Banks' risk taking in credit decisions: influences of loan officers' personality traits and financial risk preference versus bank-contextual factors

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Magnus Jansson
School of Business, Economics and Law, University of Gothenburg, Gothenburg, Sweden and University of Skövde, Skövde, Sweden
Magnus Roos
School of Business, Economics and Law, University of Gothenburg, Gothenburg, Sweden; University of Gothenburg, Gothenburg, Sweden and University of Skövde, Skövde, Sweden, and
Tommy Gärling
University of Gothenburg, Gothenburg, Sweden

Abstract

Purpose – This paper aims to investigate whether loan officers' risk taking in credit decisions are associated with their personal financial risk preference and personality traits or solely with bank-contextual and loan-relevant factors.
Design/methodology/approach – An online survey administered in six large Swedish banks to 163 loan officers responsible for assessing credit risk and approval of loan applications. The loan officers rated their likelihood of approving fictitious loan applications from business companies.
Findings – The loan officers' credit risk taking is associated with bank-contextual factors, directly with perceived organizational credit risk norms and indirectly with self-confidence in assessing credit risks through attitude to credit risk taking. A direct association is also found with personal financial risk preference but not with personality traits.
Research limitations/implications – Increased awareness of that loan officers' personal financial risk preference is associated with their credit risk taking in loan decisions but that the banks' risk policy has a stronger association. Banks' managements and boards should therefore assure that their credit risk policy is implemented, followed and being aligned with their performance incentives.
Practical implications – Increased awareness of that loan officers' credit risk taking is associated with personal financial risk preference but more strongly with the banks' risk policy that motivate banks' managements and boards to assure that their credit risk policy is implemented, followed and being aligned with their performance incentives.
Originality/value – The first study which directly compare the associations of loan officers' risk taking in credit approvals with personal risk preference and personality traits versus bank-contextual factors and loan-relevant information.

Keywords Bank, Loan officer, Credit risk taking, Credit risk attitude, Organizational credit risk norm, Personality trait

Paper type Research paper

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1. Introduction

It is critically important in the banking sector that accurate risk assessments are made of business companies' loan applications. If their risk assessments are systematically wrong, banks may accept or undercharge high-risk borrowers resulting in unwanted increased credit risk or they may reject or overcharge low-risk borrowers resulting in business companies deprived of capital, equity bubbles and threats of financial instability and low economic growth.

A number of studies have identified excessive risk taking in banks' credit decisions as a major cause of financial crises (e.g. Lorenzoni, 2008; Schularick and Taylor, 2009). The 2008 financial crisis is no exception (Acharya and Richardson, 2009; Dell'Ariccia *et al.*, 2012). In 2008 it was found that the global crisis was preceded by excessive financial risk taking by banks, in particular with regard to home mortgage loans (Schularick and Taylor, 2009). When the crisis deepened, banks' lending policies changed to excessive risk avoidance. At the peak of the financial crisis, loans to large borrowers in Western countries in one-quarter fell by about half from the previous quarter (Ivashina and Scharfstein, 2010). After flooding the market with "cheap money", banks abruptly reduced capital in the credit market, thus further destabilizing the financial system.

Although it is an oversimplification to attribute the single cause of financial crises to banks' lending decisions, poor risk management in banks doubtless play a role (Acharya and Richardson, 2009; Dell'Ariccia *et al.*, 2012). In order to avoid credit-fueled crises in the future, a better understanding of the organizational and person determinants of banks' risk taking in credit decisions seem essential.

The general aim of this study is to increase the understanding of banks' credit risk taking by focusing on loan officers who are responsible for assessing the credit risk of loan applications and decide whether they should be approved. The study investigates two types of factors associated with the loan officers' decisions to approve or reject loans to small and medium sized business companies. Factors related to the bank context (organizational credit risk norms, confidence in ability to assess credit risk and attitude to credit risk [1]) are compared to loan officers' person characteristics (personal financial risk preference and personality traits). Using data from an online survey of loan officers in Swedish banks, structural equation modeling (SEM) is used to analyze how the two types of factors are associated with the loan officers' decisions to approve fictitious credit applications.

In the remainder of the paper, previous research is first reviewed followed by the presentation of the models and hypotheses tested. The model tests are then described. We discuss in the final section the results and their implications for banks' credit decisions.

2. Previous research

2.1 Stability or domain specificity of risk taking behavior

An important issue raised by our research problem is whether in general individuals' risk taking is determined by the specific social context or general stable personality traits and personal risk preferences. The latter two factors presume that there are positive within-individual correlations in risk taking behavior across different domains (Salminen and Heiskanen, 1997). Previous research shows inconsistent results. While some studies report consistency across domains such as financial, physical, social and ethical (Dohmen *et al.*, 2011; Klos, 2008; Sahm, 2007), other studies cited below report consistency only within domains. Below we first review these studies, then studies showing that risk taking is frequently domain-specific.

2.1.1 Stable risk taking behavior. Suggesting that individual risk taking is consistent across different domains (i.e. that individuals show the same risk taking behavior in different domains), several studies have demonstrated associations between risk taking and personality traits (Dohmen *et al.*, 2011; Hallahan *et al.*, 2004; Nicholson *et al.*, 2005; Soane and Chmiel, 2005). Soane and Chmiel (2005) found, for example, that participants who were either consistently risk seeking or risk avoiding across domains share a common personality

profile by rating themselves high in the Big Five personality traits agreeableness and conscientiousness and low in neuroticism. Similar associations between these personality traits and risk taking in financial markets have been shown in several studies. Investors who rate themselves high on personality traits such as extraversion, agreeableness, open to experience and neuroticism have been found to take more financial risk, while conscientiousness have been found to have an opposite association with financial risk taking (Kubilay and Bayrakdaroglu, 2016). Similar results have been demonstrated in other studies, for example De Bortoli *et al.* (2019) who showed in an experiment that openness to experience correlates positively with investors' risk taking in fictitious investment decisions. Conscientiousness has in other studies been found to be related to risk aversion, but this finding appears to be domain specific, whereas neuroticism is consistently related to risk aversion and openness, extraversion and agreeableness consistently are related to risk taking (Nga and Yien, 2013; Nicholson *et al.*, 2005; Soane and Chmiel, 2005).

The Big Five personality traits have also been shown to be related to personal risk preference (Dohmen *et al.*, 2011; Hallahan *et al.*, 2004) and likewise to be related to risk taking in loan decisions to businesses. Cole *et al.* (2015) showed in an experiment that the personality trait conscientiousness reduces the influence of detrimental incentive schemes on loan officers' screening of deficit loan applications. Yet, to our knowledge no other studies have been made of the association between the Big-Five personality traits and loan decisions to business companies.

In this study we investigate whether credit risk taking by loan officers in banks is associated with the Big-Five personality traits as well as personal financial risk preference. Both personal financial risk preference and personality traits are defined as stable and not contextual or domain-specific factors.

