Division of Depositor and Consumer Protection
Federal Deposit Insurance Corporation

ASSESSING THE ECONOMIC INCLUSION POTENTIAL OF MOBILE FINANCIAL SERVICES

Last Revised: June 30, 2014

FDIC

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EXECUTIVE SUMMARY

This white paper considers how mobile financial services (MFS) can help increase financial inclusion among the unbanked and underbanked (collectively, "the underserved"). Although banks are rapidly making MFS available to their customers, additional steps could be taken to implement these services in a way that draws underserved consumers more comprehensively into the banking system.

Key Finding: In the short run, MFS is best positioned to have an economic inclusion impact through its ability to meet the day-to-day financial services needs of underbanked consumers as well as consumers at risk of account closure. The anytime, anyplace, and actionable nature of MFS offers the potential to enhance the sustainability of existing relationships between consumers and banks. MFS also has the potential to help the underserved gain access to the banking system and grow their financial capability. However, the technologies to deliver these benefits are less well-established in the marketplace.

There Are Opportunities to Increase the Use of Banking Services by Underserved Populations. The FDIC has found that approximately 17 million U.S. adults live in households without a checking or savings account.[1] An additional 51 million U.S. adults live in households that have a bank account but rely on nonbank providers for some financial services.[2] Consumers who obtain financial services outside the mainstream banking system may not receive the same level of safety and security provided by deposit insurance and various federal consumer protections that are guaranteed by law, ensured by supervision, and enforced through a system of ongoing examination.

In order for underserved consumers to choose financial services in the mainstream banking system, banks must offer products or services that those consumers perceive to meet their needs—and those consumers must be aware of the availability of those products or services. Underserved consumers report using alternative financial services, such as nonbank check cashers or money orders, because of their convenience, speed, and price.[3] Meanwhile, banks report a number of factors that can make it difficult to meet the needs of the underserved. According to the FDIC's 2011 Survey of Banks' Efforts to Serve the Unbanked and Underbanked (2011 FDIC Bank Survey), these factors include the regulatory environment, fraud, a lack of consumer understanding about financial products and services, underwriting, and profitability.[4]

Mobile is a Potential Solution to Some of These Challenges. Although MFS is unlikely to meet all of the needs of the underserved or to ease all of the concerns of banks, it has the potential to address many of these challenges . Sixty-eight percent of American adults connect to the Internet via a mobile device.[5] Ninety percent of underbanked adults own a mobile phone (compared to 83 percent of all adults), of which 71 percent are smartphones (compared to the 67 percent of all mobile phone users who use a smartphone).[6] Underbanked mobile phone users are also more likely to use mobile banking (31 percent) than the fully banked (24 percent).[7] Among the unbanked, mobile phone ownership is less widespread, but it is growing. Sixty-eight percent

[1] Federal Deposit Insurance Corporation, "2011 FDIC National Survey of Unbanked and Underbanked Households," September 2011.
[2] Ibid.
[3] Ibid.
[4] Federal Deposit Insurance Corporation, "2011 Survey of Banks' Efforts to Serve the Unbanked and Underbanked," December 2012.
[5] Pew Research Center, "The Web at 25 in the U.S.," February 2014.
[6] Federal Deposit Insurance Corporation, "2013 FDIC National Survey of Unbanked and Underbanked Households," forthcoming in October 2014.
[7] Ibid.

of unbanked adults have access to mobile phones, 49 percent of which are smartphones.[8] Smartphone adoption among unbanked mobile users is rising quickly, however, and is up from 26 percent in 2011.[9] As a result, although MFS is currently more accessible to the underbanked than the unbanked, it is increasingly more accessible among all populations.

As mobile phone adoption is increasing, so too are the financial services available to consumers through a mobile channel. MFS features now exist that enable consumers to meet many day-to-day transaction needs using a mobile phone, including monitoring account balances, paying bills, and depositing checks. In addition, mobile technology enables consumers to conduct these transactions more conveniently and quickly than through other channels. Also, banks' ongoing operational costs associated with MFS are frequently lower than for other channels, and MFS can increase the engagement and longevity of customer relationships and yield more profitable customers.

Considering underserved consumer preferences regarding convenience, speed, and price alongside the anyplace, anytime, and actionable nature of MFS suggests this channel has the potential to help increase economic inclusion among the underserved. To assess this potential, this paper presents an analytical framework that considers the ability of MFS to draw consumers into the banking system, retain them in safe and sustainable account relationships, and foster financial empowerment to deepen banking relationships and fulfill financial goals. Applying this framework of access, sustainability, and growth to the current MFS landscape yields several observations:

Access – Drawing consumers into the banking system. In the short term, MFS on a standalone basis appears to have a limited role in motivating and facilitating unbanked access to the financial mainstream and in improving unbanked consumer perceptions of banks. However, as smartphone usage among the unbanked expands and mobile account opening becomes more widely available, MFS could a play a larger role in increasing access to the mainstream banking system. This may be particularly the case for consumers whose primary access to the Internet is through a smartphone. To help MFS fulfill its potential, economic inclusion strategies will need to address some of the most significant underlying economic and institutional reasons why unbanked consumers do not have a bank account, such as limited financial resources or insufficient identification. Then, as consumers are ready to enter the financial mainstream, mobile applications (apps) could be useful for enabling easy account opening and verifying a range of acceptable customer forms of identification. Anecdotal evidence suggests that obstacles to mobile account opening are being overcome and that some institutions are finding significant demand for mobile account opening. As it becomes more widely available, institutions may benefit from coupling the functionality of mobile account opening with broader outreach efforts that include partnerships with organizations, such as community groups, that have established relationships with underserved communities and populations.

Sustainability – Retaining consumers in the banking system by sustainably meeting their day-to-day financial services needs. MFS is particularly well-suited to increase the sustainability of banking relationships. Features that could be particularly effective include account balance and transaction history, near real-time alerts, mobile check deposit with quick access to funds, the ability to transfer money to or from a savings account, and payment functions such as bill pay or person-to-person transfers. However, some of these MFS features are not widely available from banks or require adaptation to more directly meet the needs of the underserved. For example, most banks that offer mobile remote

[8] Ibid.
[9] Matthew B. Gross, Jeanne M. Hogarth and Maxmilian D. Schmeiser, Federal Reserve Bulletin, "Use of Financial Services by the Unbanked and Underbanked and the Potential for Mobile Financial Services Adoption," September 2012, Vol.98, n.4.

deposit capture (mRDC) do not currently offer immediate funds availability, making this functionality less attractive to underbanked consumers that rely on the immediacy offered by check cashers. Similarly, while many banks offer account alerts, until they develop the capability to provide real-time alerts, banks are missing an opportunity to meet consumers' need for accurate and immediate information regarding availability of funds. In addition, certain industry-wide system upgrades, such as a faster payment system, would be particularly beneficial to underserved consumers who live paycheck-to-paycheck and have little time to spare between being paid and needing to pay others. Although significant short-term upfront investment costs are associated with deploying MFS, the transaction costs of serving customers through this channel is likely to decrease over time and may change the economics of serving the underserved. Also, anecdotal evidence suggests mobile banking customers are more engaged with, and less likely to leave, their financial institutions, which could make underserved consumers more attractive bank customers.

Growth – Fostering financial empowerment to deepen banking relationships and fulfill financial goals. It is also important that consumers have the opportunity to advance from basic transactional services into more advanced services and products that can help them meet important milestones, ranging from development of savings reserves to homeownership. MFS tools that help consumers increase their financial engagement and develop deeper banking relationships could help consumers reach such milestones. These tools include personal financial management (PFM) features that enable consumers to set and monitor financial goals and budgets. Through such functionality, consumers have opportunities to improve their financial condition and qualify for additional products. It may be unrealistic to rely *solely* on MFS to facilitate such results, particularly for consumers with less banking experience who may benefit from more personal interaction, such as coaching by a live person. However, as mobile technology advances, it is possible that MFS could play more of a role in this regard, particularly if banks consider incorporating interactive and personalized features such as personalized text, audio, or video chat functionality into their mobile offerings.

Takeaways. MFS is poised to have the largest impact for the underbanked through its ability to meet day-to-day financial services needs. The anytime, anyplace, and actionable nature of MFS offers the potential to enhance the sustainability of banking relationships. However, certain actions could be taken to further fine-tune MFS for economic inclusion and help position it as a mechanism for access and growth, including the following:

- **Integrate MFS into broader economic inclusion strategies.** Successful economic inclusion strategies that incorporate MFS by raising awareness about this service channel and explaining specific functionalities (e.g., alerts or mRDC) that are most relevant and valuable to the underserved may be particularly useful. For example, MFS could be added into existing financial education curricula. Also, the role of a "trusted party" (e.g., bank teller or community-based organization staff) might be particularly helpful when reaching out to unbanked consumers who might need more coaching on how MFS can be used most appropriately to meet specific financial needs.

- **Integrate MFS with other delivery channels and incorporate one-on-one interactions.** Underserved consumers may benefit from one-on-one interactions that provide coaching and guidance on how to properly use banking products. Personal banking relationships can also help consumers learn about mobile tools and deepen their relationship with the bank.

- **Thoughtfully fine-tune risk management strategies associated with features that meet the needs of the underserved.** Uncertainties about new potential risks may discourage banks from providing certain MFS features. As banks and regulators work to apply regulatory requirements in the mobile environment, the responsible use of data, with an eye to minimizing risk and maximizing accessibility of services to underserved consumers, should be part of the ongoing agenda.

- **Address infrastructure challenges to increase the convenience and speed of MFS.** Modernizing bank core processing systems as well as national payment systems would be costly but important steps toward fulfilling the potential of MFS to better meet the financial needs of underserved consumers.

- **Identify opportunities to enable more mobile functionalities.** In most cases, bank customers must be enrolled in their bank's *online* banking service before they can enroll in *mobile* banking. It is also often necessary to set up and manage certain mobile features online rather than through mobile channels. This can include creating payees for bill pay and enrolling in alerts. These requirements could be obstacles to MFS use for those who rely on a mobile phone to access the Internet.

- **Identify case studies demonstrating profitable implementation of MFS for economic inclusion.** Banks are often challenged by the relatively high costs of some methods of serving the underserved. Efforts to identify and study examples of successful implementation of products for the underserved could help create a more solid business case for MFS as an economic inclusion tool. In addition, financial regulators could evaluate incentives that could encourage banks to offer and demonstrate the benefits of offering specific MFS features that are relevant to underserved consumers.

- **Bridge mobile service delivery with traditional payment methods.** Many underbanked consumers must make certain payments (e.g., rent payments) using paper instruments such as checks or money orders, and some rely on cash exclusively for most or all of their payment needs. MFS is likely to be a more useful financial tool for the underserved if ways can be found to reconcile and meet the underserveds' needs for electronic transactions with their need for paper payments or cash.

These takeaways are intended to inspire action and discourse, and to serve as guideposts for those designing and deploying MFS as well as for economic inclusion advocates and government stakeholders. As banks implement MFS for their customers generally, they may benefit from considering the preferences of the underserved. In many instances, features that specifically benefit the underserved will also benefit a bank's other customers. Utilizing MFS as a tool of economic inclusion for the underserved does not necessarily require any unique products or services intended for that population alone. Rather, the needs of the underserved can be met as a part of an integrated approach that considers their needs alongside those of all customers. However, additional steps may be needed to connect some segments of the underserved population with mobile banking. Incorporating economic inclusion considerations into MFS features and driving consumer adoption is likely to often require the involvement of many stakeholders, including third-party vendors, community and consumer organizations, and financial regulators, among others.

INTRODUCTION

Mobile devices such as smartphones have the potential to change the way consumers interact with banks. Providing financial services through these devices constitutes a next step in a longer-term and broader trend toward electronic banking, following the widespread adoption of online banking. Mobile financial services (MFS) is not a product in itself, but rather a mode of accessing financial services. Although the rise in MFS usage confirms that many consumers value the features offered through this technology, it is unclear what the implications of MFS are for the millions of people who are unbanked or underbanked. Could this technology help draw them more comprehensively into the mainstream banking system and improve their financial stability? This white paper considers that question.

First, this paper describes the contours of the economic inclusion challenge presented by the unbanked and underbanked, from both the consumer and industry perspectives, and presents a framework for evaluating the economic inclusion potential of a financial product or service. Second, the paper considers the potential benefits of MFS to the underserved and identifies key statistics related to underserved adoption of the technology. Third, it evaluates the economic inclusion potential of MFS using the established framework. Finally, based on that evaluation, the paper discusses opportunities to leverage MFS as a tool for economic inclusion. Throughout this analysis, the paper also identifies research needs and policy questions that could help guide future economic inclusion work on MFS.

I. ECONOMIC INCLUSION CHALLENGE OF THE UNBANKED AND UNDERBANKED

Overcoming economic inclusion challenges is critical to expanding the number of individuals who meet their financial needs safely and securely within the mainstream banking system. Meeting these challenges helps the FDIC in its mandate to maintain public confidence in the nation's financial system, which is enhanced when more consumers gain access to the system; find that banks help meet their basic financial needs through relevant and safe products; and develop deeper banking relationships that enable them to meet financial goals.

The mainstream banking system affords consumers many important benefits. When consumers enter and build direct relationships with federally insured depository institutions, they receive consumer protections and wealth-building opportunities that nonbanks generally do not provide. Consumers in the banking system have a level of safety and security provided by deposit insurance and various federal consumer protections that are guaranteed by law, ensured by supervision, and enforced through ongoing examination. These include disclosures, requirements related to terms and conditions of product offerings, and protection from unfair or deceptive practices and discrimination. In addition, participation in mainstream financial markets improves a consumer's ability to access a range of financial products and services, develop wealth, build a credit history, and access credit products.

Nevertheless, many people do not experience these benefits because they are unbanked or underbanked.[10] Indeed, more than 8 percent of U.S. households do not have any relationship with the banking system.[11] About half of these households had a bank account in the past, implying that the banking relationship was not successfully sustained. In addition, many households—one in five—are underbanked, meaning they have a bank account but also meet some of their financial services needs outside of the mainstream banking system by using alternative financial services (AFS). Altogether, an estimated 68 million adults live in underserved households.

[10] In this paper, the unbanked and underbanked are collectively referred to as "the underserved."

[11] Unless otherwise noted, statistics related to unbanked and underbanked households are from the 2011 FDIC National Survey of Unbanked and Underbanked Households. Underbanked households own a bank account, but in the past year have used nonbank check cashers, nonbank money orders, nonbank remittances, payday lenders, pawn shops, refund anticipation loans, or rent-to-own agreements.

BOX 1

WHO ARE THE UNBANKED?

Unbanked households are those that do not have an account in a federally insured depository institution. Close to 10 million households (8.2 percent) are unbanked. Certain minority groups, such as blacks and Hispanics, are disproportionately overrepresented among unbanked households. Unbanked households tend to be younger, less educated, and have lower incomes than the U.S. population on average. Almost two out of five unbanked householders are under age 35, three out of four have a high school degree or less, and 82 percent earn less than $30,000 a year. Foreign-born consumers, particularly those that are not U.S. citizens, are also overrepresented among the unbanked (17 percent of the unbanked).

