

2016
Mobile Banking and Payments Survey
of Financial Institutions in the Sixth
District

Federal Reserve Bank of Atlanta

Retail Payments Risk Forum

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The views expressed in this paper are solely those of the author and not necessarily those of the Federal Reserve Bank of Atlanta or the Federal Reserve System.

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Survey Overview

The Federal Reserve Bank of Atlanta conducted a mobile banking and payments survey of financial institutions (FIs) in the Sixth Federal Reserve District¹ in the fall of 2016. Concurrently, the Federal Reserve Banks of Boston, Cleveland, Dallas, Kansas City, Minneapolis, and Richmond conducted identical surveys of the FIs in their districts. The purpose of the Atlanta Fed survey was to determine the level and type of mobile financial services offered by the FIs in the Sixth District, and to compare those offerings to the consolidated survey results after they are published. The Atlanta Fed also hoped to gain insights into the strategies and measures that FIs are pursuing to provide mobile financial services to their customers.

Methodology

As a complement to the Consumer and Mobile Financial Services survey conducted by the Federal Reserve Board's Division of Consumer and Community Affairs—begun in December 2011 and conducted annually since²—several of the Federal Reserve Banks collaborated on developing a mobile banking and mobile payments survey targeting FIs. The Federal Reserve Bank of Boston's Payment Strategies group created the original survey questionnaire and first distributed it in 2008 and again in 2012. The Atlanta Fed first took part in the 2014 survey.³ In 2016, the participating Federal Reserve banks updated the original survey to reflect the current mobile banking and payments environment. The survey questionnaire is in Appendix A. For the purpose of the survey, mobile banking is defined as “the use of a mobile phone to connect to a financial institution to access bank/credit account information, e.g., view balances, transfer funds between accounts, pay bills, receive account alerts, locate ATMs, deposit checks, etc.”

The Atlanta Fed conducted the survey from September 19 through October 28, 2016. The 2014 survey took place between July 17 and August 15, 2014. (Note that the 2014 survey timeframe was prior to the introduction of the Apple Pay mobile wallet in September 2014.) Representatives of the almost 1,400 FIs operating in the Sixth District received in mid-July 2016 a save-the-date announcement about the upcoming survey. The survey was sent via an email that included an electronic version of the survey with an online survey link. The invitation successfully reached an estimated 98 percent of the FIs operating in the Sixth District. The regional payment associations PaymentsFirst⁴ and ePay Resources⁵ also sent the survey invitations to their membership based in the Sixth District.

¹ The Sixth District covers Georgia, Alabama, Florida, southern Mississippi and Louisiana, and the eastern two-thirds of Tennessee.

² The 2016 report is available at [federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201603.pdf](https://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201603.pdf)*

³ The Sixth District Survey report is available at [frbatlanta.org/https://www.frbatlanta.org/-/media/documents/rprf/rprf_pubs/2014-mobile-banking-and-payments-survey-of-financial-institutions-in-the-sixth-district.pdf](https://www.frbatlanta.org/media/documents/rprf/rprf_pubs/2014-mobile-banking-and-payments-survey-of-financial-institutions-in-the-sixth-district.pdf)

⁴ ALACHA, GACHA, and TACHA merged January 1, 2015, and now operate under the name of PaymentsFirst Inc.

⁵ ePayResources was formed in August 2016 from the merger of EastPay and SWACHA regional payment associations

In addition to the electronic version, respondents could also print, scan, and return a completed survey via email. All but 13 of the FIs completed their surveys online. The surveys returned via email were manually entered using an online survey tool.

The Atlanta Fed received a total of 121 completed surveys for the Sixth District. An internal review process detected when an FI returned multiple surveys; a total of four sets of duplicate responses were received. The duplicate responses from each FI were compared and any major discrepancies were resolved with the FI's designated contact before the responses for the FI were consolidated into a single response. After culling the data, the Atlanta Fed had a total of 117 validated surveys, for a response rate of approximately 8 percent. Table 1 shows the distribution by state of the 117 responding FIs.

Table 1
Survey respondents by state and asset size

State	Banks			Credit Unions		
	# of Responses	With Assets < \$1 Billion		# of Responses	With Assets < \$1 Billion	
#		%	#		%	
AL	19	16	84%	2	2	100%
FL	21	17	81%	10	8	80%
GA	18	15	83%	4	4	100%
LA	9	9	100%	3	3	100%
MS	6	6	100%	3	3	100%
TN	17	12	71%	5	4	80%
Total	90	74	83%	27	24	89%

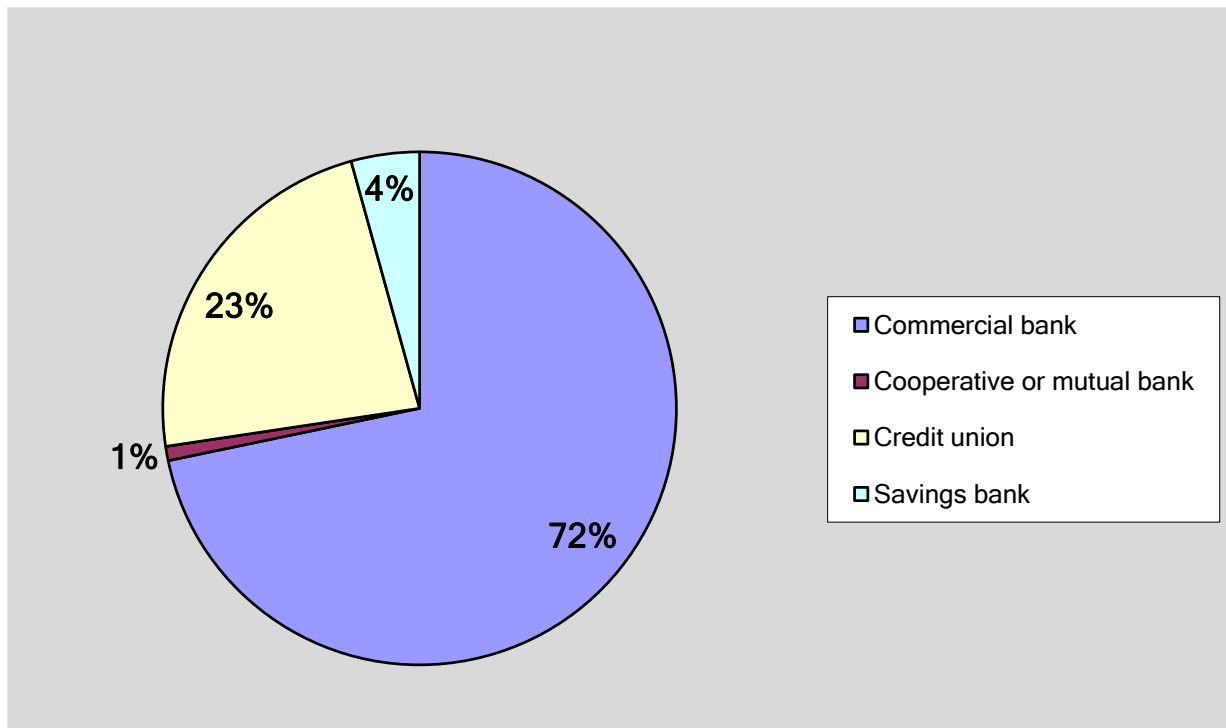
Financial institution demographic information

Of the 117 validated surveys, 77 percent were from banks and 23 percent from credit unions. The bank segment was dominated by business banks, with a small number of savings banks (five) and a mutual bank. (See chart 1.)

Chart 1

Respondents by FI type

Q. Please indicate your financial institution type. (n=117)

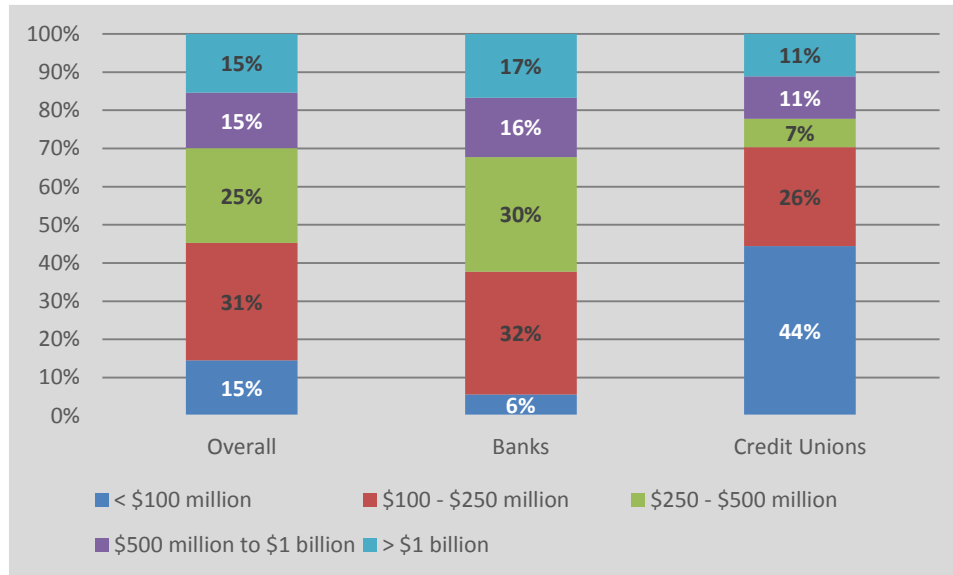


Overall, the majority (56 percent) of the respondents had total assets in the \$100 million to \$500 million range (see chart 2). The responding banks and credit union (CU) groups differed significantly in the smaller-asset-sized segment (< \$100 million)—at 6 percent and 44 percent, respectively. The banks that responded were primarily in the \$100 million to \$500 million range (62 percent) and almost evenly divided between those in the \$100 million to \$250 million range and the \$250 million to \$500 million range. The smaller community banks (< \$100 million) represented only 6 percent of the total bank respondents. For the credit unions, the smaller credit unions (< \$100 million), at 44 percent, were the largest segment, followed by the \$100 million to \$250 million segment at 26 percent. This distribution of FIs in both the bank and credit union segments is similar (difference of two percentage points) to the FI distribution in the 2014 survey. Forty-six percent of the 2016 study respondents had also participated in the 2014 study.

