0.167</i>														
Footnote (FN)	<i>-0.021</i>														

Notes: Ranking refers to respondents' opinion about the importance of different sections of the financial statements for credit risk assessment. The rating scale ranges from one (1) 'Not Important' to five (5) 'Very important'. The sections are the income statement (IS), the balance sheet (BS), the statement of cash flows (SCF), the changes in shareholders' equity (CSE), and the footnotes to financial statements (FN). In Panel A, p-values are based on [a] one sample t-test and one-sample Wilcoxon signed rank test with a hypothesized test value of 3 (rating scale midpoint). In Panel B, [c] is Kruskal-Wallis test for differences in rankings among IS, BS and SCF, and [d] is Mann-Whitney test for differences in rankings between IS plus BS (accrual statements) versus SCF (cash flow statement). * is significant at 0.050, ** at 0.010, and *** at 0.001 level. Rotated principal component matrix factors with eigenvalues greater than one are produced using Varimax rotation method with Kaiser normalization. The sections loading for each factor are bolded. Factor 1 loads to accrual-based financial statement information. Factor 2 loads to cash flow-based financial statement information.

The untabulated Wilcoxon test shows that the differences in rankings among IS, BS, and SCF are not statistically significant at 0.050 level. In contrast, the differences in rankings between all combinations of IS, BS, and SCF with CSE and FN are statistically significant (p-values less than or equal to 0.021). Also, the difference between CSE and FN is statistically significant (p-value 0.000). The Kendall's W test statistic, which is the coefficient of concordance and a measure of agreement among raters, receives a value 0.403 (p-value 0.000, N = 50)¹⁹ and suggests that there is incomplete agreement among the respondents about the importance of the different sections of financial statements.

In sum, the evidence in Table 2 indicates that both accrual and cash accounting information are important in credit risk assessment. The results do not support, however, the superiority of accrual over cash accounting information.

4.2.2 Preferences of the most important financial statement information

Next, we asked what the most important financial statement section in credit risk assessment is. Panel B of Table 2 shows the number of respondents by each financial statement section and their fraction. 32.7% or 17 respondents of 52 respondents considered IS, 21.2% (11) considered BS, and 46.2% (24) considered SCF as the most important section. No respondent indicated that CSE or FN is the most important section. Alternatively, 53.8% of the respondents considered accrual-based financial statement sections (IS or BS) as the most important ('accrual accounting emphasisers'), while 46.2% considered cash-based financial statement section (SCF) as the most important ('cash accounting emphasisers').

Moreover, Panel B of Table 2 cross-tabulates the means of the respondents' rankings on the three financial statement sections by their opinion about the most important section (i.e., IS, BS, or SCF). The evidence shows, consistently with Panel A of Table 2, that the respondents' most important financial statement section also received the highest average ranking among all main sections of the financial statements. Panel B also shows that respondents who emphasised accrual accounting financial statements (IS or BS) assigned, on average, relatively higher ranking on all accrual accounting sections (i.e., IS, BS, CSE, and FN) as compared to respondents who emphasised the cash accounting section (SCF). The differences in the rankings of IS, BS, and SCF between the accrual and cash emphasisers are statistically significant based on the Kruskal-Wallis test (IS p-value 0.021, BS marginally significant 0.078, and SCF 0.005) and statistically significant based on the Mann-Whitney test (IS p-value 0.007, BS 0.026, and SCF 0.001).²⁰ The descriptive evidence in Panel C of Table 2 elaborates and corroborates the findings further.

Panel D of Table 2 reports rotated principal component matrix factors with eigenvalues greater than one produced using the respondents' ratings on different financial statement sections and employing varimax rotation method with Kaiser normalisation. The evidence indicates that the rankings of the income statement and other principal sources of accrual information, namely the balance sheet, as well as the changes in shareholders' equity and the footnotes, load to the same Factor 1. In contrast, the rankings of the statement of cash flows load only to Factor 2. The evidence corroborates our interpretation based on the descriptive evidence in Panel B that there co-exist two types of respondents, namely, accrual accounting emphasisers and cash accounting emphasisers.