Over half of these households have never had a bank account (53.4 percent). Unbanked households conduct many of their transactions using alternative financial services (AFS) providers. Indeed, 64.9 percent used an AFS in the last 12 months and almost half (45 percent) used an AFS in the past 30 days. Transaction AFS, such as nonbank check cashing, remittances, and money orders, are more commonly used than credit AFS, including pawn shops and rent-to-own stores; 62.1 percent of unbanked households used transaction AFS in the past year, compared to 16.8 percent who used credit AFS. More than one-third of unbanked households have used two or more AFS products in the past 12 months.

Notably, 29 percent of unbanked households do not use any of the AFS products mentioned above, implying that they rely predominantly on cash transactions. Nearly 18 percent (17.8 percent) of unbanked households said they used a prepaid card in the past.

BOX 2

WHO ARE THE UNDERBANKED?

Underbanked households have an account with a federally insured depository institution but *also* use AFS to conduct transaction or credit services. Over 24 million households (20.1 percent) are underbanked. Almost all of these households have a checking account (93.9 percent), and more than two thirds (67.8 percent) have a savings account.

Similar to unbanked consumers, minorities such as blacks and Hispanics are overrepresented in this population. The educational attainment and income levels of underbanked consumers are generally higher than those of unbanked consumers, but lower than those of the fully banked. On average, these householders are older than the unbanked but younger than the fully banked.

By definition, all underbanked households have used an AFS in the last 12 months: 71.2 percent used nonbank money orders, 22.8 percent used check cashing, and 14.4 percent used nonbank remittances. Two-fifths of these households used an AFS in the last 30 days despite having a bank account.

Also, 17.4 percent of underbanked households have used prepaid cards in the past.

A. Framework for Evaluating Economic Inclusion

This paper frames economic inclusion through the lenses of access, sustainability, and growth. Challenges to economic inclusion require not only facilitating and encouraging access to bring unbanked consumers into the financial mainstream, but also engaging them appropriately with relevant and safe products that are sustainable for both consumers and banks. In addition, household financial stability may best be obtained when a full range of bank customers have substantive opportunities and the capability to grow their banking relationships in pursuit of their evolving financial goals. These challenges to achieving economic inclusion are summarized in Box 3, and this paper evaluates the potential of MFS to address each.

BOX 3

ECONOMIC INCLUSION FRAMEWORK AND EVALUATION QUESTIONS FOR ASSESSING THE ECONOMIC INCLUSION POTENTIAL OF FINANCIAL SERVICES OR PRODUCTS

a. ***Access*** *– Drawing consumers into the banking system.*
Does the service or product help unbanked consumers connect with banks? Does it make it easier, more convenient, or more appealing for unbanked consumers to open bank accounts? For instance, does it make the onboarding process easier or more efficient?

b. ***Sustainability*** *– Keeping consumers in the banking system.*
Does the service or product improve the sustainability of banking relationships with underbanked consumers? Does it facilitate underbanked access to safe, transparent, and affordable services that are feasible for financial institutions? Is account longevity improved? Are consumers' day-to-day financial needs met? Are consumers able to easily and conveniently manage their accounts?

c. ***Growth*** *– Fostering financial empowerment to deepen banking relationships and fulfill financial goals.*
Does the service or product create opportunities for consumer banking relationships to evolve? Are consumers able to graduate from basic, entry-level accounts to a wider variety of banking products that help them meet key financial goals or milestones (e.g., build wealth or obtain credit)? Can banks better manage consumer relationships?

Obstacles to access, sustainability, and growth exist from both the perspective of the banking industry and consumers. To assess how MFS can affect economic inclusion along these dimensions, it is important to understand why consumers do not engage, or only partially engage, in the financial mainstream and their preferences regarding service providers. It is also important to understand the challenges that financial institutions face when serving these consumers.

B. Challenges from the Underserved Consumer Perspective

Many households cycle in and out of the banking system. Having a bank account does not guarantee a sustainable relationship. For example, more than half of unbanked households in the United States were previously banked, and almost half of these households (48 percent) report being likely to open an account in the future.[12]

Many unbanked consumers do not access the banking system because of institutional constraints or because they affirmatively choose not to. The 2011 FDIC National Survey of Unbanked and Underbanked Households (FDIC household survey) finds that the largest share of unbanked households report not having an account primarily because they feel they lack sufficient funds (32.8 percent of unbanked households) or because they "do not need or want an account" (26 percent). Fewer than 10 percent of unbanked individuals report identification requirements, credit issues, or banking history issues as a primary obstacle to opening an account, although this was more of a concern among Hispanic households (15 percent).

[12] Federal Deposit Insurance Corporation, "2011 FDIC National Survey of Unbanked and Underbanked Households," September 2011.

Other studies suggest that the method by which consumers earn their income or make payments also influences their banking status. A Pew Charitable Trust study (2011) of low-income Los Angeles residents found a strong correlation between bank account ownership and noncash payments (e.g., direct deposit or check) from employers. [13] Barr (2008) found that "only 38 percent of unbanked renters stated that their landlords would accept personal checks for payment of rent, while nearly two-thirds of banked renters stated that their landlords would accept personal checks."[14]

The 2011 FDIC household survey found that less than 2 percent of unbanked households cite inconvenient hours and locations as the main reasons they do not have an account. However, other studies that ask consumers about important considerations in deciding whether or where to open an account or conduct financial transactions find convenience to be an important consideration. For example, according to the Pew study of low-income Los Angeles residents, geographic proximity to home or work was the main reason for selecting a financial service provider (bank or nonbank).[15] The study states that "The vast majority (85 percent) of unbanked AFS users will patronize a provider because it is nearby." Similarly, a Detroit metro area survey (Blank and Barr 2009) asked unbanked consumers which bank account features would make them most likely to open an account. The authors reported that "for 29 percent of the sample, lower fees were perceived as the primary facilitator to opening an account, while 20 percent considered more convenient bank hours and locations as being the most important reason why they might open an account."[16]

The importance of convenient hours and location, as well as price, are also evident when examining the use of nonbank transaction services among both unbanked and underbanked consumers. The FDIC (2011) reports that underserved consumers cite convenience, speed, and price as the main reasons they use nonbank transaction services. For banked consumers that use AFS, the Pew study further reports that hours of operation affect the choice of financial service provider, as 40 percent of these respondents were "very likely" to switch to a financial institution that was open in the evenings or on Sundays. This demonstrates the importance of convenience to both attract and sustain financial relationships with underserved consumers.

Other reports highlight the importance of transparency and predictability of financial services to the underserved. Clear communication of fees and terms, including processing timeframes and confirmation that a transaction has been successfully processed, are valuable to underserved consumers. In its study of low-income families in Los Angeles, the Pew Charitable Trust found that many banked families that use AFS "continue to use check cashers and other nonbank financial services because of concerns over transparency and liquidity."[17] Transparency and predictability of services and fees are important to all consumers but even more so for underserved consumers who often cannot afford unexpected financial transaction delays or fees. A payment or deposit that is not completed timely or successfully could result in a serious penalty, such as phone or electrical service being shut off.

[13] Pew Charitable Trust, "Unbanked by Choice: A look at how low-income Los Angeles households manage the money they can," July 20, 2010.
[14] Michael Barr, "Financial Services, Saving and Borrowing Among Low- and Moderate-Income Households: Evidence from the Detroit Area Household Financial Services Survey," March 2008.
[15] Pew Charitable Trust, July 2010.
[16] Rebecca Blank and Michael Barr, "Insufficient Funds: Savings, Assets, Credit and Banking Among Low-Income Households," March 2009.
[17] Pew Health Group, "Slipping Behind- Low-Income Los Angeles Households Drift Further from the Financial Mainstream," October 2011.

In some cases, underserved consumers that have credit needs rely on alternatives such as payday lenders or pawn shop loans. The main reason these consumers report using credit AFS instead of a bank loan is that it is "easier or faster to qualify" for an AFS loan or because they perceive that "banks do not make small dollar loans" (FDIC 2011). Having a banking relationship could help some of these consumers learn about available credit alternatives or build credit histories to qualify for a loan.

C. Challenges from the Financial Institution Perspective

From the perspective of financial institutions, a number of challenges may impede their ability to serve underserved consumers. According to the 2011 FDIC Survey of Banks' Efforts to Serve the Unbanked and Underbanked, financial institutions view the regulatory environment, fraud, consumers' lack of understanding about financial products and services, underwriting concerns, and lack of profitability as major obstacles to serving unbanked and underbanked consumers (see appendix table 4).[18]

More than one-third of banks cited the regulatory environment as a major obstacle to serving underserved consumers. Among these institutions, 40 percent cited "customer identification-related requirements", while 35 percent mentioned "Bank Secrecy Act (BSA)/Anti-Money Laundering" requirements and "Fair Lending/Compliance" risk. About 30 percent of institutions cited fraud concerns, lack of understanding of financial products and services on the part of underserved consumers, and difficulties with underwriting for unbanked and underbanked populations. One in five institutions mentioned profitability as a major obstacle.

Some policies banks have implemented to mitigate risk can also impede their ability to meet the financial needs of underserved consumers, particularly the unbanked. For example, credit checks that are part of the account opening process may disqualify consumers with negative credit histories—or limited or no credit histories ("thin files")—from opening an account. Also, holding funds from deposited checks for a period of time before clearing to mitigate fraud risk can result in challenges for consumers who need more immediate access to funds. Profitability concerns can also deter financial institutions from marketing to underserved populations, offering accounts with certain features attractive to the underserved (e.g., low cost, low balance requirements), or engaging in more resource-intensive account opening processes for consumers who lack traditional forms of identification (ID) or credit scores.

As previously mentioned, underserved consumers commonly cycle in and out of the banking system. Retaining and deepening banking relationships with these consumers is a challenge for many financial institutions. However, further engaging consumers with appropriate banking products can be difficult. Effective product marketing is also reported as a common challenge. Lack of awareness can lead to low take-up rates and the institution's inability to maintain the product offering. In addition to not knowing about available products, financial institutions also reported that underserved consumers lack a full understanding of products and services, which is commonly a major obstacle to serving them.

These findings are consistent with prior FDIC studies in which banks participated in pilot programs to offer low-cost accounts. Banks in the FDIC's Safe Accounts Pilot, for example, noted challenges with traditional marketing and outreach strategies, in part because of resource constraints. In addition, some banks found it difficult to reach the intended population without being so broad as to lower overall applicant quality. The pilot banks noted that using front-line staff, tellers, or customer service agents to provide information and education about the accounts was a more effective strategy.[19] These findings suggest that increasing the financial education of underserved

[18] Federal Deposit Insurance Corporation, December 2012.
[19] Federal Deposit Insurance Corporation, "Model Safe Accounts Pilot - Final Report," April 2012.

consumers, as well as increasing their awareness of available banking product options, are important steps to growing the financial health of these consumers.

II. MFS: A WAY TO MEET THE CHALLENGE?

The development of new products, services, and technologies sometimes presents an opportunity to meet economic inclusion challenges in new or more effective ways. One such emerging technology is MFS. Broadly defined, MFS is a set of technologies enabling consumers to access and use financial services from virtually any location using communication-enabled mobile devices such as mobile phones, smartphones, and tablets that have the capacity to access the Internet, send and receive text messages, and run programs or apps specifically developed for the device size and format. As stated earlier, MFS is not a product itself but a means for accessing financial services. These services can include basic transactions such as monitoring account balances, as well as more advanced services such as depositing checks, receiving text or push alerts, and making payments.

In practice, MFS can refer to both bank-provided and nonbank-provided financial services, such as mobile wallets and other mobile payments services, and third-party mobile financial management apps. For purposes of this paper, however, the focus is generally on bank-provided MFS, of which the most common form is mobile banking. While the provision and use of nonbank MFS is an important trend that merits continued study and monitoring, the FDIC's primary interest as insurer of the nation's deposits in insured depository institutions is to understand the opportunities for maximum inclusion in the mainstream banking system, as the inclusiveness of that system is a core element underlying public confidence in it.

The availability of MFS among financial institutions is growing rapidly, and for some financial institutions, it has become one the fastest-growing channels. As of 2013, all of the 26 largest institutions offer key MFS features, such as the ability to view recent transactions, check balances, use bill pay, and transfer funds between accounts intra-bank. Banks are also increasingly offering more advanced features, such as mobile remote deposit capture (77 percent in 2013 vs. 48 percent in 2012), personal financial management (31 percent in 2013 vs. 24 percent in 2012), near-real-time alerts (69 percent in 2013 vs. 44 percent in 2012), and two-way alerts (19 percent in 2013 vs. 8 percent in 2012).[20]

As more financial institutions implement MFS, consumers are also increasingly turning to that channel to conduct their banking. Federal Reserve surveys indicate that in 2013 nearly 33 percent of mobile phone users reported using mobile banking in the past 12 months, up from 28 percent the prior year. Among smartphone owners, 51 percent reported using mobile banking in the past 12 months, compared to 48 percent of smartphone owners in 2012.[21]

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[20] Javelin Strategy & Research, "2012 Mobile Banking Financial Institution Scorecard," November 2012, and "2013 Mobile Banking Financial Institution Scorecard," November 2013. In these reports, Javelin Strategy examined mobile banking offerings of the largest 26 financial institutions ranked by deposit size, limited to institutions that are primarily retail-banking-focused. One-way alerts provide information, but require the customer to log in to the mobile banking app or browser if they wish to take action. Two-way alerts allow customers to take more immediate action (i.e., make transactions or financial decisions) by simply responding to the alert.

[21] Federal Reserve Board, "Consumers and Mobile Financial Services 2014," March 2014. The FDIC began collecting data on mobile financial services in the 2013 FDIC National Survey of Unbanked and Underbanked Households.

A. Potential Benefits of MFS for the Underserved: Anyplace, Anytime, Actionable

MFS can provide the ability to conduct banking transactions or make financial decisions anyplace and anytime. These MFS functionalities could help address some of the factors that have prompted underserved consumers to leave the banking system altogether or seek financial services outside the banking system.

MFS has several strengths relative to other modes of accessing financial services (e.g., in a branch, at an automated teller machine (ATM), or through a personal computer) that can potentially increase convenience and help improve the way consumers interact with banks. First, MFS allows consumers to access account information from virtually any location. Second, consumers can do so at any hour of the day. And third, MFS provides consumers the ability to act on this information conveniently to conduct timely financial transactions that can help them avoid problems such as overdrafts, fraud, and late fees. While many of these features are standard components of online phone-based banking, MFS technology also often incorporates features that are distinct from those available through other channels. For example, smartphone cameras provide the potential to deposit a check remotely through mobile remote deposit capture (mRDC), and location-based services can show consumers, using a map on their smartphone, where nearby ATMs or branches are located.

