

# **Credit Scoring for Microenterprise Lenders**

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## Acknowledgments

The challenge of “achieving scale” – that is, reaching larger numbers of microentrepreneurs who want and need financing and technical support for their businesses – has been a critical focus of the microenterprise industry for many years. Leading microenterprise practitioners are working hard in pursuit of this goal – re-examining their products and processes, investing in new technologies and marketing strategies, and striving to create efficiencies and to raise additional funds so they can reach out to more entrepreneurs. At FIELD, we have been working to support the microenterprise field in its efforts to better understand and tackle the challenge of scale.

With generous support from the Ford Foundation, part of our work over the past several years has focused on working with leading microlenders in their efforts to increase the scale of microenterprise lending. In searching for strategies that can push the scale of microlending efforts, one obvious place to look is at the techniques that have been employed successfully by banks and other for-profit financial institutions, as well as by microfinance organizations overseas. Clearly, one of the factors that has dramatically increased the level of small-scale consumer and business lending – both in the U.S. and overseas – has been the increase in the use of credit scoring.

Thus, part of our effort at FIELD has focused on working with microlenders to explore the role that credit scoring might play in the U.S. microlending field. Our efforts have included a review of literature on credit scoring, interviews with experts in scoring and with microlenders regarding the potential use of credit scoring, and providing grant support to two U.S. microlenders who are exploring two different approaches to the applicability and integration of microlending into their lending activities. This paper presents the key findings from that work.

Special thanks are due to my co-authors: Andrea Berger and Marisa Barrera of ACCION New Mexico, and Livingston Parsons of ACCION USA. Their work and willingness to share bring great value to the microenterprise field, and I have greatly appreciated the collaborations we have engaged in not only in this project, but in years past. Thanks are also due to many of my colleagues at FIELD: to Elaine Edgcomb for her input and guidance on this publication, and to Carol Rugg, Colleen Cunningham and Jackie Orwick, who have helped with editing, production and dissemination.

I hope that readers of this publication will learn from and be motivated by the work of these organizations as they pursue their own efforts to achieve greater scale, and look forward to the field’s continued efforts to recognize the promise of microenterprise in the United States.

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## Introduction

Over the past 20 or so years, credit scoring has been transforming how traditional lenders interact with their consumer and small business customers. By dramatically reducing the costs of making loan decisions, scoring has increased the willingness of for-profit lenders to make small business loans previously believed to be unprofitable. It also has allowed them to increase their risk tolerance without undermining their profit margins. As a result, banks and other lenders are increasingly moving “down-market” toward the customers historically left to microenterprise lenders.

Microlenders and others concerned about access to credit for low-income and disadvantaged individuals have often been skeptical of credit scoring. Their concern is that the scoring process may leave out some who may be creditworthy, in particular those with little or no credit history, or those whose credit problems stem from high medical bills or predatory lending practices. As a result, some microlenders have been reluctant to think about how they could incorporate credit scoring within their own lending practices.

At the same time, credit scoring can offer microlenders the same benefits of improved cost-efficiency and risk management that it offers to traditional for-profit lenders. These benefits are increasingly important to nonprofit lenders faced with pressures to increase scale and self-sufficiency, as well as with increasing competition from for-profit lenders. For this reason, some microlenders are beginning to explore how they can integrate credit scoring into their lending processes, while at the same time continuing to lend to customers who may be deemed unworthy of credit by more traditional lenders.

FIELD (the Microenterprise Fund for Innovation, Effectiveness, Learning and Dissemination) has been working with microenterprise practitioners for over a decade, helping them to improve their scale, performance, efficiency and self-sufficiency. In the course of these efforts, we came to recognize the role and potential importance of credit scoring for programs engaged in microlending. Over the past few years, with support from the Ford Foundation, we have explored ways in which the microenterprise field might move toward greater knowledge and use of credit scoring. As part of this, FIELD examined the potential for bringing together a group of microlenders to engage in a collaborative effort to collect and analyze loan and repayment data, with the goal of creating a credit-scoring model for the field. Due largely to the small scale of most existing microlenders (a credit-scoring model requires data on a relatively large number of loan customers), this effort was deemed to be cost-prohibitive.

Most recently, FIELD’s efforts to support credit scoring centered on providing funding to two organizations that were actively exploring the potential uses of credit scoring within their organizations: ACCION New Mexico and ACCION USA. ACCION New Mexico (ACCION NM) sought to conduct research on the correlation between the credit scores of its customers and their subsequent repayment records. Recognizing that the majority of their customers had credit scores below those accepted by traditional banks, they were interested in whether there was any relationship between those credit scores and their repayment experiences. ACCION USA (AUSA) was interested in developing its own

credit-scoring model using loan application and repayment information from its past customers and those of ACCION New York.

Based on these efforts, both organizations have found ways to expand the use of credit scoring within their lending operations. The purpose of this paper is to share the experiences and results of the work of ACCION New Mexico and ACCION USA, in order to help other microlenders understand how they might begin to develop and use credit scoring within their lending programs.

## **The Basics of Credit Scoring**

To understand how credit scoring might benefit microlenders, it is important to understand what scoring is, how scores are developed, and the specific benefits that credit scoring offers to lenders. According to ACCION International, credit scoring is a “system of rating that uses past behavior and/or the characteristics of people that have already received a loan, with the objective of forecasting his/her behavior with a future loan or financial service.”<sup>1</sup> In other words, credit scoring is a means of judging or evaluating the desirability of a loan customer based on his/her basic characteristics and past experiences with credit. Scoring can be used to predict a range of behaviors – whether a loan will go “bad,” whether a client will take on a repeat loan, and so forth. In most instances, scoring focuses on the likelihood that the borrower will become delinquent, or the loan will go “bad,” and is used to inform the loan decision.<sup>2</sup>

Credit scores can be developed based on either qualitative or quantitative information on customer behavior and characteristics. A system based on qualitative information is called “subjective scoring.”<sup>3</sup> Credit evaluation grids, which microlenders have used to organize and apply numeric scores to information collected in the lending process, is one example of a subjective scoring tool, in that typically the weighting system used to develop an applicant’s score is based on the experience and belief of the organization’s underwriting staff.<sup>4</sup> A system based on quantitative information stored in a data base is called “statistical scoring.” Statistical scoring is the type of credit scoring now used by most private lenders, and by credit bureaus – the form of scoring that has so dramatically altered lending practices – and is the type of scoring discussed in this paper.

Credit scores are developed by collecting data on a range of factors related to the customer at application – most typically their past credit behavior, their business, and

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<sup>1</sup> ACCION International, “Scoring,” PowerPoint presentation to ACCION USA, December 2005, unpublished.

<sup>2</sup> One of the first steps in the credit-scoring process is to determine how the organization defines a “bad” loan. It could simply be a loan that is written-off, or it could be a loan that while repaid, experienced certain levels or periods of delinquency. In essence, it is the threshold at which the lender would, in retrospect, not have made the loan.

<sup>3</sup> Mark Schreiner, “Scoring: The Next Breakthrough in Microcredit?” Paper prepared for the Consultative Group to Assist the Poorest, June 2002, 4; available from <http://www.microfinance.com>.

<sup>4</sup> Julie Gershick, *Credit Evaluation Grids for Microlenders* (Washington D.C.: The Aspen Institute/FIELD, February 2002).

personal factors and characteristics such as whether they rent or own a home, their marital status, etc. – as well as data on their repayment history. Data on a large number of customers or individuals is required in order to ensure the validity of the analysis.<sup>5</sup> Data on these individuals is placed into one large data set, and correlations are then run to determine which factors relate to strong or weak payment. Once the factors that correlate to repayment are identified, a second level of analysis is conducted to build a statistical model that determines the weight of each factor. For example, factors that are more predictive of repayment behavior are weighted more heavily in the scoring system. That analysis is then used to develop a rating system that gives a “score” that describes the probability that a customer will pay on time.

The above process is used by the large credit bureaus and credit-scoring agencies (Experian, TransUnion and Equifax, as well as Fair Isaac). These firms have built their own models – or constructed them for their business clients – based on large volumes of data accumulated on individual consumers and/or businesses. With sufficient data on its loan applicants and customers, a nonprofit microlender could use this same approach to develop its own credit-scoring system.

Scoring – and statistical scoring in particular – offers a number of benefits that can enhance microlending performance. The primary benefits include:

- ***Delinquency reduction.*** One benefit of credit scoring is that a lender can improve its overall portfolio performance as staff is better able to identify, and then decline, loan applications from individuals who are likely to result in “bad” loans – however the organization chooses to define that term.
- ***Increased consistency in decision-making.*** One of the drawbacks to subjective decisioning is that different underwriters or loan officers may value or see a particular characteristic or factor in different ways, based on their personal experiences. And often, there is a particular focus on characteristics of loans that have gone bad: “I loaned to a taxi driver once, and the loan went bad, so I’m very skeptical of other taxi drivers.” Statistical scoring applies a weight to the “taxi driver” variable based on the experience of all taxi drivers the organization has financed, therefore helping to ensure that loans with similar characteristics are treated consistently.
- ***Greater clarity in the decision process.*** Statistical scoring can also make the decision process more explicit. The score is based on a set of mathematical formulas. If staff has access to and understands these formulas (as they should), then it can be clear to all how and why a particular score was generated.
- ***Improved efficiency in the lending process.*** Increased efficiency is one of the primary reasons that lenders use scoring. By identifying which factors are predictive of repayment, lenders can choose to eliminate factors that are not predictive, thereby reducing the amount of information that is collected and analyzed during the underwriting process. Lenders also can elect to concentrate

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<sup>5</sup> In particular, data is required on a fairly large number of “bad” loans, since the analysis is seeking to predict the probability of poor repayment. Schreiner suggests that data on between 500 and 1,000 “bad” loans is required to construct a scorecard. Schreiner, 50.

their underwriting resources on those applicants who show greater likelihood of delinquency. For example, one way that credit scores are applied is by designating a threshold score above which all loans are automatically approved, another score below which all loans are automatically declined, and then a middle range of scores, within which the applicants are subjected to additional data collection and underwriting. In this way, a lender can concentrate its underwriting resources on applicants who most require them, and reduce the amount of information collected from, and time spent on, those applicants who are either highly likely or highly unlikely to repay their loans.

- **Development of new or differentiated products.** Credit scoring also can provide information that allows microlenders to tailor their products more closely to their customers' behaviors and demands. For example, lenders may choose to offer a streamlined approval process, or more attractive pricing, to customers with high credit scores who are likely to repay. These types of offers – particularly the streamlined approval process – may be attractive to strong customers who might be tempted by credit cards or other loan products.
- **Implementation of risk-based pricing.** Recent research has shown that most microlenders charge interest rates that are well below their costs of providing credit.<sup>6</sup> Some lenders have attempted to address this problem by moving toward risk-based pricing – a system in which the interest rates on its loans vary according to the risk level of each loan. In order to implement risk-based pricing, a lender must have a means or process for assessing the level of potential risk in a loan. This process is made easier with scoring, as the score provides information about the likelihood that a borrower will repay.

Credit scoring, therefore, is a tool that lenders can use in a variety of ways to improve the performance and efficiency of their loan programs.

### **How Can Microlenders Move Toward Use of Credit Scoring?**

To date, microlenders in the United States have not made use of statistical scoring.<sup>7</sup> This may be due in part to concerns among some that scoring may, in fact, be biased against the very constituencies that the field seeks to serve. However, it is also true that it can be daunting to think about how this tool can be integrated into current microlending practice, given that it is a technical process that involves significant quantities of data, the acquisition of specific technical skills and knowledge, and changes in internal lending processes and procedures.

Yet while U.S. microlenders have not developed their own statistical models, many

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<sup>6</sup> J. Jordan Pollinger, John Outhwaite and Hector Cordero-Guzmán, “The Question of Sustainability for Microfinance Institutions,” *Journal of Small Business Management*, Vol. 45, Issue 1, (January 2007), 23-41; available from <http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1540-627X.2007.00196.x>.

<sup>7</sup> A number of microfinance institutions operating in less-developed countries have developed statistical scoring models that are used as part of their underwriting process.

already gather consumer credit scores from credit bureaus as part of their loan analysis and underwriting process. From FIELD's discussions with microlenders, it appears that most consider the score itself, as well as other information from the applicant's credit report, as one part of the decisioning process. Typically, the credit score is one among a set of factors that are weighed by the loan officer and other lending staff as part of the decision process.

However, it is difficult to know how much to use the credit bureau score in decisioning without knowing how predictive it is relative to other factors. Clearly, the consumer credit score cannot fully explain repayment behavior. We know this because microlenders lend successfully to individuals to whom banks and credit card companies will not provide credit. The question is, therefore: Is there a way to move beyond the current use of consumer credit scores, weighed in a qualitative way as part of the decision process, to capture more of the above benefits? In this paper, we profile the efforts of two programs that set out to explore whether and how they could use credit scoring more actively and effectively in operating their microloan programs.

**ACCION New Mexico's** work on credit scoring focused on exploring the correlation between the credit bureau scores of their clients and their subsequent repayment performance. ACCION NM also surveyed a set of its clients to determine what factors motivated them to repay their loans, and whether the factors that motivated repayment corresponded at all to their credit scores. Based on their analysis, ACCION NM is now considering how to incorporate consideration of credit bureau scores more fully into its underwriting and lending processes.

**ACCION USA's** credit-scoring efforts have centered on the creation of a statistical scoring model based on data from its customers and those of its licensee, ACCION New York. AUSA has developed a formal model, which it is now in the final stages of implementing. In implementing a formal credit-scoring model, ACCION USA hopes to achieve a number of goals that include: increasing efficiency and reducing costs in its lending processes; reducing the level of information required of applicants with strong credit scores; focusing its underwriting and technical assistance resources on applicants who need them the most; improving risk management; and increasing consistency within its lending process.