In sum, the respondents' hold diverging opinions regarding the relative importance of accrual vs. cash accounting information. Hence, they do not unanimously share the IASB's view on the superiority of accrual accounting information relative to cash accounting information. Next, we employ both univariate and multivariate tests to examine why almost half of the respondents prioritise presumably relatively less informative cash accounting information.

4.3 *Factors associated with credit professions' preferences: univariate analyses*

Table 3 reports the results of the univariate tests. First, we conduct the Mann-Whitney tests of differences in the respondents' characteristics between the accrual (IS or BS) and cash accounting (SCF) emphasisers. The results in Panel A. of Table 3 show that the accrual and cash accounting emphasisers do not differ statistically significantly by gender. The fraction of men is 67.9% among the accrual accounting emphasisers and 66.7% among the cash accounting emphasisers (p-value 0.928). The cash accounting emphasisers are younger (mean age 38.1 vs. 45.5 years, respectively) and have relatively less professional experience (8.4 vs. 14.1 years). These differences are statistically significant (p-value 0.020 and marginally significant 0.100, respectively).

Further, the descriptive evidence shows that cash accounting emphasisers tend to be more likely to follow larger firms (the fraction in group is 95.8% vs. 71.4%; p-value 0.022), publicly listed firms (91.7% vs. 42.9%; 0.000), and firms that report according to IFRS (100.0% vs. 60.7%; 0.001) than accrual accounting emphasisers. In sum, the univariate tests suggests that the accrual and cash accounting emphasisers differ in terms of their' experience (i.e., age and years in credit profession) as well as task complexity they face in their work (i.e., following of large firms, public firms, and IFRS reporters).

Next, we employed factor analysis to examine the correlations among the respondents' characteristics as well to reduce the number of variables in our empirical multivariate regression model. We employ this approach, as our sample size is small, to accommodate sufficient power for our multivariate analyses by compressing the respondents' characteristics into a few variables. The variables in our factor analysis include all other variables except gender. We estimate the factor score coefficients using the Anderson-Rubin method, which ensures orthogonality of the estimated factors. These scores have a mean of zero, a standard deviation of one, and are uncorrelated. Consequently, problems from multicollinearity are not an issue.

The factor analysis generated three factors (FAC1-FAC3) that are reported in Panel B. of Table 3. We interpret the factors as follows. FAC1 is a principal component factor on which the respondents' propensity to analyse larger firms, publicly listed firms, syndicated debt issuers, and IFRS reporters. Such entities are likely to be more complex to analyse and, hence, require more use of experience-based individual judgment. Consequently, we interpret FAC1 to reflect high task complexity of a respondent. We also consider FAC1 to be an objective measure as it is not based on the respondents' subjective perceptions of task complexity (see, for example, Kuhlthau, 1999).

The respondents' age and experience, in turn, load to factor FAC2. We consider FAC2 to be a combination of a respondent's general experience (see Mala and Chand, 2015). Relatively more experienced credit professionals are more likely to have better understanding of the relevant information on which to focus on.

Table 3 Differences in credit professionals' characteristics by financial statement section importance

Characteristic	Obs.	Mean or fraction of characteristic by the most important financial statement section					[a] p-value	[b] p-value
		IS	BS	IS + BS	SCF			
Sex	52	70.6%	63.6%	67.9%	66.7%	0.927	0.928	
Age	50	46.6	43.8	45.5	38.1	0.052	0.020*	
Experience in years	50	15.1	12.5	14.1	8.4	0.142	0.100	
Type of firms followed								
Large	52	76.5%	63.6%	71.4%	95.8%	0.049	0.022**	
Small and medium sized	52	58.8%	63.6%	60.7%	45.8%	0.551	0.288	
Publicly listed firm	52	35.3%	54.5%	42.9%	91.7%	0.001***	0.000***	
Syndicated or public debt	52	58.8%	72.7%	64.3%	79.2%	0.371	0.242	
Private debt only	52	58.8%	45.5%	53.6%	70.8%	0.352	0.207	
IFRS reporter	52	64.7%	54.5%	60.7%	100.0%	0.002***	0.001***	
Local GAAP reporter	52	70.6%	90.9%	78.6%	70.8%	0.397	0.525	