Although these functionalities may appeal broadly to any type of consumer, they could particularly affect the underserved because they may address some of the factors that have prompted those consumers to look outside of the banking system for financial services. Survey results have shown that the underserved most often turn to nonbank financial providers for transaction services because they view those providers as more convenient than banks. MFS presents an opportunity for banks to provide desired services more conveniently. Depositing a check using mRDC, for instance, can be conducted through a mobile device at virtually any time or location. Further, for underserved consumers without home Internet access, MFS may be the only way they can access electronic banking. According to a 2013 Pew study, 45 percent of adults with incomes below $30,000 use mostly their phone to access the Internet compared to about a third (34 percent) of all adults.[22] For such consumers, online banking might not be a convenient option. In fact, the 2013 FDIC household survey reveals that, relative to fully banked households, the underbanked are less likely to use online banking as their main method to access their account (26 percent vs 35 percent) and more likely to use mobile banking (9.4 percent) than the fully banked (4.7 percent).[23]

B. Adoption of Mobile Phones and MFS

One element that supports the promise of MFS as an economic inclusion tool is the widespread adoption of mobile phones and MFS activity among underserved populations, particularly the underbanked. Relative to other consumers, including fully banked households, large proportions of the underbanked use mobile banking. For unbanked consumers, access to mobile phones is also common; while access to smartphones is limited, it is likely to increase over time.[24]

[22] Pew Research Center, "Cell Internet Use 2013," September 16, 2013.The study reported that 63% of adult mobile phone owners used the internet on their phone. The estimate is 55 percent for those with income below $30,000.
[23] Federal Deposit Insurance Corporation, "2013 National Survey of Unbanked and Underbanked Households," Forthcoming in October 2014. Results exclude banked households that did not access their account in the past 12 months.
[24] Federal Reserve Board, March 2014. Mobile banking and mobile payment estimates refer to use within the last 12 months.

The potential benefits of MFS can be realized only if underserved consumers have access to the necessary technology. Mobile phone adoption is widespread among U.S. households overall, with 83 percent owning a mobile phone as of June 2013.[25] Over half (56 percent) of mobile phone users have smartphones.[26] Not surprisingly, data suggest that smartphone ownership is an important driver in the adoption of MFS. While some MFS functions, such as SMS text banking, can be completed using any kind of mobile phone, more advanced features, such as mRDC and push alerts via mobile apps, require smartphones. Mobile banking usage among banked smartphone owners (36 percent) is considerably higher than among the broader group of banked mobile phone users (25 percent)[27] (see Table 1). Even among consumers who currently do not use mobile banking, those who own a smartphone report being "more likely to adopt mobile banking [in the next 12 months] than non-smartphone users."[28] Among the consumers who indicated in 2012 that that they would "definitely" or "probably" adopt mobile banking in the next 12 months, 37 percent ultimately did adopt mobile banking in 2013. Further, of the respondents who in 2012 indicated that they "probably will not" and "definitely will not" use mobile banking in the next 12 months, 19 percent and 5 percent, respectively, used mobile banking in 2013.[29]

The underbanked own mobile phones and use MFS at relatively high rates. The 2013 FDIC Survey of Unbanked and Underbanked Households finds that 90 percent of underbanked householders own a mobile phone, of which 71 percent are smartphones.[30] The survey also highlights the fact that underbanked mobile phone users use mobile banking at higher rates than the fully banked; 31 percent versus 24 percent of these populations, respectively, have used mobile banking.[31]

However, unbanked households' access to mobile phones is more limited, and they use MFS at lower rates compared to the underbanked. About 68 percent of unbanked households have access to mobile phones, 49 percent of which are smartphones.[32] Evidence also exists, however, that smartphone adoption among unbanked mobile users is consistently rising over time.[33] In general, the unbanked are much less likely to use MFS than households with a bank account. The Federal Reserve reported that in 2011, relatively small portions of the unbanked population had experience with mobile banking (10 percent) and mobile payments (12 percent) in the 12 months prior to the survey.[34]

Smartphone and MFS adoption rates are higher among younger, minority, or higher-income households. This pattern could help explain why MFS adoption rates are particularly high among underbanked consumers but low among the unbanked. As previously mentioned, although unbanked consumers tend to be younger or minorities, they have lower incomes, on average, relative to the underbanked.

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[25] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[26] Ibid.
[27] Ibid.
[28] Federal Reserve Board, "Consumers and Mobile Financial Services 2013," March 2013.
[29] Federal Reserve Board, March 2014.
[30] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[31] Ibid. Mobile banking and mobile payment estimates refer to use within the last 12 months.
[32] Ibid.
[33] Federal Reserve Board, March 2014. Based on Federal Reserve Consumer and Mobile Financial Services surveys, mobile phone access among unbanked adults increased from 59 percent in November 2012 to 69 percent in December 2013, while smartphone ownership among mobile phone owners remained constant at approximately half over the same time period.
[34] Federal Reserve Board, "Consumers and Mobile Financial Services 2012," March 2012. The estimate of mobile banking use among the unbanked may reflect usage by households that were previously banked or mobile banking linked to prepaid cards.

TABLE 1

2013 Access to Mobile Phones and Smartphones, and Use of Mobile Banking for Select Demographic Groups (Percent of Households)

DEMOGRAPHIC GROUP	ACCESS TO MOBILE PHONES	ACCESS TO SMARTPHONES		USE OF MOBILE BANKING IN THE LAST 12 MONTHS BY BANKED HOUSEHOLDS	
	Among all households	Among all households	Among mobile phone users	Among mobile phone users	Among smartphone users
All Households	82.6	55.6	67.2	25.4	35.6
BANKING STATUS					
Unbanked	68.1	33.1	48.6	NA	NA
Underbanked	90.4	64.3	71.1	31.0	41.8
Fully Banked	86.8	58.9	67.8	23.9	33.9
RACE OR ETHNICITY					
Black	79.1	52.3	66.2	25.1	34.3
Hispanic	79.9	55.5	69.5	26.8	35.7
Non-Hispanic Whites	83.6	55.5	66.4	24.8	35.6
Other	85.0	63.5	74.7	29.7	37.3
NATIVITY					
Native-born	83.1	55.5	66.8	25.4	35.9
Foreign-born citizens	80.8	57.4	71.0	23.9	32.3
Foreign-born non citizens	79.2	54.3	68.5	26.7	34.7
AGE					
Age 24 or younger	88.8	76.0	85.5	46.0	49.7
Age 25-34	89.8	76.3	85.0	44.4	49.1
Age 35-44	89.0	72.0	80.9	35.0	40.6
Age 45-54	86.6	62.8	72.6	24.0	31.1
Age 55-64	83.5	48.7	58.3	15.1	23.7
Age 65 or older	67.3	23.2	34.5	6.2	15.6
EDUCATIONAL ATTAINMENT					
Less than high school	67.0	30.0	44.8	10.7	21.9
High school	78.2	44.2	56.5	16.9	28.0
Some college	85.3	59.2	69.4	26.9	36.6
Bachelors degree	89.4	70.8	79.1	32.7	40.1
INCOME					
Less than $15,000	69.2	31.2	45.1	14.3	27.6
Between $15K and $30K	74.4	37.9	50.9	17.1	31.7
Between $30K and $50K	82.2	50.9	61.9	22.0	33.8
Between $50K and $75K	88.3	63.2	71.6	26.1	34.6
$75,000 or more	91.6	77.7	84.9	33.9	39.1

Notes:

Households are identified as unbanked if they answered "no" to the question, "Do you or does anyone in your household currently have a checking or savings account?"

Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

The demographic characteristics of a household, such as race, age, and education are taken to be those of the owner or renter of the home (i.e., "householder"), unless the characteristic is one defined at the household level, such as income.

Differences within groups may or may not be statistically significant.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

BOX 4

HOUSEHOLDS' USE OF MOBILE BANKING AND OTHER BANKING CHANNELS

TABLE 2

Banking Methods Used in the Last 12 Months (Percent Of Households)

BANKING CHANNEL	UNDERBANKED HOUSEHOLDS			FULLY BANKED HOUSEHOLDS		
	Used this channel	Used this channel as their most common banking method	Share of users that use it as their most common banking method	Used this channel	Used this channel as their most common banking method	Share of users that use it as their most common banking method
Bank Teller	79.3	29.2	36.8	78.8	33.1	41.9
ATM/Kiosk	76.3	29.6	38.8	67.9	23.0	33.8
Telephone Banking	32.7	4.6	14.1	24.3	3.0	12.2
Online Banking	52.4	26.4	50.4	56.1	35.0	62.3
Mobile Banking	29.0	9.4	32.4	21.6	4.7	21.5
Other	0.7	0.5	68.1	1.1	0.8	76.1
Unknown	NA	0.4	NA	NA	0.5	NA

Notes:
Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

Differences were not tested for statistical significance.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

Data from the 2013 FDIC National Survey of Unbanked and Underbanked Households suggest that underbanked households are heavier mobile banking users than fully banked households. Specifically, the survey results show that a higher proportion of underbanked households have accessed their account via mobile banking compared to fully banked households, and that a higher proportion of underbanked households use mobile banking as their most common banking channel, compared to fully banked households.

Among households that have accessed their bank account in the past 12 months, 29.0 percent of underbanked households have accessed their account via mobile banking, compared to 21.6 percent of fully banked households. Also, among those households that have used mobile banking to access their bank account, nearly one-third (32.4 percent) of underbanked households identified mobile banking as their most commonly used banking channel, compared to 21.5 percent of fully banked households. Overall, 9.4 percent of all underbanked households and 4.7 percent of all fully banked households use mobile banking as their primary banking method.

BOX 4

HOUSEHOLDS' USE OF MOBILE BANKING AND OTHER BANKING CHANNELS, continued

TABLE 3

Banking Methods Used by Mobile Bankers in the Last 12 Months (Percent Of Households)

	UNDERBANKED HOUSEHOLDS		FULLY BANKED HOUSEHOLDS	
BANKING CHANNEL	Used this channel	Used this channel as their most common banking method	Used this channel	Used this channel as their most common banking method
Bank Teller	82.8	7.7	80.8	7.4
ATM/Kiosk	93.0	18.4	91.0	14.2
Telephone Banking	51.7	3.1	45.1	2.0
Online Banking	87.9	37.9	92.0	54.2
Mobile Banking	100.0	32.4	100.0	21.5
Other	0.3	0.0	0.5	0.1
Unknown	NA	0.6	NA	1.6

Notes:
Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

Differences were not tested for statistical significance.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

Many mobile bankers also access their accounts through different channels. A large majority of households, both underbanked and fully banked, that used mobile banking in the past 12 months also accessed their account through bank tellers, ATM/kiosks, and/or online banking. However, the primary bank method used by underbanked and fully banked mobile bankers differed. Underbanked consumers were more likely than the fully banked to use mobile banking as the primary method for accessing their bank account, while the fully banked were more likely to use online banking primarily.

These data suggest that consumers are using mobile banking to complement other banking channels instead of using it as a replacement for other banking methods, implying that for many consumers mobile may not yet function as a standalone banking product. Underbanked households that want or need to use mobile banking as their primary banking method could benefit as mobile banking offerings evolve and incorporate even more features and functionalities.

III. EVALUATING THE ECONOMIC INCLUSION POTENTIAL OF MFS CONSIDERING ACCESS, SUSTAINABILITY, AND GROWTH

The central purpose of this paper is to understand the economic inclusion potential of MFS. This section evaluates MFS against our established framework of access, sustainability, and growth. Through that lens, we assess the potential of MFS to facilitate the entrance of unbanked consumers into the banking system (access), support sustainable banking relationships between unbanked and underbanked consumers and banks (sustainability), and create opportunities to deepen those relationships by increasing financial capability and more fully integrating the underserved into the banking system (growth). We also consider some of the challenges that may exist to implementing MFS in ways that facilitate economic inclusion and opportunities for overcoming those challenges.

A. Access – Drawing Unbanked Consumers into the Banking System

Although smartphone penetration is limited among unbanked consumers, certain segments of this population are familiar with mobile technologies and report being open to using mobile banking. However, mobile functionalities that could facilitate account opening are still not widely available, in part due to technical and regulatory compliance hurdles. Even when smartphone penetration increases and more relevant mobile functionalities become available, MFS alone is unlikely to address the underlying reasons why consumers do not have bank accounts. Thus, it is likely that MFS will be a more effective tool for bringing unbanked consumers into the banking system if used as part of a more comprehensive outreach strategy that addresses a broader set of unbanked issues and concerns, and also includes a "trusted party" that introduces consumers to MFS. Collaborations with community groups could be one useful approach.

A.1. Unbanked Demand for Joining the Banking System

In examining whether unbanked households are likely to find MFS appealing and a motivation for joining the banking system, it is helpful to examine whether these consumers would be comfortable using MFS and, if so, whether this technology can help address the reasons they do not have a banking relationship.

Survey data indicate that segments of unbanked households appear to be comfortable with MFS technology and open to using MFS. For example, even though the use of smartphones among unbanked households is substantially lower than for banked consumers, it is still sizable at 33 percent.[35] Even though relatively small proportions of these consumers have had experience with MFS (10 percent had used mobile banking and 12 percent had used mobile payments),[36] a much larger share reported being likely to use it in the future. Specifically, Federal Reserve data suggest unbanked consumers might be more open to adopting mobile banking than fully banked consumers. About one in five (19 percent) unbanked households with mobile phones reported being likely to use mobile banking in the next 12 months compared to 9 percent of fully banked households.[37]

As access to smartphones becomes more prevalent, it is likely that more unbanked consumers will become familiar with mobile technology. However, increased familiarity with mobile technology in general does not necessarily imply increased comfort with conducting financial transactions using mobile. A number of obstacles prevent unbanked households with mobile phones from conducting banking or payments using their phones. Not surprisingly, the number one reason why unbanked mobile phone users report not using mobile banking is simply because they do not have a bank account (50.4 percent). The other top reasons are security concerns (25.2 percent) and a lack of trust in the technology (20.7 percent). Security is also a main reason why unbanked mobile phone users choose not to use mobile *payments* specifically, cited by 36.2 percent of unbanked mobile users. Lack of trust in the technology (31 percent) and not having the necessary features on the phone (29.4 percent) were the next most common reasons why unbanked mobile users do not use mobile payments.

[35] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[36] Federal Reserve Board, March 2012. Ten percent of the unbanked use mobile banking, and 12 percent use mobile payments. Mobile banking estimates may reflect usage by households that were previously banked, or mobile banking linked to prepaid cards.
[37] Ibid.

Despite concerns about security and technology, other findings imply that the unbanked may be particularly open to using mobile technology to perform financial transactions. The Federal Reserve's 2012 mobile financial services report shows that the "unbanked were the least likely to indicate that they did not see any benefit from using mobile payments, with 15 percent citing this as a reason they do not use mobile payments, relative to 30 percent of the underbanked and 40 percent of the fully banked." This may indicate that the unbanked, even more than other groups, see value in the mobile delivery channel.

