Technology Advances Create Challenges

Without a doubt, the technology revolution taking place today has significant implications for community development practitioners and financial institutions. Computers in particular have allowed greater efficiencies and often better techniques for everything from lending procedures to payment delivery systems.

Automated loan underwriting, frequently called credit scoring, provides new opportunities and raises new issues for underwriting, pricing, marketing, and collection efforts. New software developed by the Federal Reserve Bank to increase lending opportunities and improve leveraging techniques has been widely distributed. And Smart Cards provide new opportunities for payment delivery systems. All are featured in this newsletter. Our cover story addresses new electronic delivery systems for social programs that could save over $141 million a year. Electronic Benefit Transfer Systems affect everything from food stamps to AFDC benefits.

Keeping up with new technology is a challenge. We hope you find this issue of Partners helpful in your quest to keep up.

The Benefits of Electronic Benefits

by Rich Oliver

Each year Federal and state governments disburse over $500 billion dollars in benefit payments to a wide variety of eligible recipients, primarily using paper checks. These programs target a diverse portion of our population, from the elderly to the impoverished, and though generally successful, are marked by unresolved problems in the area of high costs and fraud. Though many recurring Federal payments, such as social security and railroad retirement, have been converted to electronic direct deposit over the years, the majority have not, partly because nearly 15% of the recipients do not have bank accounts into which funds can be deposited. Possible electronic alternatives to address the "unbanked" population are commonly referred to as Electronic Benefits Transfer, or EBT.

Of particular interest are programs such as food stamps and Aid to Families with Dependent Children, whose recipients are largely located in urban areas. Theft, fraud, and a burgeoning underground market in food stamps have all contributed to the high costs of these programs, and general dissatisfaction exists as to whether program goals are being accomplished.

From this foundation has come a prescription for improvement, formulated from advances in technol...
Benefits

Continued from page 1

togy and federal and state efforts to reduce the administrative costs of entitlement programs. Perhaps the most visible of these efforts has been the Debt Collection Improvement Act of 1996, which mandates that virtually all recipients of federal payment programs receive their payments electronically by January 1, 1999. This national legislation will undoubtedly spur similar responses from local governments who see the opportunity to ride the coattails of federal programs designed to solve some of the problems associated with implementing electronic alternatives.

Interestingly, much of the early initiative for EBT has come from state governments who find themselves administering federal benefit programs. With their costs rising, many have instituted pilot programs directed at identifying and resolving issues surrounding mandated electronic alternatives. Many of these pilots have met with success and, working closely with the federal government, alliances have been formed with other states who agree to common means of administering programs. One of the key elements in such programs is the decision regarding which banks will support the initiative by providing the technological infrastructure necessary to disburse benefits to the unbanked segment of the population.

At the heart of the technical solution is the use of special non-demand deposit accounts at servicing financial institutions and their linkage to existing point-of-sale and ATM networks. A special restricted use account for EBT funds appears to be a satisfactory approach for the account holding institution wary of offering traditional demand deposit accounts to EBT recipients. There is, of course, a significant hurdle to overcome in the issuance of cards, training of the target population in card usage, and the implementation of necessary card-based security procedures, including the use of PINs. Needless to say, not every bank is interested in the program and is willing to offer the resources needed to make it work.

For that reason, the federal government has let contracts to a small number of large multi-state banks who have the geographic coverage and the resources to operate such a program. Within the Southeast, the states of Georgia, Florida, Alabama, Tennessee, North Carolina, Arkansas, and Missouri have joined hands to form the Southeastern Alliance of States, and Citibank has been awarded a federal contract to be the government designated institution, or GDI, for this alliance.

This implies that Citibank will open and maintain special accounts for the nonbanked EBT recipients and provide access to those accounts. It also opens the door to the use of these accounts at Citibank for state programs within the alliance, thereby eliminating the possibility that multiple program recipients would have to maintain accounts at several institutions.

Though the startup costs and implementation mechanics of EBT programs appear formidable, the long-run promise for cost savings by governments and improved security for recipients are very attractive. The U.S. Treasury estimates that a fully costed paper based payment runs about $0.43 while the electronic alternative may cost as little as $0.02. Even in the early stages of a pilot project in Minnesota nine years ago, the economics were readily apparent. The Treasury estimates an annual savings of over $141 million if all federal payments were made electronically. State savings could balloon this number significantly.