Notes: Respondents' characteristics (mean values or percentage) by their opinion about the most important financial statement section: the income statement (IS), the balance sheet (BS), and the statement of cash flows (SCF). In Panel A, [a] p-values are based on the Kruskal-Wallis test of the differences in characteristics among those who consider IS, BS or SCF to be the most important section, [b] p-values based on the Mann-Whitney test of differences in characteristics between those who consider accrual-based statements (IS and BS) and cash flow statement (i.e., SCF) to be the most important section. Panel B, reports rotated component matrix of a factor analysis. [a] p-values are based on the independent samples t-test and [b] the Mann-Whitney test on the differences in Factor values between respondents who consider accrual-based financial statements (IS or BS) versus cash-based (SCF) financial statements to be most important sections. * is significant at 0.050, ** at 0.010, and *** at 0.001 level.

Table 3 Differences in credit professionals' characteristics by financial statement section importance (continued)

Characteristic	[a]			[b]	
	FAC1	FAC2	FAC3	Factor	p-value
Age	-0.161	0.908	-0.089	FAC1	0.015**
Experience in years	-0.037	0.956	0.084	FAC2	0.026*
Large	0.850	-0.055	-0.213	FAC3	0.396
Small and medium sized	-0.184	0.014	0.815		
Publicly listed firm	0.745	-0.095	-0.102		
Syndicated or public debt	0.774	0.133	0.312	FAC1	
Private debt only	0.013	-0.619	0.471	FAC2	
IFRS reporter	0.887	-0.228	-0.062	FAC3	
Local GAAP reporter	0.060	-0.133	0.852		

Notes: Respondents' characteristics (mean values or percentage) by their opinion about the most important financial statement section: the income statement (IS), the balance sheet (BS), and the statement of cash flows (SCF). In Panel A, [a] p-values are based on the Kruskal-Wallis test of the differences in characteristics among those who consider IS, BS or SCF to be the most important section. [b] p-values based on the Mann-Whitney test of differences in characteristics between those who consider accrual-based statements (IS and BS) and cash flow statement (i.e., SCF) to be the most important section. Panel B, reports rotated component matrix of a factor analysis. [a] p-values are based on the independent samples t-test and [b] the Mann-Whitney test on the differences in Factor values between respondents who consider accrual-bases financial statements (IS or BS) versus cash-based (SCF) financial statements to be most important sections. * is significant at 0.050, ** at 0.010, and *** at 0.001 level.

Interpretation of the factors
 High task complexity
 Experience
 Low task complexity

Finally, respondents' propensity to analyse SMEs and local GAAP reporters loads on FAC3. Mainly because of their smaller size, such companies are relatively less complex to analyse than the type of companies that loaded on FAC1. Consequently, we consider FAC3 to reflect low task complexity.

Panel B. further reports the results from independent samples t-tests and Mann-Whitney tests for the differences in the estimated values of the three factor variables (FAC1–FAC3) between the accrual and cash emphasisers. The tests show that the two types of respondents' differ statistically significantly with respect of FAC1 (experience; t-test p-value 0.001 and Mann-Whitney test p-value 0.015) and FAC2 (high task complexity; 0.016 and 0.026), but not with respect of FAC3 (low task complexity; 0.707 and 0.396). These results confirm the existence of two different patterns of preferences for type of accounting information and suggest that there is an association between the respondents' preferences of accrual versus cash accounting information and our proxies for high task complexity and experience.

4.4 Factors influencing credit professionals' preferences: multivariate analyses

We employ multivariate tests to further analyse the association between the respondents' tendency to emphasise accrual versus cash accounting information and their characteristics. We estimated the following empirical multivariate logistic regression model:

$$TYPE_i = \alpha + \beta_1 \times FAC1_i + \beta_2 \times FAC2_i + \beta_3 \times FAC3_i + \sum_4^N \beta_n \times CONTROL_{n,i} + \epsilon_i$$

TYPE is the dependent variable that receives value of 1 if a respondent (subscript *i*) is a cash accounting emphasiser, and zero if an accrual accounting emphasiser. The main independent variables FAC1–FAC3 are based on the factor analysis as discussed above. The control variables vary by our model specifications and are discussed below. Table 4 reports the results of multivariate analyses.