Although some of the technological obstacles preventing unbanked consumers from using MFS (e.g., not having the necessary functionalities on the phone) are likely to subside over time, other fundamental obstacles that prevent the unbanked from having an account are not directly affected by MFS. MFS is unlikely to address the top reasons consumers cite for not having a bank account, such as that they "do not have enough money to put in an account" (32.7 percent of unbanked households). In addition, it is unclear how MFS could affect unbanked households who report not needing or desiring an account (21 percent).[38] Other issues such as ID, credit, or banking history problems are also likely to continue to be obstacles. MFS could make banking more appealing for households whose primary reason for not having an account is inconvenient bank hours or location; however, current data show that this segment represents a small percentage of the unbanked population.

Demand by the unbanked for mobile banking also depends on the type of functionalities that are available and the ability of the financial products to meet the needs of the unbanked. For example, 22.8 percent of unbanked households used nonbank check cashing in the past year. For these consumers, having the ability to access deposited funds immediately is likely to be a priority. On the other hand, close to one-third (29 percent) of unbanked households do not use AFS and are likely to rely on cash transactions. It is not clear that unbanked consumers would be well-served by the array of MFS features currently available, so more research is needed to evaluate how these consumers would perceive the usefulness of MFS.

A.2. Account Opening

Another approach to expanding access to banking services for unbanked consumers is by leveraging mobile technology to improve or ease the account opening process. Opening an account with a mobile phone could be particularly helpful for those consumers whose only access to the Internet is through a smartphone. According to the 2011 FDIC Household survey, 81 percent of unbanked households earn less than $30,000 in annual income. Pew estimates that a substantial proportion of consumers in this income bracket (45 percent) who use their mobile phone to access the Internet do so as their primary way of accessing the Internet.[39] The use of mobile technology in account opening is still in the early stages of development and is not widely available at this time, although some banks have implemented this capability or are considering doing so. According to a Javelin survey, just 3 percent of surveyed consumers applied for a checking account with a mobile device in 2012.[40] Some banks that have deployed mobile account opening or are seriously considering it recognize that many consumers use their phone as their primary device to access the Internet.

[38] Federal Deposit Insurance Corporation, December 2012.
[39] Pew Research Center, September 16, 2013.
[40] Javelin Strategy & Research, "How to Upgrade Online and Mobile Account Opening for an Omnichannel Era," September 2013.

Mobile account opening has the potential to ease the onboarding process for some unbanked consumers; however, a number of issues make its rapid deployment unlikely in the near term. For example, some banks have reported lower consumer demand for mobile account opening relative to other competing mobile services or functionalities, making investing in this functionality less of a priority (although some have also reported strong consumer demand for mobile account opening). Banks may identify services such as mRDC or person-to-person transfers (P2P) as more desired by their customers. In addition, many banks are still fine-tuning previously deployed account opening methods, such as online account opening, which are more widely desired by consumers. Nevertheless, survey data suggest that 10 percent of consumers chose mobile over both online and in-branch options as the most convenient means for applying for a checking account.[41]

Also, technical challenges can make mobile account opening difficult or costly for some banks. Industry reports, as well as conversations with bank officials, suggest that mobile account opening is possible and is in fact already offered by a handful of banks and nonbank providers. However, technical difficulties can arise from the fact that many of the core processing systems in use by banks today provide little flexibility to easily link with other bank applications to facilitate account opening.

It is often observed that nonbanks are able to offer mobile functionalities that are not commonly offered by banks, such as opening an account with a mobile device. This may be, at least in part, because nonbank financial providers operate in more specialized areas of business, so they are less likely to have interoperability issues with legacy systems and therefore may be more flexible and nimble in deploying technology. Some banks are trying to harmonize their systems, so that their mobile platform and the core systems are one and the same.

Another challenge is optimizing the mobile browsing experience for account opening. Many banks already offer *online* account opening, and thus consumers may be able to open accounts by accessing these sites on their mobile Web browser. However, the experience is likely to be cumbersome and could prevent consumers from completing an application if the Web site is not adapted to the mobile channel. And even when mobile Web sites are so optimized, it may be difficult to create a user-friendly browsing experience that can persuade consumers to enter the required personal information through the small screen of a mobile device.

Mobile account opening for the unbanked also presents real or perceived regulatory compliance issues. For example, displaying account opening disclosures can be challenging on a small screen. Banks considering mobile account opening, or any mobile enrollment process, are challenged with creating a user-friendly experience while providing appropriate disclosures and collecting personal information to identify applicants. However, mobile technology may also create new ways to meet those requirements through innovative tools. For instance, image capture technology has made strides in conveniently capturing ID information and could be helpful in this area.

Compliance with Bank Secrecy Act (BSA) requirements, including Customer Identification Program (CIP) account opening requirements, could present challenges when opening accounts with a mobile device. Collecting and verifying CIP information and conducting customer due diligence may be more challenging when the applicant is unbanked, particularly if the applicant lacks an electronic footprint such as a credit history that a bank could draw upon to verify identity. For mobile account opening to reach such individuals, alternative ways of verifying identity through

[41] Javelin Strategy & Research, September 2013.

documentary and nondocumentary methods may need to be considered, such as through rent or phone authentication services or by using a phone's camera to capture alternative identifications such as matricula consular or individual taxpayer identification number (ITIN) documentation. Banks must also have appropriate policies, procedures, and processes in place to monitor, identify, and report suspicious activity. Banks may want to consider incorporating the unique features of mobile devices, such as the ability to determine a phone user's location, in their suspicious activity monitoring systems.

Once technical, regulatory, and security challenges are addressed, mobile account opening could serve as a more effective banking access tool. Mobile account opening capabilities are likely to be a more effective economic inclusion tool when used as part of outreach strategies in which a trusted and knowledgeable live intermediary (e.g., bank tellers or community-based organization staff) walks unbanked consumers through the mobile account application process. Unbanked consumers, especially those who do not trust banks or are uncomfortable providing personal information, may not feel comfortable inputting information into a mobile device. Also, less tech-savvy unbanked consumers may find it difficult to use a mobile phone to navigate through the account opening experience on their own. Mobile account opening at volunteer tax preparation (VITA) sites could be an opportunity to attract unbanked consumers and expose them to mobile banking functionalities, including those that would make it easy to direct some or all of a tax refund into a savings account.

Assisting unbanked consumers with mobile account opening could also be an opportunity to demonstrate how to use a bank's MFS product. For example, one bank showed new customers how to use mobile bill pay by making a small donation to charity from the customers' account. The bank reports that the strategy has led to increased mobile adoption. This personal coaching may be vital to the adoption and use of any mobile account opening platform among underserved consumers, particularly the unbanked. Another bank created a series of YouTube videos demonstrating how to use specific MFS features, and another hosts online discussions on Facebook between customers and product mangers to answer customer questions and provide product managers with feedback.

B. Sustainability – Keeping Consumers in the Banking System

Current features of MFS suggest it is particularly well-suited to increase the sustainability of banking relationships and could improve economic inclusion for the underbanked and those at risk of becoming unbanked. However, some features require further adaptation to more directly benefit these consumers. Also, while features are already available that could benefit the underserved, it is unclear how widely underserved consumers are taking advantage of them.

Survey results demonstrate that having a bank account does not guarantee a sustainable banking relationship, suggesting that exiting the banking system is an important concern. The use of financial services outside of the banking system also suggests opportunities to better engage current customers. This section considers the ability of MFS to retain underserved consumers in the banking system by better meeting day-to-day financial needs. Sustainability refers to both the continuity and comprehensiveness of a consumer's relationship with a bank, as well as the bank's ability to feasibly serve the underserved through the mobile delivery channel.

B.1. Safe Underlying Accounts

It is important that accounts for underserved consumers be safe, transparent, and affordable; MFS could help make such accounts even safer and more transparent.

As previously mentioned, underserved consumers are likely to place a high value on transparency and the predictability of fees and services. Therefore, regardless of the delivery channel used, sustainable banking relationships will depend on whether the financial products and services are safe, transparent, and affordable. For MFS to broaden economic inclusion and facilitate sustainable banking relationships with underserved consumers, it is vital that the underlying accounts and services be safe and appropriate for those consumers. Offering affordable accounts with transparent fees and consumer protections afforded by the law is an important part of establishing more sustainable banking relationships. Accounts such as those in the FDIC's Model Safe Accounts Pilot are one example.[42]

Further, MFS technology might present opportunities to make accounts even safer and more transparent. Some of the MFS features and functionalities discussed below could provide opportunities to make disclosures more interactive, make fees more transparent, and help consumers avoid fees or prevent fraud (such as through use of alerts).

B.2. Account Management

MFS could contribute to more sustainable banking relationships by making it easy for consumers to be more aware of the funds available for them to use. This could be accomplished by directly accessing account information or receiving alerts and notifications of specific transactions as they occur. More informed account management could help consumers avoid fees, make timely payments, and prevent fraud. However, adoption of alerts is relatively low among all consumers, and enrollment and management of alerts can be challenging for those who do not use online banking. In addition, real-time information is not often available due to technical challenges. The industry is moving toward updating the systems involved in payments to promote access to more timely information.

Many underserved consumers live paycheck to paycheck, with a relatively thin cushion of funds in their bank accounts. For these consumers, access to accurate account information, including the availability of funds, is critical. An account management tool that raises financial awareness and informs the financial decision-making process may be one of the most effective features of mobile technology for the underserved. MFS could provide consumers with actionable information to facilitate account management in two key ways: (1) monitoring account balance and transaction history and (2) receiving alerts. For both of these features, consumers benefit from the "anytime and anyplace" nature of their smartphone. Before making a purchase, for instance, consumers could check their account to ensure they have adequate funds or receive an alert notifying them of a low balance.

a. Account Management: Account Balance and Transaction History

Providing underbanked consumers, as well as those at risk of becoming unbanked, with a convenient, fast, and free way to check their account balance and transaction history could help them better manage their money and strengthen their trust in the banking system. These features are widely offered among MFS products and are the most frequently used mobile features among all mobile bankers, including the underserved. As

[42] For more information about the FDIC's Model Safe Accounts Pilot, please visit http://www.fdic.gov/consumers/template/.

of June 2013, approximately 89 percent of underbanked mobile bankers and 86 percent of those fully banked had used mobile banking to check their account balance or recent transactions in the past 12 months.[43] This feature can help consumers avoid fees and other charges, and it is particularly valuable to those with low balance accounts that may need more frequent monitoring. In addition, consumers can view transaction histories quickly and easily, which can help them monitor spending and guard against fraud.

Consumers without smartphones can use "text banking," which allows them to use a mobile phone to send short text messages (SMS messages) to request account information. The functionalities of text banking are more limited than those available through the Web or through an app on a smartphone, but it can still meet a number of basic account needs. Using text banking, a consumer can view recent transactions, check balances, and transfer funds. In fact, some studies estimate that 27 percent of mobile bankers choose SMS text messaging to conduct mobile banking. Because SMS messaging is a feature unique to mobile phones, enrollment in text banking through a mobile device is more widely available than enrollment in mobile banking through a mobile device (15 percent vs. 4 percent).[44] According to a Javelin study, 77 percent of the 26 largest banks offered SMS text banking in 2013.[45] However, as smartphone ownership continues to grow at the expense of standard feature mobile phones and consumers become more comfortable downloading mobile apps, banks are shifting away from the SMS text banking channel. Indeed, at least one large institution dropped text banking support in 2013.[46]

b. Account Management: Alerts

Alerts offer an additional way to help consumers monitor an account and avoid fees and other charges. For example, some alerts let consumers know when a remotely deposited check has cleared and that those funds are available for withdrawal. This feature could be particularly beneficial to consumers whose ability to meet financial obligations is closely tied to the availability of their funds. Alerts are generally available for a variety of purposes, and consumers can commonly sign up for them through online banking. Alerts can be delivered in the form of text messages, push alerts, or email; one advantage of smartphones is the ability to access all three types of communications on a single device.

Although alerts are one of the most widely available mobile banking features, their use is not widespread. According to the 2013 FDIC Household Survey, less than half (46.8 percent) of the households that engaged in mobile banking had read a text message alert from a bank in the 12 months prior to the survey. Among mobile banking users, the underbanked were somewhat more likely to have done so, relative to fully banked households (52 percent vs. 45 percent).

A survey by Javelin conducted in March 2013 found that only 37 percent of respondents received alerts in the past 12 months,[47] compared to 34 percent of respondents in a survey from March 2012.[48] Of the respondents who received an alert in the past 12 months, just over half received only email alerts, compared to 8 percent who received only SMS alerts and 39 percent who received both email and SMS alerts. It is unclear

[43] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[44] Javelin Strategy & Research, "2013 Mobile Banking Financial Institution Scorecard," November 2013.
[45] Ibid.
[46] Ibid.
[47] Javelin Strategy & Research, "Financial Alerts Forecast 2013," December 2013.
[48] Javelin Strategy & Research, "Road Map to Alerts 3.0," October 2012.

whether consumers are aware of the capabilities and potential benefits of the alert feature and how to enroll, or whether they have decided that they do not want to use this function. Banks do not seem to widely advertise this functionality, perhaps because it does not distinguish them from their competitors. Clearly, opportunities exist for banks and financial educators to raise awareness among consumers, and particularly underserved consumers, about how to take advantage of the available alert functions, including as a means to avoid overdrafts.

The process for enrolling in and managing mobile alerts may constitute a barrier to using them. Alert enrollment and management generally cannot be done from a mobile phone, and instead may require logging into a bank's Web site. This is particularly problematic for consumers who use their phone as their primary means of accessing the Internet and are less likely to use online banking. As previously mentioned, underbanked consumers are less likely to use online banking as the main method of accessing their bank account than the fully banked.[49] Only 31 percent of the largest 26 banks currently allow consumers to adjust their alert setting on a mobile device. However, both alert enrollment and management via mobile are becoming increasingly available.[50]

Mobile alerts could be improved as an economic inclusion tool by offering something closer to real-time information. As currently deployed, most alerts are not real-time or even near real-time. As previously mentioned, accuracy and reliability of account information is likely to be important for underserved consumers. Conversations with providers suggest that the delay is commonly a result of core processing systems that process transactions in batches. This delay can diminish the value of the information provided through the alert, and have the unintended impact of leading some consumers to misunderstand the status of their account. Although some banks have been able to develop real-time or near real-time alerts that arrive on a consumer's phone within seconds of a transaction, this is still relatively uncommon and can be expensive for banks to implement. The capacity to offer real- or near real-time alerts is growing; the latest studies show an increase from 44 percent to 69 percent among the 26 largest financial institutions.

Underserved consumers, in particular, would benefit from real-time alerts, as such alerts can increase the transparency of banking services. For example, a low-balance alert or notification that is sent at the time a consumer reaches a low threshold, as opposed to the following morning, could inform decisions about purchases or funds transfers, and help consumers avoid fees. This could have important consequences for more financially vulnerable consumers. Financial institutions could also benefit from real-time alerts that would enable them to send consumers timely fraud notifications, thereby saving the institutions the costly resources involved in investigating each fraudulent transaction.