Most EBT programs result in benefits being paid directly to the GDI by a governmental authority with instructions to credit the appropriate restricted use "subaccounts" of the payees. Beneficiaries would then draw down the balances in a lump sum or over time from EBT designated ATMs or POS terminals.

In the case of food stamp programs, however, the operation would vary because actual funds movement would not occur until goods were purchased at the retail store. In essence, the GDI would receive instructions to make a certain amount available to the consumer in his/her account. When the payee completes a purchase of authorized goods at a local store, the eligible amount would be decremented from the restricted use account, and the GDI would be notified of the total amount of EBT "sales." The GDI would create a next day credit to the merchant’s bank for the merchant and would notify the Treasury of required reimbursement to the GDI on the same day.

While the debit card approach will likely be the most common in early EBT program pilots, there is already considerable interest in the use of smart cards. The smart card

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Continued on next page
Benefits
Continued from previous page

brings with it internal storage capacity that could be used to implement increased security features, medical and program information, and data about qualified food items, even to the extent of prescriptive nutrition data. Purchases could actually be checked against this data for eligibility.

On the surface, benefit programs and electronic banking would appear to be a marriage made in heaven, but a wide range of issues remain to be worked out at both state and federal levels. At the top of the list is the legal infrastructure for these programs, to include the relative rights and responsibilities of the GDI and the beneficiary. Consumer protection for electronic payments is largely provided through Regulation E today, but a number of issues have arisen concerning notification and statement features of the law.

Access to an ATM or POS device at locations convenient to the recipient is another issue that could prove challenging for even the most advanced interstate bank. On another front, there are even some potential issues in the CRA area regarding the treatment of EBT funds as CRA eligible for reporting and compliance purposes.

In summary, the face of federal and state benefit programs is changing dramatically through the introduction of electronics. Spurred on by the promise of reduced costs, the federal government is mandating the use of electronic payments for government programs and states, interested in the same benefits, are approaching EBT efforts with considerable enthusiasm. Nevertheless, a wide-ranging number of legal and operational issues remain to be resolved that will temper the growth of these programs in the short term. In the long term, though, it is clear that the die has been cast and a plastic card in every pocket (or pocketbook) will have replaced a car in every garage as the future reality.

Stan Fitterman is a Technical Assistance Specialist with the Florida Housing Coalition. His article reviews the Federal Reserve Bank of Atlanta's Partners Software. The software is free and can be ordered from the FRB at 404/589-7358, or can be downloaded from http://www.frbatlanta.org/supreg/part.htm on the Internet. It may be helpful to have the software on hand before reading this review. The article has been reprinted from the March-April issue of the 1996 Housing News Network with permission.

When fed the right software, computers can be a terrific help to people administering first-time buyer and other home ownership programs. Plug in some information, and the computer can do the number-crunching to determine if an applicant is qualified for a program, and if not, what steps can make her eligible. One piece of software that can perform some helpful tasks is Partners, a software package developed by the Federal Reserve Bank of Atlanta. The good news is that it is free — and that you get a lot despite it being a freebie. Partners is easy to use even for the computer-phobic.

Partners bills itself as a learning tool and development aid for "community development practitioners interested in providing home purchase loans to low and moderate income persons." The purpose of this review is to show where it lives up to its claims and where it has drawbacks.

Program Structure

Partners is divided into several components. It is not necessary to use or even to understand each component to benefit from the use of this software. Therefore, this review will evaluate each screen separately, noting the ways that it can be used with a first-time buyers program.

The Test Screen: How Much House Does the Applicant Qualify For?

This can be a very useful tool for the first-time buyer program administrator. This screen allows you to calculate how much financing for which a particular buyer can qualify, given user inputted applicant data and lending criteria. Often first-time buyer applicants walk in to SHIP program offices having no idea what price range of home for which they can qualify. This screen allows you to input applicant specific data to determine that applicant's financing potential. For this review, the applicant and underwriting criteria used is outlined in the box below. In our example, for instance, this screen informs us that the maximum amount of financing for which our applicant could qualify is $41,839. Using this screen, the SHIP program administrator can quickly and easily inform an applicant in what price range he or she should be looking.