Chart 2

Respondents by FI type and asset size

Q. What is your FI's asset size? (n=117)



Key learnings

Key learnings from the responses to this survey include the following:

- The overall mobile banking service offering has become a standard service of financial institutions, with 98 percent of the 117 FIs that responded indicating they currently or plan to offer the service.
- Competitive pressure and the retention of existing customers are the primary reasons for offering mobile banking service.
- The main reasons given by FIs not planning to offer mobile wallets are security concerns and a lack of consumer demand.
- Most of the survey respondents have a long-term outlook (three years or more) for mobile payments to reach an activity level of 50 percent.
- As in 2014, none of the FIs expect mobile banking to provide any significant level of fee revenue although some charge, or will implement, fees for specific transactions such as remote deposits and person-to-person transfers within and outside the FI.
- Consistent with the 2014 survey and numerous other mobile research reports, FIs cited security concerns by consumers as the greatest barrier to mobile banking adoption.
- Biometric methodologies are the security tools most likely to be used in an FI's program.
- Poor customer security practices are the top concern of FIs related to overall mobile security.
- Responses to multiple questions show some seeming conflicts in security perspectives. For example, FIs cited security concerns as one of the major barriers to greater customer adoption while the majority acknowledged that mobile payment transactions have the

ability to be more secure because of the mobile phone's physical properties and its ability to support various forms of biometric authentication.

- A small number of FIs specifically market mobile banking to the underbanked; credit unions are more likely to do so than banks.
- FIs are implementing additional banking functions through the mobile device such as account opening and enhanced customer authentication.
- More FIs are supporting mobile account alerts, and the types of alerts are expanding.
- Consumer mobile banking enrollment and usage remain at low levels.
- Many of the FIs provide their business customers with mobile banking services, but most don't have specialized business functionality. However, some of the FIs are beginning to supplement their product offering targeting their business customers.
- Over half (59 percent) of the FIs currently or plan to support at least one mobile wallet service. Their primary reason for offering the service is to be competitive; they recognize that mobile payments are gaining traction among consumers.
- The "Pay" wallets and PayPal have the strongest brand recognition with FIs.
- Almost three-fourths (70 percent) of the FIs do not plan to offer any incentives (such as awarding points or giving cash rebates) for customers to make mobile payments.

Mobile Banking Survey Results

FIs not supporting mobile banking

Of the 117 respondents, only two (one business bank and one CU) indicated they do not currently offer, nor had any plans to offer, mobile banking services. These two FIs assigned a level of importance (high, medium, or low) to seven elements that influenced their decision not to offer mobile banking services. Both institutions ranked security and regulatory concerns as medium or high along with the lack of standards and interoperability. They also indicated as a key factor their lack of resources to offer an in-house solution. One of the two FIs indicated a lack of demand for the service from their older customer base. Both institutions cited the lack of a business case as a medium factor of importance.

This left a total of 115 FIs currently offering or planning to offer mobile banking services (89 banks and 26 credit unions), making up the body of the respondent data for most of the remainder of the survey report.

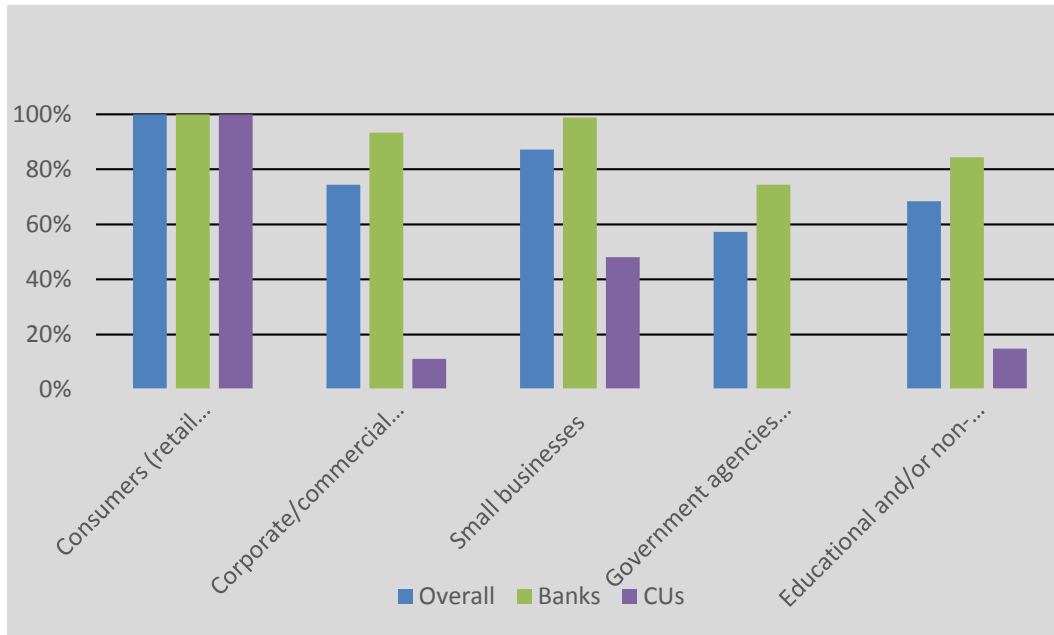
Customer segments served

As expected, all of the survey respondents indicating support for mobile banking make (or plan to make) the service available to their consumer base. The business banks also serve customer segments of small business (99 percent), corporate/business (93 percent), educational/not-for-profit organizations (84 percent), and government agencies (74 percent). Almost half of the credit unions (48 percent) also serve small businesses, with business and educational/nonprofit customers at 15 percent or less. (See chart 3.)

Chart 3

Customer segments served by FI type

Q. Please indicate to whom you provide services. (n=117)



Longevity of mobile banking offering

Of the 115 respondents currently offering or planning to offer a mobile banking service, 77 percent have had their mobile banking service more than a year. This level represents a major movement from the 59 percent level in the 2014 study. Twelve percent of the banks and 15 percent of the credit unions began their mobile banking service within the last year. This means that an overall total of 90 percent of the responding FIs have a mobile banking service in operation. Nine of the banks and one of the credit unions indicated they do not currently support mobile banking but are planning to do so within the next two years, resulting in an expected 98 percent penetration level by 2018. Clearly, mobile banking services have reached the level of a standard service offering.

Business case elements

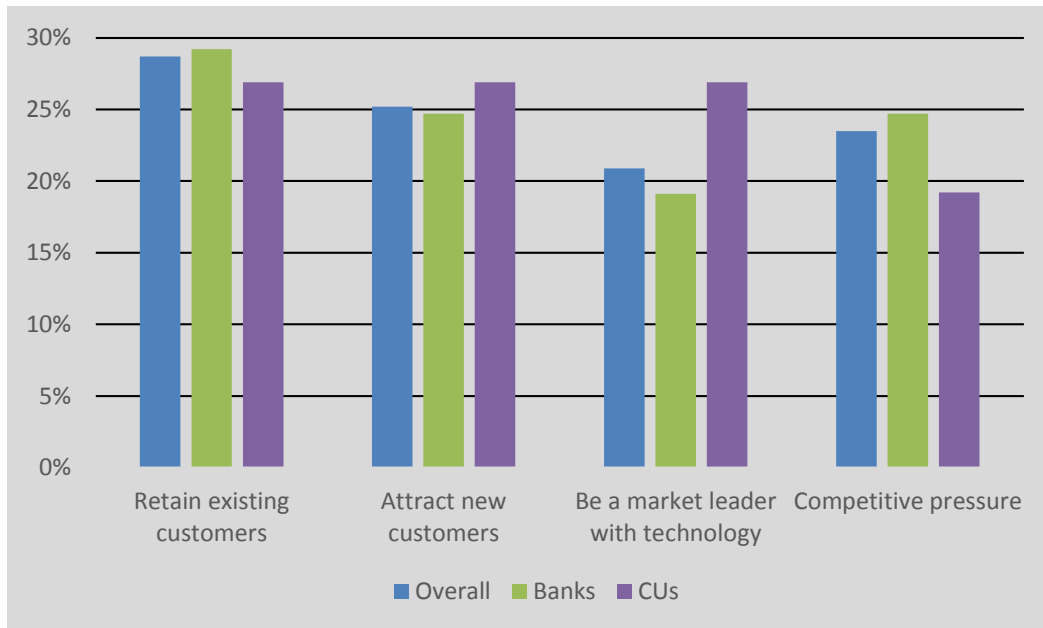
Reasons for mobile banking offering

The banks cited the retention of existing customers as their primary reason for offering the mobile banking service, while the credit unions were split over customer retention, attracting new customers, and being a technology market leader (see chart 4). None of the respondents indicated that they expect the mobile banking service to generate additional revenue. This response is consistent with the 2014 study.

Chart 4.

Primary business reasons for offering mobile banking

Q. If you (plan to) offer mobile banking, what is your primary business reason? (n=115)



Barriers to mobile banking

The survey asked the FIs to identify the three most common barriers they believe are hindering greater consumer adoption of mobile banking. As table 2 lists, on an overall basis, security concerns are the most frequent barrier identified, although banks mentioned it more often (73 percent) than the credit unions (62 percent). This is also the most cited reason overall in the 2014 study though the bank and credit union response rates (71 percent and 70 percent, respectively) are only slightly different. For the credit unions, the most frequently identified barrier was a lack of trust in the technology (77 percent compared to bank's 54 percent). Two-thirds of the bank respondents believe that their customers' banking needs are being met through other channels, while less than half (46 percent) of the credit unions cited this as one of the top three barriers. Related to the alternative channel response, more than half (51 percent) of the respondents indicated that they think their customers don't see any compelling reason to use the mobile banking service. Few of the respondents said they feel that the service being difficult to use is a barrier, but 31 percent believe that the lack of an effective marketing campaign is one of the top three barriers.

Table 2.

Most common barriers to greater customer adoption

Q. What are the THREE most common barriers to greater CONSUMER adoption of mobile banking?

(n=115)

Barrier	Overall	Banks	CUs
Security concerns	70%	73%	62%
Banking needs being met through other channels	62%	66%	46%
Lack of trust in the technology	59%	54%	77%
Do not see any reason to use mobile banking	51%	51%	54%
Ineffective marketing by FIs	31%	34%	23%
Difficulty of use	14%	12%	19%
Other	12%	10%	19%

The survey identified a number of other barriers, including:

- Preference for online banking to mobile banking
- Customer demographics (older customer base)
- Rural areas without good mobile communications reliability or availability
- Lack of mobile banking features or functionality compared to other channels

Consumer Fee Plans

The overwhelming majority (90 percent) of the 115 respondents do not charge or plan to charge a fee for their consumer mobile banking services. The response rates between the banks and the credit unions show little difference. These numbers represent a decline from the 2014 survey, when 20 percent of banks and 15 percent of credit unions indicated a willingness to charge a fee. A follow-up question to the 12 FIs that indicated they currently charge or plan to charge a fee asked them to indicate for which services they would charge. None of the respondents indicated they would charge for intra-institutions funds transfers between the same customer’s accounts through the mobile platform. FIs identified the three most common functions that might be subject to a fee:

- Mobile person-to-person (P2P): 58 percent
- Mobile remote deposit capture (RDC): 42 percent
- Mobile funds transfer between the same customer’s accounts at different FIs: 25 percent

One FI indicated that it would charge for an expedited bill payment requested through the mobile banking platform. For these specific functions, the 2016 results represent a significant decline from the 2014 results, when P2P was 64 percent, RDC was 67 percent, and transfers between a customer’s accounts at different FIs was 33 percent. This is likely a result of increased competitive pressure among FIs as well as incentives for customers to use the mobile channel.