As convenient as alerts can be, banks need to consider the appropriate balance between providing timely and useful information and saturating consumers with too much information. Too many alerts may prompt consumers to disregard them, thereby counteracting any potential benefits. Also, the information contained in alerts must be relevant and useful to the consumer in order for them to find value in receiving them. Providing consumers with the ability to easily select and control their alerts—including the type, frequency, and communication method (e.g., push alert, email, SMS)—may be one way to help achieve the right balance.

[49] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[50] Javelin Strategy & Research, November 2013.

Consumers may also be concerned about the potential costs of text alerts. Consumers who do not subscribe to text message plans could incur unexpected fees from receiving these alerts. However, as the cost of unlimited text plans decreases over time, this is likely to be less of a concern. Also, there is a trend toward "push alerts" that are part of the mobile app functionality and therefore do not count against a consumer's text allowance, although they may use data and thus would count against the consumer's data allowance.

In addition, other developments such as two-way alerts could help consumers take more immediate action when they receive information about their accounts. With this functionality, consumers receive an alert notifying them of a development, such as when a bill is due, and would have the opportunity to select an action in response (e.g., pay that bill). Currently, five of the largest 26 banks offer two-way alerts.[51]

Further study would be helpful in understanding specific settings in which alerts can create more sustainable relationships with underserved consumers. For example, research is needed to identify specific alert models and strategies that would be effective and useful to underserved consumers. In addition, efforts could explore whether banks can use alert data to help underserved consumers progress in their relationship with the bank, such as by obtaining additional bank products and services. Finally, further study should be given to understanding the type of information underserved consumers would like to receive through alerts, through what medium (e.g., text, push, or email alerts), and how alerts could be paired with other services to enable those consumers to take relevant actions.

B.3. Day-to-Day Transaction Needs

MFS can increase the convenience of several types of banking transactions, such as depositing checks via mobile remote deposit capture or mobile bill pay, and help underserved consumers meet their day-to-day transaction needs. Some of the features or functions that may be most useful for underserved consumers are not yet widely available. Others are available, but enrolling in and managing these services cannot be done with a mobile phone. In some cases, these limitations are attributable to decisions or actions by financial institutions to manage risks while offering new and evolving mobile services.

Some consumers will continue to prefer or need to rely on cash or money orders, and it is not clear whether MFS could always substitute for those traditional payment methods.

A key element to evaluating whether MFS can enhance the sustainability of banking relationships with underserved consumers is its ability to help these consumers meet their financial needs. Mobile banking technology offers transaction capabilities that can help the underserved access basic financial transaction services, including those that are currently being met by nonbank providers. Some of the functionalities that particularly benefit the underserved are highlighted below.

a. *Depositing and Cashing Checks*

One common financial need facing the underserved is the ability to cash checks and gain quick access to funds, including cash. Approximately 38 percent of unbanked households use nonbank check cashers. Despite the fact that the underbanked have bank accounts, 23 percent of these households cash checks outside the banking system. Convenient hours

[51] Ibid.

and locations are the top reasons underbanked consumers cite for using a provider other than a bank to cash checks. MFS might have the potential to change this dynamic through mRDC, which enables consumers to use their smartphone's camera at any time of the day to take a photo of a check and transmit it electronically to their bank for deposit. The technology addresses the preference of underserved consumers for convenience, as it can be easier than visiting a brick-and-mortar check casher and can be done at any time of the day or night. As of 2013, 77 percent of the 25 largest banks offered mRDC,[52] and about 25.7 percent of mobile banking users have used mRDC in the past 12 months. Similar proportions of underbanked (25 percent) and fully banked (26 percent) mobile banking users indicated having done so.[53] If the service is transparent, reliable, and less costly than using a check casher, underserved consumers could be motivated to obtain this service through a bank.

Underserved consumer preferences for convenient check cashing includes being able to access funds immediately. However, the availability of funds through mRDC varies across banks. Banks commonly require consumers to wait a period of time before their funds become available for withdrawal, which helps mitigate fraud risk. Only a handful of banks are known to allow consumers access to funds immediately; where this is allowed, fees for immediate access are typically 1 percent for payroll checks and up to 5 percent for personal checks.[54]

Concerns regarding fraud, the impact on the consumer experience, and the applicability of regulations are some of the concerns that banks cite as issues that must be addressed when deploying mRDC. In addition, accelerating the availability of funds poses additional risks to banks. To mitigate some of these risks, banks may restrict eligibility to well-established customers or set limits on the number and dollar amount of checks deposited, making the services less useful for, or even inaccessible to, the underserved. Banks and nonbanks that currently provide mRDC with immediate availability of funds also often use check guarantee services to mitigate risk. Check guarantee vendors assess the validity of a check and if deemed valid, the check is cleared and funds are disbursed, often within minutes. The check guarantee service assumes the risk of any losses for bad checks and charges the bank a fee similar to insurance premiums that are pooled to offset the risk of loss from bad checks. In turn, banks charge a fee to consumers who opt for immediate or rapid (same day) availability of funds. Clarifications regarding the application of existing regulations to mobile technologies may be helpful in mitigating risks associated with MFS. For example, the Federal Reserve in early 2014 released a proposed rule that would clarify the responsibilities of certain financial institutions when a check is presented more than once for deposit by a consumer.[55] No rule has yet been issued explicitly clarifying whether the funds availability schedule of Regulation CC, implementing the Expedited Funds Availability Act, applies to mRDC transactions.[56]

Further study is needed to understand how mRDC policies imposed by banks to manage risk affect the availability of these services to underserved consumers. As banks gain experience with this new service and the populations they serve, more data will become available to fine-tune risk management, which could affect pricing. Information that

[52] Ibid.
[53] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[54] Based on Regions Bank and Ingo publicly posted pricing schedules as of March 2014. For full pricing schedule visit: http://www.regions.com/personal_banking/now_banking.rf#Check-Cashing or http://ingomoney.com/how-it-works.html.
[55] Federal Reserve Board, "Availability of Funds and Collection of Checks," February 4, 2014.
[56] If Regulation CC funds availability were deemed to apply, banks would have to ensure that they made funds from checks deposited via mRDC available no later than the timeframes specified in Regulation CC. This would be a further consideration banks would have to weigh in evaluating whether to offer mRDC at all, and at what cost.

can be provided to banks to help assess and manage the risks of these transactions for underserved consumers could be beneficial. Research could include exploring how to make mRDC a realistic alternative to check cashing, while also maintaining a bank's responsibility to manage risk.

b. *Transferring Money between Accounts at the Same Institution*

Mobile banking can also provide underserved consumers with an easy and convenient way to transfer funds between checking and savings accounts, a feature not available in nonbank products. As of June 2013, similar proportions of underbanked (55 percent) and fully banked (57 percent) mobile banking users had used their mobile device to transfer money between bank accounts in the past 12 months.[57] Underserved consumers can also benefit from being able to build assets in accounts that accumulate interest and are protected by deposit insurance. Thus, MFS can provide an opportunity to transfer money from a checking account to a savings account. This feature is important to the underserved because it enables them to set money aside from daily use. Although some nonbank mobile products include savings "pockets"—the ability to segregate certain funds and designate them as savings—these do not offer the same benefits and consumer protections as interest-bearing savings accounts that banks offer.

c. *Making Payments – Bill Pay, Point-of-Sale Transactions, and Person-to Person Transfers*

Like all consumers, the underserved need to be able to pay bills and make other payments, including paying family, friends, or a landlord. For some underserved consumers, even those with a bank account, this can be a time-intensive process that can involve paying in person, purchasing a money order, or using money transfer stores to send money (remittances) or pay bills. Providing bill pay functionality through MFS could help the underserved better manage their finances by enabling them to pay bills anytime and anyplace (e.g., after they receive an alert that a deposited check has cleared). Having access to affordable expedited bill pay options could also help underserved consumers manage the narrow timeframe of their bill payments.

The ability to pay bills through online banking platforms is well-established, and banks are increasingly incorporating that functionality into their MFS products. All of the largest banks offer bill pay services using a mobile device.[58] In 2012, 5 percent of the bill pay transactions that originated through banks were initiated through a mobile device.[59] Based on the 2013 FDIC household survey, similar proportions of underbanked and fully banked mobile banking users (about 60 percent) made a bill payment using a bank's mobile app or mobile Web site.[60] Some banks offer expedited bill pay services through their online platform. Initial research shows that expedited payment fees range from $5.00 to $25.00 depending on the type of payment a payee accepts (electronic vs. check), and when the payment needs to be delivered.[61] Expedited bill pay does not seem to be commonly available through mobile, even among institutions that offer the service through other channels.

[57] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[58] Javelin Strategy & Research, November 2013.
[59] Federal Reserve, "2013 Federal Reserve Payments Study," December 19, 2013. Does not include transactions generated using the mobile Web browser.
[60] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[61] Examples: http://www.unitedbank-wv.com/personalservices/expedited_bill_pay_faq.asp, http://www.fmfcu.org/eservices/billpayer.htm, http://www.bankatunion.com/home/about/news/expedited_bill_payments, BBVA.

Mobile P2P payment functionalities are available through some mobile banking platforms (e.g., using Popmoney or QuickPay).[62] As of June 2013, 27 percent of mobile bankers, including 29 percent of those underbanked, had sent money to other people using their banks' Web site or mobile app in the past 12 months.[63] In fact, more than a third (36 percent) of P2P transactions generated through banks were initiated through a bank mobile app or SMS/text message, while the remaining 64 percent were initiated through a bank's web site.[64]

MFS could also enable underserved consumers to send remittances more conveniently. Similar to domestic P2P payments, MFS creates an opportunity for banks to meet the needs of the underserved regarding international money transfers. This would be particularly beneficial for underserved consumers who frequently send money to friends or family abroad. It would also help them avoid the risks associated with carrying large amounts of cash. Remittances enable consumers to use a payment method such as a bank account or prepaid card to send money electronically to international recipients who can receive the funds via deposit to a bank account or other methods. Some nonbank money transmitters offer consumers the ability to send remittances using a mobile device, but this service is not generally available in bank-sponsored mobile products. Although this functionality appears to be becoming more widespread as a standalone nonbank product, some underserved consumers would benefit from such a feature being incorporated into bank-sponsored MFS channels. This would require institutions to address certain regulatory requirements, including the disclosure requirements under the remittance transfer rules recently issued by the Consumer Financial Protection Bureau.[65]

Despite the availability of mobile payments, such transactions may be too slow to meet the needs of some underserved consumers. Speed is particularly important for the underserved because they are more likely to have lower-balance accounts and therefore may be unable to make important payments until they have adequate funds. If the time between when a consumer receives funds and the payment due date is too short, the consumer may risk overdrafting, or being unable to make a payment on time and incurring late charges. Because check and ACH transactions can take several days to clear, some underserved consumers might prefer services like check cashers that provide immediate availability of funds and allow consumers to pay bills in person using cash or money orders. The Federal Reserve Board is exploring opportunities to make the payments system operate in real time, which could make it more attractive and useful to the underserved.[66]

Mobile payment products could be further tailored with an economic inclusion perspective in mind. For example, when bill pay and P2P mobile banking functionalities are available, users are typically required to access *online* (rather than mobile) banking platforms to enroll in bill pay, or add or make changes to payees or recipients. Indeed, even though all of the 26 largest banks offer mobile bill pay, only 15 percent allowed consumers to add a payee, or change payee information, on a mobile device. For

[62] Federal Reserve Board, December 19, 2013. P2P services are also commonly offered outside the mobile banking environment.
[63] Federal Deposit Insurance Corporation, October 2014 (forthcoming). The survey question did not specify domestic vs. international transfers.
[64] Federal Reserve Board, December 19, 2013. "Person-to-person transfers (P2P) excluded transactions between consumers using a depository institution's online bill payment platform."
[65] For more information see the following *Federal Register* notices issued by the CFPB: https://www.federalregister.gov/articles/2012/12/31/2012-31170/electronic-fund-transfers-regulation-e
[66] Federal Reserve Financial Services, "Payment System Improvement- Public Consultation Paper," September 10, 2013.

consumers who do not have convenient access to online banking, this limitation could be problematic. Technologies such as mobile photo bill pay are slowly becoming available and are currently offered by two of the 26 largest banks. This technology could provide some flexibility and convenience to make changes to payees using a mobile device. Mobile international remittances could also be a valuable service for underserved immigrant markets. However, these services are a less ubiquitous feature among banks but a functionality that exists among some nonbank providers. Bank security concerns is one reason why these functionalities are not more common. With the risks of fraudsters getting a hold of misplaced or stolen devices, financial institutions might be hesitant to give devices full mobile functionalities, at least without some proven strategies for ensuring legitimacy of customer requests originating on a mobile device.

The availability of money orders and checks as payment instruments should be considered in conjunction with mobile banking. Unbanked and underbanked households sometimes use money orders for purposes such as paying rent. Until electronic payments are more widely accepted, these paper instruments are likely to be an important method of payment for these consumers. Finding ways to safely originate check or money order payments or their equivalent from a mobile device could help meet the financial needs of underserved consumers.

d. *Depositing and Withdrawing Cash*

Either by preference or necessity, many of the underserved frequently use cash to conduct financial transactions. The FDIC estimates that 29 percent of unbanked households do not use AFS providers and are likely to transact predominantly in cash. Anecdotal evidence suggests that even consumers who use nonbank providers are likely making many payments in cash. In fact, findings from the neighborhood study conducted by the New York City Department of Consumer Affairs revealed that "53 percent of checking account holders could not pay their rent with a check or online; rather, they must pay in cash."[67] Although MFS could result in less reliance on cash for other types of payments, it is possible that some preference or necessity for cash could persist. Therefore, although MFS may provide an attractive channel for meeting the many needs of the underserved, the ability to conveniently withdraw cash remains essential.

Since most bank-sponsored MFS products are tied to debit cards, cash can generally be withdrawn at an ATM or through a point-of-sale PIN transaction. However, depositing cash may pose a more significant challenge for consumers who do not live or work near a bank branch or ATM. Some prepaid providers have addressed this issue by selling loadable cards at convenience stores and other retail locations that consumers can purchase with cash and then load into their accounts. In meeting the needs of the underserved through MFS, banks without an ATM or branch presence may need to think about innovative ways to allow underserved consumers to deposit cash to their accounts. The issue of cash also highlights a more general point, which is that in order for MFS to be a sustainable product for the underserved, consumers must be provided with some linkages to the non-electronic world until electronic payments are ubiquitous among underserved consumers.

[67] New York City Department of Consumer Affairs, "Neighborhood Financial Services Study: An Analysis of Supply and Demand in Two New York City Neighborhoods," June 2008.

B.3. Feasibility for Banks

MFS offers potential cost savings and can increase the profitability of serving the unbanked and underbanked. However, implementing any new delivery channel comes with upfront costs and uncertainties. Banks looking to maximize recovery of their investment costs in the short term might prioritize serving more profitable, less risky customers. Over time, the lower costs and efficiencies associated with mobile transactions could change the economics of serving the underserved.