The remainder of this paper describes the research and analysis projects conducted by ACCION NM and AUSA, outlines the steps that both organizations are taking to integrate greater use of credit scoring within their lending programs, and lays out key lessons for other microlenders that are interested in exploring how the use of scoring might improve their lending efforts.

## **Examining the Correlation between Credit Bureau Scores and Repayment: ACCION New Mexico**

Founded in 1994, ACCION New Mexico is an award-winning, nonprofit microenterprise development organization that increases access to business credit, makes loans and provides training that enable emerging entrepreneurs to realize their dreams and be catalysts for positive economic and social change. Based in Albuquerque, ACCION New Mexico (ACCION NM) is a local, independent licensee of the U.S. ACCION Network.

ACCION NM's credit products consist of microenterprise development loans between \$200 and \$50,000 and lines of credit from \$5,000 to \$50,000. For 2005, the average loan issued by the organization was \$11,441.

To date, ACCION NM's performance includes financing and supporting the start-up and/or growth of more than 2,165 businesses in more than 150 New Mexico communities through 3,622 loans totaling more than \$19.4 million.<sup>8</sup> Entrepreneurs who have received credit from ACCION report creating and/or sustaining an estimated 3,464 jobs.

### **The Research Project**

While all loans made by ACCION NM reflected a strong perceived probability of the borrower's ability and commitment to repay, at the time of the research project the organization had not based this perceived probability on credit scores. ACCION NM had historically looked at four separate factors when analyzing the borrower's ability to repay the loan: character/commitment,<sup>9</sup> cash flow, collateral, and credit, basing a loan decision on the combined weight of these factors. With a goal of maintaining a high-quality microloan portfolio while continuing to increase program scale significantly, ACCION NM sought to explore whether applying greater "weight" to credit scores in evaluating credit requests could be a driver of increased efficiency and effectiveness for the organization.

Although commercial creditors rely on credit scores to predict the risk in their portfolios, prior to this study, ACCION NM had not assessed its historic loan risk and/or loss experience by credit score.<sup>10</sup> At times, the organization had analyzed its historic loan risk and/or loss experience by other factors – such as whether the business was an existing

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<sup>8</sup> Figures are as of May 31, 2006.

<sup>9</sup> In evaluating character and commitment to business success and loan repayment, ACCION NM staff typically assess at least three factors: 1) references provided by the applicant, 2) the loan officer's qualitative sense of these qualities based on interaction with the applicant, and 3) the detailed content of the consumer credit report (rather than just the score).

<sup>10</sup> ACCION NM reviews the consumer credit history and accompanying credit score of loan applicants as part of its credit underwriting process. While ACCION NM will consider credit requests from entrepreneurs who do not have a consumer credit history, or whose credit history is limited such that a credit score is not available, the vast majority of the program's loan applicants have a consumer credit history and credit score.

business or a start-up, whether the client was a first-time or repeat ACCION NM borrower, and by loan size at origination – to try to gauge predictive value of these variables. With this project, ACCION NM sought to look at how the credit scores of its customers might relate to their loan performance.

Recognizing funding limitations and staff time constraints, ACCION NM set out to better understand how credit scores affect the organization’s loan risk and loan loss experience by efficiently and cost-effectively finding answers to the following key questions:

- **Do credit scores represent “perfect information” as predictors of portfolio-at-risk and/or default for nonprofit microlenders?** In 2005, ACCION NM’s borrowers had an average Experian or Equifax consumer credit score of 591, well below the baseline score of 680-700 sought by many banks. With many of its clients’ credit scores falling below the thresholds typically sought by commercial creditors, do credit scores still hold predictive value for ACCION NM?
- **With a historic repayment rate of approximately 96 percent, and year-end portfolio-at-risk ranging from 5.45 percent to 8.00 percent from 2004 to 2005, ACCION NM’s portfolio quality is healthier than its clients’ typical credit scores would predict. Why might this be the case?** Specifically, what motivates clients whose average credit scores do not currently meet commercial standards to repay ACCION NM?

ACCION NM conducted its research in two phases. The first phase focused on identifying basic correlations between client credit scores and repayment. Using the following process, ACCION NM’s development and research manager analyzed all 479 loans issued by ACCION NM in 2005:

- A list of 479 loans issued in 2005 was exported from ACCION NM’s portfolio tracking software system TEA (The Exceptional Assistant) to Excel. It included the name of the primary account holder<sup>11</sup> on each loan, along with their credit score and the new dollars disbursed via the loan.
- Once the credit score was identified for the primary borrower on each loan, the payment history in TEA was analyzed for each loan to determine whether there was a late payment within the first three months of scheduled repayment and also whether a loan had been written off as of the assessment date (between March 27 and 31, 2006). Only the first three scheduled payments were assessed for late payments because some of the loans to be analyzed were issued as recently as December 2005.
- With the relevant data entered for each loan, the loans were clustered by the primary borrower’s credit score at the time of application (i.e. under 500, 500-525, 525-550, and so forth to a final category of more than 800). To help identify

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<sup>11</sup> Given that there may be multiple individuals associated with one loan, ACCION NM has identified a primary borrower on each loan for reporting purposes. The primary borrower is generally defined as the individual who was most active in applying for the ACCION NM loan and/or is the individual who is most active in the business.

whether credit scores correlated with early delinquency and/or write-off, the following were identified within each cluster: average loan size, the number and percentage of accounts with late payments within the first three months of repayment, and the number and percentage of accounts written off as of the assessment date.

- In Phase Two of its research effort, ACCION NM designed and implemented a telephone survey of the borrowers included in the above analysis. Volunteers from Citi Cards New Mexico (a division of Citigroup's call center) conducted phone interviews with a sample of clients in each credit-score cluster regarding their reasons for repaying ACCION NM (or regarding their reasons for nonpayment if they had been delinquent).

Volunteers at Citi Cards New Mexico attempted to contact a client up to three times. The survey requested the following key information regarding the client's borrowing relationship with ACCION NM. For those clients who had repaid their loans on time, the survey inquired to what degree the following factors motivated them to make their loan payment on time:

- Avoiding penalties;
- A sense of personal responsibility;
- Creating future opportunities for the business;
- The client's relationship with ACCION NM's staff.

These respondents also were asked to identify the single most important reason they were motivated to make their loan payment on time. Clients who had experienced delinquencies were asked why they made a late payment to ACCION NM. All respondents were asked to share any additional comments.

In designing the survey, ACCION NM worked with FIELD staff to identify how many loans from each credit-score cluster should be included in the survey sample to ensure it was statistically significant. The representative from FIELD recommended randomly drawing numbers to have a representative group from each credit-score category.

Of the 225 loans randomly selected, ACCION NM removed those that represented a duplicate borrower or a seriously past due borrower,<sup>12</sup> for a total of 194 possible phone surveys. ACCION NM's goal was a response rate of 70 percent with a balanced sample from each credit-score category. During the rapid research timeline established by ACCION NM, 87 surveys were successfully completed, representing a response rate of 45 percent.

Following the phone survey, ACCION NM staff analyzed the surveys for the factors that most motivated clients to make their ACCION NM loan payments on time. The results were analyzed using Excel spreadsheets. The chart below illustrates the number of

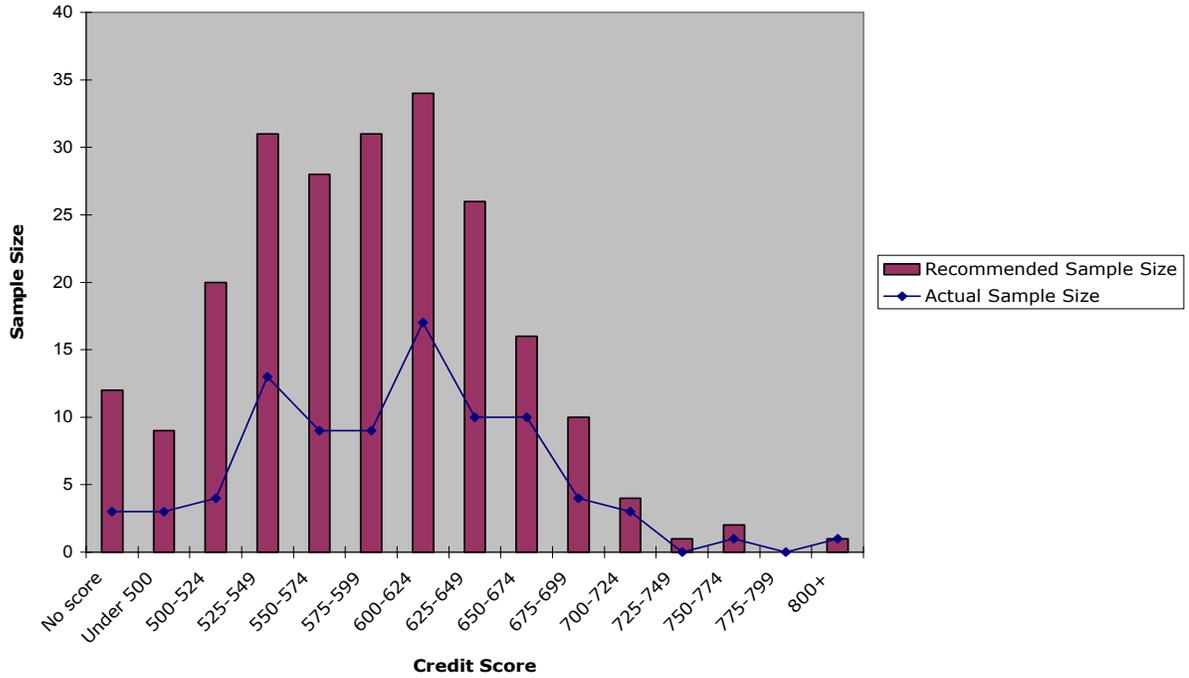
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<sup>12</sup> ACCION NM excluded from the survey sample any borrowers whose accounts had been referred to an attorney for collections or who had declared bankruptcy.

respondents received in each credit-score category compared to the recommended sample size.

### Chart A

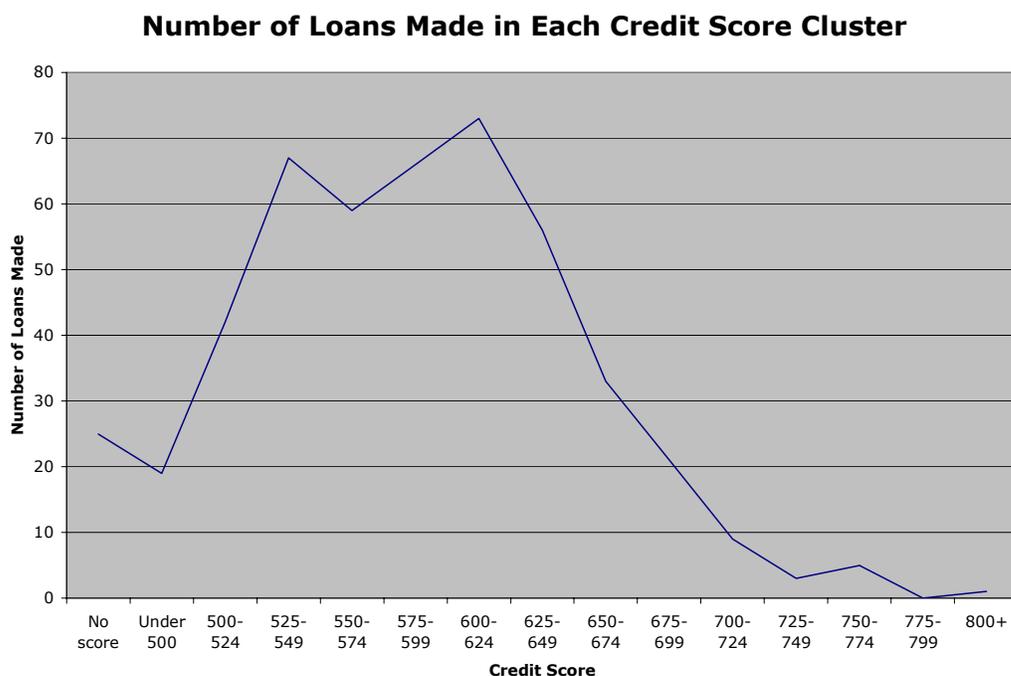
**Phone Survey: Actual Sample Size vs. Recommended Sample Size**



## Key Findings

As noted above, ACCION NM made 479 loans in 2005. The credit scores of its customers varied dramatically, from those with no scores, to customers with scores of 800. However, as Chart B illustrates, the majority of borrowers had credit scores between 500 and 650. The largest cluster, with 73 loans, was the group with credit scores between 600 and 624.