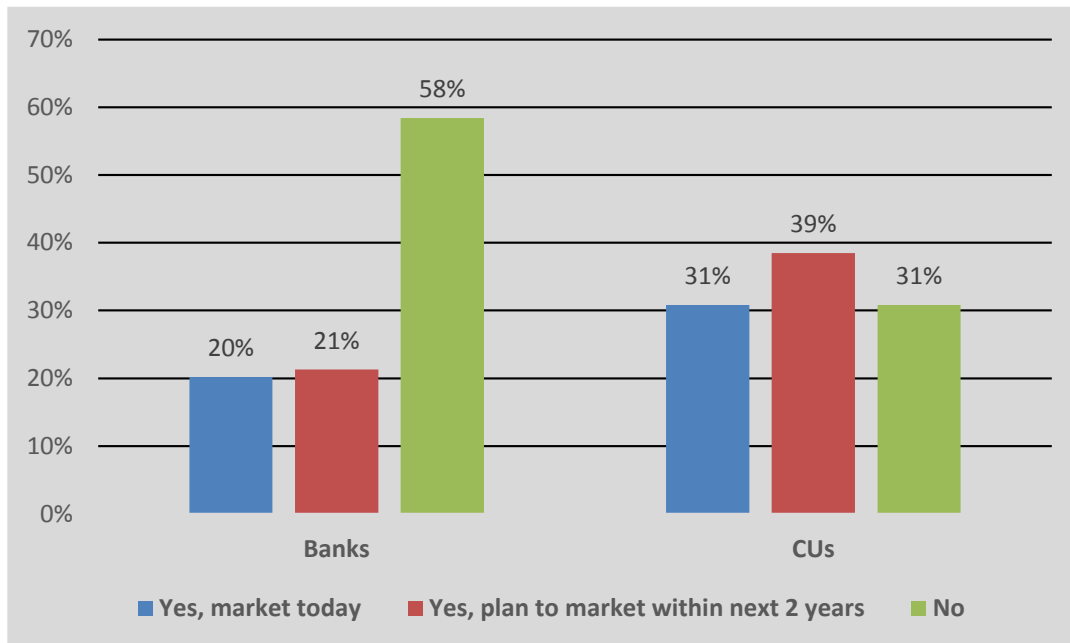
Marketing efforts to the underbanked

In a question new to this year's survey, the respondents were asked if the FI currently markets or plans to market any mobile banking products to the underbanked. As chart 5 shows, results between the banks and the credit unions are markedly different, with only 41 percent of the banks indicating they either currently market or plan to market within the next two years to the underbanked, compared to 70 percent of the credit unions.

Chart 5

Planned marketing to the underbanked

Q. Do you market or plan to market any mobile banking products to the underbanked? (n=115)



Mobile banking technology elements

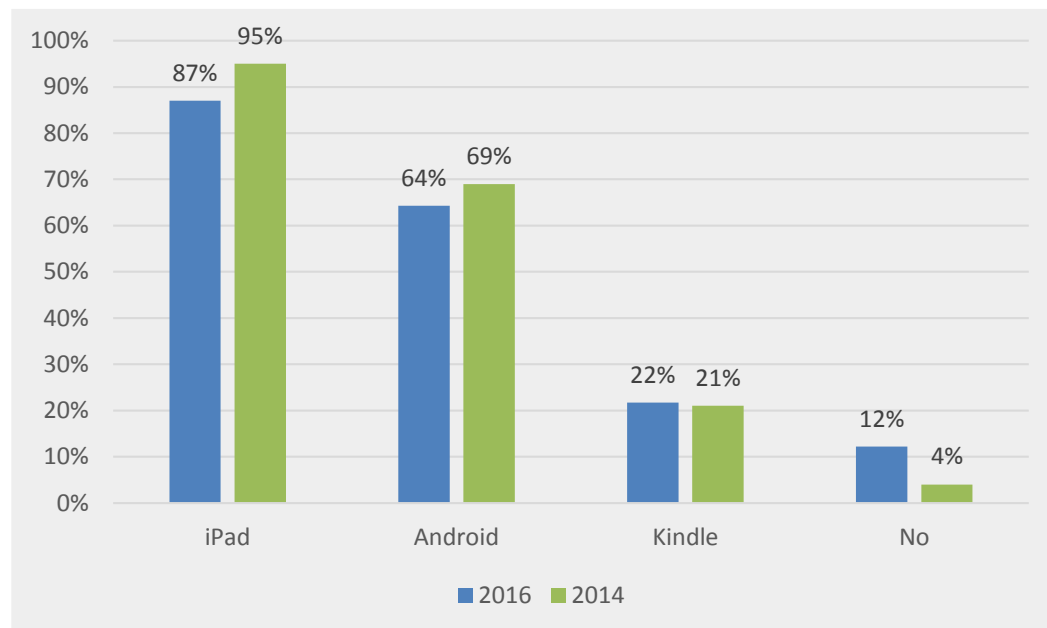
Similar to the 2014 survey results, support for the Apple iOS and Google Android mobile operating system is above 90 percent (93 and 96 percent, respectively). The Windows phone support level almost doubled from 23 percent in 2014 to 42 percent in 2016. The Blackberry level declined from 18 percent in 2014 to 15 percent in 2016.

Respondents were asked whether they currently offer or plan to offer mobile banking services via a tablet-specific application. Overall, 12 percent of the respondents indicated no current plans to support tablet devices for their mobile banking service—an increase from 4 percent in 2014. As chart 6 shows, 87 percent of the overall FIs are supporting the iPad and 64 percent the Android—a significant difference continuing from 2014. While the overall support level for the Kindle remained essentially unchanged from the 2014 data, nearly a third (31 percent) of the CUs support the Kindle tablet compared to 19 percent of the banks.

Chart 6

Mobile banking tablet support

Q. Which mobile operating system(s) (OS) does your mobile banking application support? (n=115)



Rather than ask the name of the specific vendor providing the mobile banking system—as the 2014 survey did—we felt it more important to understand the nature of that vendor relationship. If not supported in-house, is it a mobile solution provider or their core deposit system or online banking provider? The banks' and credit unions' responses contrast sharply. Seventy-five percent of the banks use their core deposit processor or online banking provider to support their mobile banking service compared to 54 percent of the credit unions. Conversely, 46 percent of the credit unions use a specific mobile solution provider compared to 24 percent of the banks. One bank reported they had an in-house system.

Services offered and planned

As table 3 shows, all of the responding banks and credit unions currently or plan to support checking demand deposit account and savings account balances as well as transferring funds between the same owner's accounts within the FI. All but one FI supports the viewing of account statements and transaction history. Ninety-seven percent of the overall respondents support bill payment. One real divergence between banks and credit unions pertains to the ability to view credit card statements or transaction history. Eighty-one percent of the credit unions indicated they have or plan to have this feature compared to only 30 percent of the banks. Cross-border payments and brokerage service access are two features that the vast majority of both groups clearly identified as having no plans to support through their mobile banking channel.

Table 3**Mobile banking functions currently or planned to be supported**

Q. Which of the following mobile banking services do you currently offer or plan to offer within the next 12 or 24 months? (n=115)

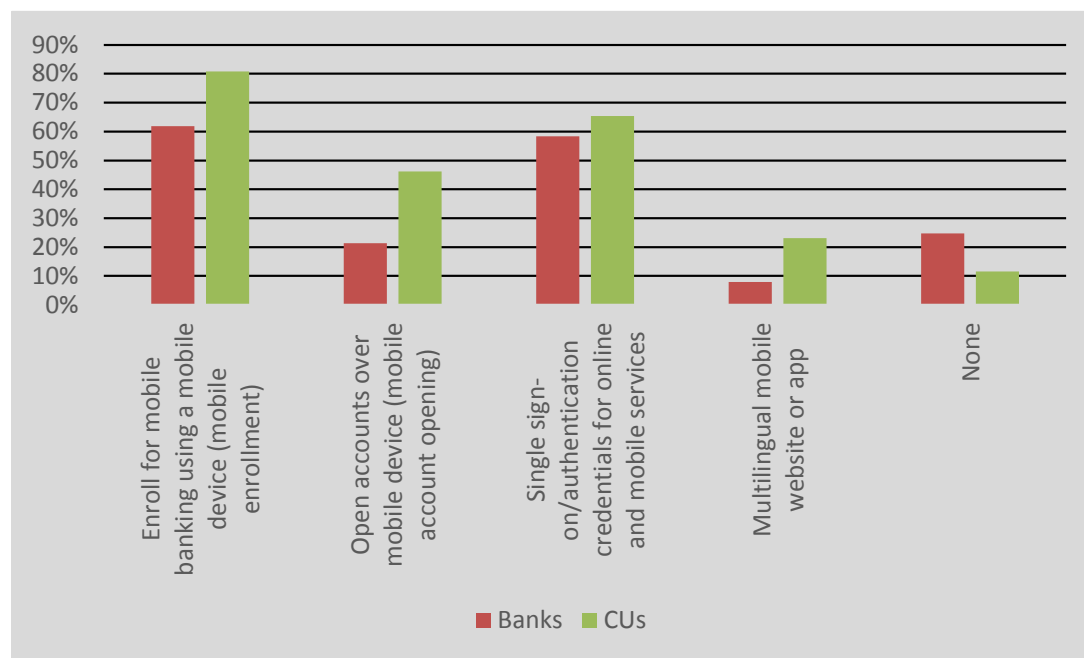
Function	Overall	Banks	CUs
Check balances (DDA, Savings)	100%	100%	100%
Transfer funds between same owner's accounts within your FI	100%	100%	100%
View statements and/or transaction history (DDA, Savings)	99%	99%	100%
Bill payment	97%	99%	92%
Mobile remote deposit capture (RDC)	92%	92%	88%
ATM/branch locator	84%	85%	81%
Mobile person-to-person payment (P2P)	76%	73%	85%
Transfer funds between same owner's accounts at different FIs	55%	53%	62%
Bill presentment	50%	46%	62%
View credit card balances, stmts and/or tx history	42%	30%	81%
Personal financial management (PFM)	41%	37%	54%
Access to brokerage services	9%	8%	12%
Cross-border payments	3%	2%	8%

The respondents were then asked about their offering or plans to offer a variety of additional features to their mobile banking services (see chart 7). For both the responding banks and credit unions, the ability to enroll in mobile banking through the mobile device and supporting a single sign-on/authentication credentials for online and mobile services are their top two planned features. Almost half (46 percent) of the credit unions support or plan to support opening accounts over a mobile device, whereas only 21 percent of the banks support or plan to support this feature. One quarter (25 percent) of the banks indicated they don't plan to support any of the four functions identified compared to 12 percent of the credit unions. The results are similar to the 2014 study, although the single sign-on feature declined about 10 percentage points on an overall basis (driven by the banks dropping from 71 percent to 58 percent).