Table 4 shows the results of the multivariate logistic regression analysis. The multivariate analysis controls for the co-founding effects among the independent variables in the model and facilitates more reliable inferences regarding each factor's incremental influence on the respondents' preferences. All the model specifications in Table 4 are statistically significant (p-values 0.000) and the Nagelkerke R-square ranges from 0.430 to 0.670.

The results show that, when the respondents' experience (FAC2) is kept constant, FAC1 is positively and significantly associated with the dependent variable (p-value 0.011). Hence, the respondents who face high task complexity are incrementally more likely to prefer cash accounting information. When the respondents' task complexity (FAC1) is kept constant, FAC2 is negatively and statistically significantly associated with the dependent variable (p-value 0.021). Thus, relatively less experienced professionals are incrementally more likely to prefer cash accounting information. The coefficient of FAC3 (low task complexity) is negative, but it is not statistically significant (p-value 0.592).

Table 4 also reports the results from different versions of the benchmark model. First, we control for unidentified country factors by including indicator variables for Denmark, Norway and Sweden (Model B). Our inferences remain.

Table 4 Multivariate logistic regression analyses of factors associated with credit professionals' preferences for accrual versus cash flow information

<i>Model</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>
Constant	-0.907 (0.065)	-1.828 (0.089)	-0.47 (0.779)	-18.485 (0.999)	-1.968 (0.146)	-1.205 (0.051)
FAC1	1.823*	2.194	4.868*	-	2.18*	2.102*
High task complexity	(0.011)	(0.045)	(0.044)	-	(0.047)	(0.013)
FAC2	-0.923	-1.523*	-4.102	-1.086*	-1.507*	-1.446**
Experience	(0.021)	(0.019)	(0.057)	(0.037)	(0.021)	(0.008)
FAC3	-0.195	-0.135	-0.475	0.042	-0.129	0.101
Low task complexity	(0.592)	(0.833)	(0.593)	(0.936)	(0.839)	(0.833)
FAC1 × FAC2	-	-	2.908	-	-	-
Interaction	-	-	(0.154)	-	-	-
IFRS	-	-	-	20.374 (0.999)	-	-
Sex	-	-	-	-	0.187 (0.864)	-
Country controls	-	Incl.	Incl.	Incl.	Incl.	1.179* (0.015)
N	49	49	49	49	49	49
Model chi-square	18.941	31.094	33.853	28.226	31.124	26.331
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Nagelkerke R-square	0.430	0.631	0.670	0.588	0.631	0.558
Hosmer-Lemeshow test	5.628	4.209	5.944	4.665	3.047	0.933

Notes: The dependent variable receives a value of one if a credit professional considers statement of cash flows as the most important financial statement section, and a value of zero. FAC1 is a principal component factor reflecting credit professionals' tendency to follow large firms, publicly listed firms, IFRS reporters, public and syndicated debt issues; FAC2 reflects credit professionals' age and experience; FAC3 credit professionals' tendency to follow small and medium-sized firms, private debt borrowers, and local GAAP reporters. See Table 3 for the rotated component matrix. FAC1 × FAC3 is an interaction term. IFRS is an indicator variable that receives a value of one if a respondent follows IFRS reporting firms, and zero otherwise. Sex is an indicator variable that receives a value of one if a respondent is a male, and zero otherwise. Country controls in models B through E include dummies for Denmark, Norway, and Sweden. In model F factors are estimated including also a respondents' gender (factor score below one, and hence omitted) and office country, in addition to the variables reported in Table 3, as part of the factor model. * is significant at 0.050, ** at 0.010, and *** at 0.001 level.

Model D replaces FAC1 (high task complexity) with an IFRS indicator variable. We conducted this analysis to examine whether accounting information complexity inherent in IFRS financial statements drives our results regarding high task complexity measured with FAC1. For example, Drake et al. (2016) provides archival evidence that investors'

request for relatively more historical financial statement information, when underlying business transactions involve complex financial reporting.