### Chart B

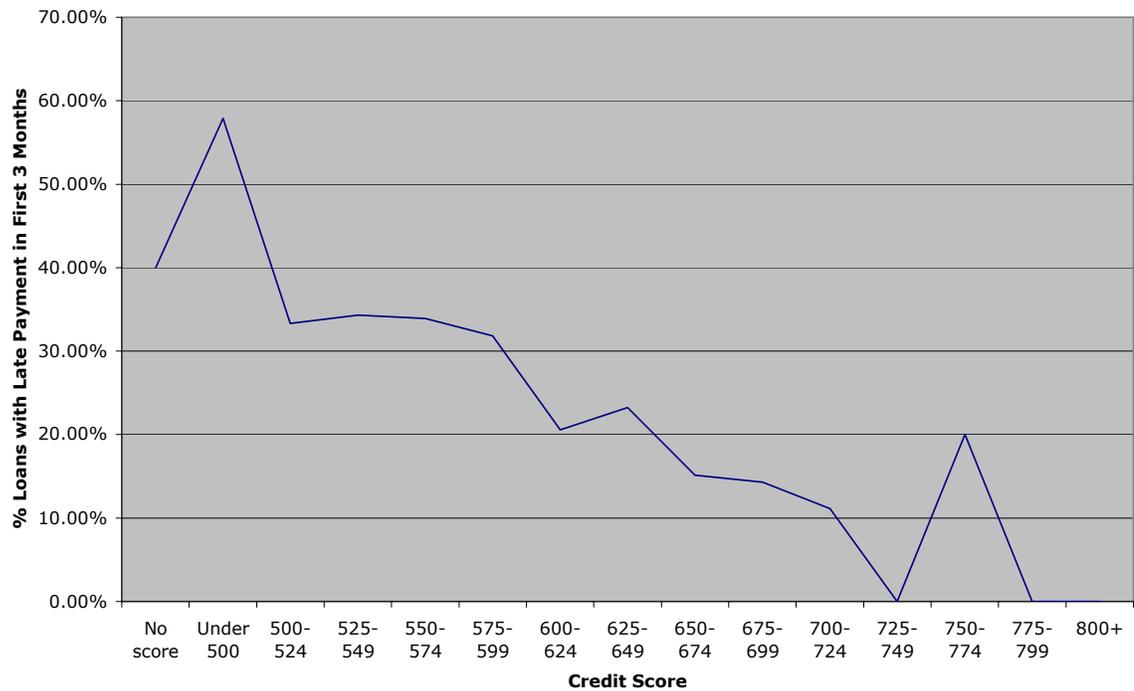


Analysis of the credit scores of the 479 loans made by ACCION NM in 2005 revealed the following:

- The percentage of loans with a late payment in the first three months of scheduled repayment did indeed decrease in correlation with a higher credit score. Chart C represents the correlation between credit score and repayment history. The generally strong downward trend indicates stronger payment histories for those with higher credit scores. Although there is a spike in the percentage of loans with a late payment in the first three months for the credit score category of 750-774, this actually only represents one loan – or 20 percent of the five loans issued to borrowers with a credit score in that range.

Chart C

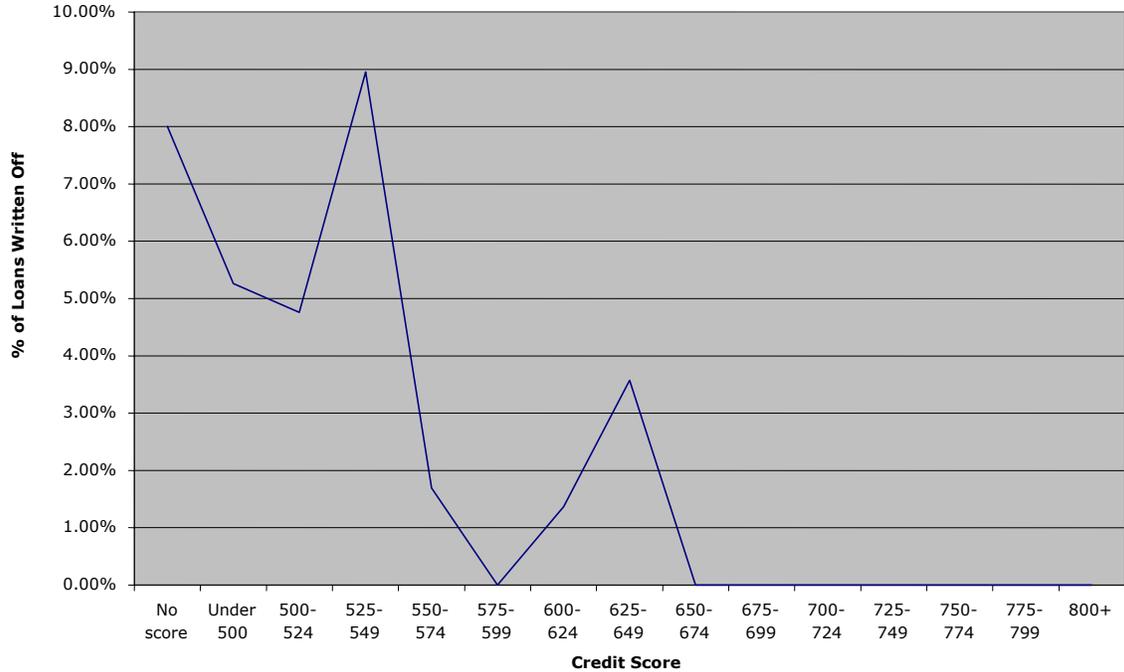
**Correlation between Credit Score and Repayment History**



- As expected, the percentage of loans that were written off decreased with higher credit scores. Chart D represents the correlation between credit score and loan write-offs for each credit-score cluster. In fact, of the loans sampled, none of the 39 loans in the clusters with credit scores above 675 had been written off at the time of analysis.

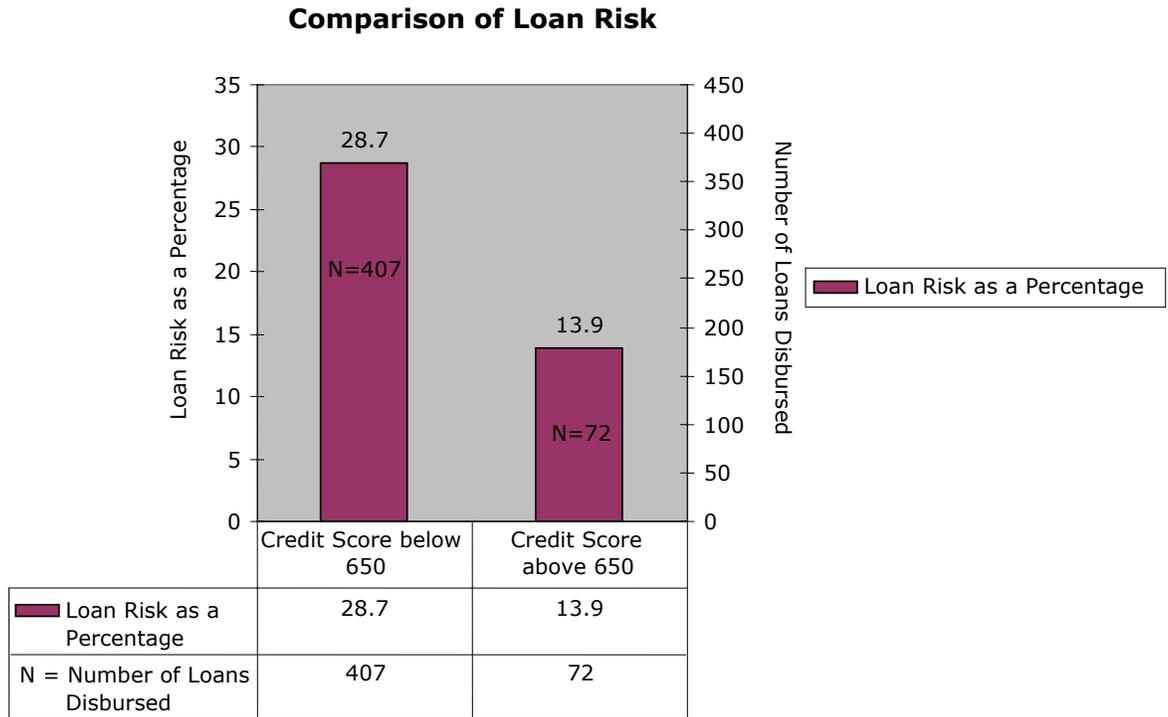
**Chart D**

**Correlation between Credit Score and % of Loans Written Off**



- Loans with credit scores below 650 had a loan risk twice that of loans with scores above 650. Chart E, *Comparison of Loan Risk*, represents the percentage of loan risk when the clusters are grouped by those with credit scores below 650 and those with credit scores above 650. Together, the data in these two charts demonstrate a strong relationship between credit score and loan risk. Loan risk is defined here as the ratio of loans with a late payment within 90 days to total number of loans, expressed as a percentage. The loan data indicate the loan risk as 28.6 percent for all loans. For loans to clients with credit scores below 650, the loan risk is 28.7 percent, and for those with credit scores above 650, the loan risk is 13.9 percent, less than half the risk of the below 650 cluster.

**Chart E**

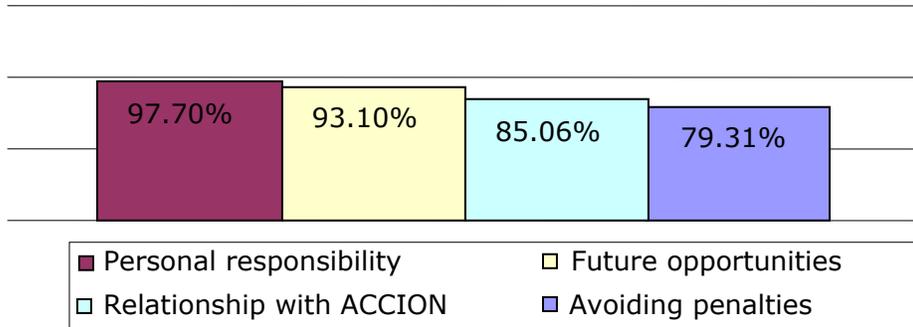


The telephone survey of a sample of ACCION NM’s 2005 clients yielded interesting insights as to why clients chose to repay – or not repay – their loans. The phone survey consisted of four close-ended questions in which respondents were asked if they completely agreed, mostly agreed, somewhat agreed or did not agree at all with a set of motivating factors, as well as two open-ended questions for individual remarks. A copy of the survey instrument is included as an Appendix at the end of this document.

One of the surprises from the close-ended questions was that personal responsibility was cited most frequently as a reason that borrowers chose to repay their loans on time, with the ACCION NM relationship and the avoidance of late-fee penalties being cited notably less frequently (see Chart F). In fact, eleven respondents (12.64 percent of 87 respondents) said that the avoidance of late fees *was not* a factor.

**Chart F**

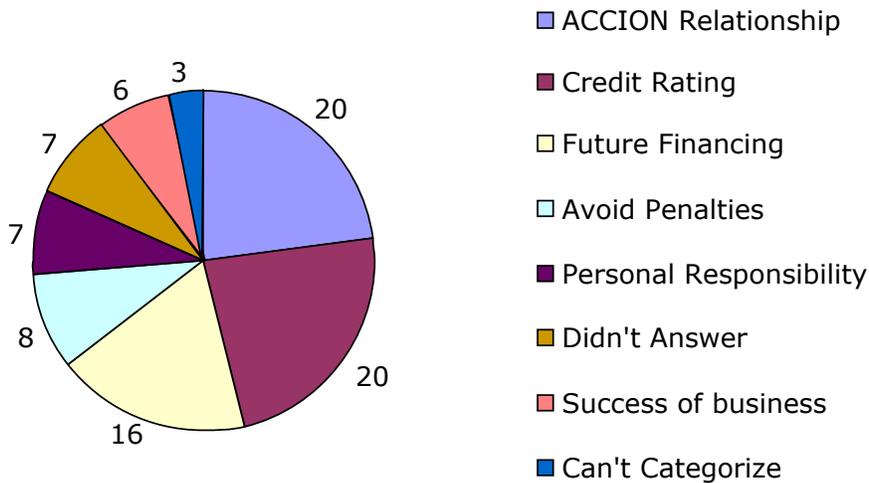
**Motivating Factors in Making Loan Payments**



Respondents were also asked in an open-ended question to identify the single most important reason they were motivated to make their ACCION NM loan payment on time. As Chart G illustrates, the most frequent responses were their relationship with ACCION NM and their credit rating, followed by future financing. Thus, while personal responsibility was selected most frequently as a motivating factor in making loan payments, it actually ranked seventh as the *single* most important reason that respondents were motivated to make their loan payments on time.

**Chart G**

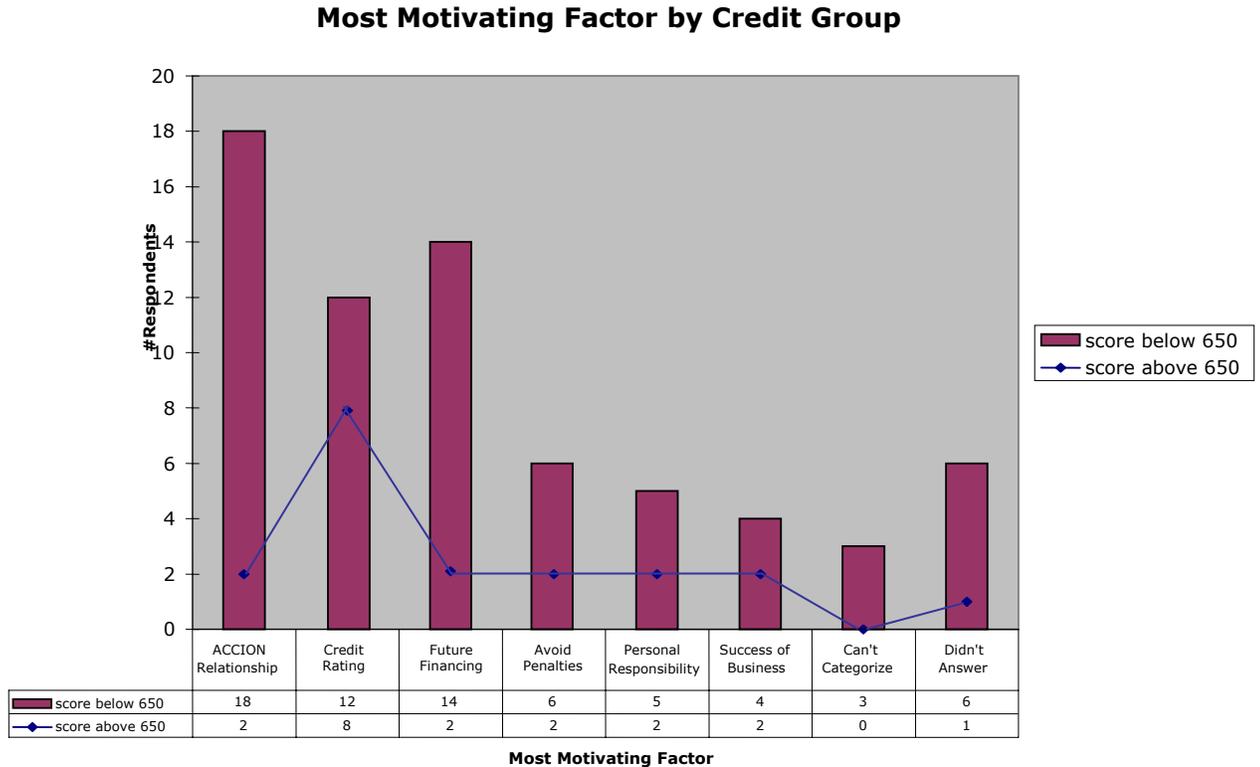
**Most Motivating Factor**



Interestingly, the data also indicate that the factors that motivate repayment vary depending upon the borrower's credit score. As chart H indicates, for borrowers with

credit scores above 650, credit rating is the most motivating factor in making a loan payment on time. For those with credit scores below 650, the relationship with ACCION NM is the most motivating factor.