See PARTNERS

page 4

Federal Reserve Bank of Atlanta
P ART N ERS
Continued from previous page

The Main Screen: Can the Applicant Afford This House?

The main screen of Partners calculates whether or not a potential applicant can qualify for a mortgage on a certain priced home, given user inputted lending criteria. Once this information is entered, and the user clicks on the "compute" button, the program calculates the applicant’s present status, and if the applicant cannot qualify, possible options that can be used for qualifying the applicant. The applicant’s present status shows the amount of money available for the monthly principal and interest payment. The program calculates this amount by using the front and back ratios to determine the maximum monthly payment for which the applicant can qualify, and then subtracts from that amount, the monthly taxes and insurance payment. This leaves the total amount available for principal and interest.

In our example, the applicant has $295.00 available for principal and interest. This is $55.54 short of the monthly amount needed to qualify for the $50,000 house. Next comes our options. In this scenario, Partners informs us, this applicant could qualify if the price were reduced to $44,031.98. Or, if the applicant reduced other debt by $53.54 per month to $271.44, or if the down payment could be increased to $9,796. All in all, Partners lists 10 options for qualifying the applicant.

Applicability to First Time Buyers Programs

The Main screen can assist many First Time Buyer program administrators. It offers a quick way of determining whether an applicant can qualify for a certain priced home. Several SHIP programs around the state of Florida are designed to provide first time buyers with a subsidy that is equal to the amount needed to qualify for a certain mortgage amount. Often, the calculation of the subsidy amount is left to the lenders. This Main screen gives the SHIP administrator an easy to use tool for determining this subsidy amount.

What if you want to provide the first time buyer with a subsidized loan that will be repaid at the same time as the first mortgage? Partners also calculates this amount, allowing you to have this subsidized loan calculated at any given interest rate. The most attractive feature of this option is that it is calculated to insure that the combined first and second mortgage payments do not exceed the front and back ratios that you have established. This is important for all lenders, but is critical if you plan to work with the secondary market. In our example, an $11,741.17 second mortgage at 6% interest would be needed for our applicant to qualify. Partners went on to inform me that given this scenario, the payment on the first mortgage would be $262.39, and payment on the second mortgage would be $32.61.

The Deposit Option: How Can Interest Subsidies Be Used?

There are three predominant methods in which first time buyer assistance is provided in Florida: 1) The money is given entirely as a grant; 2) It is provided in the form of a no interest, due upon sale loan; or 3) It is provided as a due upon sale loan that is forgiven after a certain number of years. The Deposit Option screen offers an interesting alternative to these methods. This feature recommends depositing a certain amount of money into an interest bearing account. These funds are then used to subsidize the first time buyer’s monthly payments on a declining basis for 10 years.

In our example, we have already determined that increasing the down payment by $7,296 to $9,796 would qualify this applicant. However, an alternative to a straight grant or deferred loan of these funds would instead be to deposit $3,082.24 into an account earning an interest rate of 4 percent. This account would then be used to subsidize the buyer’s monthly payment so that they can qualify for the mortgage. As you will recall, our applicant needed an additional $53.54 per month to qualify for a loan. Using the calculations of this feature, the $53.54 is subsidized for the first year. In subsequent years, the subsidy amount is reduced by 10 percent per year. The rationale behind this is that the applicant’s income is expected to increase over the loan period, allowing them to make a higher monthly payment.

In our example, our applicant’s monthly payment would increase by $5.35 during years 2-10. With this scenario, our buyer’s income would need to increase by less than 1.4 percent per year in order to continue to maintain the qualifying ratios.

There are both benefits and drawbacks to implementing this deposit option. If a home is sold during the 10 year time frame, a portion of the subsidy amount will be returned to your program. If your current pro-

Continued on next page
Partners

Continued from previous page

The Refund Option offers an alternative for non-profits who sell their homes at cost, or slightly over cost. While usually well below market, the sales price may still be too high for very low income buyers. This option recommends that the home be sold above cost but still less than market value. The amount that is above the non-profit’s normal sales price is used to set up a deposit account, which is then used to subsidize monthly payments in the same manner as the previous example.