2.1.2 Domain-specific risk taking behavior. Weber *et al.* (2002) showed that individual risk taking varies depending on domain (gambling, investing, ethical, health/safety, social interaction and recreation). As another example, Soane and Chmiel (2005) showed domain specificity of risk taking by five different groups (academics, chess players, firefighters, mountaineers and professional stock traders) in the domains of work, health and personal finance. Yet, Weber *et al.* (2002) found that risk attitude and risk perception are strongly correlated with risk taking in all the domains they studied. Several studies (e.g. Brooks and Williams, 2021; Chao *et al.*, 1998; Clark and Strauss, 2008; Krueger and Dickson, 1994; Llewellyn *et al.*, 2008; Wang, 2009) have related risk taking to self-confidence, perceived behavioral control or self-efficacy (Bandura, 1977). Self-efficacy is defined as the belief in one's ability to master difficult situations (Bandura, 1995; Druckman, 2004). The conclusion from previous research is that self-efficacy is positively related to risk taking, that is, persons who feel strong self-efficacy take more risk because they are confident in their ability to master risky tasks (Bruns *et al.*, 2008; Krueger and Dickson, 1994).

In this study we define self-efficacy as confidence in ability to assess credit risk, and in line with previous research (Clark and Strauss, 2008; Wang, 2009), we investigate whether loan officers' confidence in this respect is directly related to their attitudes to credit risk and indirectly to risk taking in credit decisions. We thus make an important distinction between self-confidence in general and self-confidence that specifically concerns loan officers' confidence in their ability as professionals to make correct judgments about estimating risks when it comes to approving or disapproving credits to businesses. In line with general theories in social psychology (e.g. Fishbein and Ajzen, 1975), we also posit that organizational credit risk norms relate both directly and indirectly, through attitude to credit risk, to risk taking in credit decisions (see Figure 1). The rationale (see footnote 1) is that the bank's policy and practice influence the loan officers' attitude to credit risk. In the next subsection we present supporting research that has investigated the influence of bank-contextual factors on loan officers' risk taking behavior.

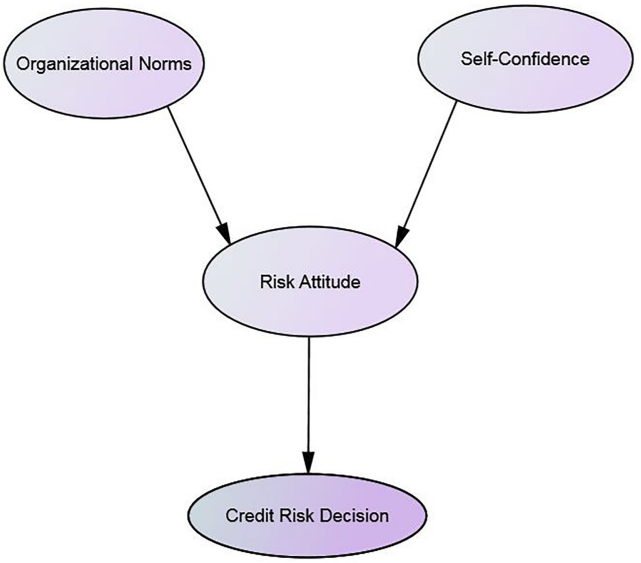

Figure 1.
Model 1 with perceived organizational credit risk norms and confidence in ability to assess credit risk as determinants of attitude to credit risk and credit risk taking. Standardized coefficients are given with t-values in parentheses

2.2 Influences of bank context on loan officers' risk taking behavior

Previous research has shown that organizational culture, incentives and norms, for example pressure for profitability, influence loan officers' credit decisions. McNamara and Bromiley (1997) found that loan officers are more influenced by banks' organizational pressure for profitability than by their relationships with borrowers. The extent to which the profitability pressure influences loan officers' risk assessments seems also to be closely linked to the banks' organizational structure and lending policies (Nielsen and Pontoppidan, 2019). By using corporate and retail loan data, Nguyen *et al.* (2019) showed that the corporate culture of banks explains risk taking in credit decisions. Banks whose corporate culture and norms lean toward aggressive competition have a riskier credit practice with a higher approval rate, lower borrower quality and fewer covenant requirements. Similarly, increased credit volumes have been shown to result in lower credit standards and higher financial risk taking (Dell'Arrica and Marquez, 2006).

To enforce that banks' organizational profit goals and risk norms are implemented, various financial incentives that encourage approval of new loan applications are sometimes chosen. This has then been shown to have a strong relationship with loan officers' risk assessment and screening as well as the quality of approved loans (Agarwal and Ben-David, 2014; Cole *et al.*, 2015; Tzioumis and Gee, 2013). In an Israeli experiment by Lipshitz and Shulimovitz (2007), it was found that when a bank's loan officers were incentivized based on credit volume, the volume expanded considerably (+31% new loans). But it was also found that loan officers placed greater weight on hard information in their approval decisions. Despite no change in the observable characteristics of approved loans, the default rate also increased (+24%).

Not only do domain-specific and contextual factors such as credit norms and the banks' incentives influence loan officers' risk taking but also stable, not domain-specific factors such as loan officers' gender have been shown to be related to their risk taking. A study of 75 Swedish loan officers showed, for example, that gender plays a significant role in risk taking in credit decisions, female officers focusing more on collateral (used as a proxy for risk

aversion) in their evaluations of first-time credit applications than male officers (Rad *et al.*, 2013). Other socio-demographic variables such as age, tenure, insight, education and location were not found to significantly affect risk taking. Similar results for the influence of gender have been found in other studies, showing that female loan officers are more conservative and risk aversive than male loan officers in their approvals of loans to business companies (Bacha and Mohamed, 2019; Bellucci *et al.*, 2010).

To conclude, when business owners approach a bank to apply for a loan, they cannot take for granted that a totally objective well-established procedure ensures that the decision about their application is only processed according to stipulated rules and impersonal criteria. Neither can it be expected that two bank officers reach the same decision when evaluating the same loan application. Several studies have shown heterogeneity in how loan officers evaluate loan applications despite that banks have developed lending guidelines to counteract this (Bruns *et al.*, 2008). For example, research shows that loan officers tend to favor clients who have similar person characteristics as themselves (Hensman and Sadler-Smith, 2011; Strohmaier *et al.*, 2021) and that they are not in agreement in their risk assessments even if employed by the same bank (Andersson, 2004). To what extent this variation in credit decisions depends on bank-contextual factors or loan officers' personal financial risk preference and personality traits has not been extensively investigated in previous research.

This study aims at filling the identified gaps in knowledge about how risk taking in loan officers' credit decisions is associated with domain-specific bank-contextual factors versus stable person factors such as personal financial risk preference and personality traits.