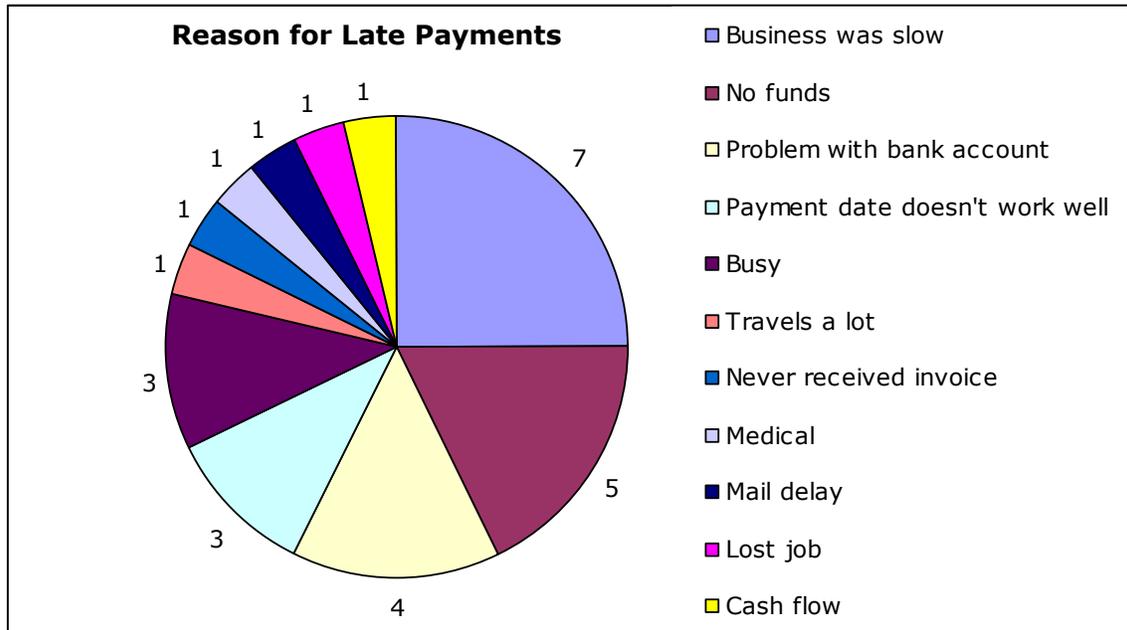
**Chart H**



Finally, borrowers who had experienced delinquency were asked an open-ended question regarding why their payments were late. Many respondents did not answer this question; for those that did, a range of responses was received.<sup>13</sup> As Chart I illustrates, the reason most frequently cited was that business was slow. In some cases, the respondents' reply was helpful for account management. For example, three respondents said that their payment date did not work for them. In those cases, loan officers will be able to contact the clients and explore changing their payment due date.

<sup>13</sup> Of the 87 respondents, 59 did not answer the question, or indicated it was not applicable.

Chart I



### Strategic Implications for ACCION NM

ACCION NM approached this research with the expectation that the findings would help illuminate if and how it could improve the organization’s credit underwriting process, as well as the manner in which program staff communicate with clients about credit reporting. The considerations raised and/or supported by the research include:

- *Increase the “weight” of a credit score in the underwriting process.* While the typical credit score of first-time ACCION NM borrowers will likely continue to be below that used by commercial creditors, the organization is actively pursuing implementation of the following strategies to help enhance portfolio quality and to provide applicants with an incentive to improve blemished credit histories:
  - *Using risk-based pricing.* In making loans, the organization would use credit scores as one factor (in addition to loan size and ACCION NM payment history) in determining loan pricing. This would help the organization to better reward those applicants who have demonstrated strong credit management and also recoup a greater portion of costs on loans with higher risk of delinquency.
  - *Setting a credit score threshold for consideration of loan applications.* For applicants whose credit scores are direly low, ACCION NM staff members would provide technical assistance and resource information to improve their credit history, and almost certainly their credit score, prior to being considered for a loan from the organization. In this way, the opportunity to apply for credit from the organization would be an incentive to first improve one’s credit history.

- *Establishing more stringent underwriting requirements based on credit score.* For example, potential clients with credit scores below 525 might be required to have a co-signer or to pledge collateral that ACCION NM would keep on site.
- *Requiring consumer credit counseling as a loan condition.* In the past, ACCION NM has at times required consumer credit counseling as a condition of receiving a loan. The organization is beginning to reinstitute this financial literacy tool and may set a standard threshold for this requirement based on credit score.
- *Broaden the review of credit reports for potential clients who are seeking a loan.* ACCION NM historically has pulled Experian consumer credit reports for all loan applicants. The program recently introduced the option for loan officers to pull Equifax consumer credit reports. Anecdotal experience indicates that in cases where both reports have been obtained, ACCION NM staff often has discovered significant differences in the content and/or credit scores contained in the two reports. The organization now is considering whether to require that both Experian and Equifax reports be obtained for applicants requesting a larger loan, or possibly for all applicants. The organization also is pursuing the option of obtaining TransUnion credit reports as well.
- *Report to the three major credit bureaus.* ACCION NM currently reports its clients' repayment histories to Equifax. To provide clients with the benefit of building credit that is reflected on all three major credit bureaus, and to ensure that future creditors are aware of a client's outstanding credit obligations to ACCION NM, the organization is in the process of determining the cost-effectiveness of reporting repayment histories to Equifax, Experian and TransUnion.
- *Train and certify staff in credit and money management.* Recognizing that credit reports are increasingly a driving determinant of financial access, and credit scores can be either an invaluable asset or a limiting liability for individuals, ACCION NM has sought to deepen the capacity of its staff to provide applicants with informed, effective technical assistance around credit reporting and management. To this end, the organization has recently committed to having its staff trained and certified as Money Management Volunteers by Consumer Credit Counseling Services Southwest.

## **Lessons Learned about the Process of Analyzing Credit Scores**

The process of exploring the correlation between credit scores and the repayment histories of its borrowers yielded important insights and findings for ACCION NM. In conducting this analysis, the organization learned lessons that may be valuable to other microenterprise organizations seeking to examine their own lending experience. These include:

- *Consider building the capacity to analyze credit score and repayment trends over a multi-year time period.* In conducting its analysis, ACCION NM only looked at

loans issued in 2005. This was due to the lack of data available for analysis at the time the research was conducted. It was only after converting to a new portfolio software system in 2005 that ACCION NM began to systematically track and input client credit scores. ACCION NM has hard copies of the credit reports of all borrowers since the program's inception in 1994, and following the above analysis it began to input client credit scores for years prior to 2005. While this is a lengthy, arduous process, it will deepen the program's ability to assess the correlation between credit score and repayment over a longer period.

- *Broadening the analysis to include loan information from previous years would strengthen the results of the research.* Specifically, multi-year data might yield stronger results by providing additional data for credit-score clusters that were only represented by a handful of loans. For example, the percentage of loans with a credit score between 750 and 774 and a late payment in the first three months would possibly decrease and thus smooth out the spike seen in Chart C. Extending the timeframe of the research also would allow ACCION NM to explore correlations between credit scores and repayment over a longer term of their loans. In this research effort, ACCION NM only had an opportunity to check for late payments in the first three months of the loan. This timeframe was chosen because loans closed in December of 2005 (the only year for which data were available at that time) would have only completed three monthly payments at the time of analysis. Now that more time has elapsed, it would be interesting to see if there is an increase in the correlation between credit score and repayment history by looking at six months of payment history rather than three. There is also the possibility that the correlation between credit score and write-off rate has increased over time. It is possible that some loans issued in 2005 have been written off since the analysis was completed in March 2006.
- *A longer timeframe and multiple instruments may improve survey results.* One of the main challenges of the research project was contacting 194 clients to serve as phone survey respondents. Although the results were enlightening, especially on an individual basis, the challenge lay in connecting with a sufficient number of randomly selected clients within the project timeframe. For this project, ACCION NM benefited from having volunteers from a local Citi Cards New Mexico office complete the survey calls. In the future, if this resource is unavailable, ACCION NM could try to mail a survey to clients or use an Internet-based survey tool to save on the time needed for ACCION NM staff members to make phone calls.
- *Ask clients specifically about the importance of their credit rating in motivating repayment.* The phone survey asked four close-ended questions to try to ascertain repayment motivation, but none of those questions specifically referred to a client's credit rating. Interestingly, in the open-ended question, ACCION NM clients identified their credit rating (tied with their relationship with ACCION NM) as the most motivating factor for making their loan payments on time. It was also interesting to note that clients with credit scores above 650 were motivated most by their credit rating, and those with credit scores below 650 were most

motivated by their relationship with ACCION NM. This information could help ACCION NM staff develop messaging for clients both before a loan closing to ensure a future history of on time payments, and throughout the collections process to correct poor payment behavior.

- *The costs to ACCION NM of conducting this research were minimized because they possessed the necessary analytic skills in house.* Much of the project, with the exception of the phone surveys and help provided by a consultant compiling the final report, was completed by ACCION NM's permanent staff. Among staff, ACCION NM's development and research manager spent the most time on the project. That individual had been with the organization since 1999 in a number of positions, including office manager, operations manager, acting director of outreach and lending, and now development and research manager. This broad range of experience within the organization, combined with her academic background, meant that this staff member had the experience with ACCION New Mexico's databases and the analytic skills required to complete the analysis.

## **Building a Customized Credit-Scoring Model: ACCION USA**

ACCION USA is a private, nonprofit organization that provides microloans and other financial services to low- and moderate-income entrepreneurs who are unable to access bank credit for their small businesses. With economic opportunity, these entrepreneurs – often minorities and women – can build assets, better provide for their families, and strengthen their communities.

ACCION USA's parent organization, ACCION International, began its work in economic development in 1961. In 1973, ACCION International made its first microloans in Recife, Brazil to men and women – street vendors, carpenters, seamstresses – who started their own very small businesses in order to survive. In the past decade alone, ACCION partners have disbursed \$9.4 billion in loans to 3.97 million borrowers in Latin America, Asia and Sub-Saharan Africa. The U.S. ACCION Network began its microlending activities in 1991, with the creation of a pilot program in Brooklyn, and over the next 10 years worked to support the creation of affiliated microenterprise partners in low-income communities in Chicago, New Mexico, San Diego, and Texas.

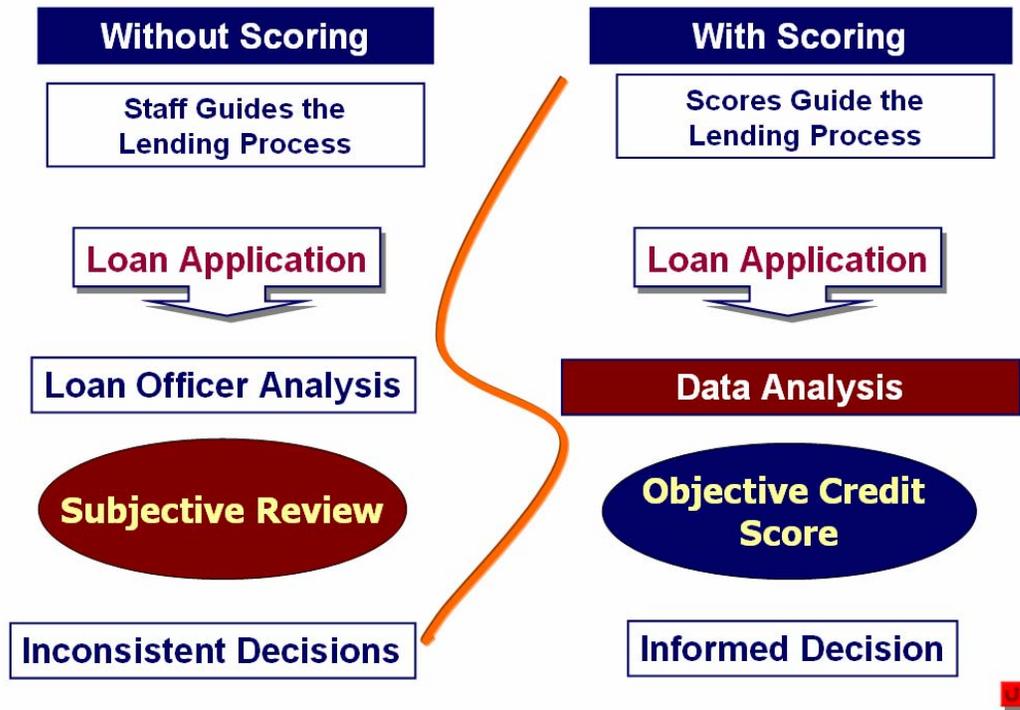
ACCION USA began its own direct microlending activities in 2001. Since that time, it has attempted to integrate the best practices of the international microfinance field with the credit analysis tools and the technology systems utilized by the financial services sector in the United States. By combining 40 years of microfinance experience in the developing world with the tools used by today's consumer and business lenders, AUSA hopes to develop a microlending methodology that is appropriate for the realities of microfinance in the United States.