There are several advantages to this approach. Selling homes at a higher value can help eliminate the argument that the selling of lower priced homes may depress the appraisals and sales prices of surrounding homes. The deposit account can offer additional security for the loan, lowering the effective loan-to-value ratio. One disadvantage to this type of arrangement is that lenders are often wary of seller concessions. Also, the buyer’s monthly payments will rise on an annual basis, raising the same concerns as those discussed above in the Deposit Option.

Amortization Schedule and Equity Buildup Screens

The amortization schedule lists the starting balance, principal paid, interest paid, and ending balance for each monthly payment. For instance, in our example, the first monthly payment will result in $31.87 going toward the principal, and $316.67 toward interest. After this payment is made, the ending balance will be $47,468.13. By the time the 175th payment is made, $101.28 is going toward the principal, with $246.59 being paid in interest. The ending balance after the payment is made would be $36,987.85.

The amortization schedule has limited use other than illustrative. It does not allow the user to input actual payment dates, so it cannot be used to track actual loan balances. It does show total interest to be paid over the life of the loan, as well as the total amount of interest paid each year. This could be useful if a potential buyer is attempting to determine the tax consequences of purchasing a home. My experience with first time buyers is that this is usually a minor concern.

Similar to the amortization schedule is the screen that calculates the equity buildup from monthly payments. This screen calculates the amount of equity built up as of the end of each year. In our example, at the end of year one, the homeowner will have paid a whopping $397 toward principal. By the end of year nine, $5,018 will have been paid toward the principal. While this again largely illustrative, this screen can give the potential buyer an idea of the amount of equity he or she will have after a certain period of time. It can also be used to estimate when an applicant will have enough equity in the home so that a sale will result in enough proceeds to cover a second mortgage.

Ron Zimmerman was given special recognition in July by the Board of Governors of the Federal Reserve System for his contribution to the System through the creation of the PARTNERS model for home mortgage lending. Pictured above, from left to right, are Chairman Alan Greenspan, Board Governor Lawrence Lindsey and Ron Zimmerman, Vice President of the Federal Reserve Bank of Atlanta.
AUTOMATED UNDERWRITING IN THE FINANCIAL SERVICES INDUSTRY TODAY

By Robert Kennedy

The phrase “credit scoring” has provoked substantial press in recent months. Credit scoring, also referred to as “automated underwriting”, entered the general vocabulary last Christmas when Governor Lawrence Lindsay of the Federal Reserve Board had his credit card application at a large toy store chain denied by an automated credit scoring system. The incident opened debate regarding the accuracy, and indeed, the propriety, of scoring systems in the financial services industry. Community development practitioners are concerned about how the industry uses automated credit scoring systems; the risks implicit in these systems; and where the future of these systems may lie. This article addresses some of the challenges posed by credit scoring.

Credit scoring is an objective method for predicting certain credit behaviors of individual borrowers and large populations. Based upon empirical research into the behavior of large numbers of borrowers, credit scoring systems are formulas for predicting such credit behaviors as

- Who will be late for a payment on a loan? This is usually calculated in the industry parlance of 60 day and 90 day delinquencies.
- Who will go bankrupt? Financial institutions definitely want to know which customers may cause losses on loans.
- Who will pay off a credit card account by switching it to another bank? In most cases financial institutions do not want to lose customers to another institution because the cost of replacing the customer is very high.

At the heart of the credit scoring system is an odds chart that estimates the percentage of borrowers in a defined population who will default on a loan, cause a loss to the financial institution, or go bankrupt. Scores are generated from analysis of credit bureau data showing borrower payment histories. In many scoring systems, the higher the score, indicating few payment problems, the rarer the odds of a credit problem. The financial institution will use these odds to set cutoff scores delineating the applications they will approve and decline. Applications are run through a formula to arrive at a score for each credit application. Those scores above the cutoff may be approved; those below, may be declined.

Many institutions will have policies for overriding the cutoff, where information not considered in the scoring system is introduced into the ultimate credit decision. Such information may include the applicant’s income or the quality of collateral. Highside overrides, causing the denial of an application, may be due to inadequate disposable income. The institution may use lowside overrides to approve applications exhibiting credit problems where collateral is superior.