Relationships with underserved consumers also need to be sustainable from the financial institution's perspective. Therefore, it is important to examine whether MFS can increase the feasibility for institutions serving unbanked and underbanked consumers through, for example, cost savings or by addressing other barriers, such as fraud. As previously mentioned, profitability and fraud are two of the barriers to serving underserved consumers reported by financial institutions.

a. Potential for Cost Savings and Profitability

In the short term, banks are investing resources to implement and update MFS functions. Some MFS features, including those that might be particularly beneficial to the underserved, like real-time notifications and transactions, may require additional large-scale investments to modernize processing systems and other technologies beyond the scope of mobile banking. Conversations with financial institutions confirm that the deployment of MFS has increased their total costs. Aside from investment costs, consumer use of MFS has thus far been primarily additive in nature, meaning consumers continue to use other channels in addition to mobile (see Box 4).

In addition, as a new delivery channel, MFS is introducing new types of risks and uncertainties into the banking business. In light of investment costs and lack of experience with these services, some banks have focused their initial efforts on delivering MFS to their more established, profitable, and less risky customers. Therefore, current banking business models may not consider the costs and benefits of serving underserved segments, making early MFS offerings impractical for the underserved (e.g., restricting the use of mobile banking to online banking customers).

Although short-term costs and uncertainties are associated with MFS, many industry reports indicate it has the potential to reduce the cost of providing banking services. For example, Forrester Research has estimated that offering mobile banking results in a return on investment of 15.7 percent. As more consumers choose to switch to, or increase reliance on, the mobile channel relative to other, higher-cost, delivery channels (e.g., bank teller, phone-based customer service), banks may be better positioned to realize cost savings by reassigning resources to meet changing consumer demand. For instance, Javelin has calculated that the average cost of an in-branch transaction is $4.25, whereas the average cost of a mobile transaction is $0.10. Also, a survey by BAI found that banks that have high MFS adoption rates experience 50 percent fewer teller transactions than peer banks that do not.[68]

[68] Banking Strategies Daily, "Scoring Remote Deliver Impact," November 8, 2013

Reduced volumes of basic financial transactions at the teller could result in changes in the way banks reconfigure their delivery channels. For instance, if MFS and other electronic channels become a primary method for conducting day-to-day transactions, branch resources could be transformed to handle more services that are likely to require one-on-one interactions, including managing complex services and cross-selling products. For financial institutions with a focus on serving underserved consumers, an increase in MFS could also present opportunities for banks to use resources more efficiently to better engage underserved consumers through one-on-one interactions that provide information on available products, or on how to use lower-cost channels for everyday transactions.

In addition to a potential reduction in overall banking costs in the longer term, anecdotal evidence also suggests increased customer engagement among mobile banking customers. Consumers who use mobile banking tend to engage with their banks more frequently, albeit for much shorter sessions, than they do through other channels (including online). Some report that mobile banking customers are also more profitable than other customers through reduced attrition and higher account balances. Increased consumer engagement could also create cross-selling opportunities for banks. In addition, it can provide banks with better customer data, which can contribute to a better understanding of the traits of different customer segments, cross-selling opportunities, improved underwriting, and improved fraud protection. Additional research could focus on evaluating the extent to which mobile banking contributes to higher retention rates, as opposed to it being a reflection of the characteristics of early adopters who might already tend to be more engaged and have higher-balance accounts.

Some banks are also finding that MFS provides opportunities to generate new revenue through fee income (e.g., faster funds availability). However, if MFS is to be a tool of economic inclusion for the underserved, any new fees related to it must be carefully considered so as not to discourage underserved consumers from engaging with the mainstream banking system. Additional study could monitor bank costs and consumer fees associated with MFS. Monitoring and analyzing these trends, and considering them alongside underserved consumer preferences and price sensitivity, could be helpful in identifying MFS products and services that can be feasible for banks and attractive to the underserved. Also, it would be useful to understand how cost structures vary depending on the size of banks and how smaller banks might be able to deploy MFS in a way that serves this population.

b. Security and Fraud

As previously mentioned, financial institutions cite fraud as one of the major obstacles to serving underserved consumers. Besides the risks associated with fraudsters obtaining access to misplaced or stolen devices, security risks of this emerging delivery channel are less understood. The rapid development and dissemination of mobile apps that do not incorporate high-security features increases the vulnerability of a mobile device. To cope with these concerns, financial institutions have established processes and policies that may help explain why some of the mobile features that are most relevant to underserved consumers are not widely available.

Importantly, however, industry reports argue that mobile applications have the potential to be more secure than online applications for at least three reasons. First, some vendors are developing features that can use a mobile device's camera to scan photographs of documents and automatically insert needed information into the application. The photograph also helps banks assess the authenticity of the documents used. Second, by using the location-tracking capabilities of mobile devices, banks can identify an

applicant's actual location, which helps prevent fraud. Third, banks can use biometric authentication—including facial, voice, and fingerprint recognition—to enhance security.[69] Banks are beginning to pilot multi-factor authentications and voice biometric solutions to increase security and detect fraud.[70] Moreover, consumers may become more educated about and experienced with about mobile security practices (e.g., using passwords to lock or access their device). These developments could play a role in addressing some of the concerns that limit the functionalities available through mobile banking. Additional research could be devoted to ways in which these security innovations can specifically help address concerns about deploying the services and functionalities that could be most relevant to underserved consumers. Potential cost savings related to improving the ability to identify fraud more quickly through mobile banking could also be explored and considered in the cost-benefit equation.

C. Growth – Fostering Financial Empowerment to Deepen Banking Relationships and Fulfill Financial Goals

Economic inclusion involves not only bringing consumers into the banking system and establishing sustainable relationships, but also helping customers increase their financial engagement, develop deeper banking relationships, and pursue financial goals. Mobile technology can potentially foster growth in these ways, in part by using personal financial management (PFM) tools and similar functionalities to help consumers track and achieve financial goals and improve financial capabilities. Further, by increasing the amount of interaction between customers and banks, mobile devices could ultimately help customers become more fully integrated into the banking system.

As MFS continues to emerge as a banking delivery channel, further study is needed to better understand the type of mobile financial capability tools that underserved consumers would find useful. In addition, as more services and resources shift to electronic (including mobile) methods, it is important to consider the impact on underserved consumers, many of whom value personal interactions to learn about and better use banking products. Given that mobile interactions tend to be brief and can lack a human connection, clear challenges are associated with relying on mobile banking alone to grow banking relationships with these consumers. Successful strategies to deepen banking relationships with the underserved are likely to leverage the advantages of mobile while incorporating the strengths of other delivery channels, including those involving human interaction.

C. 1. Financial Capability

Financial capability combines financial education with sound financial decision making to improve behaviors and outcomes. Many mobile tools could help advance financial capability. As previously discussed, account management tools like alerts and the ability to check balances and account information at anytime, from anyplace can help can help increase consumers' awareness of their finances and allow them to interact more with their bank. Beyond this, mobile technology could provide convenient, basic PFM functions, including tracking expenses; setting, monitoring, and achieving savings goals; and monitoring credit reports and scores. For example, savings trackers could help consumers visualize the progress they are making toward their savings goals, and embedded alerts and messages could motivate them to keep up with their savings plans. Or, tools that set up automatic transfers between accounts could help consumers set money aside for different purposes, without having to regularly repeat the transaction.

[69] Javelin Strategy & Research, September 2013.
[70] Mobile Payments Today, "U.S. Bank pilots voice biometrics for credit card access," February 13, 2014.

Many providers are including PFM tools in their mobile banking suites, but the levels of customer demand for and satisfaction with these tools is unclear. Only 21 percent of respondents to a Javelin survey conducted in August 2012 reported using at least one type of PFM tool (PFM software, bank PFM, or Web PFM).[71] The Federal Reserve found that 28 percent of mobile phone users are interested in using their phones to track their finances.[72] However, some anecdotal evidence suggests that many consumers do not wish to use their phones for relatively complicated PFM tasks. Instead, they prefer to use mobile banking for simple, quick transactions while using online banking for more involved activities such as budgeting and expense tracking, to the extent that these are desired. In fact, only 10 percent of mobile phone users currently use their phones for active financial management by tracking purchases and expenses. When mobile financial management tools are used, though, some evidence suggests that they may be effective in shaping financial behaviors and outcomes. For example, the 2014 Federal Reserve survey revealed that a relatively high proportion (over two-thirds) of mobile bankers are already using their phones to check their account balances or available credit before making a large purchase. In fact, half of these consumers reported deciding not to make a purchase upon learning how much money or credit they had available in their accounts.[73]

Concerns about the complexity and usability of mobile PFM tools may be particularly relevant to underserved consumers and new entrants to the banking system, who are often less familiar than fully banked customers with financial products and services. By including a variety of features and functions that may appeal to other market segments, sophisticated PFM tools could become overwhelming for consumers with more straightforward financial needs.

It may also be possible for mobile devices to be used to deliver more traditional financial education. The devices' small screen size would make it difficult to deliver a comprehensive curriculum on a mobile phone, but brief financial education messages or tips might be effective if delivered based on specific consumer actions or locations.

Further study would be helpful to explore whether financial education and PFM tools can be effectively offered through MFS and to gauge consumer demand for such tools. If MFS is not an optimal standalone channel for financial education, research could also be conducted to advance our understanding of how MFS could integrate or connect with other channels to increase effectiveness. Further study could also examine how personal financial management tools that may be suitable for the underserved have been implemented by nonbank entities. Such an effort could determine how or whether mainstream banks could benefit from these technologies, and how they could be integrated into bank systems.

C.2. Customer Relationships

By increasing customers' ability to conduct transactions and access information without needing to call or speak directly to bank staff, mobile technology is likely to fundamentally change the nature of the banking relationship. It is also likely to change the way banks locate and use physical branches. While many of the benefits of mobile's self-service functions are clear, the technology could have unintended negative consequences as well. Customers who do not interact with bank tellers or customer service staff may not receive one-on-one education or guidance at account opening, may have fewer opportunities to learn about and qualify for other bank products, and could find it more difficult to develop the connections that underpin relationship lending. In both the FDIC's Small Dollar Loan Pilot and the Model Safe Account Pilot, for example, one-on-one financial counseling and guidance provided by tellers and bank customer service staff were reported to be vital to the success of the loans and accounts opened by underserved consumers.[74]

[71] Javelin Strategy & Research, "21st Century PFM for a Mass Audience," February 2013.
[72] Federal Reserve Board, March 2014.
[73] Ibid.
[74] Federal Deposit Insurance Corporation, "Model Safe Accounts Pilot - Final Report," April 2012; and "A Template for Success: The FDIC's Small-Dollar Loan Pilot Program," 2010 Q2.

Regarding mobile banking specifically, anecdotal evidence suggests that some underserved consumers may need or strongly prefer one-on-one, personal assistance to set up their mobile profiles, or to learn how to use specific features. In some cases, a teller or customer service representative may provide this type of assistance at account opening or during other in-person contacts with the bank. In other cases, though, it may be difficult for underbanked consumers to gain access to individual guidance. Although customers can use their mobile phone to call customer service, it can be challenging to find live support contact information from within mobile apps or mobile Web sites. Even if consumers do reach a bank staff member, not all staff members are consistently trained on how to inform and teach customers about the bank's mobile offerings, so some consumers are not made aware of the mobile options. A practical constraint also exists in that it may be difficult to access the MFS functionality on the phone at the same time the phone is being used to talk to a customer service representative. Thus, it is more difficult for the customer service representative to walk the consumer through the necessary steps than it would be if the consumer were calling while using a separate computer interface. An ATM "virtual teller" is one option banks are beginning to implement to add the human touch to transactions.[75] In a Javelin survey conducted in July 2013, 25 percent of consumers who do not use mobile banking stated that one of the top three reasons they do not was that they preferred to deal with people.[76]

Concerns exist among industry observers that the use of mobile banking is leading to a decrease in the availability of bank branches. This could be detrimental to customers who prefer to use bank branches for everyday transactions, and could make it more difficult for customers to access branches when they need to complete the more complex banking activities that are not well-suited to online or mobile banking.

Numerous sources indicate that branch accessibility remains important to customers, including underbanked consumers. The 2013 FDIC household survey found that about a third of all banked consumers reported using bank tellers as their main banking channel.[77] In the case of underserved consumers, bank tellers, along with ATMs/kiosks are the primary ways they access their account.[78] Mintel's October 2012 Retail Banking report found that half of consumers chose their bank because there is a branch near their home, which was by far the most popular reason. Overall, Mintel found that nine of ten consumers feel having a branch nearby is important.[79] Also, a survey conducted by Javelin in August 2012, revealed that 40 percent of mobile bankers chose depositing funds in person at a branch as their most preferred channel, whereas only 6 percent of mobile bankers chose mobile banking as their most preferred channel.[80] A separate survey by Novarica found that more than half of consumers say their primary concern when choosing a new bank is branch locations. Even the young, who are perceived to be more "connected" and ready to forgo branches in favor of mobile, still found nearby branches to be important (58 percent of those under 30 would not consider opening an account at a bank without a branch nearby).[81]

Opportunities exist for banks to re-envision the concept of the bank branch to complement digital channels. While it is unlikely that branches will disappear anytime soon, the ways branches are used may well evolve. Some industry observers believe that branches will shrink in both size and number, and will incorporate more technology. It is also thought, though, that the branch will remain the best place for banks to grow through sales, and to conduct complicated

[75] Ben Bradford, "Banks Try To Save Big With 'ATMs Of The Future,'" January 1, 2014.
[76] Javelin Strategy & Research, November 2013.
[77] Federal Deposit Insurance Corporation, October 2014 (forthcoming).
[78] Ibid.
[79] Susan Menke, "Branch Matters: the Importance of Bank Branches," July 27, 2012.
[80] Javelin Strategy & Research, "Leveraging an Omnichannel Approach to Drive $1.5 B in Mobile Banking Cost Savings," July 2013.
[81] Novarica, "Bank Shopper Snapshot Survey Volume 3," January 2013.

transactions. Some have suggested that consumers are now visiting branches primarily for advice rather than routine transactions that can be conducted online or through MFS. In fact, industry reports indicate that mobile bankers who visit a branch are less likely than general consumers to conduct basic transactions, such as deposits or withdrawals. Instead, mobile bankers are slightly more likely to visit the branches for activities, such as learning about products and services (13 percent vs. 10 percent for all consumers), buying a money order (9 percent vs. 7.5 percent for all consumers), or addressing potential fraud (8 percent vs. 6 percent for all consumers). To address this shift, some banks have begun experimenting with branches that are more technology-focused and specialized in offering advice. Restructuring branches could provide banks an opportunity to improve efficiency but also better meet the needs of customers and do so in way that blends technology and personal relationships.

C.3. Integration into the Banking System

A successful banking relationship can be thought of as one in which the customer is fully integrated into the banking system. For the purpose of this paper, a fully integrated bank customer is one that has access to, or information about, the full range and level of products and services offered by his or her bank and an ability to graduate to other products, including credit.