### **ACCION USA's Approach to and Experience with Credit Scoring**

ACCION USA's ultimate goal is to develop a microlending methodology that will enable it to reach large numbers of microbusinesses in an efficient and cost effective manner, wherever they might be located in the United States. Two of the challenges to achieving this goal are the high cost and large amount of time associated with making each microloan. In the formal financial sector, credit scoring and statistical modeling have revolutionized the way credit is delivered over the past 20 years. As credit scoring has been applied to a wider and wider range of loan products (mortgages, credit cards, consumer credit, auto loans, etc.), the amount of lending done by banks throughout the United States has increased exponentially. Unfortunately, credit scoring in the traditional U.S. financial sector also has created a pool of millions of people who are now unable to access traditional credit even though their character and cash flows may warrant a loan – a significant potential market for microlending.

In the past, the perception among microlenders has been that each microborrower is unique and requires a significant investment of technical assistance and training in order to receive a loan. While microlending does differ significantly from traditional lending,

AUSA believed there were many common characteristics among the microborrowers it serves. Segmenting these characteristics could enable AUSA to determine the attributes of good borrowers and poor ones, and allow it to create a microbusiness-focused credit scorecard. Using that scorecard, AUSA hoped to create a process that used data analysis and empirical results to help drive faster and more objective credit decisions, replacing its existing subjective and slow decision-making process.



By analyzing loan data, and using that analysis to create a credit-scoring system that incorporates microbusiness-specific information, ACCION USA expects to realize a host of benefits, including:

- processing a larger number of loan applications in a more efficient manner, and providing credit to a larger number of microbusiness owners;
- lowering the costs associated with the evaluation of loan applications;
- facilitating its ability to handle loans on a nationwide basis, without face-to-face contact, via its On-line Loan Application and/or phone intake;
- creating a loan decision analysis and decision process that is less subjective;
- improving overall loan portfolio quality for microloans;
- introducing pricing that is based upon the risk of an applicant and the time spent on each application; and
- facilitating new product development and testing.

To date, ACCION USA has engaged in three projects to try to achieve these goals. In its first effort in 2000, AUSA, Count-Me-In and Fair Isaac collaborated on a project that analyzed credit bureau report information, the loan payment histories and non-financial information on approximately 500 loans from the U.S. ACCION Network. Due to a lack of sufficient loan data, the inconsistent quality of the data, and an extremely high weighting on quantitative information (such as credit score), it was difficult to derive any empirical results that could be used for an ongoing scoring model. Additionally, the analysis was unable to determine any significant correlation between the client profile or character data that predicted positive repayment. However, a great deal was learned about the scoring-analysis process, scoring criteria and the importance of clean and consistent data collection.

In 2002 AUSA undertook its second effort in conjunction with the members of the U.S. ACCION Network. Together the groups developed a Credit Evaluation Grid tool to rank loan applicants that combined specific lending policies with the more subjective analysis criteria used by the Network's senior lending and underwriting staff.<sup>14</sup> This grid system was integrated into ACCION USA's on-line loan application and underwriting system, and has been an important component of AUSA's loan underwriting ever since. However, AUSA believed that the Credit Evaluation Grid relied too heavily on subjective criteria and loan officers' personal assessments (which may be influenced by lending volume or portfolio quality goals) and not enough on quantitative, empirical data.

Thus in 2006, with funding assistance from FIELD, AUSA embarked on a full-scale statistical analysis to create a Character and Credit Scoring Model that would:

- use statistical analysis to produce empirical results, and
- factor in a combination of quantitative and qualitative criteria representing the unique qualities of microentrepreneurs in the United States.

ACCION USA believes that loan repayment among microentrepreneurs has as much to do with their character and personal behavior as it does with the success of their business, and that therefore these qualities would be an important component of any scoring model.<sup>15</sup>

Since 2001, ACCION USA and its licensee ACCION New York have collected information on more than 1,800 loans from more than 1,200 different borrowers and more than 400 declined loans. Using the socio-economic data, repayment histories and credit bureau information associated with those borrowers, AUSA undertook a project to use statistical modeling to create a character-scoring model. Typically, to create a credit scorecard, credit-scoring companies prefer to use information on more than 10,000 loans and 1,000 declined loans in order to ensure empirical statistical reliability. ACCION USA believed that even though it did not have 10,000 loans to analyze, there was enough information to analyze and identify some of the attributes of its best-paying clients.

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<sup>14</sup> For more information on this effort, see Julie A Gershick, cited above.

<sup>15</sup> ACCION International, "Scoring," PowerPoint presentation to ACCION USA, December 2005, unpublished.

## **Project Approach and Research**

To implement its credit/character scoring project, AUSA issued a request for proposals to individuals and institutions that had experience researching and creating credit-scoring models for the banking and/or microfinance industries. AUSA believed that using a group with microfinance experience – despite the fact that it is a relatively new area for credit scoring – would facilitate the creation of a scoring model that included client-specific business, socio-economic and qualitative criteria, along with the more typical credit bureau and payment history data. After reviewing a number of proposals, ACCION International’s credit-scoring team was contracted for the project. The development of the scoring model consisted of three phases: preparation, analysis and integration into ACCION’s lending process and systems.

### ***Preparation***

One key component to the success of this project was the amount and quality of the client and loan data used for the statistical analysis. AUSA maintains information about its borrowers and loans in its proprietary Client Application Tracking System (CATS) client management system and in Integrasys’ CUBE accounting system. Information in these systems is maintained in a Microsoft SQL Server environment which allows for the easy retrieval and analysis of literally every field of data entered in these systems. To conduct the statistical analysis for the scoring project, data from the two systems had to be combined into one large database in which client and payment histories were merged into a single record, based on the borrower’s identification number.

After the data was consolidated, the next step was to review and purge all duplicative or erroneous files, most of which occurred due to human input errors. Once the database was clean, AUSA then deleted accounts that it did not want to include in the analysis. These included files associated with a small \$500 personal loan product and with lines of credit. It was believed that these products were so dissimilar to AUSA’s typical installment loan that they would not be relevant for the analysis.

After the database was compiled, a seven-day planning and review session was held that included ACCION USA Lending and Operations staff and the ACCION International credit-scoring team. During that session, the team reviewed most aspects of AUSA’s lending process including: marketing, loan applications and documents, underwriting, and the lending and accounting systems. This review enabled the credit-scoring team to understand how AUSA collected and utilized its data, and to begin to think about how a credit scorecard could be integrated into ACCION USA’s lending process and its information technology systems.

The team then developed the primary definition of a “bad” loan to use for the statistical modeling process. In its “bad” classification, ACCION USA decided to include: (1) loans that were written off; (2) loans that had been restructured due to payment problems; and, (3) loans that had been past due more than 60 days. A previous loan portfolio analysis done by the team found that 95 percent of restructured loans ended up being written off,

and slightly more than 10 percent of the loans that had been 60 days past due ended up being written off. For comparative purposes, AUSA also decided to analyze the data using a second and more conservative definition of a bad loan. This second classification of a “bad” loan included (1) loans that were written off; (2) loans that had been restructured due to payment problems; and, (3) loans that had been past due more than 30 days at any point during the loan term.

The credit-scoring team performed an analysis of the ACCION USA portfolio characteristics such as average loan term, loan amount, historical delinquency and write-offs. Using the first set of parameters for a bad loan, AUSA did an analysis of the percentage of good and bad loans for the entire portfolio, and for each individual loan product, loan size, loan term, loan origination date, office, loan officer and other categories. This analysis was done to determine if there was a consistent percentage of bad to good loans across the portfolio, or if the bad loans and borrowers were over-weighted in a certain category (for example, whether one loan officer made the majority of the loan recommendations for loans that were written off) or made during a certain time period. The analysis did not find a concentration of bad loans in any single category, but it did confirm that almost all restructured loans eventually ended up being written off.

Next the credit-scoring project team reviewed the more than 1,000 fields of information stored in the database in order to determine which would be the most useful for the statistical analysis. From those data, 139 were chosen. The data points included: 28 fields with qualitative information about the borrower and/or his/her business (e.g., business location, history of residence in the U.S.), 72 fields with quantitative information about the client and/or business (e.g., business sales, client take-home pay) and 39 fields with information from the client’s personal credit reports. Of the data points to be analyzed, slightly more than 40 percent could be considered to be related to the borrower profile or character or microbusiness profile, as opposed to the more typical quantitative financial or credit bureau data which are used for existing consumer or business credit scorecards. Including such a high proportion of data specific to microbusiness would increase the possibility of creating a scorecard with specific relevance for domestic microfinance. In order to comply with fair lending practices, AUSA decided not to include information such as age, gender or ethnicity in the data analyzed in developing a scorecard.

The loan sample also excluded all loans that had been disbursed within 10 months of the date of the analysis, as it was believed these loans had not been outstanding long enough to have established a definitive repayment pattern. At the time of the analysis, the average term for an ACCION USA loan was 18 months. Using a cut-off point of 10 months assured that most loans in the sample had an established payment history slightly longer than the average ACCION USA loan.

Additionally, the sample excluded all loans that were disbursed more than two-and-a-half years prior to the date of the data sample. These loans were not used because they were disbursed prior to the implementation of ACCION’s CATS loan system and were underwritten by a different lending team using outdated underwriting policies. Therefore,

it was assumed there was a high probability that these loans would not share similar characteristics with the more recent portfolio and client base.

### **Data Analysis and Creation of the Credit Scorecards**

After selecting and preparing the data, as well as identifying the definitions of good and bad borrowers, AUSA was ready to begin the statistical analysis. Using SPSS statistical modeling software, the ACCION International team ran an analysis to identify any individual variable that correlated to positive repayment.<sup>16</sup> The data was segmented by the different variables in each area (quantitative, qualitative, credit bureau and payment information) and analyzed against the good and bad definitions of a borrower to determine if there were any statistically significant variables and attributes for good borrowers. Each variable that was identified was given a weight corresponding to the degree of correlation it showed to good repayment. From that statistical analysis a scorecard was created in which each statistically significant variable that correlated, either positively or negatively, with repayment was weighted and combined into the final scorecard.

From the analysis of the 139 fields of ACCION data, 21 variables that had a statistically significant correlation were identified. Eight of these were qualitative factors related to the business (e.g., business type); three were qualitative factors related to the borrower profile (e.g., rents/owns home); and 10 were variables related to payment and credit histories (e.g., credit score, collection accounts). Approximately 50 percent of those variables were client- or business-profile related and – unlike traditional bank scoring models – were not related to payment history or financial criteria. The team, therefore, believes that it has identified criteria that are unique to microenterprise and could be used to develop a credit-scoring system for such borrowers.

Of the 21 variables, the variable with the highest correlation was the borrowers' credit score. The payment history and credit report variables that were identified also had a slightly higher correlation to good repayment (and, therefore, a higher weighting in the scorecard) than the client and business qualitative variables. However, given the number of qualitative and non-credit score-related variables in the scorecard, there is the ability for a prospective borrower to score well even if his/her credit score is low.

The statistical analysis enabled the credit-scoring team to create an algorithmic equation that identifies the probability that a loan applicant with some or all of the 14 identified criteria will be a bad payer.

$$\text{Probability Client Will Be Bad Payer} = \frac{1}{1 + e^{-(\beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \dots + \beta_{14} * x_{14})}}$$

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<sup>16</sup> The analysis was a logistic binary regression using a forward stepwise methodology.

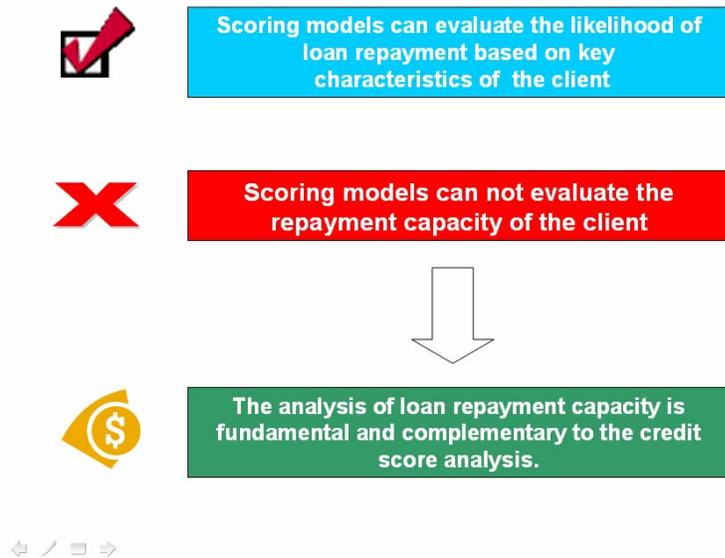
The value generated by this algorithm became ACCION USA's pre-score. This was a "pre-score" because all of the criteria in the equation could easily be gathered very early in the loan application process, through the applicant's self-reported information and the information from the credit bureau report. With this algorithm, approximately 25 percent of loan applicants could be expected to be of high quality, 35 percent of typical quality and 40 percent would not meet AUSA's credit guidelines.