Uses of Credit Scoring

Credit scoring isn’t simply a method for making credit decisions. Financial institutions use credit scoring systems for a wide range of activities.

Loan Collections: Scoring systems are routinely used to manage the loan collection process. Through the analysis of payment histories of large numbers of borrowers, lenders are able to establish effective collection strategies for individual borrowers who have gone past due on their debts. The strategy for each borrower is devised by using scores obtained from credit bureaus as well as scores that embody the borrower’s own payment history with the institution.

For example, a typical strategy for a borrower who has an otherwise pristine payment history but who has let his credit card payment go one payment past due, may involve sending just a friendly reminder on his next credit card statement. On the other hand, a similarly tardy borrower with a history of late payments may...
Automated Underwriting
Continued from previous page

receive a terse phone call from a collector. Automated scoring systems were developed for the credit card business because the large number of accounts makes the administration of a collections department unwieldy and prohibitively expensive. Furthermore, scoring systems have allowed for the development of collections strategies that are appropriate to the borrower.

Credit line adjustments: Periodically, credit card companies will review the credit bureau scores and payment history scores on each account, and raise or lower the credit line for the borrower. An account holder with credit problems may expect to have his credit limit lowered, while one with an excellent payment history and who uses his credit line will likely have the credit line increased. The automated system is necessary to manage the large number of accounts.

Fraud detection: Some of us have received phone calls from our credit card companies asking us if we had actually made certain charges. The credit card companies, reviewing our history of charges, have determined that recent charges do not fit our normal charging pattern. Possibly the charges have been made in a city where we have never made charges. Or maybe some large ticket items such as jewelry and furs have been charged! In order to combat growing credit card fraud, credit card companies have developed sophisticated analytical systems for determining unusual charge activity.

Loan pricing: Traditionally, lenders have set interest rates on consumer loans without regard for the varying risks of the borrowers. Credit scoring of borrowers allows the institution to gauge the risk of default for each borrower, based upon the loss experience of other borrowers with similar credit histories. The institution then translates that risk assessment into an appropriate interest rate. Less risky borrowers pay less than higher risk borrowers.

Marketing: Financial institutions are increasingly using credit bureau scores to select potential borrowers for credit cards, home equity loans, and even mortgage loans. Not only do these scores provide assessments of credit risk, but they also provide insight into potential usage of the credits.

Risks with Automated Underwriting Systems

Automated scoring systems by their very nature rely upon fairly sophisticated algorithms that draw upon large databases. As with all sophisticated and complex systems, careful management is required to obtain the desired results. Below are some critical principles in managing credit scoring systems:

• The population of borrowers to be analyzed, both good credits and delinquent ones, needs to be large enough to draw valid conclusions. Many financial institutions control this risk by using generic scorecards developed by vendors that draw on large databases.

• Thorough analysis of the borrower data is required in order to construct the formulas used in the credit scoring systems. Superficial analysis may yield an incomplete profile of the targeted borrowers. Sometimes consultants who have a track record are used to help contain the risks.

• The financial institution should apply the scorecards to appropriate populations. In most cases the scorecards should only be applied to applicants whose credit attributes are similar to those of the development population of borrowers.

• Financial institutions must ensure that applicant data is correctly recorded and that the software systems that run the scorecard calculations are periodically checked for accuracy. This is imperative, since software systems are frequently enhanced. A financial institution controls this risk by training operational personnel and auditors to verify the accuracy of credit scoring systems.

• Financial institutions should routinely monitor the results of the scoring system to ensure that the results are consistent with those predicted by the analysis of the development population. There are a number of standard reports used in the industry for this purpose.

• As the scorecard becomes less predictive it should be reworked or replaced. Managers of credit risk and internal loan review must maintain a close eye on the scorecard.

All of these risks can be contained with proper management. The bet-

Managing Credit Scoring Systems

- The population of borrowers needs to be large enough to draw valid conclusions
- The scorecards must be applied to appropriate populations
- Applicant data must be correctly recorded
- Results must be monitored for consistency with predictions
- Software systems that run the calculations must be periodically checked for accuracy
- Scorecards should be reworked as they become less predictive

See Automated Underwriting page 8
Automated Underwriting

Continued from previous page

Why the Increasing Use of Credit Scoring?