The results show that the coefficient for the IFRS dummy variable is not statistically significant (0.999), and the coefficient of FAC2 (experience) remains statistically significant (p-value 0.037). These suggest that the impact of high task complexity (FAC1) on the respondents' emphasis of accrual versus cash accounting information is not driven purely by complexity of accounting information.

Finally, we also constructed factors including respondents' gender (see also model E) and office country. The factor analysis generated four factors. In addition to the factors in our analysis above also a country factor was created based on our nominal classification of countries. The gender variable did not load to any of the four factors. Model F reports the results from using the four factors FAC1–FAC3 and country factor as independent variables. The inferences do not change relative to our benchmark model A. The coefficient of the country factor is positive and statistically significant (p-value 0.015). The results from models B and F suggest that unidentified country factors have an incremental impact on the respondents' preferences.²¹

4.5 *Additional validity tests*

Additional tests assessed the robustness of our results. First, we examined the distribution of the two types of respondents across our sample countries, financial institutions, and their different branches. The untabulated data indicates that each unit has at least one survey participant with a differential opinion of the most important type of financial statement information. Hence, accrual versus cash accounting emphasisers is not purely clustered to any unit of observation.

Second, to ensure the validity of our accrual versus cash accounting measure, we also asked the respondents to indicate their opinion about the relevance and reliability of different financial statement line items. The untabulated evidence with respect of the relevance of accounting information is consistent with the evidence in Panel D of Table 2 suggesting that our accrual versus cash accounting measure has sufficient content validity and reliability. Reliability of accounting information can also impact financial statement users' perception of its relevance (e.g., Maines and Whalen, 2006; Kadous et al., 2012). We find no statistically significant difference in the perceptions of the reliability of financial statement line items between the two types of respondents.

Finally, we infer from our multivariate regressions that the balanced distribution of the two types of respondents is not a pure random sample specific event. This conclusion is based on the following. First, our multivariate model is statistically significant and shows relatively high explanatory power. Second, the individual independent variables in our model have statistically significant explanatory power suggesting that the selected variables have systematic impact on the respondents' opinions. We conclude that our analyses in Table 4, together with the evidence from univariate tests in Table 3, provide robust and consistent results. The evidence consistently indicates that respondents' experience and task complexity are significantly and robustly and incrementally associated with two different patterns of preferences.

5 Discussion and conclusions

In this study we employed a survey to obtain new insights into a class of sophisticated financial statement users', namely credit professionals', perceptions of accrual versus cash accounting information in credit risk assessment. Our study documents that credit professionals consider both accrual and cash accounting information to be important in credit risk assessment, but they exhibit divergent opinions regarding the relative importance of accrual vs. cash accounting information in credit risk assessment. We further document that the respondents' preference for cash accounting information, which contradicts the view of IASB on the superiority of accrual accounting information in decision-making, is incrementally associated with the respondents' relatively higher task complexity and lower degree of experience. We infer that our analyses provide robust evidence that is consistent with our predictions and consistent with the limited attention argument developed in accounting literature. Our understanding of the relative roles of accrual and cash accounting information in different decision-making context is, however, still evolving. We need more direct evidence on professionals' choice and use of accounting information as it impacts individuals' decision performance.

6 Managerial implications

Understanding the users of financial statements is of utmost importance for the credit profession and in setting accounting standards.

The findings in our study are relevant for credit institutions in developing credit professional skills and understanding factors that influence credit professionals' decisions. First, the divergent views suggest that factors related to individuals (e.g., personal preferences, cognitive capacity) supersede organisational factors (e.g., professional training, standardised processes) in processing accounting information. Secondly, the preference of relatively more experienced professionals for accrual accounting information as compared to less experienced professionals, suggests that there is a learning curve in the reliance on more complex accrual information among the credit professionals. Third, the evidence suggests that the credit professionals engage in adaptive information use behaviour when facing tasks with varying complexities. Taken together these findings suggest that professional training and processes should further emphasise the use of accrual accounting information in credit decision-making.²²

A key implication for accounting standard setters is that appropriate interpretation of professional survey evidence in developing high quality accounting standards also requires an understanding of the survey respondents' background even when they are considered to be sophisticated users of accounting information. For example, our evidence indicates that both task complexity and experience have a distinctive impact on the professionals' accounting information preferences.²³

For researchers our evidence indicates that there is a further need to understand credit professionals' use of accounting information at individual level, including how they acquire and apply skills for credit analysis and decisioning, and how they extract their conclusions out of growing datasets of accounting information. This need is accentuated by the recent evidence in Campbell et al. (2019) that individual loan officers' use of information influenced by their behavioural factors can impact credit quality.