Chart 7

Planned new mobile banking service features

Q. Do you (plan to) offer the following features? (n=115)



Account alerts

Compared to 2014, more FIs are supporting a wider range of account alerts. In 2016, 96 percent of the FIs provided some type of alert function compared to 75 percent in 2014. As table 4 shows, every alert feature increased with the exception of bill payment due notifications. This exception may be due to the 2014 survey simply describing the alert as “bill payment,” which could have been interpreted as inclusive of acknowledgment of bill payments made in addition to the bill payment reminder described in the 2016 survey.

Table 4.

Mobile account alerts

Q. What types of mobile alerts does your FI offer or plan to offer? (n=115)

Alert Feature	2016	2014
Insufficient funds	78%	66%
Credit card balance close to or over limit	14%	13%
Funds transfer complete	63%	55%
Bill payment due	33%	57%
Low balance	90%	76%
Card-not-present transactions	39%	10%
Two-way actionable text alerts	13%	11%

Credit payment confirmation	15%	N/A
International charge/debit	15%	N/A
Suspicious activity/other fraud monitoring alerts	54%	N/A
Other	10%	6%

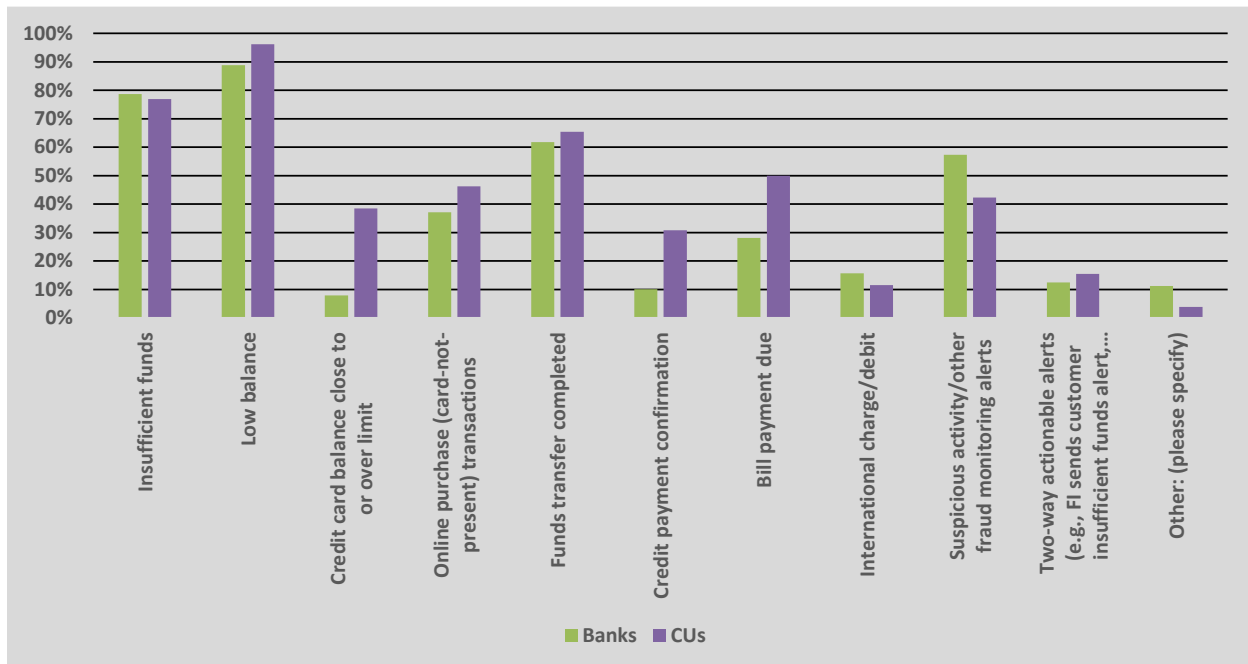
The most supported alerts by both banks and credit unions are for low balance and insufficient funds. Alerts for card-not-present transactions showed a significant increase (37 percent for banks and 46 percent for credit unions).

As chart 8 shows, suspicious activity/fraud monitoring alerts are offered or plan to be offered by more than half (54 percent) of the responding FIs. Credit unions slightly lag the banks for this alert function, at 42 percent versus 57 percent, respectively.

Chart 8

Mobile account alerts by FI type

Q. What types of mobile alerts does your FI offer? (n=115)



On the other end of the spectrum, less than 15 percent of the FIs are supporting credit card balance limit alerts. Other types of alerts mentioned by individual respondents include:

- Deposit and specific transaction posting
- Large dollar transactions
- Failed transfers
- Expired recurring transfer instructions

Four FIs (two banks and two credit unions) indicated they do not currently or plan to offer account alerts.

Mobile banking security

The survey respondents were asked a series of questions related to security concerns as well as features. First, the respondents were requested to rate the level of importance (high, medium, low) of their FI’s security concerns associated with their consumer mobile banking services related to four specific factors. The largest number (68 percent) of the 115 respondents identified “inadequate customer protection behavior”⁶ as having a high level of concern (see table 5). The issue of data breaches is also a major concern. Weak authentication (such as easy-to-guess passwords or security questions) has the fewest number of “high concern” marks but the largest number of “medium concern” grades.

Table 5
Top security-related issues or concerns

Q. Please rate the importance of your FI’s security-related concerns associated with mobile banking.
(n=115)

Factor	High	Medium	Low
Data breach	61%	29%	10%
Weak authentication	41%	43%	17%
Identity theft	49%	39%	11%
Inadequate customer protection behavior	68%	27%	5%

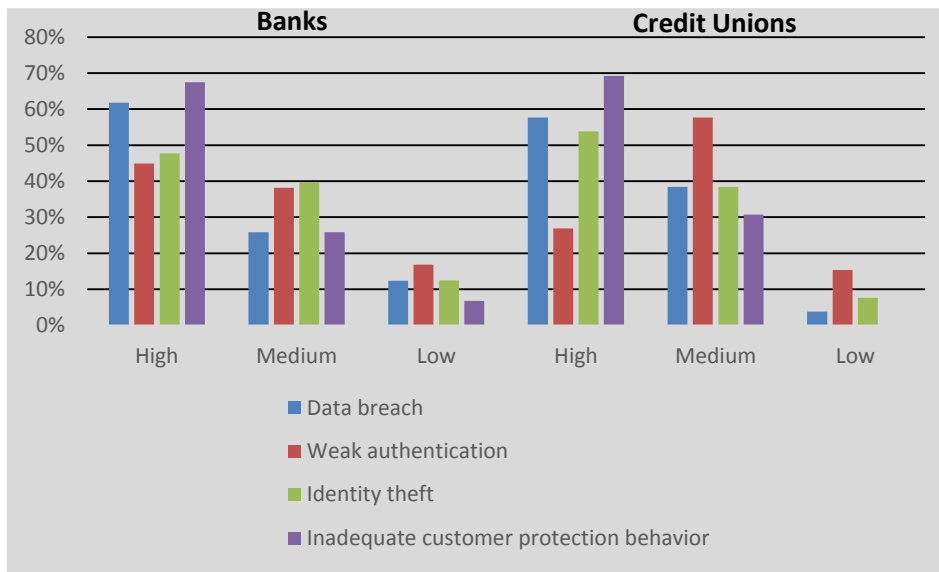
Looking at the differences in the responses between banks and credit unions (see chart 9), banks identified weak authentication as a higher level of concern than did the credit unions.

⁶ This factor was described in the survey document as “Consumer may use unsecured network, not use antivirus solutions, not set up mobile password, not protect device from theft or loss.”

Chart 9

Relative importance of security-related concerns

Q. Please rate the importance of your FI's security-related concerns associated with mobile banking. (n=115)

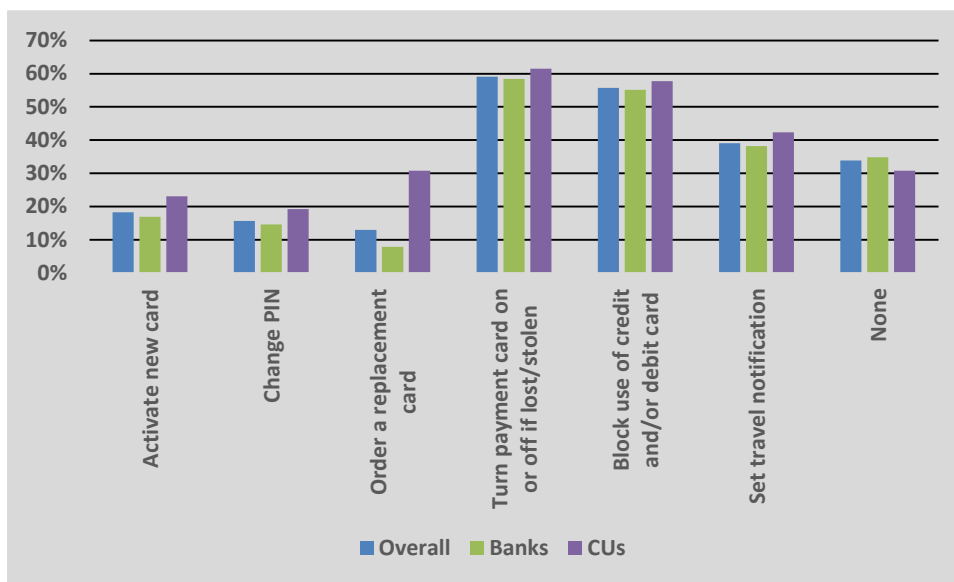


The survey then asked the FI to indicate whether their mobile banking program supports or plans to support some specific features allowing the customer to have better control over their payment cards. As chart 10 shows, a majority of both banks and credit unions support the ability to block the use of a payment card or to turn it off in the event it is lost or stolen.