3. Aim, models and hypotheses

Participants in this study are loan officers who have training and experience in assessing loan applications. They are employed by six different Swedish banks. The banks expect their loan officers to make credit decisions based exclusively on loan-relevant information and to follow the bank's norms and conventions. Specifically, the presumption is that the loan officers are not being influenced by their personal financial risk preference or personality traits. Our aim is accordingly to determine the degrees to which the bank context versus person factors are associated with loan officers' decisions to approve loan applications submitted by business companies. In achieving this, we compare two models with the two different types of factors. The first model tests the association between bank-contextual factors and loan officers' risk taking in credit decisions, that is, perceived organizational credit risk norms [1, 2], confidence in ability to assess credit risk and attitude to credit risk. Attitude to credit risk is a bank-contextual factor in being a mediator of the two former factors' association with risk taking in credit decisions. In line with previous research on credit decisions, we further assume that the perception of the banks' organizational credit norms are associated with the loan officers' credit decisions, but, in accordance with previous risk research, that also loan officers'confidence in making these decisions is associated with the risk they are willing to take (Bruns *et al.*, 2008). Confidence, self-efficacy or perceived behavioral control are similar theoretical constructs used in, for example, the Theory of Planned Behavior (Ajzen, 1991) and by Bandura (1977) to explain individuals' risk taking behavior in general. In line with the Value-Belief-Norm Theory by Stern (Stern *et al.*, 1999), we assume that norms and persons' beliefs about their skills indirectly are associated with behavior, in this context, loan officers' risk taking in credit decisions (mediated by their attitude to credit risks).

In contrast to this model, our second model only includes personal financial risk preference and personality traits.

Model 1 is shown in Figure 1. The model entails the following two hypotheses:

H1. Loan officers' confidence in their ability to assess credit risk has a direct positive association with loan officers' attitude to credit risk and an indirect positive association through attitude on credit risk taking.

H2. Loan officers' perceived organizational risk norms have a direct and positive association with attitude to credit risk and an indirect and positive association through attitude on credit risk taking.

The second model (see Figure 2) posits that loan officers' credit risk taking is associated with their personal financial risk preference and the Big Five personality traits Openness, Extraversion, Neuroticism, Agreeableness and Conscientiousness. The hypotheses entailed by the model are the following:

H3. Loan officers' personal financial risk preference is positively associated with their credit risk taking.

H4. Loan officers' credit risk taking is positively associated with Openness and Extraversion and negatively associated with Neuroticism, Agreeableness and Conscientiousness.

4. Method

4.1 Participants

The regional managers of the six largest banks in Sweden were contacted to permit contact with 20–50 loan officers in each bank whose task is to assess loans to small and medium-sized companies. After receiving contact information of potential participants, a welcome letter describing the study and its purpose was sent to the loan officers a week before the survey started. At this stage six loan officers declined to participate. One week after the welcome letter was distributed, the remaining potential participants received an e-mail with a link to the online survey. The survey closed after 14 days. In all, 215 surveys were distributed and 163 were returned corresponding to an overall response rate of 75.8%. Of the 163 loan officers who completed the survey, 51 were women and 112 were men. Their mean experience in lending was 17.82 years (SD = 9.46). A breakdown of participants by bank (labeled A to F)

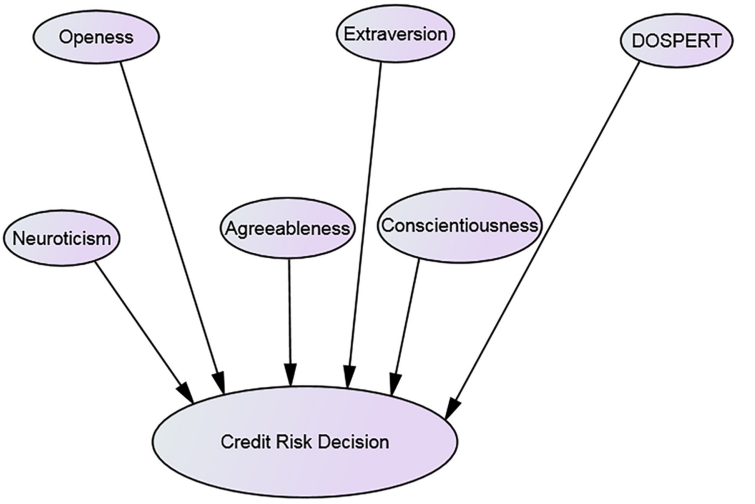

Figure 2.
Model 2 with personal financial risk preference (DOSPERT) and the big five personality traits as determinants of credit risk taking. Standardized coefficients are given with *t*-values in parentheses

yielded the following distribution: 20 (bank A), 30 (bank B), 22 (bank C), 47 (bank D), 30 (bank E) and 14 (bank F).

4.2 Survey and measures

The first page in the online survey questionnaire instructed participants how to answer the questions, emphasizing the importance of answering all questions by themselves without interruption. Participation in the survey was voluntary, anonymous and with no compensation provided. The questionnaire items comprised five sections presented in this order: (1) Loan officers' background (gender, education [highest academic degree], bank affiliation, general lending experience and lending experience with business companies); (2) Loan application scenarios and credit risk taking; (3) Attitudes to credit risk, confidence in the ability to assess credit risk and perceived organizational credit risk norms; (4) Personal financial risk preference; and (5) Personality traits.

In section 2 of the survey, as shown in Table 1, participants were asked a series of questions about each of three constructed scenarios in which hypothetical business companies are applying for bank loans. First, participants were asked to rate the likelihood that they would approve the loans to each of the companies on a five-point scale with numerical and verbal alternatives ranging from 1 (Very unlikely) to 5 (Very likely), and the risk that the companies would default on their loans on another five-point rating scale with numerical and verbal alternatives ranging from 1 (>50% risk of default) to 5 (<5% risk of default). Thereafter, participants indicated the level of uncertainty in their approval of loans to companies from 1 to 20 million Swedish Crowns or SEK (one million–two million Euros) and from 100 to 200 million SEK (10–20 million Euros). Finally, participants were asked how willing they were in general to approve commercial loans, regardless of the amount. Answers to the last three questions were rated on five-point scales with numerical and verbal alternatives ranging from 1 (insignificant uncertainty) to 5 (significant uncertainty). An index (Credit Risk Taking, CR) was obtained by averaging the likelihood ratings, the risk assessments, the confidence ratings and the ratings of the willingness to approve commercial loans.

In section 3, as shown in Table 2 participants made agreement ratings of three statements about their attitude to credit risk (Attitude to Credit Risk, AR), three statements about confidence in their ability as loan officers to assess credit risk (Confidence in Assessing Credit Risk, CC), and three statements about their perceptions of the banks' credit norms (Perceived Organizational Credit Risk Norms, ON). Agreement or disagreement to the statements was obtained on five-point Likert scales with numerical and verbal alternatives ranging from 1 (I do not agree at all) to 5 (I completely agree). Indexes of attitude to credit risk (AR), confidence in ability to assess credit risk (CC) and perceived organizational credit risk norms (ON) were obtained in each case by averaging the ratings of the three statements, some after reverse coding such that all the ratings were positively correlated.

In section 4, each participant's personal financial risk preference was measured using a validated subset of the DOSPERT-30 scale (Blais and Weber, 2006; translated to Swedish by Geisler & Allwood) (see Table 2). The six extracted items from the DOSPERT-30 scale asked participants to rate how likely they are to engage in activities such as gambling and risky investments. Ratings were obtained on seven-point scales with numerical and verbal alternatives ranging from 1 (Extremely unlikely) to 7 (Extremely likely).