With frequent, but brief, customer interactions over mobile, banks face the challenge of delivering relevant and appropriate cross-selling opportunities to deepen the banking relationship with consumers. At this point, it is unclear how or whether consumers who interact with their banks exclusively, or predominantly, using mobile banking will learn about and access other bank products to the same extent as online and/or branch banking customers. This raises potential challenges for banks seeking to ensure that these customers will have the same opportunities to progress to new or more complex banking products as their financial needs mature. Thus, mobile may not suffice as a standalone tool for integrating consumers into the mainstream banking system. However, it can serve as one valuable piece of a model for such integration, a model that also includes human connections and other types of banking touch points.

D. Access, Sustainability, and Growth Findings

Considering MFS through the lenses of access, sustainability, and growth allows for an assessment of where and how MFS might best facilitate economic inclusion, and where significant obstacles remain. In the short run, the attributes of MFS discussed in the sustainability portion of the framework hold the most potential for the underserved. The anytime, anyplace, and actionable nature of MFS features offers the potential to enhance the sustainability of banking relationships with underbanked consumers through added convenience and value.

Further, these features could also be helpful in improving the banking relationships of those who are at risk of becoming unbanked, including younger consumers who may not automatically view banks as the primary place to meet their financial services needs. MFS features that help consumers better manage their accounts and avoid fees could make it easier and more appealing for them to remain in the banking system. However, some of the features that could most directly appeal to underserved consumers and encourage more sustainable banking relationships are not commonly offered. For example, features such as real-time alerts, mobile check cashing, and enrollment in and management of bill pay using a mobile device are not generally available at this time.

MFS appears to have a relatively small role in motivating and helping the unbanked access the financial mainstream and in increasing demand for banking products among the unbanked. This is in part because of the lower penetration of smartphones among unbanked households. Also, many unbanked consumers face severe economic challenges and have deeply ingrained

reasons for being unbanked that are unlikely to be addressed by MFS. Still, mobile account opening functionalities could be a useful tool for banking the unbanked when deployed as part of broader outreach efforts, such as mobile account opening at VITA sites or in conjunction with social services. As smartphone usage among the unbanked expands and mobile account opening becomes more widely available, MFS could play more of a role in increasing access.

More work needs to be done in exploring how to realize the potential that mobile tools, such as expense and savings trackers, have in helping underserved consumers make better financial and banking decisions and achieve financial goals. Also, relying exclusively on a mobile device for a relationship with a bank is unlikely to fully achieve the economic inclusion objectives of fostering financial empowerment, growing banking relationships, and fulfilling financial goals. Instead, other delivery channels, particularly human interaction, are likely to be important for providing consumers the support and guidance they need to learn about and properly evaluate and engage in additional banking products.

In short, further work is needed to understand the factors that affect the adoption of mobile banking and the specific features that could potentially improve the value of the banking relationship.

IV. TAKEAWAYS

MFS is on its way to becoming a standard banking delivery channel for bank customers generally. Banks are investing in the technology and continuing to expand mobile services. As part of this effort, banks must make important choices regarding the specific services and functionalities to offer along with risk management strategies that have the potential to affect the availability of those options. This paper encourages financial institutions and other stakeholders to consider the impact that these choices could have on expanding access to financial services, maintaining banking relationships, and expanding services to underserved consumers.

When choosing to conduct financial services, underserved consumers highly value convenience, speed, cost, transparency, and predictability. Convenience is the top reason why many underserved consumers use nonbank providers for basic financial transaction needs. Many of these consumers live paycheck to paycheck, which leaves little room for the standard multi-day transaction clearing process, unanticipated delays, or posting errors. Their tight budgets also make underserved consumers price-sensitive.

MFS has the potential to enhance banking services along the dimensions that are important to the underserved. For example, convenience can be addressed through the “anytime and anyplace” attribute of the mobile technology and its potential to provide consumers with clear, real-time, actionable information about their accounts. However, this potential is not being fully realized.

This section identifies opportunities to make MFS an increasingly useful tool for economic inclusion along all three dimensions. The ideas presented are meant to inspire action and discourse that can help increase the availability and accessibility of MFS offerings with features that are likely to be particularly beneficial for the underserved, and to encourage the adoption of those features. The concepts are deliberately broad in scope in order to be flexible for future developments or advancements that may occur in MFS technology. They might serve as guideposts for those designing, deploying, regulating, and/or supervising MFS products, as well as for helping consumers use the technology. Economic inclusion proponents, both within and outside of banks, may use these ideas to help bring economic inclusion objectives to the forefront as MFS tools continue to be developed and implemented.

- **Integrate MFS into broader economic inclusion strategies**
  Although MFS is a promising channel for increasing economic inclusion, it is likely to be more effective when thought of as part of a specific outreach strategy. Successful economic inclusion strategies that incorporate MFS are likely to include efforts to create awareness about this service channel, explain its features and benefits, and demonstrate how it can be most appropriately used to meet specific financial needs. Targeted marketing or outreach activities geared toward specific underbanked segments and their unique needs or pain points are important since underbanked consumers have some unique concerns relative to the general population. Highlighting specific MFS functionalities (e.g., alerts) that are most relevant and valuable to the underserved may be particularly useful.

  In addition, pilot studies and surveys document the importance of including a "trusted party" or "trusted intermediary" that can introduce underserved consumers to MFS, help them enroll, and coach them on how to properly use specific functionalities.[82] Bank staff can certainly play this role, but some providers might find it helpful to partner with community groups or other stakeholders that already work closely with the unbanked and underbanked. The role of a "trusted intermediary" is even more imperative when using MFS to help the unbanked open bank accounts. For example, unbanked consumers are more likely to benefit from mobile account opening functionalities when the service is provided as part of an outreach strategy in which a trusted and knowledgeable intermediary (e.g., community-based staff) guides them through the mobile account application process. Incorporating MFS topics into financial education curricula and outreach could also help the underserved better understand the value and appropriate use of mobile products.

  Institutions of different sizes may take different approaches to using MFS for economic inclusion. For example, large banks may be able to realize the benefits of scale more quickly for mobile products, but community banks might be better suited to supplement mobile with certain other approaches and use their relationships within the community to attract and retain underserved consumers.

- **Integrate MFS with other delivery channels and incorporate one-on-one interactions**
  Mobile technology presents a promising channel for delivering financial services in a manner that advances economic inclusion, but MFS is likely to be more effective when combined with other approaches or channels. Although MFS can enable consumers to conduct many transactions on their own, the underserved in particular may benefit from periodic one-on-one interactions that provide the consumer with coaching and guidance on how to properly use banking products and mobile tools. In-person delivery channels can also help consumers learn about other relevant products and services, deepening their relationship with the bank. Different channels may continue to have relative strengths and weaknesses for conducting specific tasks. For instance, MFS may allow for quick and easy basic account management, but branches might continue to be helpful for on-boarding or more involved inquiries.

  Fitting MFS into a larger integrated delivery approach is complicated because it involves, paradoxically, both enhancing the mobile channel so it can provide more functionality independent of other channels, and preserving consistency and accessibility across a variety of touch points. While it may be very useful for underserved consumers to be able to use a mobile device to complete basic transactions, such as setting up alerts, without needing to go online or speak to bank staff, it is also important that mobile technology not dehumanize the banking experience for those who prefer personal interactions.

[82] Federal Deposit Insurance Corporation, April 2012.

- **Thoughtfully fine-tune risk management strategies associated with features that meet the needs of the underserved**
  Because MFS is an emerging technology, many providers are working to continually fine-tune their risk management approach. Banks that have less experience meeting the needs of the underserved may face new uncertainties regarding how to safely offer mobile products that are useful to these populations. In some cases, these uncertainties about new potential risks may inhibit the availability of or access to specific features. For example, meeting underserved consumers' demand for immediate access to funds through mobile check cashing may require banks to consider new approaches to guaranteeing those funds and allowing consumers to access funds sooner than is typical for most transaction accounts.

  Addressing risk challenges related to security may help increase consumer comfort and trust related to using MFS. As previously noted, one of the primary reasons consumers (including the underserved) report for not adopting MFS is concern about security. Many experts in this field have discussed the potential for MFS to be safer and more secure than other delivery channels, due to several unique features of mobile devices, such as the ability to determine a phone user's location. Consumers may also benefit from greater awareness of ways they can secure their phone and use MFS safely.

  Banks may benefit from engaging regulators early in the process as they work to identify solutions to novel risk challenges. As banks and regulators work to apply regulatory requirements in the mobile environment, the responsible use of data, with an eye to minimizing risk and maximizing accessibility of services to underserved consumers, should be part of the ongoing agenda. Pilot programs, information sharing, and close communications between banks and their regulators could be helpful. Within the financial regulatory arena, an inclusive approach that brings together the perspectives of various functions within regulatory organizations, including economic inclusion and supervisory issues, could help bring awareness to banking services that are safe, sound, and accessible to underserved consumers.

- **Address infrastructure challenges to increase the convenience and speed of MFS**
  Current survey data show that convenience and speed are leading reasons why underserved consumers use nonbank transaction services. The potential of MFS to improve the convenience and speed of banking services includes the ability to provide real-time or near real-time, actionable information (e.g., account balances checks or low balance alerts), as well as quick processing of transactions (e.g., expedited bill pay, immediate funds availability). Nevertheless, banking processing systems do not typically process transactions in real time, which could potentially limit the accuracy and usefulness of information delivered through the mobile channel.

  In many cases, fulfilling the promise of delivering financial information and processing transactions in real-time requires costly investments and industry-wide policies that go beyond the scope of an MFS strategy. Modernizing core processing systems within banks is an important step, but other efforts are also needed to expedite the way financial institutions verify available funds in transactions and settle payments. Therefore, the modernization of the payment system that the Federal Reserve is exploring could play a key role in increasing the ability of financial institutions to provide more timely transaction information to consumers and banks, as well as to offer faster payment and deposit clearing.[83]

[83] Federal Reserve Financial Services, September 10, 2013.

Investments in payment and processing infrastructure improvements, especially system-wide, are likely to take time.[84] Meanwhile, financial institutions could continue exploring solutions that can help increase the accuracy of account information available to consumers. For example, consumers could be provided the ability to conduct "virtual check-booking," whereby they could reduce their available balance for payments that have not yet reached the bank (such as check payments or ACH payments they have scheduled with a utility company).

- **Identify opportunities to enable more mobile functionalities**
  For some of the underserved, a mobile phone may serve as their primary point of access to the Internet, and online banking using a computer might not be a convenient banking option. In fact, relative to fully banked households, underbanked consumers are less likely to use online banking and more likely to use mobile banking as the main method of accessing their bank account.[85]However, most MFS services are not set up to be accessible or practical for these individuals. It is not widely possible to open new accounts via mobile. And, in most cases, bank customers need to already be enrolled in their bank's online banking service before they can enroll in mobile banking. In addition, to use some MFS features, consumers may be required to first set them up online (e.g., creating payees in bill pay or enrolling in alerts); managing these features must also often be done online, not through a mobile device. Banks may consider exploring ways to serve those consumers who rely on mobile banking as their main form of banking, which may require modifying existing mobile platforms. For some banks, especially smaller institutions, this may require working with third-party vendors who manage the platform a bank uses for its online or mobile banking.

  Risk management concerns and compliance with the regulatory framework may also need to be addressed to facilitate mobile enrollment. For example, the ability to add a payee or external account on a mobile phone could be exploited by fraudsters to transfer money out of an account. Banks have found ways to address these risks in the online banking environment and are increasingly adopting methods for doing so in the mobile environment as well. Anecdotal evidence indicates that mobile account opening is growing, which suggests that banks are indeed finding ways to address some of these challenges. For unbanked consumers, additional obstacles such as lack of ID or banking history can come into play regardless of the channel. In the case of MFS, though, opportunities may exist for using technology in creative ways to capture information from consumers with alternative IDs or limited credit histories, perhaps by integrating alternative data sources like rent payment history or phone records.

- **Identify case studies demonstrating profitable implementation of MFS for economic inclusion**
  Cost and profitability are important factors that banks need to evaluate when considering economic inclusion strategies. Banks are often challenged by the relatively high cost of some methods of serving the underserved. Should MFS help lower the cost of providing basic financial services, it has the potential to change the economics of how banks provide services to underserved consumers. At this relatively early stage, banks may view the cost of deploying MFS as an investment that is additive in nature (in that consumers continue to use other channels as well), with any overall savings being realized over time. Over the long run, as consumers rely more on MFS for their banking needs, cost savings are likely to become larger, and opportunities are likely to emerge for reconfiguring service channels in ways that lower the costs of serving all consumers. As previously noted, underserved consumers are

[84] Ibid.
[85] Federal Deposit Insurance Corporation, October 2014 (forthcoming).

price sensitive; therefore, new business models may be most effective if they do not carry prohibitively high fees that would discourage obtaining financial services through a bank. Efforts to study examples of successful implementation for the underserved would help create a more solid business case for MFS as an economic inclusion tool.

In addition, banks could receive an incentive to design and deploy MFS in ways that meet the needs of underserved low- and moderate-income (LMI) individuals and needs in underserved geographies through application of the Community Reinvestment Act (CRA). CRA consideration could be contemplated for banks that demonstrate they are meeting underserved needs through MFS. However, MFS should not be viewed as a substitute for bank branches in LMI communities.

Banks may benefit from engaging a variety of internal and external stakeholders in exploring how best to tailor products to meet underserved preferences. Involving persons with expertise in areas such as product design, mobile technology, economic inclusion, compliance, and risk management may be helpful in designing solutions related to convenience, speed, and price.

- **Bridge mobile service delivery with traditional payment methods**
  It is important to bridge offline and online service delivery for underserved consumers. As noted in this paper, underserved consumers frequently prefer to use cash and therefore require the ability to deposit cash into an account and to withdraw it. In addition, many of the underbanked must make payments (e.g., rent payments) using paper instruments such as checks or money orders. MFS is likely to be a more useful financial tool for the underserved if ways can be found to reconcile and meet the need for electronic transactions with their need for paper payments or cash.

V. CONCLUSIONS

New technology is continually creating opportunities to change the way consumers interact with products and services. These changes sometimes present opportunities to expand a product or service to more consumers. This is the case with MFS. In the short term, MFS has the most potential for a subset of the underserved, primarily the underbanked and those in the banking system that might otherwise experience account closure. Over the long run, however, it could draw many more into the mainstream banking system. The unbanked in particular are more likely to adopt MFS as their ownership of smartphones increases and as MFS more directly meets their needs.

As banks implement MFS for their customers, they may benefit from considering the preferences of the underserved. It will be important to understand how needs and preferences vary among different segments of the underserved, and how they change over time. This will help providers and economic inclusion stakeholders more carefully fine-tune strategies for using MFS for economic inclusion.