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Notes

- 1 For example, previous archival research evidence on the predictive power of accrual vs. cash accounting information indicated that accrual metrics provide better information in predicting future cash flows, while more recent studies provide contradicting evidence (e.g., Lev et al., 2010; Barth et al., 2016; Chen et al., 2017; Hribar et al., 2018; Nallareddy et al., 2018).
- 2 In 2014, the IASB launched Investors in Financial Reporting program to ensure that the investor perspective is considered in the standard-setting process (IFRS Press Release, 2014; see also IASC, 2010). A 2012 IFRS Staff Paper states that "it is important for standard setters to have thorough understanding of the problems that investors and analysts face when analyzing financial statements." The Financial Reporting Council (FRC, 2012) suggests that investment professionals should "seek to influence the IASB to spend more time talking to credit analysts as a separate class of users."
- 3 For example, Ganguin and Bilardello (2005, p.94) assert that "[a] corporation's cash and cash flow are its number one assets."
- 4 See Section 2 for the related literature.
- 5 See, for example, Cascino et al. (2014) and Gow et al. (2015) on the need for more direct and in-depth evidence on the use of financial accounting information by different users.
- 6 Yap (1997) surveys investors and creditors' opinions about the statement of cash flows but does not report separately results from the creditor sample.
- 7 The models on credit ratings, bankruptcy prediction, and credit pricing indicate that accrual accounting measures prevail as accounting predictors of credit events and explain variation in credit risk among borrowers. See, for example, Altman (1968), Beaver (1968), Ohlson (1981), Shumway (2001), Horrigan (1966), Kaplan and Urwitz (1979), Jorion et al. (2009), and Callen et al. (2009). For recent evidence on the use accounting information and its quality in predicting corporate financial distress see, for example, Rossi et al. (2020). See also Moody's (2003) for a credit rating model based on Nordic company data. On the use of accounting information in debt contracting see, for example, Dichev and Skinner (2002) as well as Armstrong et al. (2010) and De George et al. (2016) for reviews.
- 8 For inconclusive evidence see, for example, Riahi-Belkaoui (1992), Jones and Widjaja (1998), Billings and Morton (2002), Sharma and Iselin (2003), Berry and Robertson (2006), and Schneider (2013) as well as reviews of literature in Schneider (2018); see also Cascino et al. (2014). Also, professional surveys provide mixed evidence (e.g., Barker, 2001; FASB, 2002; PricewaterhouseCoopers, 2007; FRC, 2012).