Finally, also shown in Table 2, in section 5 participants' personality traits were assessed with the abbreviated version (BFI-10) of the Big Five Factor Model (BFI-44). The BIF-10 reduces the number of items in the BFI-44 from 44 to 10, while still capturing 70% of the variance in BFI-44 and having acceptable validity and test-retest reliability (Ramstedt and John, 2007). Agreeableness, Conscientiousness, Extraversion, Neuroticism and Openness are

Risk judgments can be based on a subjective overall attitude toward certainty or uncertainty. The questions below address your certainty or uncertainty in making credit decisions

What level of uncertainty are you prepared to accept for loans to companies in the amount of 1–20 million SEK? ($M = 1.9$; SD = 0.7)

What level of uncertainty are you prepared to accept for loans to companies in the amount of 100–200 million SEK? ($M = 1.5$; SD = 0.7)

What level of uncertainty do you generally accept in approving loans to companies? ($M = 2.0$; SD = 0.8)

Scenario 1: The real estate company *Solidity Ltd.* has been a trustworthy borrower at the bank for more than 40 years. As a consequence of a global financial crisis, the market value of Solidity's real estate has decreased dramatically. This substantial reduction in market value increased Solidity's liabilities from 50% to 90% of the company's value. Solidity's vacancy rate in its rental real estate also increased slowly in recent years, but it is still quite low at 7%, (the average rate is about 10%). Solidity's vacancy rate has even been as low as 5%. As Solidity's future revenue is projected to remain constant, the company expects it will be able to pay the interest on its loans (an interest rate of about 7%). Solidity has now applied for a long-term loan of about 30 million SEK, at a lower rate of interest, that it will use to pay off a short-term loan

(1) Would you recommend approval of the loan application? ($M = 2.9$; SD = 0.9)
- Very unlikely (6.1%)
- Not likely (28.2%)
- Maybe (33.7%)
- Likely (30.7.%)
- Very likely (1.2%)

(2) Assuming the loan is approved, what is the likelihood of loan default within the next 5–10 years? ($M = 4.0$; SD = 0.9)
- >50% (0.6%)
- 50–21(7.4%)
- 20–11% (19%)
- 10–5% (34.4.%)
- <5% (38.6%)

Scenario 2: *Solaris Ltd.* is a new high tech company. Investors, who are well respected in the financial community, have invested 37 million SEK in the company for a 49% ownership share. Your bank has previously approved a seven million SEK loan to the company that is secured by Solaris's real estate. The company has a very promising patent on a new type of solar cells that is twice as efficient as comparable products currently on the market. Solaris plans to begin selling its solar cells within a year with expected turnover of about 4 million SEK in the first year. In subsequent years, turnover is expected to double. Based on these projections, Solaris expects to breakeven on the solar cells within three years. Solaris has now applied for a loan of 18 million SEK that is intended to be used to develop its sales and marketing activities

(1) Would you recommend approval of the loan application? ($M = 2.1$; SD = 1.0)
- Very unlikely (34.4%)
- Not likely (36.8%)
- Maybe (17.8%)
- Likely (11.0%)
- Very likely (0%)

(2) Assuming the loan is approved, what is the likelihood of loan default within the next 5–10 years? ($M = 2.8$; SD = 1.0)
- >50% (9.8%)
- 50–21% (25.8%)
- 20–11% (41.1%)
- 10–5% (18.4%)
- <5% (4.9%)

Table 1.
Scenarios used and ratings of risk taking in credit decisions (CR), means (*M*) and standard deviations (SD), scores assigned to the rating alternatives, and percentages of each score

(*continued*)

Scenario 3: *Medica Ltd.,* a small manufacturer of medical equipment, is a long-time bank customer. The company was very profitable at one time, but in the most recent four years it has sustained annual losses (of about 10 million SEK) due to increased competition in the market. At present, the company's owners' equity is only about 60 million SEK, and its solidity percentage (equity/total assets) has decreased from 50% to 25%. The company has appointed a new CEO with extensive turn-around expertise The CEO has introduced a cost reduction program that aims to reduce costs by 25% within one year. Medica also wishes to buy a small company, Eires Ltd, which has developed a pioneering product. This product, which is in its final developmental stage, will simulate complicated surgical operations. Medica's market research shows there is a large demand for this product. According to Medica, the cost reduction program will return the company to profit within two years. In order to buy Eires, Medica requires a loan of 25 million SEK

(1) Would you recommend approval of the loan application? ($M = 2.6$; SD = 0.9)
- Very unlikely (11.7%)
- Not likely (33.1%)
- Maybe (38%)
- Likely (17,2%)
- Very likely (0%)

(2) Assuming the loan is approved, what is the likelihood of loan default within the next 5–10 years? ($M = 2.8$; SD = 0.9)
- >50% (6.7%)
- 50–21% (34.3%)
- 20–11% (33.2%)
- 10–5%(22.1%)
- <5% (3.7%)

Table 1.

measured by asking participants to rate the extent to which they agree with statements such as "I perceive myself as a person who is outgoing and sociable" (high extraversion) using five-point Likert scales with numerical and verbal alternatives ranging from 1 (I do not agree at all) to 5 (I completely agree). Some statements were reverse coded such that all item correlations were positive.

5. Results

5.1 Descriptive statistics

Tables 1 and 2 show means and standard deviations of the ratings of items. Table 3 reports means, standard deviations and Cronbach's αs of the indexes as well as their correlations. It can be seen that the αs are acceptable ($\geq$0.60) with the exceptions of four of the personality traits (Agreeableness, Conscientiousness, Neuroticism and Openness) [3].

5.2 Differences between banks and loan officers

Table 4 shows the results of one-way analyses of variance followed by Bonferroni-adjusted *post-hoc* tests comparing the differences in personality ratings (AG, CO, EX, NE, OP), personal financial risk preference (DO), perceived organizational credit risk norms (ON), confidence in credit risk assessment (CC), attitude to credit risk (AR) and credit risk taking (CR) for the loan officers in the six banks. As expected, we found no significant differences between banks regarding how loan officers' rate their personality traits or the extent to which they take personal financial risk. However, we found differences among several of the bank-contextual determinants including loan officers' perceptions of their banks' credit risk norms, confidence in their ability to make correct risk assessments, credit risk attitude and credit risk taking. Loan officers in bank B perceived organizational credit risk norms to be more restrictive than in banks C, D and E. In bank B, loan officers were also more confident in their ability to make risk assessments than loan officers in banks E and F. Furthermore, in

Attitude to credit risk (RA)
You have to be prepared to take considerable risks when lending money to companies ($M = 1.7$; SD = 0.8)
You should not hesitate to take financial risks as a loan officer ($M = 2.3$; SD = 0.9)
It is necessary to take risks in all credit decisions ($M = 3.6$; SD = 1.1)

Confidence in ability to assess credit risk (CC)
I am very good at judging credit risks ($M = 4.0$; SD = 0.7)
I am better than most loan officers in judging companies' credit worthiness ($M = 3.3$; SD = 0.8)
I think it is difficult to make correct evaluations of credit risks ($M = 2.5$; SD = 0.9; after reverse coding)