- Recent technological advances allow banks to use huge databases inexpensively
- Bank mergers have led to large consumer loan portfolios that require sophisticated management systems
- Consumer credit bureau data have become more accurate and more comprehensive than before

Automated Underwriting

What Does the Future Hold for Credit Scoring?

The use of credit scoring will likely spread into other loan portfolios that have large numbers of accounts, including residential mortgage loans and small business loans. In the past year, the two principal residential mortgage secondary market institutions, Fannie Mae and Freddie Mac, have asked mortgage companies to begin using credit scores in their underwriting of loans.

It is conceivable in the near future that the least risky mortgage loan applications will be approved quickly and with less expense to the borrower. In fact, a mortgage lender in the Atlanta market claims to have made a mortgage loan decision, using an automated scoring system, in less than two minutes! A number of banks are now experimenting with credit scoring of small business loan applications, although there is a consensus that the use of these systems will be limited until the commercial credit bureaus reach as comprehensive a level as the consumer credit bureaus.

Some lenders are experimenting with automated loan machines that allow consumers to obtain unsecured loans in minutes by analyzing credit bureau scores. And, very soon, we will likely see financial institutions, in conjunction with automobile dealers, making nearly instantaneous credit decisions on car loans as automobile dealers use direct access to the financial institutions via the Internet.

Traditionally, financial institutions have used credit bureau data and other consumer information to mass-market products and services. Interestingly, companies are beginning to use the same data to market on an individual basis. This activity is based upon analysis of the spending habits of individuals as reflected by their credit card purchases. In this way, companies can focus their marketing programs directly on consumers who are most likely to use their products and services.

Challenges

The future of credit scoring, which in today’s world of rapidly changing technology looks remarkably like the present, offers society some challenges. As credit scoring is used to underwrite a greater variety of loan products, regulators will have to ensure that federal anti-credit discrimination laws are not violated.

Nearly instantaneous underwriting that forgoes any human review will necessitate greater efforts to guard against the use of inaccurate or incomplete data that may cause the financial institution to make incorrect credit decisions. Of particular concern here is the exclusion of human review that sometimes adds insight into the credit decision that is not provided by a scoring system.

Finally, the growing use of credit scoring raises the issue of personal privacy. Should companies have access to databases containing an individual’s credit history and purchasing patterns? And how should that information be used? All of these challenges deserve public discussion, although it is clear that credit scoring systems, when well managed, have the potential to offer financial institutions superior methods for delivering credit products and services.

Robert Kennedy is a senior examiner at the Federal Reserve Bank of Atlanta who examines large banks and bank holding companies. He is currently participating in a Federal Reserve System task force to review issues related to the supervision of retail and small business lending in banks, including credit scoring systems.

Partners in Community and Economic Development

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Tax Abatement and Sale Screens

Occasionally a local government will offer tax incentives for purchasers of homes in certain neighborhoods. The Tax Abatement screen calculates the impact of property tax abatement on a buyer's ability to qualify for a mortgage. The amount abated begins with the minimum amount needed for the applicant to qualify, with this monthly amount declining to 90% of the amount needed in year two, 80 percent in year three, etc. In our example, this option calls for the monthly payment to increase by $5.35 annually in years 2-10.

The sale screen has very limited use for a Florida SHIP administrator. It calculates the sale price that should be received for a loan that is going to be sold on the secondary market.

Beware of Garbage In, Gospel Out

"In using Partners, please keep in mind that, while the various options presented will 'work' mathematically, sound judgment is needed to decide whether use of any of these options is practical and in the long term best interests of an individual applicant." In other words, just because this program lists something as an option, it is not always a viable one. If we change in our example the monthly income from $2,000 to $1,000, leaving everything else the same, Partners informs us that one option is to "buy at a lower price - $3,901.57." Not the most practical of solutions. Partners' goal is to inform you of your options; it is your job to decide whether they are feasible.