- 9 For example, Maines and McDaniel (2000) provide a framework in which information processing is divided into acquisition, evaluation, and weighting of information. During the weighting phase, the individual considers the importance of a piece of information for the pertinent decision. The behavioural research, in general, further suggests that preferences, among other factors, affect individuals' tendency to seek and acquire information.
- 10 The limited attention hypothesis employed in accounting research is related to a fundamental notion in behavioural and economic theories which postulates that individuals tend to consciously or subconsciously reduce their cognitive effort and allocate their attention required by a task due to their constrained cognitive capacity (e.g., Hull, 1943; Simon, 1957, 1990; Tversky, 1972; Tversky and Kahneman, 1974; Kahneman and Frederick, 2002). It is also related to rational inattention models in economics in which economic agents with limited information processing capacity choose useful information structures (e.g., type and amount of information) conditional to information costs (e.g., Sims, 2003; Matějka and McKay, 2015).
- 11 The behavioural accounting literature asserts that task complexity and experience are among the most important factors influencing individuals' information search strategies in decision-making, other factors being an individual's demographics, knowledge, contextual factors, and personality characteristics. For reviews of the literature, see Ashton and Hubbard Ashton (1995), Libby et al. (2002), Tam et al. (2006), Bonner (2008), and Trotman (2011), and Mala and Chand (2015). Trönnberg and Hemlin (2012) and Schneider (2018) provide reviews on the accounting information in commercial lending judgments.
- 12 Brown et al. (2015) suggest that representativeness of subjects is more important than sample size for validity of the survey results, while Van der Stede et al. (2005) suggest that low non-response rate is likely to mitigate the issues arising from a small sample size. See also Libby et al. (2015) emphasise the selection of participants to match the goal of the study as well as the institutional features.
- 13 In general, the Nordic financial institutions were considered to be among the 20 best institutions in the world by the World Economic Forum in 2012. Two of the banks in our survey are in the top 30 banks among the Global Finance's 'The World's 50 Safest Banks in the World 2012'. Also, for comparison, Campbell et al. (2019) employ data from a single financial institution with USD 1.6 billion in assets, while for example one of our sample institutions has over USD 500 billion in assets.
- 14 Also, one of the authors has extensive career in international credit operations on four continents.
- 15 The theories of bounded rationality and the behavioural decision-making literature assert that decisions are context-specific and individuals adopt their information search and processing strategies accordingly (see, for example, Simon, 1990; Gigenrenzer, 2001; Payne and Bettman, 2004; Gigenrenzer and Gaissmaier, 2011). Hence, focusing on a specific professional group is also an important factor in assessing the validity of our survey results.
- 16 The sections of the survey instrument relevant to this study are available at request from the authors. The survey instrument is used for an ongoing research project and consequently only the relevant parts of the survey responses for this study are reported.
- 17 Recent survey studies commonly report results based on low response rates of less than 10%. For example, in Libby and Rennekamp (2016) the response rate is 3% (110 responses), Brown et al. (2015) 10.9% (365 participants), Graham et al. (2005) 8.4%, Drake et al. (2019) 3.8% (408), and Allee et al. (2020) 2.5% (172). A notable exception is de Jong et al. (2014) with a response rate of 48% and a sample of 306 analysts' in world largest investment banks. The extent of non-response bias is a function of the proportion of non-respondents and the magnitude of the difference in characteristics between respondents and non-respondents. The survey studies practically never report analysis of participants that have not responded presumably due to lack of data on non-response participants. Hence, researchers are forced to make an implicit assumption that the data are 'missing at random' (MAR), and thus the missing respondents are not qualitatively different from the responding survey members (see Groves, 1989).
- 18 If the respondent did not provide any answer to the question, we coded it as not following a particular type of firm or issuer.

- 19 Kendall's W ranges between zero (no agreement) and one (complete agreement). Each case is a judge or rater, and each variable is an item or person being judged. For each variable, the sum of ranks is computed.
- 20 A complementary Jonckheere-Terpstra test, which is a non-parametric test for ordered differences among classes and tests the null hypothesis that the distribution of the response variable does not differ among classes, provides similar results.
- 21 While we are not able to interpret which factors drive these cross-border effects, the Nordic countries are in general homogenous in many respects including institutional and cultural aspects.
- 22 Our conjecture is consistent with the view that individual preferences persist in decision-making (e.g., Libby et al. 2002; Bonner, 2008). Moreover, Baldwin and Rice (1997) found that the only individual, as opposed to structural and institutional, characteristic to influence financial analysts' information search and effectiveness was professional experience. Relatedly, Payne and Bettman (2004, p.114) assert that an individual possesses a variety of heuristic strategies for solving decision problems acquired through experience and training. See also Payne et al. (1993), Rodgers (1999), Andersson (2004) on the adaptive information use. An obvious method to avoid low quality credit decisions is to involve teams and steps in the credit process as commonly employed in practice. Nevertheless, the evidence in Campbell et al. (2019) suggest that credit officers' behavioural factors still influence the quality of their loan decisions.
- 23 Consistently with the limited attention hypothesis, our evidence suggests that cash accounting information is relatively more salient in credit risk assessment as it is preferred by the less experienced respondents and by the respondents facing high complexity tasks (see also evidence in Table 2).