Organizational credit risk norms (ON)
The bank has a tolerant attitude toward credit risk associated with corporate lending ($M = 2.0$; SD = 0.9)
The bank expects that we are very conservative as far as lending money to companies ($M = 3.8$; SD = 1.1; after reverse coding)
The bank focuses more on increasing the volume of loans than on minimizing its credit risks ($M = 1.5$; SD = 0.7)

Personal financial risk preference (DO)
Investing 10% of annual income in a moderate growth mutual fund ($M = 4.4$; SD = 1.6)
Betting a day's income in a high stakes poker game ($M = 2.0$; SD = 1.5)
Investing 5% of annual income in a very speculative stock ($M = 2.8$; SD = 1.5)
Betting a day's income on the outcome of a sporting event ($M = 1.9$; SD = 1.2)
Investing 10% of annual income in a new business venture ($M = 3.5$; SD = 1.5)

Big Five-Factor Model: Abbreviated version (BFI-10)
I perceive myself as a person who. . .
. . . is reserved (low in extraversion) ($M = 3.8$; SD = 0.07)
. . . is generally trusting (high in agreeableness) ($M = 3.8$; SD = 0.9)
. . . tends to be lazy (low in conscientiousness) ($M = 2.3$; SD = 1.0)
. . . is relaxed, handles stress well (low in neuroticism) ($M = 3.6$; SD = 0.8)
. . . has artistic interests (high in openness) ($M = 2.4$; SD = 1.2)
. . . is outgoing, sociable (high in extraversion) ($M = 4.0$; SD = 0.7)
. . . tends to find fault with others (low in agreeableness) ($M = 2.4$; SD = 0.9)
. . . does a thorough job (high in conscientiousness) ($M = 4.1$; SD = 0.7)
. . . gets nervous easily (high in neuroticism) ($M = 1.9$; SD = 0.8)
. . . has an active imagination (high in openness) ($M = 2.6$; SD = 1.0)

Table 2.
Questions used to form indices of the determinants of loan officers' credit decisions. Mean ratings (*M*) and standard deviations (SD) are reported in parentheses. (See text for further details.)

bank B loan officers had less tolerant attitudes toward credit risks than loan officers in the other banks. Finally, loan officers in banks A and B were less willing to take credit risks and approve loans than loan officers in Bank E.

5.3 Model tests

To explain the variance in risk taking among loan officers in the different banks, we tested the two proposed models by structural equation modeling (SEM) implemented in AMOS (version 22.0). The covariances between the indexes were input to the model tests with the goodness-of-fit of the models and the standardized path coefficients as outputs. Missing values were replaced by means for the same variables using a data imputation procedure based on multiple linear regression analysis. To evaluate model fit, we used the fit indices recommended by Hooper *et al.* (2008) [4]. Indirect effects were tested using the method proposed by Browne (1997).

5.3.1 Model 1. Model 1 testing the bank-contextual factors associated with loan officers' credit risk taking had an acceptable model fit (CFI = 0.938; GFI = 0.914; RMSEA = 0.051; AIC = 192; $\chi^2(83) = 118$). The standardized path coefficients in Figure 1 furthermore support Hypothesis 2 that perceived organizational credit risk norms have a direct and positive association with loan officers' attitude to credit risk and an indirect and positive association through attitude on credit risk taking (0.21, $t = 3.23$, $p < 0.05$). Perceived organizational credit risk norms in conjunction with confidence in ability to assess credit risk explained 61% of the

	M	(SD)	*α*	AG	CO	EX	NE	OP	DO	ON	CC	AC
AG	3.7	(0.7)	0.46									
CO	3.9	(0.7)	0.40	0.16*								
EX	3.8	(0.8)	0.65	0.19*	0.23*							
NE	2.2	(0.7)	0.54	−0.16*	−0.10	−0.32						
OP	2.5	(0.9)	0.41	0.02	−0.10	−0.02	0.05					
DO	2.9	(1.0)	0.69	−0.06	−0.08	0.01	−0.08	0.02				
ON	1.9	(0.7)	0.65	−0.16*	−0.02	0.03	−0.10	0.04	0.07			
CC	3.6	(0.6)	0.60	0.16*	0.18*	0.27**	−0.10	−0.06	−0.16*	−0.05		
RA	2.2	(0.8)	0.64	−0.08	−0.06	−0.09	0.10	0.14	0.03	0.43**	−0.18*	
CR	2.2	(0.5)	0.70	0.05	−0.16*	−0.06	0.06	0.14	0.27**	0.30**	−0.27*	0.30**

Note(s): AG = Agreeableness, CO = Conscientiousness, EX = Extraversion, NE = Neuroticism, OP = Openness, DO = DOSPERT scale of personal financial risk preference, ON = perceived Organizational credit risk norms, CC = Self-Confidence in credit risk assessment, RA = Risk attitude, CR = Credit risk taking; *$p < 0.05$, **$p < 0.01$

Table 3.
Means (M), standard deviations in parentheses (SD), Cronbach's αs, and product-moment correlations between indexes

Table 4.
Means (*M*) and standard deviations within parentheses (SD), *F*- and *p*-values from one-way analyses of variance of the differences between banks (A-F) on each index

	Bank A (n = 20)	Bank B (n = 30)	Bank C (n = 22)	Bank D (n = 47)	Bank E (n = 30)	Bank F (n = 14)	F	p
AG	3.7 (0.62)	3.8 (0.56)	3.6 (0.55)	3.7 (0.73)	3.8 (0.70)	3.2 (0.77)	2.38	0.041
CO	3.8 (0.75)	4.1 (0.64)	3.9 (0.62)	3.8 (0.79)	4.0 (0.6)	4.1 (0.60)	1.23	0.269
EX	4.0 (0.66)	3.8 (0.74)	3.4 (0.81)	4.1 (0.76)	3.7 (0.70)	3.6 (0.77)	1.14	0.287
NE	2.1 (0.58)	2.1 (0.70)	2.5 (0.57)	2.1 (0.76)	2.1 (0.74)	2.1 (0.62)	1.14	0.339
OP	2.2 (0.68)	2.2 (0.94)	2.5 (0.90)	2.6 (0.96)	2.6 (0.90)	2.2 (0.77)	1.04	0.396
DO	2.7 (0.52)	2.9 (0.92)	2.6 (0.77)	3.1 (1.02)	3.2 (1.1)	2.6 (1.2)	1.62	0.158
ON	$1.8_{a, b}$ (0.75)	1.4_{a} (0.59)	2.0_{b} (0.50)	2.2_{b} (0.73)	2.0_{b} (0.51)	2.0_{b} (0.52)	5.70	<0.001
CC	3.9_{a} (0.56)	3.8_{a} (0.54)	$3.5_{a, b}$ (0.64)	$3.6_{a, b}$ (0.52)	3.3_{b} (0.64)	3.3_{b} (0.45)	4.87	<0.001
RA	$1.9_{a, b}$ (0.62)	1.7_{a} (0.62)	2.3_{b} (0.81)	2.4_{b} (0.75)	2.3_{b} (0.68)	2.4_{b} (076)	4.97	<0.001
CR	1.9_{a} (0.58)	1.9_{a} (0.43)	$2.2_{a, b}$ (0.57)	2.3_{b} (0.49)	2.4_{b} (0.37)	$2.2_{a, b}$ (0.53)	5.51	<0.001

Note(s): AG = Agreeableness, CO = Conscientiousness, EX = Extraversion, NE = Neuroticism, OP = Openness, DO = DOSPERT scale of personal financial risk preference, ON = perceived Organizational credit risk norms, CC = Self-Confidence in credit risk assessment, RA = Risk attitude, CR = Credit risk taking; For those variables that were significant at $p < 0.001$ in one-way analyses of variance, Bonferroni-corrected post-hoc tests were performed. Different subscripts indicate that the mean differences were significant in these tests

variance in attitude toward credit risk, and attitude to credit risk explained 47% of the variance in credit risk taking.