Chart 10

Features providing better control over payment card

Q. Which of the following card control features does your FI's mobile banking app support or plan to support? (n=115)



Interestingly, more than one-third (34 percent) of the 115 responding FIs don't support any of these security features.

The final question under the security theme requested the FI to identify which of the listed security features it currently uses or plans to use (table 6).

Table 6

Use of additional security features

Q. Which of the following does your FI currently use or plan to use to enhance mobile security? (n=115)

Security Feature	Overall	Banks	CUs
Multi-factor authentication	82%	80%	89%
Time-out due to inactivity	86%	84%	92%
Out-of-band authentication (e.g., calls/texts to alternate phone number)	43%	46%	31%
Login with PIN	48%	45%	58%
Biometrics (e.g., fingerprint, facial, voice recognition, etc.)	50%	47%	58%
Mobile notifications (e.g., SMS text message, push notifications)	64%	63%	69%
Mobile device ID	33%	33%	35%
Geo-location	27%	28%	23%
Other: (please specify)	2%	0%	8%

The leading features respondents identified were multi-factor authentication (82 percent) and session time-outs (86 percent), at levels similar to the 2014 study. The largest change is the use of biometrics, which in 2014 only 6 percent of the respondents identified, compared to half of the 2016 respondents. While in the previous study none of the credit unions indicated they were using or planning to use biometrics as an authentication methodology, more than half (58 percent) indicated in the current study they are supporting or planning to support this feature. The mobile notifications feature also grew significantly from the 2014 study: 54 percent to 64 percent. Surprisingly, the feature identifying the mobile device using its electronic “signature” dropped from 46 percent in 2014 to 33 percent. This is a response that will need additional research as device printing the mobile phone is often cited as a security feature advantage providing additional authentication confidence. Additional features that two credit unions identified included enhanced device analytics and purging the user’s access to the application after a certain period of inactivity.

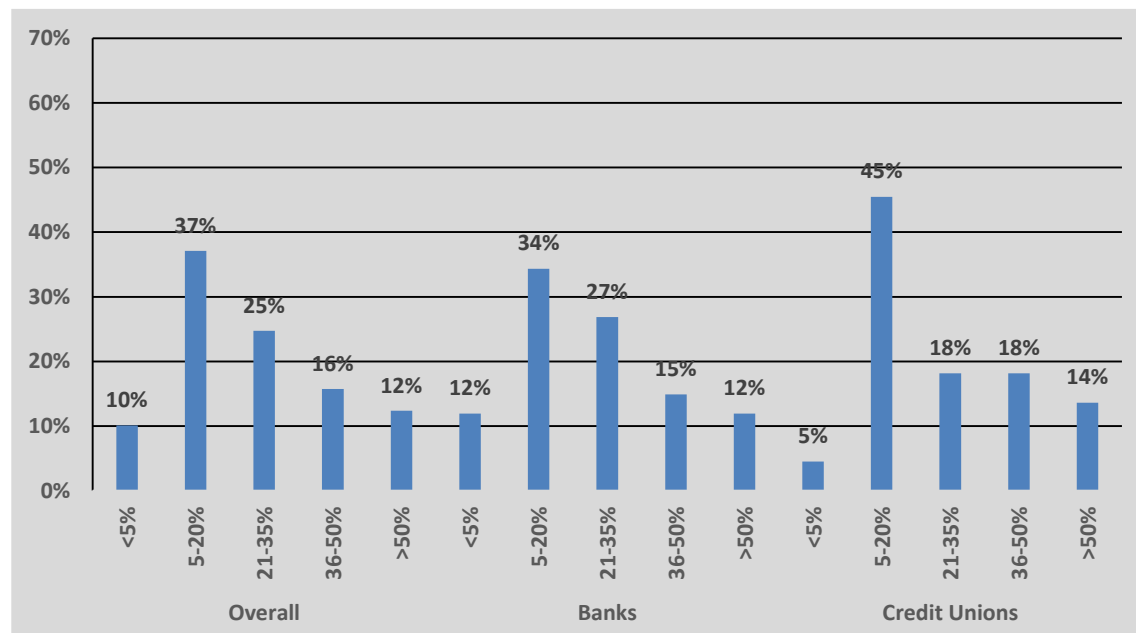
Consumers Enrolled and Active Users

The survey asked about service penetration and usage in two separate questions. The first question asked the respondent to provide the percentage of customers who were enrolled in their mobile banking service across five levels of penetration. Eighty-nine of the FIs that had active mobile banking programs responded with specific penetration levels. Surprisingly, since this would seem to be a basic product success metric, 15 of the FIs indicated that they did not track this data.

Chart 11

Retail customers enrolled by percent segment

Q. What % of retail customers have ENROLLED in your mobile banking service? (n=100)



In chart 11, we see that the most frequently identified penetration segment of consumer mobile banking customers **enrolled** is in the 5–20 percent range. A slightly higher number of credit unions (45 percent) had a rate in this range, compared to banks at 37 percent. Slightly more than 10 percent of both the banks and credit unions (12 percent and 14 percent, respectively) indicated they had achieved a consumer penetration range in excess of 50 percent. These numbers represent a major increase from the 5 percent overall rate in the 2014 study.

Assuming a mid-point for each range,⁷ the overall percentage of customers enrolled is 28 percent; the credit unions have a slightly higher rate, at 29.2 percent, than the banks, at 27.7 percent. The overall percentage of enrolled customers under the same assumptions in the 2014 Sixth District survey was 23 percent, reflecting a slow adoption increase with plenty of room for increased enrollment.

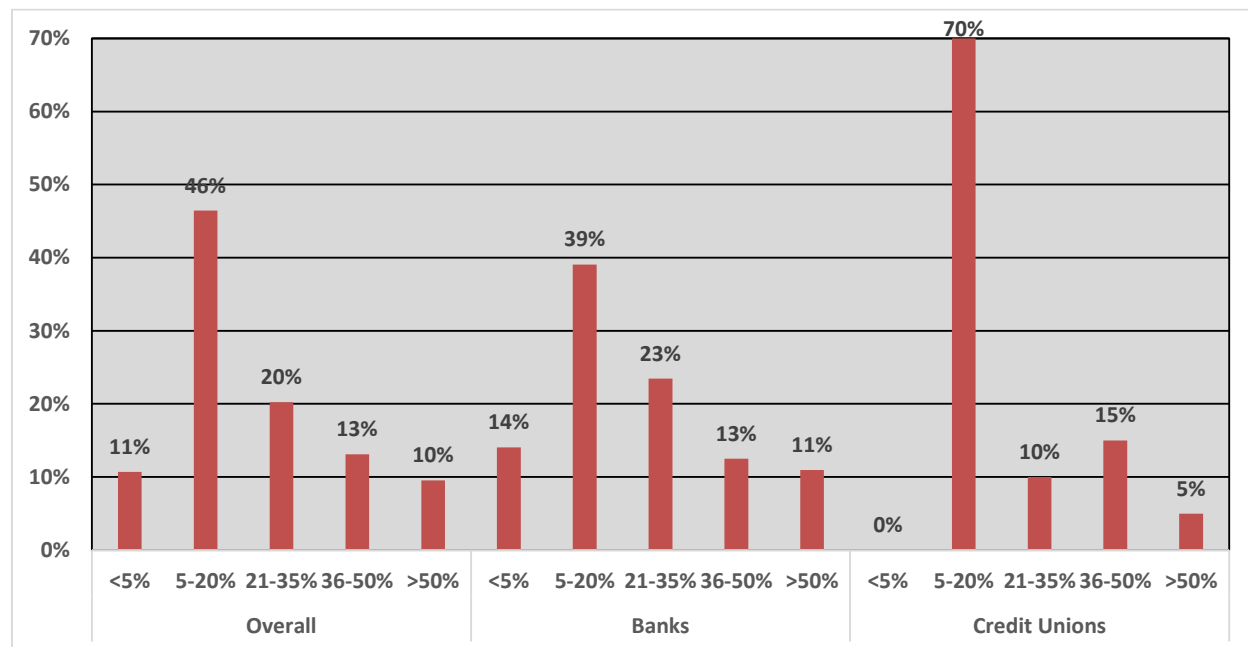
Chart 12 displays a similar distribution of FIs reporting customer **usage** levels of the mobile banking service within the last 90 days. Only 30 percent of the credit unions, compared to 47 percent of the banks, indicated that more than 20 percent of their customers are active users. More than two-thirds (70 percent) of the credit unions indicated their active customer range at less than 20 percent, compared to banks’ 53 percent.

⁷ In the 2014 survey, a range of 21–50 percent was a segment, and in the 2016 survey, this range was divided into two ranges: 21–35 percent and 36–50 percent.

Chart 12

Retail customers using mobile banking in last 90 days by percent segment

Q. What % of retail customers USED mobile banking within the last 90 days? (n=100)



Using the same assumed range midpoint, calculating a weighted average shows a reversal from the 2014 results (overall average of 16 percent), with the banks having a higher usage, at 26 percent, than the credit unions, at 22 percent. In the 2014 study, credit unions outpaced the banks in both enrollment and usage. The relative percentage of retail customers both enrolled and active is low and represents major potential for growth.

As in the 2014 survey, the usage results for mobile banking are lower than the 43 percent reported in the Federal Reserve Board’s 2016 Consumer and Mobile Financial Service survey.⁸ However, note that the Board’s survey uses a 12-month activity period, while this survey uses a 90-day period.

Business customer mobile banking service

Business customer offering

The survey asked the FIs about their intentions to offer their mobile banking services to their business customers. A greater percentage of banks (75 percent) indicated they offer or plan to offer mobile banking services to their corporate customers than did the credit union respondents (50 percent). These rates are similar to the results of the 2014 survey.

The survey had an additional question that asked about whether they offer or plan to offer some specific functions to their business customers through their mobile banking platform. The ability

⁸<https://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201603.pdf>

to check business account balances and monitor those accounts as well as the ability to transfer funds between accounts of that same business scored the highest, at 95 percent and 91 percent, respectively. As table 7 shows, the remaining services have a sharp drop-off. Additional services identified were bill payment and remote deposit capture.

Table 7
Mobile banking service offerings to business customers

Q. What mobile banking services do you (plan to) offer your BUSINESS customers? (n=80)

Service	Overall
Check corporate balances and monitor accounts	95%
Mobile funds transfer between same business accounts within FI	91%
Cash management function	55%
Mobile funds transfer between same business at another FI	31%
Administrative tools (e.g. setup, user management, password reset)	30%
Mobile funds transfer from one business customer to another business customer at same or different FI	9%
Mobile card acceptance plug-in reader/mobile POS (e.g. Square, Quickbooks GoPayment)	5%

Business customer mobile banking fees

More than two-thirds (69 percent) of these FIs indicated they do not currently or plan to charge a fee for any mobile banking services for their business customers. The percentages are the same for the banks and the credit unions. Table 8 lists the specific services queried.

