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A credit scoring model for Vietnam's retail banking market

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Abstract

As banking markets in developing countries are maturing, banks face competition not only from other domestic banks but also from sophisticated foreign banks. Given the substantial growth of consumer credit and increased regulatory attention to risk management, the development of a well-functioning credit assessment framework is essential. As part of such a framework, we propose a credit scoring model for Vietnamese retail loans. First, we show how to identify those borrower characteristics that should be part of a credit scoring model. Second, we illustrate how such a model can be calibrated to achieve the strategic objectives of the bank. Finally, we assess the use of credit scoring models in the context of transactional versus relationship lending.

JEL classification: G21; G28; O16
Keywords: Retail banking; Emerging markets; Credit scoring; Default risk

1. Introduction

Are retail loans special? Advocates of relationship lending tend to answer this question with 'yes'. Since retail borrowers are typically individuals or entrepreneurs, information about them is not readily available but needs to be obtained through close contact over the life of a bank–client relationship. Relationship lending is thus based on soft, proprietary information. Lending decisions are not only determined by exact characteristics such as the borrower's income or collateral but to a large extent also by qualitative information such as the borrower's character, reputation, or standing in the community. As relationships are expensive to maintain and as

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relationship lending might not always be profit maximizing, banks have introduced transactional lending tools where lending decisions are based on quantifiable borrower characteristics supported for example by a credit scoring model (CSM). In 1996, already 97% of all US banks used credit scores for credit card loan applications and 70% for small business loans. CSMs have also spread globally to banking markets in other developed countries. By now, the most widely-used CSMs are those of Fair Isaac and Co. Inc. who developed models for small business trade credit in 1998, small business credit in 1999, and finally personal credit in 2001.[2] In contrast, in the retail banking markets of developing countries lending practices tend to be poor and banks, i.e. small banks or micro-financiers lack the necessary data on borrower characteristics and their credit histories to design reliable CSMs. It is therefore not surprising that only a few of the largest banks in developing countries use CSMs. However, as banking markets in developing countries are maturing, banks face competition not only from other domestic banks but also from sophisticated foreign banks. Given the substantial growth of retail credit and increased regulatory attention to risk management, the development of a well-functioning credit assessment framework is essential.

In essence, a CSM provides an estimate of a borrower's credit risk – i.e. the likelihood that the borrower will repay the loan as promised – based on a number of quantifiable borrower characteristics. Given its widespread use in developed countries, the benefits of credit scoring as well as the methodological issues surrounding credit scoring are well established in the academic literature.[3] Evidence regarding CSMs for retail banking markets in developing countries, however, is extremely limited as only two studies exist: Viganó (1993) for Burkina Faso and Schreiner (2004) for Bolivia. Both studies analyze small business loans. In contrast to business loans in developed countries, reliable up-to-date financial data is often lacking and the boundary between the private and business property of an entrepreneur is often vague. Thus, CSMs for these loans need to rely – just like CSMs for consumer loans – on the personal information about the entrepreneur.[4] Schreiner's (2004) study is practitioner-oriented and discusses the benefits of credit scoring as well as its implementation in general. Viganó (1993) specifically addresses the problem of selecting the relevant borrower characteristics for the CSM. Despite being considered "the best scorecard for microfinance in the literature" (Schreiner, 2004), Viganó's (1993) analysis uses very limited samples containing 31 to 100 loans. In contrast, our study is based on the complete retail loan portfolio of a Vietnamese commercial bank. For our CSM, we can utilize data on more than 56,000 loans including in addition to small business loans also consumer loans, mortgages and credit card loans. Our study is thus the first to provide a CSM that is applicable to the overall retail lending activities of a bank in a developing country.

In particular, we identify which borrower characteristics a bank needs to collect and how these can be combined into a scoring model. Though we start with a similar set of borrower characteristics as many developed-country retail CSMs, two of our four most important characteristics are unique to Vietnam – gender and loan duration – while commonly included characteristics related to income and employment are not part of our CSM. In this sense we cannot fully agree with Allen, DeLong, and Saunders (2004) who conclude for small business loans that

[2] See Mester (1997) and Allen et al. (2004).

[3] See for example Mester (1997) and Blöchlinger and Leippold (2006) for the former and Altman (1968), Hand and Henley (1997), Altman and Saunders (1998) and Thomas (2000) for the latter literature.

[4] In this sense, the small business loans considered in this study are different from those discussed by Altman and Narayanan (1997) and as summarized in Table 2 of Allen et al. (2004). Even though these studies consider business loans to developed as well as developing countries, they focus on the prediction of bankruptcy based on financial data of the business alone.