We found however no support for Hypothesis 1 that loan officers' confidence in their ability to assess credit risk has a direct and positive association with attitude to credit risk and an indirect and positive association through attitude with credit risk taking. The significant association between confidence and attitude to credit risk was negative and not mediated by the latter on credit risk taking (0.12, $t = 1.00$, $p > 0.10$). To explain the unexpected negative association between confidence and credit risk taking, we included the personality trait conscientiousness as associated with confidence. Conscientiousness had a significant association (0.19, $t = 3.59$, $p < 0.05$) with confidence and model fit improved (NFI = 0.808; CFI = 0.954; GFI = 0.911; RMSEA = 0.038; AIC = 221; $\chi^2(111) = 137$).

5.3.2 Model 2. Model 2 included the person factors proposed to be directly associated with credit risk taking, that is the five personality traits and the loan officers' personal financial risk preference measured by items in the DOSPERT-30 scale. The goodness-of-fit indices were only reasonably acceptable (CFI = 0.758; NFI = 0.591; RMSEA = 0.07; AIC = 465; $\chi^2(187) = 335$), and significantly worse than for Model 1 ($\chi^2\Delta\,(104, n = 163) = 217.0$, $p < 0.05$; AICΔ = 273). None of the personality traits were significantly associated with loan officers' credit risk taking. However, as Figure 2 shows, personal financial risk preference is positively associated with credit risk taking. The person factors jointly accounted for 11% of the variance in credit risk taking.

6. Discussion

The main aim of this research was to determine the relative degree to which loan officers' risk taking in credit decisions are associated with bank-contextual (and domain specific) factors such as perceived organizational credit risk norms in the bank where they work, confidence in their ability to assessing credit risk, in contrast to person (and non-domain specific) factors such as personal financial risk preference and personality traits. These factors were tested by fitting two SEM models to index measures obtained in a survey of bank officers employed by six Swedish banks.

The results showed expected differences between the loan officers working in the different banks with respect to the indexes of perceived organizational credit risk norms, confidence in

ability to assessing credit risk, attitude to credit risk and risk taking in credit decisions but not with respect to personal risk preferences and personality traits. This supports our distinction between bank-contextual and personal factors. The fitted models accounting for the associations between the indexes showed that perceived organizational credit risk norms had the strongest association with risk taking in credit decisions through attitude to credit risk. This finding is consistent with previous research showing that the organizational context has a profound association with employees' risk-related decisions (Bromiley, 1991; March and Shapira, 1987; McNamara and Bromiley, 1997). The finding is also consistent with several other studies showing that risk taking depends to a higher degree on domain and contextual factors rather than personal risk preferences and personality traits (not domain-specific factors) (McCrimmon and Wehrung, 1986; Soane and Chmiel, 2005; Weber *et al.*, 2002).

Except for a weak although statistically significant direct association of personal financial risk preference, the person factors were not associated with risk taking in credit decisions. A caveat is that four of the measures of the five personality traits did not have an acceptable reliability. This should have reduced the correlations with credit risk taking, thus warranting caution in concluding that the loan officers' personality traits are not associated with their credit risk taking. However, consistent with previous research (Brooks and Williams, 2021), we conclude that the widely adopted Big Five personality traits (McCrae and Costa, 1997) are unlikely to influence credit risk taking by bank loan officers.

An exception to that the personality traits did not have any association with loan officers' credit risk taking is that conscientiousness was associated with confidence in assessing credit risk. This is consistent with that conscientiousness has been found to be related to both confidence (Chen *et al.*, 2001; Sunhee and Howard, 2002) and risk taking (Cole *et al.*, 2015; Hampson *et al.*, 2000). We suggest that the reason for our unexpected finding of a negative association between confidence in assessing credit risk and risk taking in credit decisions is that the association of conscientiousness with confidence dominates the association with risk taking in credit decisions. Loan officers who rate themselves high on conscientiousness are more confident but also more inclined not to take credit risk.

Another observation was that the loan officers' personal financial risk preference is associated with credit risk taking. The DOSPERT measure of personal financial risk preference did not correlate with perceived organizational credit risk norms or attitude to credit risk. Thus, the influence on risk taking in credit decisions is not mediated by these factors but have an independent effect which correlated negatively with confidence in assessing credit risk.

All taken into consideration, the conclusion is warranted that bank context has a clear influence on the loan officer's credit risk taking. Yet, the fact that personal financial risk preference may have some associations with risk taking in credit decisions should not be ignored. Previous studies have in a similar vein shown that even experienced loan officers are inconsistent in their credit risk assessments and decisions (e.g. Andersson, 2004; Deakins and Hussain, 1994; Fletcher, 1996).

The implications for banks that manage loans from small and medium sized companies are threefold. First, since perceived organizational credit risk norms in our study have a strong association with loan officers' risk taking, it seems appropriate to recommend banks to formulate clear norms and policies about risk taking. Second, it is crucial that these norms and policies are communicated to the bank employees, particularly to loan officers as well as assessing that they are well understood. In particular, any independent effects on credit risk taking of loan officers' personal financial risk preference are crucial to minimize. This could be done by early training of new officers and subsequent follows up by means of additional training sessions at regular intervals, for instance once a year. Third, performance incentives should support and be aligned with the bank's existing formal risk norms.

7. Limitations and suggestions of future research

The results of this study are suggestive and lay a ground for additional studies of larger samples with more reliable measures of personality traits. It also successfully used a scenario technique that is worth to develop further and use in additional studies.

Additional studies should recognize the recommendation that sample sizes exceed 200 when applying structural equation modeling. Furthermore, using a larger personality inventory with more than two items capturing each personality trait would also likely increase reliability of the personality measures.

We also acknowledge that although the Swedish banking regulations are similar to those of other Western countries, there may still be differences between countries depending on how international regulations are translated to conventions and norms, hence how strict loan officers follows the regulations in their loan decisions (Berger, 2007).

In larger samples it would be possible to also investigate the role of socio-demographic variables, in particular gender, considering that male and female loan officers in previous research have been shown to adhere to different criteria in assessing loan applications (Carter *et al.*, 2007). Including banks of different sizes would also make it possible to investigate if bank size influences how strict loan officers adhere to general credit risk norms versus being influenced by their own personal risk preference in making loan decisions.