Table 8
Business mobile banking services subject to fee

Q. Please indicate ALL services for which you charge (or plan to charge) a fee. (n=25)

Service	Overall
Mobile RDC (remote deposit capture)	68%
Other product/service (e.g. cash management)	91%
Flat monthly fee structure	48%
Transaction base fee structure	32%
Mobile transfer between same business customer's accounts at different FIs	20%
Mobile funds transfer between same business customer's accounts with FI	12%

Cash management is the most identified service that would be subject to a fee for those FIs that would charge a fee. Mobile remote deposit capture followed. The 2016 results differ little from the 2014 results, with the exception of mobile transfers between the same customer's accounts at different FIs. In 2014, 39 percent of the respondents indicated they would charge a fee for such a transaction, and this dropped to 20 percent in 2016.

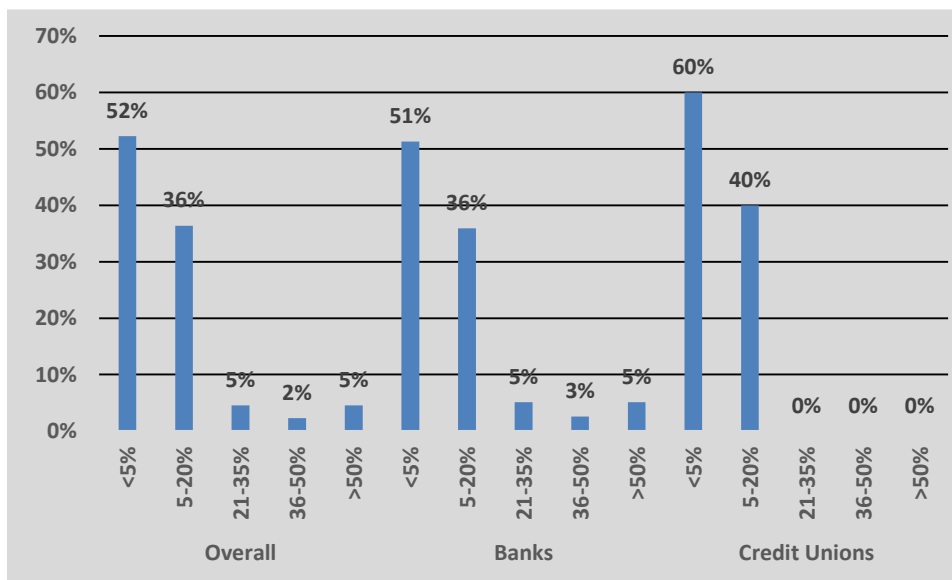
Business mobile banking enrollment and usage

As was done with the consumer mobile banking service, questions focused on the enrollment and usage levels by business customers. Enrollment and usage for business customers are significantly lower than for consumers in both types of FIs. More than half (52 percent) of the 44 respondents to the question have enrollment levels less than 5 percent. Overall, 88 percent of the FIs responding have enrollment levels less than 20 percent. None of the credit unions reported enrollment rates in excess of 20 percent. Using calculations similar to those in the consumer section results in an average enrollment percentage of 11 percent (see chart 13).

Chart 13

Business customers enrolled in mobile service by percent segment

Q. What % of business customers were enrolled? (n=44)

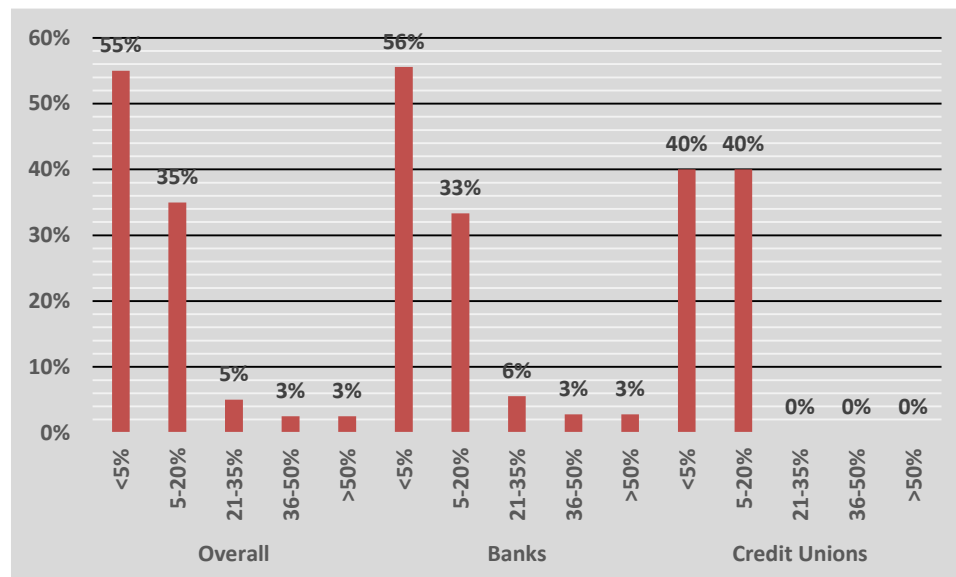


Ninety percent of the responding FIs indicated their active users' (at least one usage in the last 90 days) range is less than 20 percent. Only 3 percent of both the banks and credit unions reported having customer activity ranges in excess of 50 percent. Chart 14 shows the rates for the various segments by FI type.

Chart 14

Business customer using mobile service by percent segment

Q. What % of business customers USED mobile banking within the last 90 days? (n=44)



Business customer mobile banking challenges

The survey asked the FIs to identify the challenges they see in offering mobile banking services to their business customers from a given list but with the ability to note additional challenges not on the list. Table 9 shows the responses of the 66 FIs answering the question.

Table 9

Mobile banking services to business customers challenges

Q. What challenges do you see in offering mobile banking services to BUSINESS customers? (n=66)

Challenge	Overall
Implementation difficult or costly	39%
Available offering do not meet business customer's needs	33%
Available products are not suited to all FI segments	32%
Business banking software for mobile not available	23%

Other challenges identified by 16 of the respondents included:

- Security/risk (wires/ACH)
- Determining access restrictions/policies and managing same
- Small business customer base creating ROI challenge
- Issue with remote deposit check feature being able to handle multiple check items
- Fraud from duplicate deposits
- Pace of technology difficult to keep up with
- Marketing resources

Mobile Payments Survey Results

The second section of the survey deals with mobile payments and mobile wallets, which the survey defined:

Mobile payment is the use of a mobile phone to pay for purchase at retail point of sale (POS) or remotely via mobile web or app for digital content, goods, and services (such as transit, parking, rideshare, or ticketing). Payment at POS may be initiated using contactless near field communication or quick response code.

Mobile wallet is a secure container in a mobile phone that can store multiple payment credentials (including debit, credit, or prepaid cards; bank accounts; or token that substitutes for payment credentials) and value-added services, such as rewards and loyalty cards that the mobile phone user can securely access to manage and initiate payments.

Digital wallet stores payment credentials on a remote server (for example, a cloud).

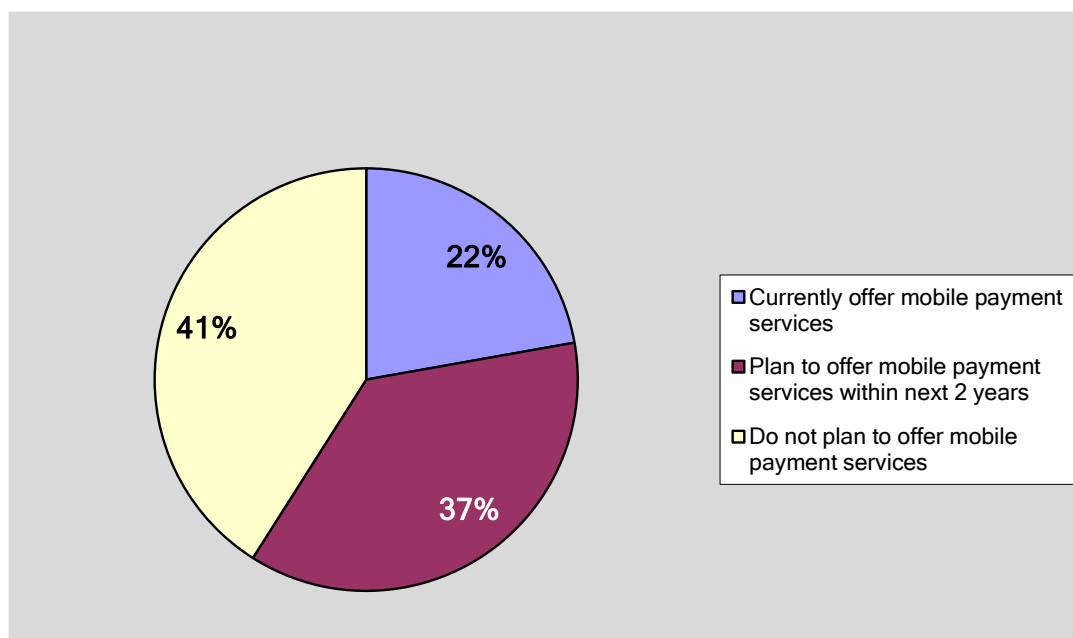
Mobile payments service offering

The respondents were asked to indicate whether they currently offer or plan to offer mobile payment services to their customers. Overall, 22 percent indicated they currently offer mobile payments; another 37 percent indicated they plan to make them available in the next one to two years. These figures are consistent with the responses from the 2014 survey: 59 percent of the respondents indicated they offered or were planning to offer the service.