The pre-score algorithm did not include any of the seven criteria that could not be self-reported or that needed verification by ACCION (e.g., business income-to-expense ratio, or AUSA loan payment history for repeat borrowers). A second analysis was then done that combined the pre-score with the seven other variables identified as requiring independent verification or which could not be self-reported. These variables, especially many that were quantitative in nature (e.g., business sales or income), were items that ACCION USA felt should be confirmed or analyzed during the loan interview process – because they are important factors in determining the cash-flow available for loan repayment, and because an analysis done by AUSA showed a high percentage of applicants over-estimate sales and income figures in their loan applications. Together, these seven variables and the pre-score created a final algorithm ranking client risk.

$$\text{Probability Client Will Be Bad Payer} = \text{Pre-score} + (\beta_0 + \beta_1 * x_1 + \beta_2 * x_2 + \dots + \beta_{14} * x_{14})$$

The post-score allowed AUSA to do a quick and final review of a loan applicant prior to underwriting to determine if the application should be declined (approximately 10 percent of all pre-scored applicants) or was raised from a normal-quality applicant score to a high-quality applicant (approximately 15 percent of post-score applicants). Given the different types of data, AUSA opted to create two scorecards. The pre- and post-scorecards use the variables and their relative weights to assign a score from 0 (best) to 80 (worst), reflecting the probability that a client will repay in timely manner.

It is important to bear in mind that what the scorecards provide is the probability that a borrower with certain attributes will repay a loan. The scorecards do not reveal an applicant's capacity to repay a specific loan request – which relates to cash flow, loan size and loan term. For example, the organization would not want to give a \$15,000 loan to an applicant who has a high score unless his/her cash-flow is adequate to repay the loan. As such it is important to combine both the cash-flow analysis and credit score in the final loan decision.



Based on the scores generated by the scorecards, AUSA created four loan tiers for new and repeat loan applicants:

- 1) **Best Quality:** Applicants with excellent scores and the lowest level of payment risk (the top 10 percent of applicants).
- 2) **High Quality:** Applicants with very strong scores and a low level of payment risk (the next 25 percent of applicants).
- 3) **Normal Quality:** Prospective clients, typical of the majority of ACCION USA applicants historically, who have a moderate repayment risk (35 percent of loan applicants).
- 4) **Declines:** Applicants of very poor quality and with high risk that should be declined and would not meet AUSA credit guidelines (30 percent of applications).

Through ongoing statistical analysis of ACCION USA's loan and payment data, the scorecards and tiers can be adjusted periodically to include new criteria, adjust the weighting of existing criteria in the scorecard or remove criteria. As the amount of data on loans made and declined using the credit scorecards grow, the accuracy and effectiveness will increase as well. In the future, these tiers can be adjusted to help increase or decrease the percentage of loans made with certain risk criteria, and to help manage ACCION USA's delinquency and loan default rate.

### Initial Implementation of the Scorecard

Once the analysis was complete and the scorecards were created, AUSA had a new tool to integrate into its lending process. Programming the credit scorecard algorithms into its

technology systems would take a number of months, however, and AUSA did not want to wait that long before putting the ACCION credit score to work. As an interim step, an Excel worksheet was created with the algorithm for the pre-score calculation. A team of VISTA volunteers then began back-testing against the previous two months of AUSA loans. The purpose of the back-testing was to see how many of the recent loans approved using AUSA's previous process might have been declined with the new scorecard. AUSA also wanted to determine whether scoring loan quality with the scorecard yielded results similar to its existing loan review and approval process.

The back-testing showed that about 15 percent of the loans that AUSA approved would have been recommended for decline using the scorecard. It will be interesting to see if this subset of back-tested loans will have a higher delinquency rate than other loans in the organization's portfolio. In general, AUSA believed that the percentage of loans declined by the scorecard was within acceptable levels, especially given the existence of an underwriter review function for overriding decline recommendations. The credit scores generated did confirm that generally the underwriting staff's subjective sense of the quality of a loan matched up with the results generated by the scorecard.

AUSA then decided to start using the Excel scorecards to score loan applications received over the Internet. With the increasing number of applications from the Internet and limited staff, it was important to focus on the highest-quality applicants. All loan applications received are now scored immediately. If they are scored as a decline – as approximately 45 percent of Internet applications are – then the applicants are called and sent a decline response and no further steps are taken. This has allowed AUSA to focus on better quality Internet loan applications, enabling it to process a much larger number in a more timely manner.

This initial implementation of the scorecards on a limited basis was undertaken because it did not make sense to train AUSA's lending staff on the new scoring system, loan products and loan process until it was fully integrated into the CATS system. Introducing it prior to that would have been confusing and required multiple training sessions. By using the Excel scorecard solely in the back office, AUSA was able to take advantage of the new tool by running it parallel with the traditional lending process.

AUSA also provided its loan processors with the credit scorecard Excel sheet as part of the initial implementation process. After a loan officer submits a loan to the AUSA Service Center for processing and final underwriting, the loan processors apply the credit scorecard to the application. The score and tier are given to the underwriter to incorporate into the final decision-making process. The underwriter can use the score information to help make a more informed loan decision. Using the credit scores in this fashion does not speed up the initial stages of the process – a critical feature of full-scale implementation – but it has helped accelerate the final underwriting process. Because the loan underwriters and processing staff were involved in different stages of the credit-scoring project, they have embraced the new tool and are comfortable with its results. It appears that initial use of the scores has helped increase AUSA's efficiency: the number of loans disbursed

monthly increased almost 65 percent in the three months after the scorecard was put into informal use.

### **Full-Scale Implementation of the Scorecards**

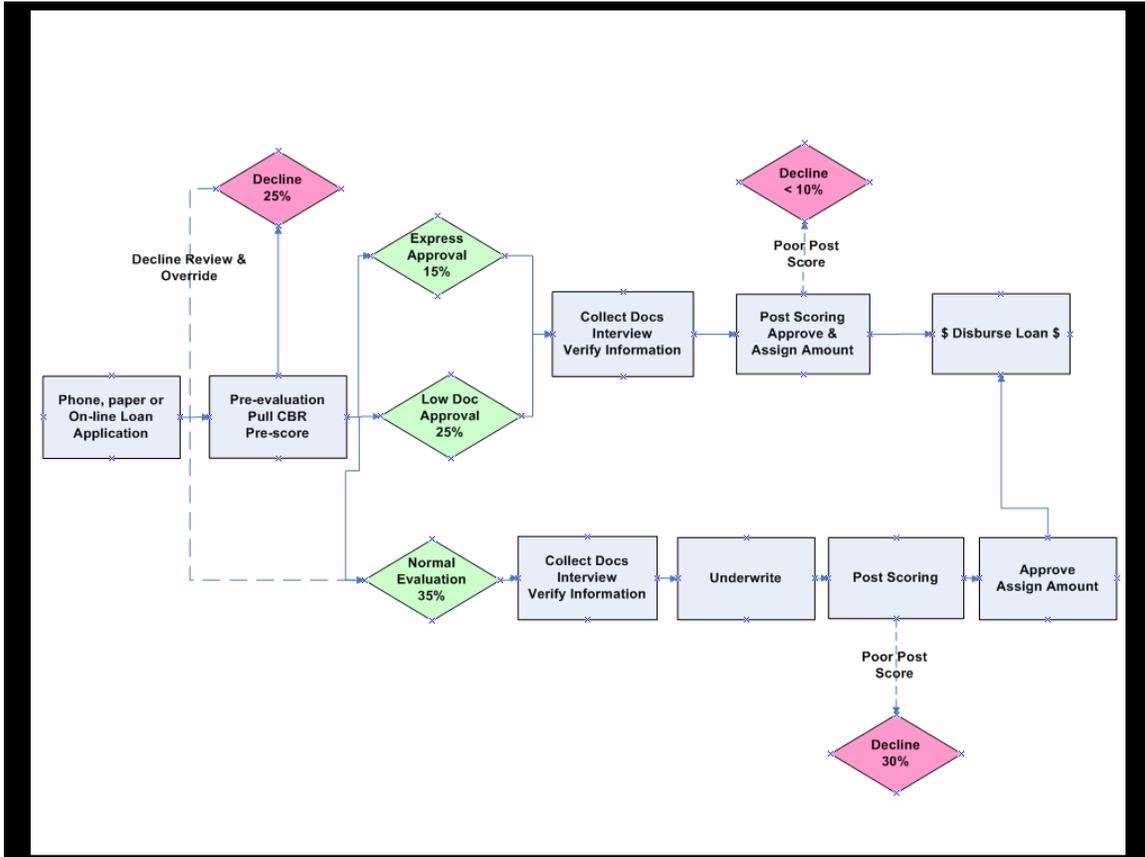
Although the initial integration of the credit scorecards allowed for some efficiencies in its lending efforts, the ultimate promise of credit scoring lay in full-scale implementation. AUSA wanted to use the new credit scores to make its loan process more efficient and simpler for high-quality applicants. It also hoped to use the credit scores to allow staff to focus its efforts and technical assistance on those typical microbusiness borrowers requiring higher levels of support through the loan process. At the same time, ACCION USA did not want to invest a lot of time and human resources on low-scoring loan applications that had a very small chance of approval

The full integration process was three-pronged: First, ACCION USA created a new set of loan products that related to a borrower's risk profile as determined by the AUSA credit score. Second, the scorecards were integrated into ACCION USA's two key intake and application systems. Finally, AUSA incorporated the scorecards into the three vehicles it uses to receive and process loan applications: paper applications, phone applications, and its on-line application.

#### ***Integration of Scorecards into ACCION USA Lending Products***

Based on its statistical analysis, ACCION USA anticipated that slightly more than one-third of applicants could go through a quicker application process with fewer documents and reduced underwriting. About 40 percent of applicants – the normal or typical - would go through a quicker preliminary evaluation process, but then continue through its traditional underwriting process. About 30 percent of applicants would be high risk, with little chance for approval, and would be declined in a manner that did not require AUSA to invest a lot of time.

Chart J



Based on this understanding of its loan customers and their risk profiles, the organization created three new loan products tied to the risk levels of its applicants:

**ACCION Express:** For applicants with the highest 10 percent of ACCION credit scores, who have the lowest probability of payment risk, AUSA developed the *ACCION Express* Loan Product. With less AUSA staff time required to process and underwrite the applications, the costs will be lower than for a typical AUSA loan application. Additionally, these loans should have a lower loan-loss provision expense, lowering AUSA’s financial costs. The application documents for this product were reduced by about 40 percent compared to a typical loan applicant. Supporting documentation focuses on the confirmation of the borrower’s identity, residence, and personal and business income. If the documentation provided to AUSA fails to verify the information provided in the application and pre-qualifying process, then additional information is requested from the borrower.

Given the lower level of risk and costs, AUSA offers these high-quality applicants a reduced rate of interest and fees. Applicants with the highest scores are offered the lowest interest rates (10 to 12 percent versus 12.5 percent to 15 percent for a typical applicant), a lower loan service fee (4 percent versus 5 percent) and a higher maximum loan amount for a first-time borrower (up to \$25,000). ACCION is willing to offer a lower interest rate as an incentive for the applicant to complete the application process, and to make its

product more competitive with the alternatives available to the borrower. Even with reduced rates and fees, AUSA expects to maintain or increase the income earned from the best quality loans due to reductions in financial and staff costs. AUSA also believes that reduced documentation and interest rates will motivate applicants to complete the application process in a more timely manner.

***ACCION Low Doc:*** For high-quality applicants falling in the next 25 percent of the scorecard, AUSA developed the *ACCION Low Doc* Loan Product. Due to the slightly higher level of risk associated with these applicants when compared to the highest-quality applicants, the loan carries a slightly higher interest rate (12 to 13 percent) and a higher loan service fee (4.5 percent) than for the highest-quality applicants. The maximum first time loan amount for this tier (\$20,000) is also lower than the *ACCION Express* product. Documentation for this product is reduced by about 20 percent compared to a typical loan applicant. The supporting documentation focuses on confirmation of the borrower's identity and residence, and incorporates a short-term trend analysis of his/her business and household income and debt levels. It is anticipated that these loans should be processed, underwritten and disbursed in the same or a slightly longer timeframe than the *ACCION Express Loan* product.

***ACCION Business Loan:*** Applicants falling in the next 35 percent of the scorecard – the largest, most typical group of ACCION USA loan applicants – will qualify for the *ACCION Business Loan*. The terms of these loans remain similar to AUSA's present loan product and are higher than the *Express* and *Low Doc* loans. The higher interest rate and fees are meant to compensate for the higher level of staff involvement with the loan application, as well as a higher projected provision expense and write-off rate compared to the top two tiers of loan products. The *Business Loan* product has the highest range of interest rates (12.5 percent to 15 percent) and fees (5 to 6 percent) and requires the full set of AUSA supporting loan documents (three months of business bank statements, one month of personal bank statements, utility bills, etc.). The first-time loan amount is the lowest at \$10,000. Loans to these applicants are generally underwritten in 10 to 15 business days from the time the application is complete.

The final 30 percent of applicants are declined soon after their score is generated, thereby saving the applicant and AUSA from investing a great deal of time or effort in an application that has a low chance for approval and an unacceptable level of risk. When appropriate, AUSA staff informs an applicant of training, credit counseling and other resources that are available to help better prepare the applicant for a loan or credit repair.

### ***Integration of Scorecards into ACCION USA Lending Systems***

ACCION USA uses two Web-based systems for its lending activity: CATS, its proprietary client application tracking system, and OLA, its On-line Loan Application system. CATS is used for client contact management, loan application processing, loan underwriting and loan document preparation, and allows AUSA staff to track a potential applicant from the point of inquiry with ACCION USA through the disbursement of the loan. OLA allows a microbusiness owner located anywhere in the United States to apply

for a loan with ACCION USA (this application is available in English and Spanish). The next step in the integration process was to incorporate the scorecard into these key systems.

AUSA has upgraded the CATS and OLA Web technology to incorporate the credit scorecards and scoring models. Within CATS, this involved the design and development of a new Web page to capture the key criteria required for the credit-scoring models. After AUSA staff members capture key borrower contact and demographic information, they can then go to the new Loan Pre-evaluation page in CATS to collect the information needed to generate an ACCION credit score. After a series of simple questions is completed and a credit bureau report is pulled, the CATS system generates a credit score for the applicant and places him or her in one of the four loan product tiers (Best Quality, High Quality, Normal Quality & Decline). The score, the loan tier and the applicable loan document requirements, rates and fees are then shown on the screen, so an AUSA staff member can stop the loan process at that point, or continue by providing an approved applicant with loan product information.