Notes

1. Whereas confidence and attitude are general person factors, we consider *confidence in ability to assess credit risk* and *attitude to credit risk* to be shaped by the policy and practice of the bank in which the loan officer is employed. For this reason, we hence refer to them as bank-contextual factors.
2. We measure the loan officers' *perceptions* of the banks' organizational credit risk norms because it is likely to have a stronger effect on the loan officers' risk taking than the actual norms.
3. Note however that the accepted lowest level of Cronbach's α (0.70 or 0.60 in explorative studies) is a convention that has been questioned since it is not based on theoretical reasoning or empirical research (Cho and Kim, 2015). Yet, reviews of actual accepted lowest levels in empirical studies are close to 0.70 (Peterson, 1994). Increasing α by deleting items is a strategy that in this study would jeopardize the validity of the measures.
4. The Chi-square is a goodness-of-fit measure that assesses the magnitude of the discrepancy between the sample covariance matrix and the estimated covariance matrix (Hu and Bentler, 1995). A statistically significant value that is large relative to the degree of freedom indicates a poor model fit. The Normed Fit Index (NFI) is used as an alternative to Chi-square that is less sensitive to sample size and which compensates for upward bias in large sample sizes. NFI values above 0.8 or 0.9 are recommended for acceptable model fit with 1.0 indicating a perfect fit (Hooper *et al.*, 2008). The Root Mean Square Error of Approximation (RMSEA) measures the discrepancy per degree of freedom between the estimated model and a perfectly fitting model. Values of 0.05 or less indicate a close fit, while values of 0.08 or less indicates a reasonable fit (Browne and Cudeck, 1992). The Comparative Fit Index (CFI) is used as an incremental fit index in which values larger than 0.90 indicate an acceptable fit (Browne and Cudeck, 1992). The Goodness-of-Fit Index (GFI) is an indicator of the degree of variance and covariance accounted for by the model. It shows how closely the model reproduces the observed covariance matrix. Values > 0.90 are usually considered an acceptable fit (Diamantopoulus and Siguaw, 2000).

References

Acharya, V. and Richardson, M. (2009), "Causes of the financial crisis. A critical review", *Journal of Politics and Society*, Vol. 21, pp. 195-210.

Agarwal, S. and Ben-David, I. (2014), "Do loan officer incentives lead to lax lending standards?", NBER Working Paper 19945.

Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50, pp. 179-211.

Andersson, P. (2004), "Does experience matter in lending? A process-tracing study on experienced loan officers' and novices' decision behavior", *Journal of Economic Psychology*, Vol. 25, pp. 471-492.

Bacha, S. and Mohamed, A. (2019), "How gender and emotions bias the credit decision-making in banking firms", *Journal of Behavioral and Experimental Finance*, Vol. 22, pp. 183-191.

Bandura, A. (1977), "Self-efficacy: toward a unifying theory of behavioural change", *Psychological Review*, Vol. 84, pp. 191-215.

Bandura, A. (1995), *Self-efficacy in Changing Societies*, Cambridge University Press, New York.

Bellucci, A., Borisov, A. and Zazzaro, A. (2010), "Does gender matter in bank-firm relationship? Evidence from small business lending", *Journal of Banking and Finance*, Vol. 34 No. 12, pp. 2968-2984.

Berger, A. (2007), "International comparison of banking efficiency", *Financial Markets, Institutions and Instruments*, Vol. 16 No. 3, pp. 119-144.

Blais, A.-R. and Weber, E.U. (2006), "A domain-specific risk-taking (DOSPERT) scale for adult populations", *Judgment and Decision Making*, Vol. 1, pp. 33-47.

Bromiley, P. (1991), "Testing a causal model of corporate risk taking and performance", *Academy of Management Journal*, Vol. 34 No. 1, pp. 37-59.

Brooks, C. and Williams, L. (2021), "The impact of personality traits on attitude to financial risk", *Research in International Business and Finance*, Vol. 58, 101501.

Browne, R.L. (1997), "Assessing specific mediational effects in complex theoretical models", *Structural Equation Modelling*, Vol. 4 No. 2, pp. 142-156.

Browne, M. and Cudeck, R. (1992), "Constructing a covariance matrix that yields a specified minimizer and a specified minimum discrepancy function value", *Psychometrika*, Vol. 57, pp. 357-369.

Bruns, V., Holland, D., Shepher, D. and Wiklund, J. (2008), "The role of human capital in loan officers' decision policies", *Entrepreneurship Theory and Practice*, Vol. 32 No. 3, pp. 485-506.

Carter, S., Shaw, E., Lam, W. and Wilson, F. (2007), "Gender, entrepreneurship and bank lending: the criteria and processes used by bank loan officers in assessing applications", *Entrepreneurship Theory and Practice*, Vol. 31 No. 3, pp. 427-444.

Chao, C., Green, P. and Crick, A. (1998), "Does entrepreneurial self-efficacy distinguish entrepreneurs from managers?", *Journal of Business Venturing*, Vol. 13 No. 4, pp. 295-316.

Chen, G., Casper, W.J. and Cortina, J. (2001), "The role of self-efficacy and task complexity in the relationship among cognitive ability, conscientiousness and work-related performance: a meta-analytic examination", *Human Performance*, Vol. 14 No. 3, pp. 209-230.

Cho, E. and Kim, S. (2015), "Cronbach's coefficient alpha. Well known but poorly understood", *Organization Research Methods*, Vol. 18 No. 2, pp. 207-230.

Clark, G. and Strauss, K. (2008), "Individual pension-related risk propensities: the effects of socio-demographic characteristics and a spousal pension entitlement on risk attitudes", *Ageing and Society*, Vol. 28 No. 6, pp. 847-874.

Cole, S., Kanz, M. and Klapper, L. (2015), "Incentivizing calculated risk-taking: evidence from an experiment with commercial bank loan officers", *The Journal of Finance*, Vol. 70 No. 2, pp. 537-575.

De Bortoli, D., da Costa, N. Jr, Goulart, M. and Campara, J. (2019), "Personality traits and investor profile analysis: a behavioral finance study", *PLoS One*, Vol. 14 No. 3, e0214062.

Deakins, D. and Hussain, G. (1994), "Financial information, the banker and the small business: a comment", *British Accounting Review*, Vol. 26, pp. 323-335.

Dell'Ariccia, G. and Marquez, R. (2006), "Lending booms and lending standards", *Journal of Finance*, Vol. 61 No. 5, pp. 511-546.

Dell'Ariccia, G., Igan, D. and Laeven, L. (2012), "Credit booms and lending standards: evidence from the subprime mortgage market", *Journal of Money, Credit and Banking*, Vol. 44 Nos 2-3, pp. 367-384.

Diamantopoulus, A. and Siguaw, J. (2000), "Introducing Lisrel", available at: http://srmo.sagepub.com

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J. and Wagner, G. (2011), "Individual risk attitudes; measurement, determinants, and behavioral consequences", *Journal of the European Economic Association*, Vol. 9 No. 3, pp. 522-550.