In many instances, features that specifically benefit the underserved will be valuable to a bank's other customers as well. Serving the underserved with MFS does not necessarily require any unique products or services intended for that population alone. Rather, the needs of the underserved can be met as a part of an integrated approach that considers their needs alongside those of all customers. For MFS to be truly successful as a tool of economic inclusion, it must benefit banks and consumers alike. In addition, incorporating economic inclusion considerations into MFS features and driving consumer adoption is likely to require the involvement of many stakeholders, including third-party vendors, community and consumer organizations, and financial regulators, among others.

APPENDIX TABLES

APPENDIX TABLE 1

2011 Distribution of Households by Banking Status and Household Characteristics (Percent Of Households)

DEMOGRAPHIC GROUP	ACCESS TO MOBILE PHONES	ACCESS TO SMARTPHONES		USE OF MOBILE BANKING IN THE LAST 12 MONTHS BY BANKED HOUSEHOLDS	
	Among all households	Among all households	Among mobile phone users	Among mobile phone users	Among smartphone users
All Households	82.6	55.6	67.2	25.4	35.6
BANKING STATUS					
Unbanked	68.1	33.1	48.6	NA	NA
Underbanked	90.4	64.3	71.1	31.0	41.8
Fully Banked	86.8	58.9	67.8	23.9	33.9
RACE OR ETHNICITY					
Black	79.1	52.3	66.2	25.1	34.3
Hispanic	79.9	55.5	69.5	26.8	35.7
Non-Hispanic Whites	83.6	55.5	66.4	24.8	35.6
Other	85.0	63.5	74.7	29.7	37.3
NATIVITY					
Native-born	83.1	55.5	66.8	25.4	35.9
Foreign-born citizens	80.8	57.4	71.0	23.9	32.3
Foreign-born non citizens	79.2	54.3	68.5	26.7	34.7
AGE					
Age 24 or younger	88.8	76.0	85.5	46.0	49.7
Age 25-34	89.8	76.3	85.0	44.4	49.1
Age 35-44	89.0	72.0	80.9	35.0	40.6
Age 45-54	86.6	62.8	72.6	24.0	31.1
Age 55-64	83.5	48.7	58.3	15.1	23.7
Age 65 or older	67.3	23.2	34.5	6.2	15.6
EDUCATIONAL ATTAINMENT					
Less than high school	67.0	30.0	44.8	10.7	21.9
High school	78.2	44.2	56.5	16.9	28.0
Some college	85.3	59.2	69.4	26.9	36.6
Bachelors degree	89.4	70.8	79.1	32.7	40.1
INCOME					
Less than $15,000	69.2	31.2	45.1	14.3	27.6
Between $15K and $30K	74.4	37.9	50.9	17.1	31.7
Between $30K and $50K	82.2	50.9	61.9	22.0	33.8
Between $50K and $75K	88.3	63.2	71.6	26.1	34.6
$75,000 or more	91.6	77.7	84.9	33.9	39.1

Notes:

Households are identified as unbanked if they answered "no" to the question, "Do you or does anyone in your household currently have a checking or savings account?"

Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs) in the past 12 months.

APPENDIX TABLE 2

2011 Use of Transaction Alternative Financial Services by Banking Status

TIMING OF AFS USE	ALL HOUSEHOLDS		UNBANKED	UNDERBANKED	FULLY BANKED
	Numbers (1000s)	Pct of Col	Pct of Col	Pct of Col	Pct of Col
All Households	120,408	100.0	100.0	100.0	100.0
ANY AFS PRODUCTS					
In last 30 days	14,470	12.0	45.5	41.2	-
In last 2-12 months	16,139	13.4	19.4	58.8	-
Not in the last 12 months	21,002	17.4	9.4	-	23.6
Never used	65,335	54.3	20.6	-	76.4
Unknown	3,461	2.9	5.1	-	-
NON-BANK MONEY ORDER					
In last 30 days	9,952	8.3	32.1	28.0	-
In last 2-12 months	12,127	10.1	17.0	43.2	-
Not in the last 12 months	17,592	14.6	9.8	8.3	17.2
Never used	77,817	64.6	35.6	20.2	82.8
Unknown	2,920	2.4	5.5	0.3	-
NON-BANK CHECK CASHING					
In last 30 days	4,626	3.8	25.0	8.9	-
In last 2-12 months	4,646	3.9	13.1	13.9	-
Not in the last 12 months	6,745	5.6	9.2	8.7	4.3
Never used	101,889	84.6	48.1	68.2	95.7
Unknown	2,501	2.1	4.6	0.4	-
NON-BANK REMITTANCES					
In last 30 days	1,758	1.5	3.9	5.7	-
In last 2-12 months	2,640	2.2	5.3	8.8	-
Not in the last 12 months	2,678	2.2	3.2	3.6	1.7
Never used	110,431	91.7	81.9	81.5	98.3
Unknown	2,901	2.4	5.7	0.5	-

Notes:

- = For this table cell there were so few sample respondents (in some cases zero) reporting that the estimated universe proportion round to 0.0 percent. It is estimated that the true value is only slightly greater than zero.

aHouseholds were not asked whether they used these AFS products in the last 30 days.

Households are identified as unbanked if they answered "no" to the question, "Do you or does anyone in your household currently have a checking or savings account?"

Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs) in the past 12 months.

Refer to 2011 FDIC National Survey of Unbanked and Underbanked Households and FDIC Technical Notes for terms, definitions, and methodological notes. Figures do not always reconcile to totals because of rounding. Differences between groups may or may not be statistically significant.

Source: 2011 FDIC National Survey of Unbanked and Underbanked Households

APPENDIX TABLE 3

2011 Use of Credit Alternative Financial Services by Banking Status

TIMING OF AFS USE	ALL HOUSEHOLDS		UNBANKED	UNDERBANKED	FULLY BANKED
	Numbers (1000s)	Pct of Col	Pct of Col	Pct of Col	Pct of Col
PAYDAY LENDING					
In last 30 days	814	0.7	0.5	3.2	-
In last 2-12 months	1,249	1.0	1.2	4.7	-
Not in the last 12 months	3,559	3.0	5.7	6.8	1.6
Never used	111,772	92.8	86.6	84.6	98.4
Unknown	3,014	2.5	6.0	0.7	-
PAWN SHOPS					
In last 30 days	911	0.8	2.7	2.7	-
In last 2-12 months	2,609	2.2	7.8	7.6	-
Not in the last 12 months	5,438	4.5	10.0	9.2	2.6
Never used	108,283	89.9	72.9	79.7	97.4
Unknown	3,166	2.6	6.5	0.8	-
RENT-TO-OWN[a]					
In last 2-12 months	1,814	1.5	5.1	5.4	-
Not in the last 12 months	3,821	3.2	6.7	7.6	1.6
Never used	111,551	92.6	81.6	86.3	98.4
Unknown	3,222	2.7	6.6	0.7	-
REFUND ANTICIPATION LOANS[a]					
In last 2-12 months	1,449	1.2	3.4	4.6	-
Not in the last 12 months	3,020	2.5	5.4	5.9	1.3
Never used	112,614	93.5	84.7	88.6	98.7
Unknown	3,324	2.8	6.6	0.8	-

Notes:

- = For this table cell there were so few sample respondents (in some cases zero) reporting that the estimated universe proportion round to 0.0 percent. It is estimated that the true value is only slightly greater than zero.

[a]Households were not asked whether they used these AFS products in the last 30 days.

Households are identified as unbanked if they answered "no" to the question, "Do you or does anyone in your household currently have a checking or savings account?"

Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs) in the past 12 months.

Refer to 2011 FDIC National Survey of Unbanked and Underbanked Households and FDIC Technical Notes for terms, definitions, and methodological notes. Figures do not always reconcile to totals because of rounding. Differences between groups may or may not be statistically significant.

Source: 2011 FDIC National Survey of Unbanked and Underbanked Households

APPENDIX TABLE 4

Obstacles to Providing Financial Products and Services To Underserved Consumers (Percent Of Financial Institutions)

	TOTAL	MAJOR OBSTACLE	MINOR OBSTACLE	NOT AN OBSTACLE	DON'T KNOW
Regulatory Environment	7,034	34.9	29.5	22.7	12.7
Fraud	6,968	31.8	47.2	13.6	7.2
Lack of Consumer Understanding	7,056	31.4	43.1	10.2	15.1
Underwriting	7,030	28.4	41.7	16.6	13
Profitability	7,076	24.4	39.2	25.4	10.8
Effective Product Marketing	5,624	19.1	55.2	25.5	0
Lack of Consumer Demand	7,056	17.9	37.3	19.3	25.3
Nonbank Competition	7,035	15.8	38.5	28.1	17.4
Product Development	7,035	11.7	44.9	30.2	13
Lack of Familiarity with Banking Products	7,056	5.7	42	40	12.2

Source: 2011 FDIC Survey of Banks' Efforts to Serve the Unbanked and Underbanked.

APPENDIX TABLE 5

2013 Unbanked Households' Access to Mobile Phones and Smartphones (Percent Of Households)

DEMOGRAPHIC GROUP	ACCESS TO MOBILE PHONES	ACCESS TO SMARTPHONES	
	Among all households	Among all households	Among mobile phone users
All Households	68.1	33.1	48.6
RACE OR ETHNICITY			
Black	69.9	35.1	50.2
Hispanic	66.1	32.9	49.8
Non-Hispanic Whites	68.1	31.9	46.8
Other	65.3	26.2	40.2
NATIVITY			
Native-born	70.2	34.9	49.7
Foreign-born citizens	50.1	25.1	50.2
Foreign-born non citizens	64.1	28.0	43.8
AGE			
Age 24 or younger	77.6	49.5	63.7
Age 25-34	77.7	48.0	61.8
Age 35-44	71.8	36.4	50.8
Age 45-54	65.1	26.7	41.1
Age 55-64	59.6	14.7	24.7
Age 65 or older	43.6	7.6	17.4
EDUCATIONAL ATTAINMENT			
Less than high school	64.7	27.4	42.3
High school	69.7	34.0	48.8
Some college	74.4	42.6	57.2
Bachelors degree	54.0	28.1	51.9
INCOME			
Less than $15,000	67.7	28.4	42.0
Between $15K and $30K	68.6	37.7	54.9
Between $30K and $50K	73.4	42.8	58.3
Between $50K and $75K	60.8	39.8	65.5
$75,000 or more	54.3	26.9	49.6

Notes:

Households are identified as unbanked if they answered "no" to the question, "Do you or does anyone in your household currently have a checking or savings account?"

The demographic characteristics of a household, such as race, age, and education are taken to be those of the owner or renter of the home (i.e., "householder"), unless the characteristic is one defined at the household level, such as income.

Differences within groups may or may not be statistically significant.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

APPENDIX TABLE 6

2013 Underbanked Households' Access to Mobile Phones and Smartphones and Use Of Mobile Banking (Percent Of Households)

DEMOGRAPHIC GROUP	ACCESS TO MOBILE PHONES	ACCESS TO SMARTPHONES		USE OF MOBILE BANKING IN THE LAST 12 MONTHS BY BANKED HOUSEHOLDS	
	Among all households	Among all households	Among mobile phone users	Among mobile phone users	Among smartphone users
All Underbanked Households	90.4	64.3	71.1	31.0	41.8
RACE OR ETHNICITY					
Black	89.9	64.5	71.7	28.8	38.7
Hispanic	89.7	67.3	75.0	30.1	38.8
Non-Hispanic Whites	90.6	62.8	69.3	32.2	44.4
Other	93.0	68.9	74.1	31.3	40.0
NATIVITY					
Native-born	90.4	63.6	70.3	31.5	42.8
Foreign-born citizens	91.9	66.7	72.6	28.2	38.2
Foreign-born non citizens	89.3	68.6	76.8	30.0	37.6
AGE					
Age 24 or younger	94.2	83.0	88.2	48.5	53.3
Age 25-34	95.2	83.0	87.1	47.0	52.1
Age 35-44	94.2	75.5	80.1	38.5	45.9
Age 45-54	91.3	63.4	69.5	24.6	34.1
Age 55-64	89.9	51.6	57.3	15.3	25.9
Age 65 or older	74.3	25.2	33.9	8.9	21.9
EDUCATIONAL ATTAINMENT					
Less than high school	80.0	42.4	53.0	15.4	27.4
High school	88.7	57.7	65.1	23.3	34.3
Some college	92.5	69.8	75.4	34.9	44.2
Bachelors degree	95.8	77.8	81.2	42.6	50.6
INCOME					
Less than $15,000	81.6	41.0	50.2	17.9	31.0
Between $15K and $30K	87.0	52.9	60.8	24.3	37.9
Between $30K and $50K	91.5	66.4	72.5	31.3	41.7
Between $50K and $75K	94.5	75.0	79.4	36.2	43.6
$75,000 or more	97.1	85.4	88.0	42.7	47.8

Notes:

Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

The demographic characteristics of a household, such as race, age, and education are taken to be those of the owner or renter of the home (i.e., "householder"), unless the characteristic is one defined at the household level, such as income.

Differences within groups may or may not be statistically significant.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

APPENDIX TABLE 7

2013 Mobile Banking Activities (Percent Of Households)

MOBILE BANKING ACTIVITY	BANKED HOUSEHOLDS THAT USED MOBILE BANKING IN THE LAST 12 MONTHS		
	All	Underbanked	Fully Banked
Downloaded or used bank's mobile app	68.7	69.6	68.5
Checked account balance or recent transaction	86.8	89.0	86.0
Made a bill payment using bank's mobile app or website	60.0	59.5	60.2
Read a text message alert from the bank	46.8	51.6	44.9
Sent money to other people using your bank's website or mobile app	26.9	29.2	26.0
Transferred money between accounts owned by the same person	56.1	55.2	56.6
Deposited a check electronically using the mobile phone's camera	25.7	24.9	26.2
Located the closest in-network ATM or bank branch	33.4	38.1	31.5
Other (Specify)	2.9	2.0	3.2

Notes:
Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

Differences within groups may or may not be statistically significant.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households.

APPENDIX TABLE 8

2013 Most Common Ways Banked Households Access Accounts (Percent Of Households)

BANKING CHANNEL	BANKED HOUSEHOLDS THAT USED MOBILE BANKING IN THE LAST 12 MONTHS		
	All	Underbanked	Fully Banked
Bank Teller	32.3	29.2	33.1
ATM/Kiosk	24.4	29.6	23
Telephone Banking	3.3	4.6	3
Online Banking	32.8	26.4	35
Mobile Banking	5.7	9.4	4.7
Other	0.8	0.5	0.8
Unknown	0.7	0.4	0.5

Notes:
Underbanked households are defined as those households that have a checking and/or a savings account and had used nonbank money orders, nonbank check cashing services, nonbank remittances, payday loans, rent-to-own services, pawn shops, or refund anticipation loans (RALs), or auto title loans in the past 12 months.

Differences were not tested for statistical significance.

Figures for households whose underbanked status is unknown are not presented in the table but are included in the statistics for all banked households.

Source: 2013 FDIC National Survey of Unbanked and Underbanked Households

FDIC-021-2014