Chart 15

Mobile payment offering plan status

Q. Do you offer or plan to offer mobile payment services to your customers? (n=117)

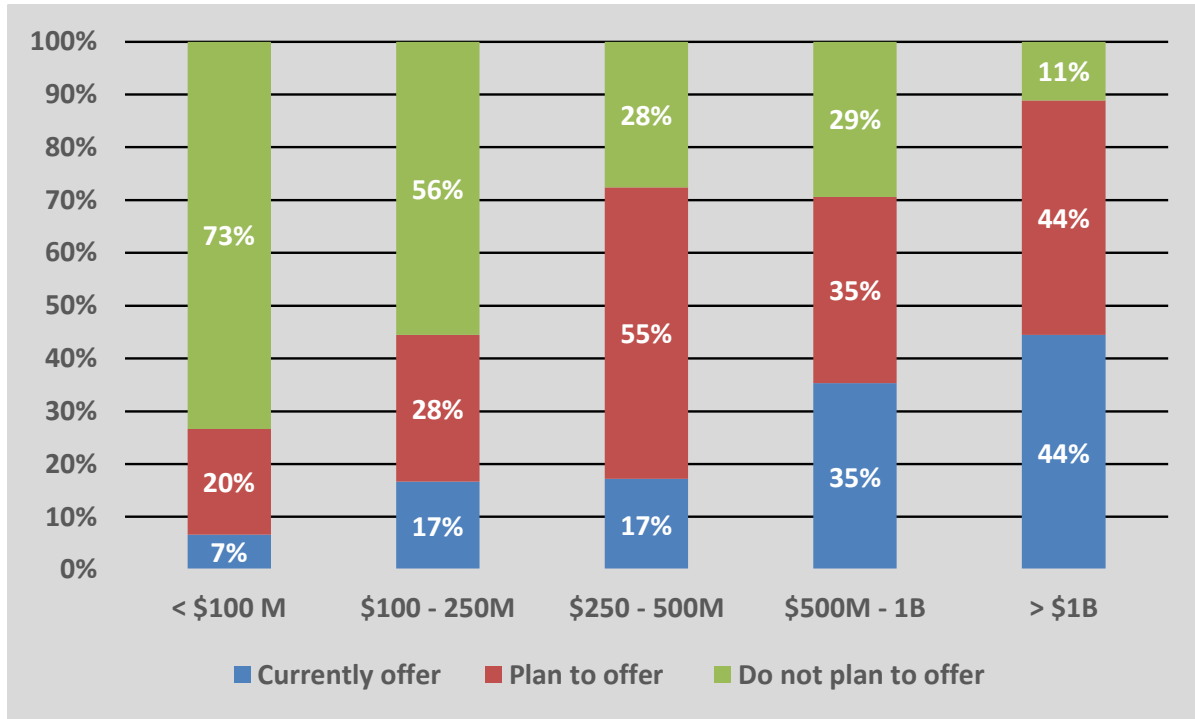


Credit unions outpaced banks two to one in offering mobile payment services, at 37 percent and 18 percent, respectively. The level of FIs that indicated they have no plans to offer mobile

payments services within the next two years remains essentially the same as the 2014 study, at 41 percent.

As chart 16 shows, the status of offering mobile payments varies greatly depending on the FI's asset size. Almost three-fourths (73 percent) of the FIs under \$100 million in assets indicated they do not plan to offer mobile payment services within the next two years. For FIs in the \$100 million to \$250 million asset size range, this percentage is still more than half (56 percent) of the responding FIs.

Chart 16
Mobile payment offering plan status by asset size (n=117)

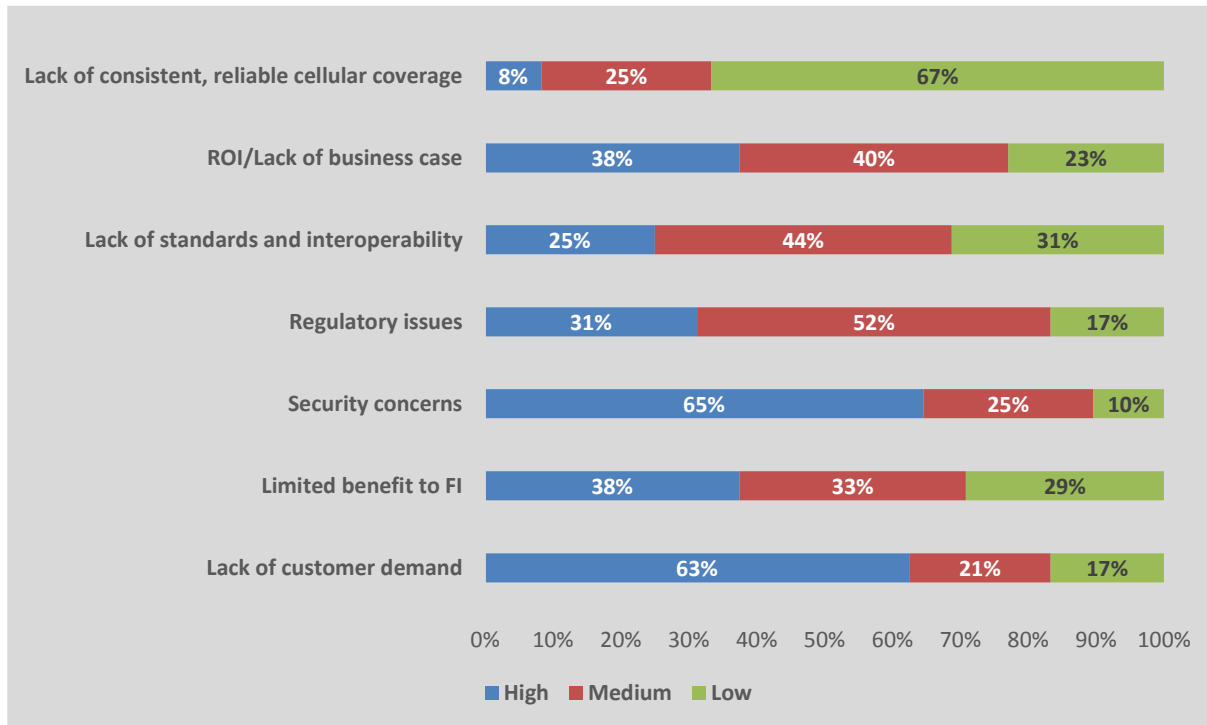


The participants that indicated they have no plans to offer the mobile payment/wallet service were asked to identify the top four reasons for their decision. As chart 17 below shows, security concerns and the lack of consumer demand garnered the greatest number of “High” ratings from the 48 respondents while the lack of consistent, reliable cellular coverage received the least number.

Chart 17

Importance of factors in not offering mobile payment/wallet services

Q. Please rate the importance of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. (n=48)



Regulatory issues received the greatest number of “Medium” ratings, followed by the lack of standards and interoperability and the issue of business case viability. A significant difference between the bank and credit union responses is that the credit unions rated the lack of standards and interoperability as having “Low” significance—at twice the rate of the banks. Also, the credit unions indicated that regulatory issues are a factor of “High” significance almost twice as much as the banks (44 percent to 28 percent, respectively).

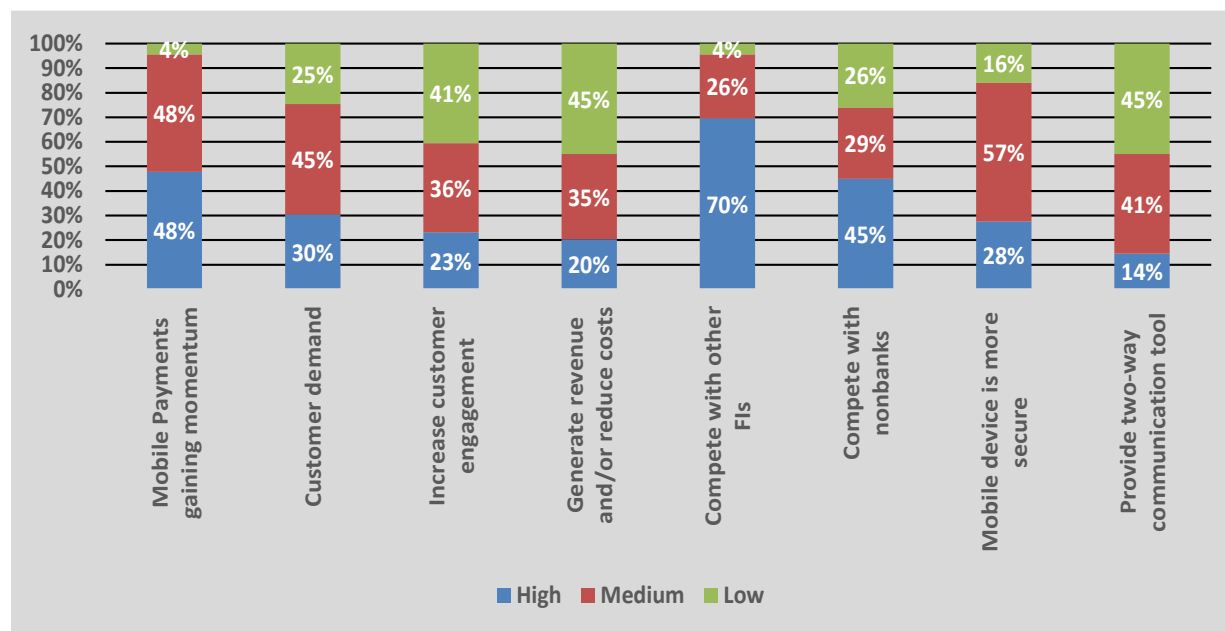
Mobile payments business case

The survey asked the participants to rate the importance of listed factors that influenced their decision or plans to offer mobile payments. As chart 18 shows, the need to compete with other FIs is the overall primary factor, with 70 percent of the 69 responding FIs rating it with a “High” importance level. The factors “mobile payments gaining momentum” and “competing with non-banks” also received large percentages of “High” ratings, at 48 percent and 45 percent, respectively. Increased customer engagement, revenue generation or cost reduction, and the ability to provide a two-way communication tool are factors receiving the greatest number of “Low” ratings. It is particularly interesting to see the recognition within the FI industry that the mobile device is more secure. The reader will recall from table 5 that security is listed as the top concern of 70 percent of the respondents. Mobile payment marketing messages should incorporate the increased security features that a mobile phone provides to encourage greater customer adoption and usage.

Chart 18

Importance of factors in offering mobile payments

Q. Please rate the importance of factors that influenced your decision or plans to offer mobile payments. (n=69)



The survey asked under what type of relationship they offer or plan to offer their mobile payment/wallet service, recognizing they may offer multiple wallet services under different types of relationships. More than three-fourths (78 percent) of the 69 respondents indicated they currently or would partner with a third-party payment processor. Just more than half (51 percent) are partnering or will partner with an NFC-enabled wallet provider such as Apple Pay, Android Pay, or Samsung Pay. One-third of the FIs indicated they partner with a card network. Two of the large FIs (over \$1 billion in assets) indicated they have developed their own mobile payment solution.