Druckman, D. (2004), "Be all that you can be: enhancing human performance", *Journal of Applied Social Psychology*, Vol. 34 No. 11, pp. 2234-2260.

Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention, and Behavior: an Introduction to Theory and Research"*, Addison-Wesley, Reading.

Fletcher, M. (1996), "How bank-managers make lending decisions to small firms", in Blackburn, R.A. and Jennings, P. (Eds), *Small Firms: Contributions to Economic Development*, Paul Chapman Publishing, London, pp. 12-22.

Hallahan, T., Faff, R. and McKenzie, M. (2004), "An empirical investigation of personal financial risk tolerance", *Financial Service Review*, Vol. 13, pp. 57-78.

Hampson, S., Andrews, J., Barckley, M. and Lichtenstein, M. (2000), "Conscientiousness, perceived risk and risk-reduction behaviours: a preliminary study", *Health Psychology*, Vol. 19 No. 5, pp. 496-500.

Hensman, A. and Sadler-Smith, E. (2011), "Intuitive decision making in banking and finance", *European Management Journal*, Vol. 29, pp. 51-66.

Hooper, D., Coughlan, J. and Mullen, M. (2008), *Structural Equation Modelling. Guidelines for Determining Model Fit*, Dublin Institute of Technology, Dublin.

Hu, L.-T. and Bentler, P.M. (1995), "Evaluating model fit", in Hoyle, R.H. (Ed), *Structural Equation Modelling: Concepts, Issues, and Applications*, Sage, Thousand Oaks, CA, pp. 76-99.

Ivashina, V. and Scharfstein, D. (2010), "Bank lending during the financial crisis of 2008", *Journal of Financial Economics*, Vol. 97, pp. 319-338.

Klos, A. (2008), "Retail banking, the central tendency error, and the temporal stability of risk preferences", *Working paper*, Mannheim University, Mannheim.

Krueger, N. and Dickson, P. (1994), "How believing in ourselves increases risk taking: perceived self-efficacy and opportunity recognition", *Decision Sciences*, Vol. 25 No. 3, pp. 385-400.

Kubilay, B. and Bayrakdaroglu, A. (2016), "An empirical research on investor biases in financial decision-making, financial risk tolerance and financial personality", *International Journal of Financial Research*, Vol. 7 No. 2, pp. 171-182.

Lipshitz, R. and Shulimovitz, N. (2007), "Intuition and emotion in bank loan officers' credit decisions", *Journal of Cognitive Engineering and Decision Making*, Vol. 1, pp. 212-233.

Llewellyn, D., Sanchez, X., Asghar, A. and Jones, G. (2008), "Self-efficacy, risk taking and performance in rock climbing", *Personality and Individual Differences*, Vol. 45, pp. 75-81.

Lorenzoni, G. (2008), "Inefficient credit booms", *Review of Economic Studies*, Vol. 75, pp. 809-833.

March, J. and Shapira, Z. (1987), "Managerial perspectives on risk and risk taking", *Management Science*, Vol. 33, pp. 1404-1418.

McCrae, R.R. and Costa, P.T. Jr (1997), "Personality trait structure as a human universal", *American Psychologist*, Vol. 52, pp. 509-516.

McCrimmon, K. and Wehrung, D. (1986), *Taking Risks: the Management of Uncertainty*, Free Press, New York.

McNamara, G. and Bromiley, P. (1997), "Decision making in an organizational setting: cognitive and organizational influences on risk assessment in commercial lending", *Academy of Management Journal*, Vol. 40, pp. 1063-1088.

Nga, J.K.H. and Yien, L.K. (2013), "The influence of personality trait and demographics on financial decision making among Generation Y", *Young Consumers*, Vol. 14 No. 3, pp. 230-243.

Nguyen, D., Nguyen, L. and Sila, V. (2019), "Does corporate culture affect bank risk-taking? Evidence from loan-level data", *British Journal of Management*, Vol. 30 No. 1, pp. 106-133.

Nicholson, N., Soane, E., Fenton-O'Creevy, M. and Willman, P. (2005), "Personality and domain-specific risk taking", *Journal of Risk Research*, Vol. 8, pp. 157-176.

Nielsen, S. and Pontoppidan, I., C. (2019), "Exploring the inclusion of risk in management accounting and control", *Management Research Review*, Vol. 43 No. 1, pp. 204-8269.

Peterson, R.A. (1994), "A meta-analysis of Cronbach's coefficient alpha", *Journal of Consumer Research*, Vol. 21, pp. 381-391.

Rad, A., Yazdanfar, D. and Öhman, P. (2013), "An empirical study of loan officers' assessment of SME loan applications", *International Journal of Gender and Entrepreneurship*, Vol. 6 No. 2, pp. 121-141.

Ramstedt, B. and John, O. (2007), "Measuring personality in one minute or less: a 10-item short version of the Big Five Inventory in English and German", *Journal of Research in Personality*, Vol. 41, pp. 203-212.

Sahm, C.R. (2007), "Stability of risk preferences", Finance and Economics Discussion Series 2007-66. Working Paper. Board of Governors of the Federal Reserve System (US).

Salminen, S. and Heiskanen, M. (1997), "Correlations between traffic, occupational, sports and home accidents", *Accident Analysis and Prevention*, Vol. 29 No. 1, pp. 33-36.

Schularick, M. and Taylor, A. (2009), "Credit booms gone bust: monetary policy, leverage cycles and financial crisis", *American Economic Review*, Vol. 102 No. 2, pp. 1029-2008.

Soane, E. and Chmiel, N. (2005), "Are risk preferences consistent? The influence of decision domain and personality", *Personality and Individual Differences*, Vol. 38, pp. 1781-1791.

Stern, P.C., Dietz, T., Abel, T., Guagnano, G.A. and Kalof, L. (1999), "A value-belief-norm theory of support for social movements: the case of environmentalism", *Human Ecology Review*, Vol. 6, pp. 81-97.

Strohmaier, N., Adriaanse, J., van den Bos, K. and Pluut, H. (2021), "Similarity bias in credit decisions for entrepreneurs on the brink of bankruptcy", *Journal of Applied Social Psychology*, Vol. 51, pp. 683-697.

Sunhee, L. and Howard, K. (2002), "Relationships between conscientiousness, self-efficacy, self-deception and learning over time", *Journal of Applied Psychology*, Vol. 87 No. 6, pp. 1175-1182.

Tzioumis, K. and Gee, M. (2013), "Nonlinear incentives and mortgage officers' decisions", *Journal of Financial Economics*, Vol. 62 No. 2, pp. 629-668.

Wang, A. (2009), "Interplay of investors' financial knowledge and risk taking", *The Journal of Behavioral Finance*, Vol. 10 No. 4, pp. 204-213.

Weber, E., Blais, A. and Betz, N. (2002), "A domain specific risk attitude scale: measuring risk perceptions and risk behaviours", *Journal of Behavioural Decision Making*, Vol. 15, pp. 263-290.

Corresponding author
Magnus Jansson can be contacted at: magnus.jansson@gri.gu.se