Programming the scorecard algorithm into CATS and creating the new loan pre-evaluation page have been the most costly and time consuming part of the credit-scoring project. However, incorporating this information into AUSA's key lending systems allows for the generation of real-time information and scores for ACCION staff and applicants. It also provides a consistent initial analysis and score for each applicant, allowing lending staff to collect the same documentation for each tier of borrower and focus attention on applicants that have a high chance of being approved. Incorporating the scorecards into the AUSA system also allows them to be used anywhere that CATS is accessed via the Internet. Perhaps most importantly, building the scorecards and collecting the key criteria in the CATS system will enable AUSA to store that information in a consistent manner, allowing for ongoing analysis of the data for all applicants.

### ***Integrating Scorecards into the ACCION USA Loan Process***

Integration of the credit scorecards into CATS in turn enables AUSA to revise its lending processes to reduce significantly the time and effort spent on each individual loan application. This time savings is becoming more important as AUSA accepts applications via the Internet. Total application volume has risen 50 percent and is growing each day. The ACCION credit scores will be critical in ensuring that staff can respond quickly to increased volume. If AUSA were to continue its pre-scoring process of loan application and evaluation, its response to loan applications likely would be much slower, and the organization could quite possibly be overwhelmed by demand or experience loan quality problems.

Under its previous process, loan applicants would call ACCION USA to get information about the program. They would be asked to send in a paper application. Upon receipt of the application, AUSA would pull a credit report and review the application. If the applicant's credit was particularly bad, the process would be stopped, but for all other

applications additional documents were requested and a loan interview scheduled. All applicants were asked to submit the same documents and go through the same process. After the interview, the loan officer would complete a subjective analysis and loan proposal, and then the loan underwriters made a final decision. The process was highly subjective, did not reward applicants by risk and was less efficient than AUSA liked.

Use of its credit scores enables AUSA to significantly reduce the pre-evaluation time, as well as to focus attention on the applications that most need it. As described below, the credit-scoring system has been integrated into each of the three ways that ACCION USA receives loan applications – by phone, paper or on-line – to significantly reduce the time and documentation required and to eliminate subjective, preliminary analysis of the applications.

**Applications or Inquiries by Phone Using CATS System:** When a business owner applies for a microloan with AUSA by phone, an ACCION staff member can engage the applicant in a three-step conversation of five to 10 minutes that will provide the applicant with a pre-qualification and key information regarding his/her loan application process:

- **Assessment and information.** In this initial step, the AUSA staff member will ask the potential applicant a few questions to ensure that the caller is seeking a microbusiness loan and meets AUSA’s loan program requirements. If the caller does not meet program requirements (e.g., the applicant wants a mortgage), the application is stopped immediately. The staff member can then answer general questions (e.g., rates, terms, requirements) about ACCION USA’s loan program.
- **Collection of contact information.** In the second step, AUSA collects key contact information for the applicant and his/her business (addresses, business type, demographics, referral source, etc.) which are important for marketing analysis and donor reporting purposes. After contact data is collected, AUSA will ask the caller if he/she would like to continue with a loan pre-qualification assessment for a loan. If the client declines, the process ends and the data are stored in AUSA’s database for future analysis or marketing purposes. If the client agrees, then the AUSA staff member will proceed to the next step.
- **Pre-qualification, credit scoring and loan product tiering.** In this final stage, AUSA asks the caller approximately 12 questions regarding the business and the borrower’s personal profile, which take approximately three to five minutes to complete. These questions include the eight business and three borrower profile characteristics used by the credit scorecard algorithm to create the ACCION credit score. The remaining four questions relate to information that AUSA wants to track for future analysis. The four additional questions are also included to ensure that applicants (and ACCION USA staff) cannot easily manipulate answers to improve or trick the scoring model.<sup>17</sup> None of the questions asked in this stage require an applicant to refer to tax forms, financial statements or other

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<sup>17</sup> In essence, adding more questions makes the algorithm more complicated; this makes it more difficult for staff or applicants to change the answers to one or more questions to manipulate the credit score.

documents. A credit report is then pulled and saved in AUSA's databases. Using the information from the credit report and the answers provided by the client during the call, the credit scorecard generates a score and assigns the borrower to a loan product tier. This occurs within a matter of seconds, at which point the ACCION staff member can provide the applicant with the details about the loan product he/she qualifies for, the documents required and the next steps in the application process, and can assign the applicant to a loan officer. If the score places the client in the decline tier, then the loan application process ends and AUSA can provide technical assistance and credit counseling advice or referrals to the applicant.

There is a review request function that ACCION USA staff can use to recommend additional review of an application. If the staff member processing the application believes that an application that receives a poor score and is recommended for decline bears additional review, he or she can check a box in the CATS system that sends an e-mail to the underwriter requesting a review. The decline recommendation then can be reviewed and a loan application processed. Incorporating this review request function is important, given the nature of AUSA's client base and the heavy weighting of the personal credit score in the ACCION credit score. This enables an applicant with a borderline score in AUSA's system (e.g., someone whose personal credit shows a bankruptcy five years ago but also shows good payments since then) to get a second review at the underwriter level before a great deal of time is invested. The underwriter also can provide specific feedback and requirements for these loans to move forward.

System Generated Info	
Age	40 years
Total Business Assets	\$32,001.00
Total Business Liabilities	\$0.00
Average Delinquency Days	
Maximum Delinquency Days	
Prequalification Result	22.90 %
Loan Process	ACCION Low Doc Loan
Maximum First Time Loan Amount	\$20000
Interest Rate Range	13.75 %
Fee	5.5 %
Required Documents	<ul style="list-style-type: none"> <li>- Completed Loan Application</li> <li>- Most Recent Month Business Bank Statement</li> <li>- Most Recent Month Personal Bank Statement</li> <li>- Most Recent Month Home Utility Bill (not cell phone)</li> <li>- Current Government Issued Photo ID</li> </ul>
Request Underwriter Review (for rejected contacts only)	<input type="checkbox"/>

Submit

To prequalify the contact, first fill in the required fields above and pull Equifax CBR, then click Prequalify Contact. If you make changes to the above Prequalification Info, click Submit again first, then click on Prequalify Contact again.

Call Log		
01/09/2007	Livy Parsons	
01/08/2007	Christina Bonnet	I requested wife as coborrower & emailed her the cob app.
01/02/2007	Christina Bonnet	I spoke to client; I need sig pg & biz bk: 12/19-12/31 and most recent pers bk.

**Paper Applications Using the CATS System:** When a potential business owner applies for a microloan with AUSA by hand-delivering, mailing or faxing an application to ACCION USA, staff can enter the data into the CATS credit-scoring system and pull a

credit report to quickly evaluate the application and capture key data about the applicant in the database. A loan officer then can follow up and complete the loan application process with key information and the documents required for the loan tier.

AUSA has been able to significantly reduce the information collected on its loan application form with the integration of the credit scorecards into its systems and lending processes. The revised ACCION loan application forms capture key contact and demographic information about the applicant, the information required for the credit scorecard and some basic business and household financial information. The result has been to eliminate about one-third of the information on the original application, making it much more “applicant friendly,” less time consuming to complete, and eliminating the need to rely on financial or tax documents.

**On-line Loan Applications:** Approximately 45 percent of the loan applications AUSA received in 2006 have been via its new on-line loan application. This number is growing monthly, and over the long term AUSA expects it to surpass the application levels at its local program offices in Georgia, Florida and Massachusetts. Analysis done by AUSA shows that Internet applicants are of a much lower credit quality than non-Internet applicants and include a higher percentage of start-up businesses. Internet applications also include a large number of business owners that are “fishing” for a small business loan (i.e., the applicants do not need the loan at the moment but are searching to see if they qualify for a loan and what the cost would be). AUSA’s credit-scoring model allows it to review these applications quickly, focus on those with the highest-quality and decline those of poorer quality, especially those who are fishing.

When applicants apply on-line, ACCION USA requires them to complete a seven-step loan application containing the information on its paper application, as well as additional financial and collateral information. Due to the lack of face-to-face contact with Internet lending, the additional information is collected to help AUSA gain a clearer picture of borrowers and their businesses. When an on-line applicant submits an application via the Internet, his/her data is automatically uploaded (twice a day) into CATS, a credit bureau report is pulled and a credit score is generated. The information is saved in the ACCION database for future analysis. Staff based in ACCION’s service center in Boston then can decline applicants immediately via call and e-mail, and follow up quickly with the highest-quality applicants. An additional benefit to the on-line application is that a substantial portion of the required data is entered by the applicant, saving AUSA substantial data-entry time, compared to applications received on paper or taken by phone.

## **Present Benefits and Future Applications of Credit Scoring**

The integration of the credit scorecards into AUSA’s loan process and systems has had immediate benefits and will provide some interesting future opportunities, as follows:

- **Consistency:** With the integration of the prequalification questions and the credit score, any AUSA staff member can quickly, simply and consistently pre-qualify a loan applicant. Previously, all loan applications were reviewed by loan officers or program directors and subjective decisions were made on how to proceed.
- **Speed:** The credit scores will decrease the time required to analyze and rate loan applicants and should provide more consistent results. The integration of the credit-scoring model has significantly decreased the time spent on applications that do not meet AUSA program guidelines, especially those generated via the Internet. Additionally, the model allows applications to be declined by service center processing staff, allowing loan officers to focus more time on marketing and on loan applications with a higher chance of approval. This new functionality will enable AUSA to significantly increase the volume of applications it reviews and processes.
- **Simplicity:** The simpler system allows a junior staff member with no credit training to pre-qualify loan applicants. The credit-score system will provide the same score and results for both a volunteer and a seasoned loan officer.
- **Focus:** Using the ACCION credit scores, any staff involved in the lending process can more efficiently allocate time spent with loan applicants. Analysis and underwriting can be more appropriately focused on higher-risk clients and those needing the most support in the loan process. Those with poor credit can be more quickly referred to technical assistance providers.
- **Reduced Documentation Requirements:** The scoring model has decreased the amount of information required on AUSA's loan applications and reduced the required supporting documents required for highest-quality applicants.
- **Product Development and Marketing:** The ACCION credit score and the ongoing analysis of loan data has allowed AUSA to create new pricing and loan products for clients. In the future, it could conceivably allow AUSA to market specific loan products to lower-risk business or client types.
- **Risk Management:** Use of the scorecards and their ongoing refinement should allow AUSA to better manage the risk profile of its loan portfolio, thereby reducing the costs of delinquencies and loan write-offs.
- **Data Collection:** ACCION USA will collect key scorecard and contact data up-front and store all the data collected – even for declined applications – for future scorecard development and enhancements. Prior to the scorecard project and CATS enhancements, data on applications that were declined without pre-evaluation were not available for analysis. AUSA also has begun standardizing the data collected in its application process and CATS to make it more focused (such as business types). Taking these steps will ensure the consistency of data and also make it easier to perform future data analysis.
- **Remote Access:** With the credit scorecards integrated into CATS, an ACCION staff member who has Internet access (hotspots, mobile broadband, wireless, etc.) can enter contact and prequalification data and generate a score for loan applicants. This will allow for real-time application evaluation at seminars, conferences, or at an applicant's place of business. In 10 minutes, AUSA staff will be able to assess a potential applicant and explain the next steps in the process.
- **Centralization:** Using AUSA's credit scorecard and CATS lending system, loan applicant intake and prequalification can be done easily in a centralized manner. This

provides the opportunity to create a call-center environment for loan inquiries and loan prequalifications. All potential applicants now will be able to call a single 800 number to get program information and be prequalified by phone intake staff, as opposed to waiting for access to lending staff.

- **Future Initiatives:** In 2007, AUSA will outfit some loan officers with laptop computers with wireless broadband Internet access cards. This will allow them to take applications and obtain credit scores for loan applicants anywhere there is mobile phone coverage. This already is being tested on a pilot basis in Louisiana and Mississippi with an ACCION volunteer who is working with victims of Hurricane Katrina. AUSA also hopes to receive funding that will allow it to integrate the credit scorecards directly into its On-line Loan Application. This would enable on-line applicants to get an almost instantaneous response with information on loan product, maximum loan amount, interest rates, documents required and a loan officer contact at AUSA.<sup>18</sup> Additionally, the structure of CATS enables AUSA to allow third parties to view its screens and input information. This capability could enable AUSA to allow a third-party call center (operating 24/7) or an ACCION referral partner to enter contact and prequalification data, and deliver the scoring results and next steps to an applicant.

## Critical Issues in Implementation

The launch of the new credit-scoring system to the entire ACCION USA staff, planned for January 2007, will drive a full-scale change in the way ACCION USA approaches its microlending activity. The conversion to the new system and process will cause some significant strategic and institutional changes. Integrating the ACCION credit score will require full staff re-training on client intake, loan products, loan applications and supporting documents and credit analysis. It also means changing paper applications to reflect the new information requirements. AUSA's marketing materials will need to be updated to reflect the new loan products and pricing. Perhaps most importantly, staff will need to be trained on CATS to ensure that they use it correctly. If the new process is not adopted readily by staff or is only partly used, the anticipated efficiencies and improvements may not be realized. The new system and process will be implemented in stages, first in Boston and then in other offices over several weeks.

One initial concern is the potential resistance by staff to using a credit-scoring system. Some may feel that it usurps their power and overrides their experience. Another concern raised by the ACCION International credit-scoring team is that some lending staff may seek to manipulate the applications in order to raise the score of applicants. Its experience in other credit-scoring projects found a few instances where loan officers whose pay was incentive-based used false answers to raise the credit scores and gain approval for applicants that otherwise would have been declined. To reduce the potential for this kind of misuse, AUSA will not train the loan officers and front-line staff on the specifics used to generate the credit score.