Other Things to Keep in Mind

Partners will not allow you to save a file. Instead you must print a copy of the information that you need. Remember this before you exit the program and lose your data. It is also recommended that you enter the applicant's name or application number on each form that you print to avoid confusion in the future.

Computers do what you tell them to do, not what you want them to do. Partners is no different. If one inputs 80.0 percent for an interest rate instead of 8.00 percent, it suggests increasing the front ratio to 163.33 percent and the back ratio to 179.58 percent as an option for qualifying an applicant. Careful attention must be paid to the user inputted items. If the results on the main screen appear out of line, check the applicant and lending criteria. Chances are something was entered incorrectly.

Partners is an excellent tool for use with first time buyer programs. While Partners has many features, the software allows you to use only the options most useful to your program. It provides a quick, easy and technically sound way for determining applicant eligibility, subsidy amounts, and options for qualifying applicants.
The rapid growth and advancement in technology and communications have created new opportunities in the electronic payments system. One of the newest products is the stored-value or “smart” card. While technology in this card has been around since the 1970’s, the stored-value cash card was officially rolled out in the United States at the 1996 Summer Olympic Games in Atlanta by Visa Corporation.

What is a stored-value card?

A stored-value card derives from smart card technology. A smart card is a card that contains a microchip in which information can be stored and processed instead of utilizing a magnetic stripe. In other words, the intelligence resides in the card and is extracted from this point. Another feature of smart card technology is the ability to encrypt the stored information as a way to combat fraud.

Smart card technology, which was introduced in France in the 1970’s, did not gain a foothold until the 1980’s. Worldwide, these cards perform as identification cards, health care cards, and transit cards. The smart card, with its specific technology, has multiple capabilities of a financial and nonfinancial nature. Hence, not all smart cards carry stored value, and not all stored value cards utilize smart card technology.

This article will focus on the stored-value smart card, which has the ability to store denominations of currency for future remittance. In the recent Atlanta pilot, the cards sponsored by Visa were known as “Visa Cash” cards. Partners with Visa in this project included First Union National Bank, Wachovia Bank, and NationsBank. The banks issued disposable cards in increments of $10, $20, $50, and $100. NationsBank also issued approximately 95,000 commemorative cards in $5 denominations during the Opening Ceremonies of the Olympics.

How do the cards work?

The cards can be purchased at a participating bank or at a terminal that has been converted to dispense or reload the cards. Participating merchants are equipped with a special machine to record purchases made with the card. When a consumer makes a purchase, the merchant runs the card through a terminal that debits the purchase amount from the card. The merchant, through a portable balance reader, can also tell the consumer the balance remaining on the card. To further illustrate this event, think of the chip as having the ability to keep a running ledger.

Benefits

Probably the most difficult question that those who market the stored-value card will face is, “Why do I need this card? I have a credit card, checks, and an ATM card.” There are several benefits being touted.

The current strategy behind the card is to replace small denomination transactions and to offer multiple applications. Since the information is stored inside the card, some cards do not require connection with a host computer to complete the transaction. This off-line capability circumvents the potentially time consuming on-line authorization. Designed to serve as a substitute for cash and coin transactions of $20 or less, the cards eliminate the need for making

Continued on next page

Smart Cards Have Arrived

by Mike Todd
Smart Cards

Continued from previous page

change and physically handling bills and coins, which speeds up the purchasing process. Another benefit to the consumer is that it removes the hassle of finding exact change for vending machines, toll booths, trains, taxis, coin laundries, and pay telephones, for example.

The true savings to merchants is questionable, however, since the merchant pays a fee based on card purchases, similar to fees charged by credit card sponsors. However, the benefit to merchants in the form of lower transaction handling costs through time saved, and lower losses from robberies, is more apparent.

Security issues are still being addressed. However, technically, the smart card has an advantage over the more widely used magnetic stripe card; magnetic stripe cards are more easily counterfeited. Unlike traditional magnetic stripe cards, the smart card has the ability to encrypt information stored on the chip, which serves to make duplication more difficult.

