



Managing Customer Acquisition Risk Using Co-operative Databases

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Abstract

Acquisition of new customers involves both opportunity and risk, and it is important for firms to predict and manage the risks involved in customer acquisition. Despite its importance, the management of customer acquisition risk has not been the subject of much academic research. This paper develops a framework for firms to manage customer acquisition risk using co-operative databases. We illustrate this framework in the context of the optimal selection of customers for direct mail with a ‘buy now, pay later’ payment option when the acquisition risk manifests as bad debt risk. Using data from a large scale direct marketing campaign, we show that our empirical model that incorporates bad debt risk substantially outperforms suboptimal targeting schemes that overlook bad debt risk. We also demonstrate how alleviating bad debt risk is one beneficial outcome of a fairly recent trend in database marketing, namely the emergence of co-operative databases.

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Keywords: Customer acquisition; Acquisition risk; Bad debt risk; Co-operative database; Direct mail; Direct marketing; Targeting

Introduction

Incorporating a customer risk forecast into assessment of the economic value of a customer is an important conceptual development that has both theoretical and practical implications. In developing relationship marketing strategies, prior research has focused on selective customer retention through a customer value analysis and a risk-adjustment process (Ryals and Knox 2005). The risk of an existing customer can originate from factors that affect the volatility of future revenue, e.g., the probability of filing insurance claims and the probability that the customer will not be retained.

While risk in customer retention is an important aspect of managing customer relationships, risk in customer acquisition is arguably at least as important as that in customer retention. When acquiring new customers, firms face higher uncertainty in customer responses to a promotional campaign. Without

past customer relationships, the risk of undesirable behaviors such as bad debt (inability or unwillingness to pay) or product return is more prominent, and meanwhile it is challenging for firms to forecast such risk because of the limited information. Despite the importance of risk management in customer acquisition, it remains an understudied area in the literature possibly due to the lack of appropriate data.

In this paper we develop a framework to manage customer acquisition risks, and illustrate our framework in the empirical context of a direct mail campaign. A key decision for direct marketing firms is to choose the right consumers to target. Previous studies strive to identify variables that can predict consumer responses so that firms can improve response rates and reduce wasteful mailings. Although response rate is a key metric for direct marketers, the literature has hitherto largely ignored the risk management in a customer acquisition campaign, especially the identification of consumers who respond but do not pay. While the related but different behavior of product return has been the subject of several recent papers (e.g. Anderson, Hansen, and Simester 2009; Petersen and Kumar 2009), the widespread phenomenon of bad debt in direct marketing has not been the subject of much academic research.

The management of acquisition risk through prediction of bad debt is important for direct marketers since the cost of bad

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debt can be very high. Delinquencies and bad debts cost the industry at least tens of millions of dollars annually (Acxiom Corporation 2008). This problem is exacerbated by the common practice of many firms selling small ticket items with a ‘buy now, pay later’ payment option. Given the relatively small amount involved per customer, direct marketing businesses typically spend limited effort to recover bad debts, unlike businesses selling big ticket items who may expend substantial recovery effort through repossession and debt collection agencies. This increases the importance of accurately forecasting bad debt risk for direct marketers. For example, Fingerhut, a direct marketing company that targets lower income households, estimated that its bad debt customers accounted for about 15% of its base (West 2006). The cost of bad debt soon became as high as 40% of Fingerhut’s sales, and the parent company (Federated) was forced to take a \$150 million charge for bad debts in the second quarter of 2000. Fingerhut began layoffs in 2001 and discontinued most operations in the next year.

We believe that one reason why previous academic research has not studied bad debt risk in customer acquisition is that historical information on bad debt behavior across many campaigns from multiple firms is hard to come by. The data used for a research study are typically from one direct marketing firm.³ This is also a quandary for direct marketing firms when they buy mailing lists for the purpose of customer acquisition. Since by definition these lists do not contain their own customers, firms often do not have information on transaction and payment history of individuals on the purchased list. Limited by the information available, firms seem to have their hands tied in terms of being able to take the crucial step in managing acquisition risk by identifying potential bad debt customers.

A fairly new and interesting solution has emerged in the industry to help direct marketing firms address this issue. This solution is in the form of *co-operative databases*, which can be described as *pooling of data across direct marketing firms by a third party vendor in order to provide a broader view of customer transactions and thus enable direct marketing firms that have access to the co-operative databases to refine their promotional strategies*. Basically contributing direct marketing firms give their historical customer transaction data to an independent co-operative database firm, which provides data warehousing and data analytic services to the contributors. By keeping track of customers’ transaction and payment history across direct marketing firms, such co-operative databases can offer a major advantage in customer acquisition in that they provide customer information to help direct marketing firms manage potential bad debt risk.

To analyze the optimal selection for direct mail under bad debt risk, we first develop an analytical model to reveal how the benefit from incorporating bad debt risk varies according to the characteristics of a direct mail campaign. We then apply our model to empirical data and study consumers’ responses to a direct mail campaign and their bad debt behavior.

³ Only recently have there been studies of competitive direct marketing (e.g. Van Diepen, Donkers, and Franses 2009).

Our empirical analysis is based on data from a direct mail campaign for a magazine offer in which 3.56% of the targeted consumers responded and paid while another .86% responded but never paid. Given that a significant portion of the responses eventually became bad debts, it is critical to account for bad debt risk and screen out potential bad debtors. We match the target consumers with a co-operative database and obtain their historical purchase and payment information. Such information allows us to identify variables that predict consumers’ responses to the campaign and their bad debt behavior. Our model accurately predicts consumers’ decisions and ranks consumers according to the expected return. By targeting those consumers with a positive expected return only, the proposed targeting scheme is effective in screening out potential bad debtors.

Instead, if the firm follows a traditional binomial response model that focuses on response vs. non-response, consumers will only be selected based on their response probabilities. In effect the model will overlook bad debt risk and miscalculate the true profitability of a customer because those who are quick to respond could well be bad debtors. We show that our proposed targeting scheme would generate 5.3% more profits than such a suboptimal targeting scheme for the specific magazine offer under study. Note that the average loss from a bad debt is limited to \$10 for this magazine offer because the firm can stop sending magazine issues as soon as a bad debt consumer is identified. In other product categories a bad debt is often more costly, in which cases it will be even more beneficial to apply the proposed targeting scheme and alleviate bad debt risk. For example, at an average loss of \$15 from a bad debt, the proposed targeting scheme could improve profits by 23.7% over the suboptimal targeting scheme. Therefore, our results highlight the benefit of accounting for bad debt risk in direct mail, and such benefit increases when the loss from a bad debt becomes larger.

We utilize historical purchase and payment information from a co-operative database to predict consumer choices among non-response, paid response and bad debt. To demonstrate the value of co-operative databases, we try to predict consumer choices without accessing the information from the co-operative database. The alternative to using a co-operative database would be to use other information available such as demographic variables, and we therefore collect these variables from census data based on consumer addresses. Demographics can explain some variation in bad debt behavior, but are much less effective in screening out bad debt consumers. In fact, using demographics the firm can avoid a mere 2.5% of bad debtors and increase its profit by .9%, while in contrast, using information from the co-operative database the firm can avoid 38.2% of bad debtors and improve its profit by 5.3%.

Literature Review

Although there are many papers devoted to the study of customer relationship management and customer retention, there has been a comparatively lesser degree of focus on customer acquisition. Related to customer acquisition, Blattberg and Deighton (1996) present a managerial approach to balance

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