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<sup>18</sup> At present, on-line applicants submit data relevant to the scorecard, but they must wait until an ACCION staff member reviews this data and responds to their inquiry to receive this information.

There also is the possibility that staff could believe that using the ACCION credit scores will take the organization away from its core mission and exclude many applicants who AUSA may have served in the past. The underwriter review option in CATS was designed to address this concern by providing an option to review border-line applicants. A related concern is that using the credit score could take AUSA “up-market” and lower the number of low- and moderate-income borrowers served. This will have to be monitored going forward. Because the scorecard is based on data from microbusiness owners, a large portion of whom are low- and moderate-income, it is hoped this will ensure that the proportion of low- and moderate-income clients in AUSA’s approved applicant pool will remain the same.

Finally, if implementation is successful the ACCION credit score will most likely lead to the demise of the ACCION Credit Evaluation Grids created with the help of an earlier FIELD grant. Much of the information collected in the Credit Evaluation Grids will now be repetitive or less relevant. Additionally, the grids involve some subjective assessments that the ACCION credit score does not include. Use of the automated credit score is also a shorter process than completion of the five credit evaluation grids.

## **Costs and Requirements of the Process**

The development of ACCION USA’s credit scorecards has been a long and involved process. It required a significant amount of human, technical and donor support and took eight months from the request for proposals to completion of the pilot phase of the project.

The project required a wide range of skills: statistical analysis and modeling, underwriting, database administration, Web programming, financial analysis and project management. Work teams from three different organizations were involved. The core team from ACCION USA consisted of: the Vice President of Lending and Model Development, the Director of Credit & Underwriting, the Director of Operations, and the Network and Database Administrator. In addition, a number of other AUSA staff was involved in testing the scorecards. The ACCION International credit-scoring team did the statistical analysis, the scorecard development and loan process review. The team also will help with future analysis and refinements to the scorecard and model. Finally, ACCION USA’s third-party software developer, Inkriti of Waltham, Mass., did the programming and modifications to integrate the credit scorecards into AUSA’s CATS lending system.

The project process had five main segments: (1) data preparation; (2) analysis and scorecard development; (3) integration of the scorecards into the lending system; (4) integration of the scorecards into the lending process and staff training; and (5) ongoing review and refinement of the scorecards and credit-scoring model.

The first phase of the project, collection and preparation of the data from ACCION’s databases, took 10 weeks. AUSA benefited by having its data stored in a SQL Server

database environment, which facilitated the collection and consolidation. However, ACCION uses two distinct technology systems: one for its client loan and credit bureau information and a separate one for its loan payment accounting system. The data from these two databases were combined into one large database where the client and payment histories were merged into a single record based on the borrower's identification number. The data for ACCION New York also was merged into this database "warehouse." Information on declined loan applications also was imported into the database for the credit-scoring analysis. If all client, credit report and loan payment history information had been in one system, it would have eliminated the need to consolidate the two databases. However, it would have been much more time consuming had AUSA had to input paper data or combine Excel worksheets with its data in the SQL server environment. AUSA also saves key credit bureau report information for each client in its CATS loan application software database. Given the importance of the credit bureau information in the final scorecards, having that information integrated into the ACCION database warehouse also eliminated what could have been a difficult process of importing that data. This work was completed by AUSA's single database and network administrator around his day-to-day activities.

The actual analysis of ACCION's data and the creation of the scorecards may have been the shortest part of the entire project, requiring only eight weeks from the initial project meeting and review session to the delivery of the scorecards. The amount of work put into preparing the data and analyzing ACCION's loan portfolio characteristics facilitated that process. Utilizing the credit-scoring team from ACCION International, which has significant experience developing scorecards for institutions within the microfinance field, made the process much simpler and more focused. The team used a process that had been previously tested and proved successful. Had ACCION USA tried to do this analysis internally, or used someone with statistical modeling expertise but no microfinance expertise, it would have taken a great deal longer and involved more trial and error.

The lengthiest part of the process was the programming required to incorporate the scorecards into the CATS lending system. This took three months due to the complexity of the programming and the effects it had on the CATS Web pages and databases. Despite the time and expense required to implement the scorecard, ACCION USA determined that this was the most effective approach. Prior to this credit-scoring project, ACCION USA looked at off-the-shelf and third-party system software that could manage loan applications and incorporate a scoring model. To utilize those, however, AUSA would have had to go through an entire systems change, including transfer of loan data from the old system to the new, and related staff re-training, in addition to the portfolio analysis. Given these costs, ACCION felt it was more effective to upgrade its own systems rather than switch to a new one.

The funding for the project came from a few key donors including FIELD and the Knight Foundation. The cost of the credit-scoring analysis and the programming of the credit scorecard into ACCION USA's CATS lending platform totaled approximately \$30,000. The cost of ACCION USA staff time dedicated to the project also was significant –

approximately the equivalent of one full-time, senior-level employee dedicated to the project. Despite these costs, ACCION USA believes that most are one-time upfront development expenses. Programming costs should not be required in the future unless ACCION USA programs its On-line Loan Application to use the credit scorecards to give an immediate on-line response to applicants using the Internet. There will be maintenance costs in the future, but they should be significantly less than the development costs.

To fully verify the accuracy of the credit scorecards developed by AUSA and to make them relevant for future use in lending, it will be necessary to continually re-evaluate the scorecards, review the quality of loans made using credit scoring (and those which are overrides of the scoring model) and analyze the client and business profiles, credit report and loan payment histories. Automating data collection and storing the data in a data warehouse will facilitate that analysis going forward. AUSA hopes to review its data and the scorecards at least twice a year in order to adjust them to be more accurate and effective. That analysis will be more rapid and significantly less expensive than the initial analysis for this project.

### **Strategic Implications of the ACCION Credit Scorecard**

ACCION USA's ultimate goal with its customized credit scorecards is to reach a much larger number of microbusinesses, and to do so more efficiently, with less risk and at a lower cost per borrower. The hope is to pass on those lower costs to those borrowers that are less risky and to be able to focus more technical assistance and support on the clients who need it. As the organization moves to new approaches, such as Internet lending, which it hopes will draw in large numbers of potential borrowers, implementing this tool which can enable it to process loans more efficiently and improve its risk management, will be critical to successful scale-up.

Central to AUSA's ability to develop its credit-scoring model was the availability of data on a relatively large number of loans (those made by AUSA and ACCION New York). While lack of this level of loan volume may make it unfeasible for most microlenders to engage in a full scale, customized, Web-based credit-scoring model such as AUSA's, it is possible for lenders to collect and analyze applicant and loan data, and use statistical modeling to improve understanding of the characteristics of their portfolio, add consistency to credit decisions and monitor portfolio risk. All microlenders, no matter their size, can implement the best practice of a periodic review of their borrowers, loan repayment histories and loan portfolio characteristics to be better able to manage risk and make credit decisions more objectively.

## Key Findings Regarding Credit Scoring for Microlenders

The work of ACCION New Mexico and ACCION USA in exploring the applicability of credit scoring to microlending suggests that there is, indeed, a correlation between consumer credit scores and the repayment performance of microenterprise program borrowers. Both organizations found this to be the case when analyzing the performance of their loan portfolios. Given the significant advantages that credit scoring can bring to the lending process – benefits that include greater efficiency, improved risk management, and more customer-friendly products and processes – it is worth thinking about how microlenders can begin to use credit scores more actively in their lending processes.

For those concerned that credit scoring could leave out borrowers who might be credit worthy, there are a few things to note about the work done by these two organizations. First, in both cases, the organizations' underwriting decisions do not rely solely on credit scores. ACCION NM is choosing to use consumer credit scores more actively in its lending process, not only in determining whether to lend, but also possibly in setting prices and other terms. However, its loan analysis and underwriting process still will involve other factors. For AUSA, the score itself incorporates factors that are not found in typical consumer credit scores, but are more relevant to microbusinesses and microbusiness owners. Furthermore, the credit score determines whether a loan will be approved, and the level of review that goes into the loan decision, but underwriting judgment is still needed to determine the amount and structure of the loan. In addition, AUSA has implemented two elements to its lending process to protect against some of the potential negative effects of credit scoring. First, it has instituted a process by which loan officers or staff can request that an underwriter review an application that the credit-scoring model recommends for decline, but which staff believes holds promise. Second, AUSA will monitor the profile of its borrowers to ensure that its lending does not drift toward higher-income borrowers after implementation of its credit-scoring process.

For organizations that want to pursue the more extensive use of credit scoring within their lending programs, the development and maintenance of a solid database is the critical first step. Organizations must build the systems required to accumulate the necessary data on loan applicant characteristics, consumer credit scores, and payment histories. As the case study indicates, AUSA experienced challenges in its early efforts to pursue credit scoring because of challenges with its data. Data is the core of the credit-scoring process, and while it may seem premature to organizations to invest in substantial management information systems before they have sufficient data to pursue a more formal credit-scoring process, building a system early-on is cheaper than trying to play catch-up in the future. The data will be cleaner and the process will be easier if an organization's systems are built properly early. Thus, microlenders should begin to think about how to feed the necessary data into an electronic database that can later be used for analysis.

Yet while accumulating and mining data is central to the credit-scoring process, these efforts are not simply about analysis and math. As AUSA's case illustrates, once the analysis was complete, there were a number of steps required to implement the model

within its lending process. In fact, the most time-intensive part of their work to date has been the programming required to integrate the model into its lending systems. Furthermore, experts on credit scoring have noted that ultimately the success in the scoring process comes “not from technical wizardry, but from painstaking training of users.”<sup>19</sup> In fact, implementing scoring is in large part about working with staff – helping them understand the benefits of the process, training them on new systems, and so forth. As of the writing of these case studies, both AUSA and ACCION NM are at the early stages of integrating scoring into their lending processes, and it will be interesting to learn how they engage and work with staff throughout this process.

What we can draw from these cases is that credit scoring is a tool that holds promise for microlenders seeking to make significant advances in the scale of their lending operations. Scoring holds the promise of a wide range of benefits that are particularly important to lenders pursuing greater scale. At the same time, one of the key challenges for microlenders interested in scoring is that the volume of data required is so large, relative to the current size of even some of the largest microlenders. This does not mean, however, that microlenders that aspire to scale-up should table consideration of credit scoring until they have achieved significantly greater volume. Looking forward is important for two reasons. First, building the right data systems initially will set the stage for a lender’s ability to use credit scoring in the future – when it has achieved sufficient scale in lending. Waiting years to clean and enter data on loans made now will only reduce the quality and increase the costs of engaging in scoring efforts in the future. Second, as ACCION New Mexico’s case indicates, it may well be possible for microlenders to begin to use credit scores more actively in their lending efforts even before they have sufficient data to engage in full-scale modeling and data mining on their own. However, taking these interim steps will require that lenders pay attention now to the type and quality of data they collect on their lending activities.

Through their work, ACCION New Mexico and ACCION USA have begun to show how credit scoring can be applied to some of the critical challenges facing microlenders seeking to move toward greater scale and sustainability. We look forward to future discussions and experimentation as the field continues to learn how it can make the most of this important technology.

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<sup>19</sup> Mark Schriener, *Scoring: The Next Breakthrough in Microcredit?* Paper prepared for the Consultative Group to Assist the Poorest, June 11, 2002, i; available from <http://www.microfinance.com>.

## Appendix

### Sample Survey of ACCION New Mexico Client Repayment Attitudes

**Client Name:**

**Business Name:**

**Phone Number:**

*Hi, my name is \_\_\_\_\_ and I'm a volunteer calling on behalf of ACCION New Mexico. We want to learn more about your experience with ACCION. You've been chosen to participate in a brief phone survey of 6 questions that should take no more than 7 or 8 minutes of your time. Your input is very important to us. It helps ACCION understand how their clients are doing and how ACCION's services can be improved. Taking part in this survey is voluntary and confidential. Your participation will not affect any services you receive from ACCION. Can I ask you to take a few minutes right now to answer six quick questions?*

**I'm going to ask you four questions and please state whether or not: you completely agree, mostly agree, somewhat agree or not at all agree.**

1. Avoiding penalties motivates me to make my ACCION loan payment on time.

**Circle one:** Completely agree   Mostly agree   Somewhat agree   Not at all agree

2. A sense of personal responsibility motivates me to pay my ACCION loan on time.

**Circle one:** Completely agree   Mostly agree   Somewhat agree   Not at all agree

3. Creating future opportunities for my business motivates me to make my ACCION loan payment on time.

**Circle one:** Completely agree   Mostly agree   Somewhat agree   Not at all agree

4. My relationship with the people at ACCION motivates me to make my ACCION loan payment on time.

**Circle one:** Completely agree   Mostly agree   Somewhat agree   Not at all agree

**5. What is the single most important reason you are motivated to make your ACCION loan payment on time?**

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**6. If you've ever made a late payment to ACCION, why was that?**

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**Additional client comments:**

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**Contact attempts:**

Date, time and phone number: \_\_\_\_\_

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## Bibliography

ACCION International. "Scoring." PowerPoint presentation to ACCION USA. December 2005, unpublished.

Gershick, Julie A. *Credit Evaluation Grids for Microlenders*. Washington, D.C.: The Aspen Institute/FIELD, February 2002.

Pollinger, J. Jordan, John Outhwaite, and Hector Cordero-Guzmán. "The Question of Sustainability for Microfinance Institutions." *Journal of Small Business Management* Vol. 45, Issue 1, (January 2007): 23-41; available from <http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1540-627X.2007.00196.x>.

Schreiner, Mark. "*Scoring: The Next Breakthrough in Microcredit?*" Paper prepared for the Consultative Group to Assist the Poorest. June 2002: 4; available from <http://www.microfinance.com>.