Current Concerns about Stored-Value Cards

Like most other products, some degree of scrutiny must be undertaken to determine its impact in the financial markets. Major concerns raised about stored-value cards include their potential impact on the ability of the Federal Reserve to conduct monetary policy, and the entrance of nondepository institutions. If stored-value cards eventually make up a significant portion of all monetary transactions and are issued from several private sources, it will pose new challenges for measuring and monitoring the money supply. The emergence of nondepository institutions issuing stored-value cards raises the question of applicable rules and laws. Would the playing field be even for all competitors? Could this interrupt the financial system? Should nondepository institutions even be allowed to issue the card? While these are only a few key issues, many more will likely be raised as the market grows.

Risks Associated with the Card

Like cash, the current stored-value cards can be used by another individual if lost or stolen. The “cash card” feature of the disposable card does not carry a PIN (Personal Identification Number), which would restrict access to its owner. However, losses are limited to the amount stored on the card, a maximum of $100 at the present time. Although being touted as highly secure and virtually impossible to counterfeit, the possibility of counterfeiting stored-value cards exists, since criminals eventually catch up with and break the latest technology. If this were to happen, detection would be difficult and large sums of money could be lost in those transactions performed off-line. Currently, none of the cards meet the requirements of the FDIC definition of an account; therefore, they are not insured.

One of the greatest systemic risks is in the payment system. Depending upon how large the market for stored value becomes, and to what extent transactions occur outside the currently regulated financial sector, the merchant could assume a high degree of risk in payment dislocation and settlement. Consumers could lose their money if merchants decided to stop accepting a card. Other risks include legal risk (taxes, money laundering, and liability), market and liquidity risk, and technology risk. One can imagine the complexity of issues that lie ahead.

Summary

Will the stored-value card catch on and grow? No one knows yet. According to Business Week magazine, however, approximately $1.8 trillion was spent on purchases under $10 worldwide in 1994. The U.S. accounted for $560 billion of that amount. With over 75% of those purchases made with cash, the evidence suggests great marketing potential for stored value cards.

The next big marketing rollout of stored-value cards is set to occur in New York City by the end of the year. This will be a pilot with MasterCard and Visa in conjunction with Chase Manhattan and Citibank. The cards in the New York pilot will not only serve as a stored-value card, but will simultaneously serve as a debit card and credit card. (The stored-value could still be accessed off-line.) The lure of attracting the masses could be the convenience of a single card that can perform all of the functions that now require several cards. Initially, the keys to success lie in consumer awareness and comfort with security. In addition, big name merchants capable of using the technology must sign on, which would create a market, and ultimately, a national network. The smart card has enjoyed success in Europe and Asia, and with a strong showing here, universal adaptability could be right around the corner. •

Mike Todd is an examiner with the Federal Reserve Bank of Atlanta. His assignments have given him an opportunity to evaluate some of the risk in smart card technology as it applies to the financial system.
Information provided on upcoming events of other organizations should be viewed as strictly informational and not as an endorsement of their activities.

**OCTOBER**

Affordable Housing Task Force of Larimer County, October 17. Fair Lending Workshop, Ft. Collins, CO. Contact: Kevin Strayman (970) 223-4000.

Florida Housing Coalition, October 23-25. Annual Statewide Affordable Housing Conference, Orlando, Florida. Contact: (904) 878-4219.


Note: This workshop will be repeated October 30 in Tonkawa, OK; October 31 in Muskogee, OK; November 18-19 in Hugo, OK; November 20 in Ardmore, OK and November 21 in Lawton, OK.

Federal Reserve Bank of San Francisco, October 29. CRA Exam Procedures Training, Portland, OR. Contact: Joy Hoffmann Molloy (415) 974-2228.

**NOVEMBER**


Note: This workshop will be repeated November 1 in San Francisco, CA; November 7 in Anchorage, AK; November 13 in Seattle, WA; November 15 in Los Angeles, CA; November 19 in Salt Lake City, UT; November 21 in San Francisco, CA; December 3 in Orange County, CA; December 5 in San Diego, CA; December 10 in Las Vegas, NV and December 12 in Honolulu, HI.

**DECEMBER**

Federal Reserve Bank of Kansas City, December 4-5. Financing Rural Capital Markets, Omaha, NE. Contact: (816) 881-2203.


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104 Marietta Street, NW
Atlanta, Georgia 30303-2713