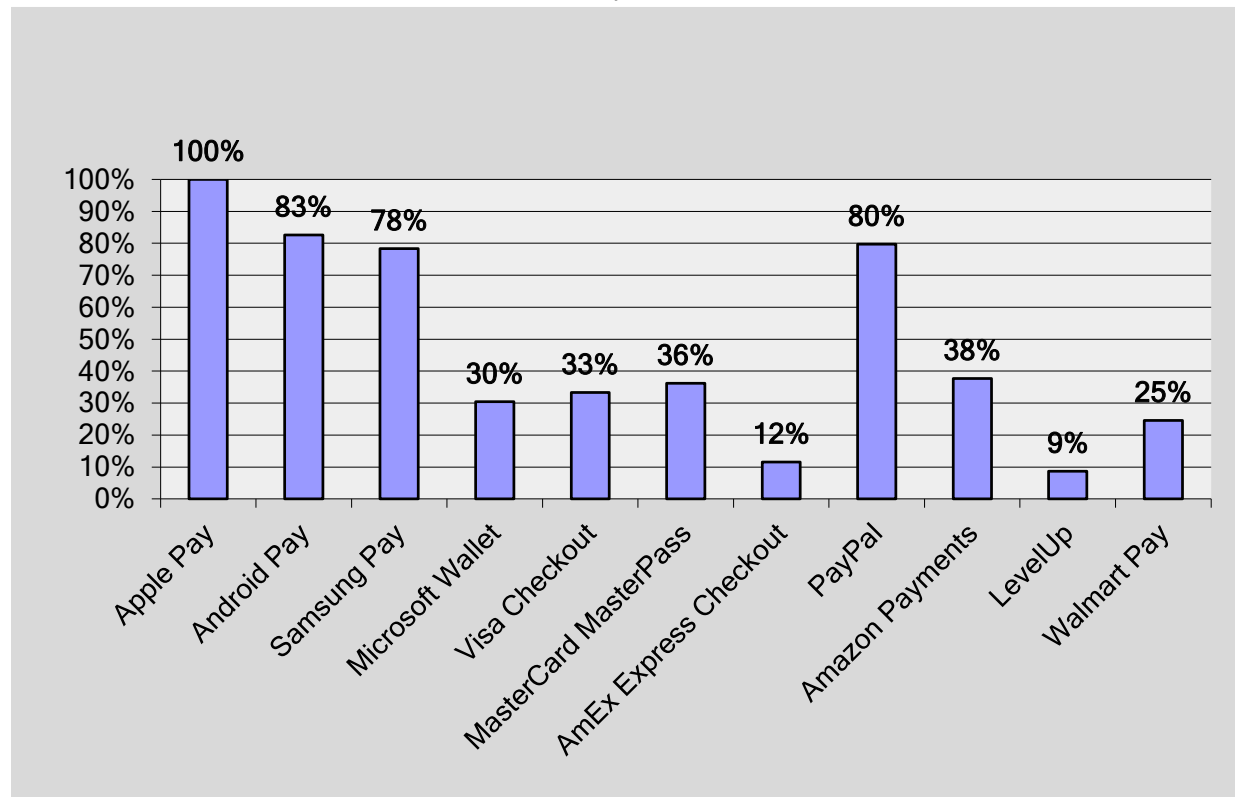
Mobile wallet services familiarity

As noted earlier, the 2014 survey was conducted before the announcement of the Apple Pay wallet service in September 2014. Since that time, numerous other mobile and digital wallets have been introduced or rebranded, including Android Pay, Samsung Pay, and Walmart Pay. To gauge the FIs’ familiarity with the wide range of mobile and digital wallets in the U.S. marketplace, the survey asked FIs to indicate those mobile wallet services with which they are familiar. As chart 19 shows, 100 percent of the 69 respondents recognize ApplePay. Android Pay is second, with 83 percent recognition, followed closely by PayPal, at 80 percent, and Samsung Pay, at 78 percent. The wallets with the lowest rate of recognition are American Express Checkout at 12 percent and LevelUp at 9 percent.

Chart 19

Mobile wallet recognition

Q. Please indicate the mobile wallet service(s) that you are familiar with. (n=69)



Mobile wallet services offering

The survey next asked which of the mobile wallets services FIs currently or plan to offer, again recognizing that an FI could offer multiple mobile wallet services to its customers. One hundred percent of the 60 respondents indicated they currently or plan to support the Apple Pay wallet, followed by Android Pay at 83 percent and Samsung Pay at 74 percent (see table 10). The card brands’ digital wallets all have a current penetration rate of 7 percent or less, with future levels totaling less than 20 percent.

Table 10

Mobile Wallet Service Offering

Q. Which of the following MOBILE WALLET service(s) do you offer or plan to offer? (n=60)

Service Offering	Currently Offer	Plan to Offer
Apple Pay	53%	47%
Android Pay	15%	68%
Samsung Pay	22%	52%
Microsoft Wallet	3%	7%
Visa Checkout	7%	10%
MasterCard MasterPass	3%	10%
American Express Checkout	2%	2%

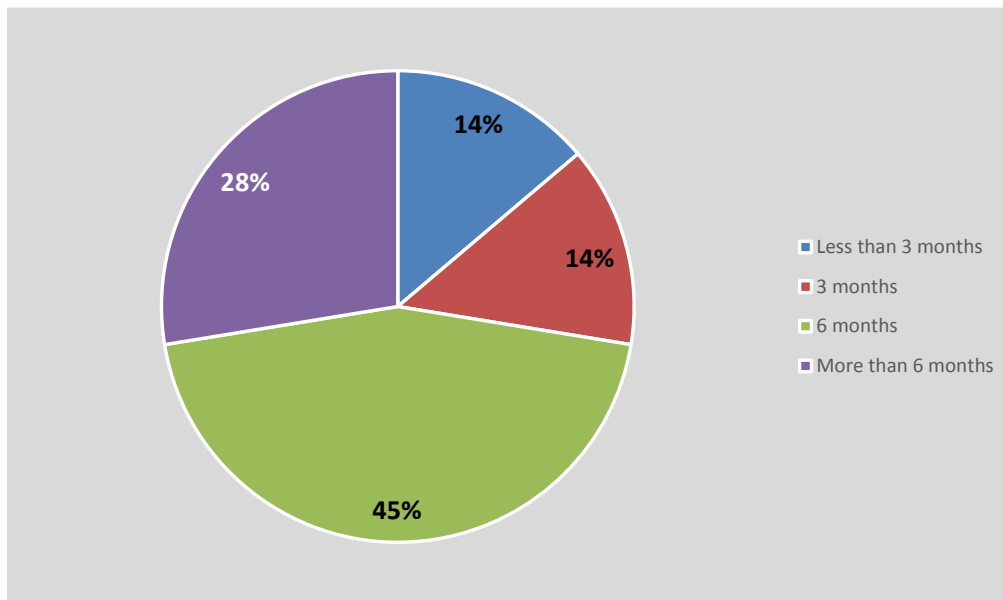
NFC mobile wallet implementation timeframe and barriers

As chart 20 shows, of the 29 FIs with timeframes to report, nearly half (45 percent) indicated they are able to implement their NFC mobile wallet service in approximately six months. Just over one-fourth (28 percent) indicated it would take longer than six months, and an equal percentage would complete their implementation in three months or less.

Chart 20

Time required to implement NFC mobile wallet service

Q. About how much time did it take for your FI to implement the NFC MOBILE WALLET service? (n=29)



Thirty-seven FIs responded to the question inquiring about the challenges experienced in implementing their NFC mobile wallet service. Sixty percent indicated they incurred delays

waiting for certification from the card networks or their processor. More than a third (35 percent) cited a lengthy processor queue as well as software development and testing. Approximately one-fourth (24 percent) identified customer and staff training as a challenge. While the relative rankings of the listed factors are the same between the banks and credit unions, a higher percentage of credit unions (75 percent) reported certification waits from their processor or card brand than did banks (52 percent).

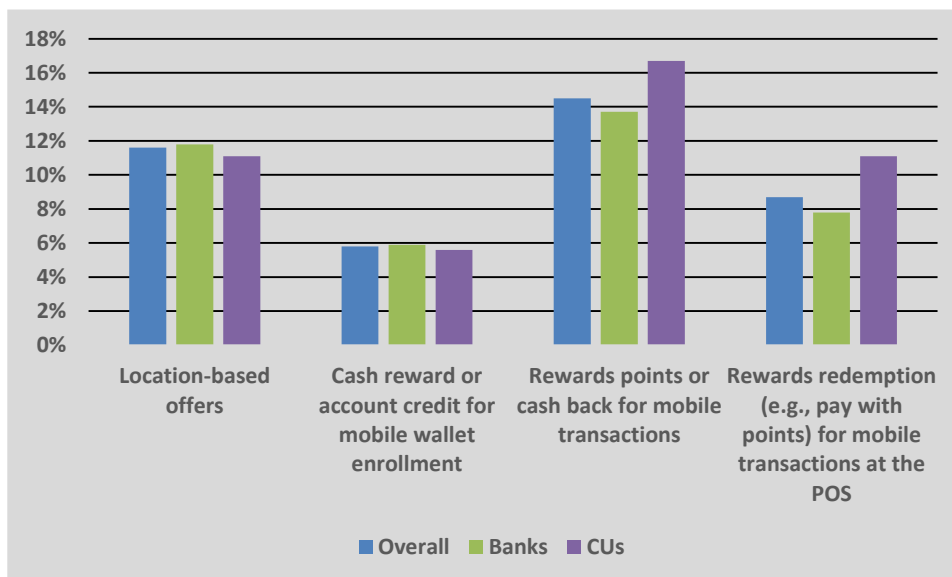
Mobile payment incentives

The survey asked FIs to identify from a designated list what types of incentives that were tied to mobile payments or wallets they currently offer or plan to offer. While five of the 69 respondents were undecided as to how they are going to address this issue, 70 percent indicated they do not currently or would not be offering any incentives.

Chart 21

Mobile payment /wallet program incentives

Q. What types of incentives tied to mobile payments/wallets do you offer or plan to offer? (n=21)



As chart 21 shows, less than 15 percent of the respondents overall identified all the listed incentive methods, with little difference between banks and credit unions.

Mobile payment/wallet enrollment and usage

Wallet providers and FIs have generally not made enrollment and usage data publically available, so we were interested to see how the FIs in the various districts were faring. Although we would consider this a basic program metric, almost 40 percent of the 35 FIs with an operational mobile wallet program indicated they do not track their enrollment and usage data points. Of those that do, 86 percent indicated that their enrollment levels are both under 5 percent. All of the credit unions reported enrollment and usage levels under the 5 percent level. Only one of the FIs reported an enrollment level in the 21–35 percent range, and none of the FIs reported enrollment or usage levels greater than 50 percent.

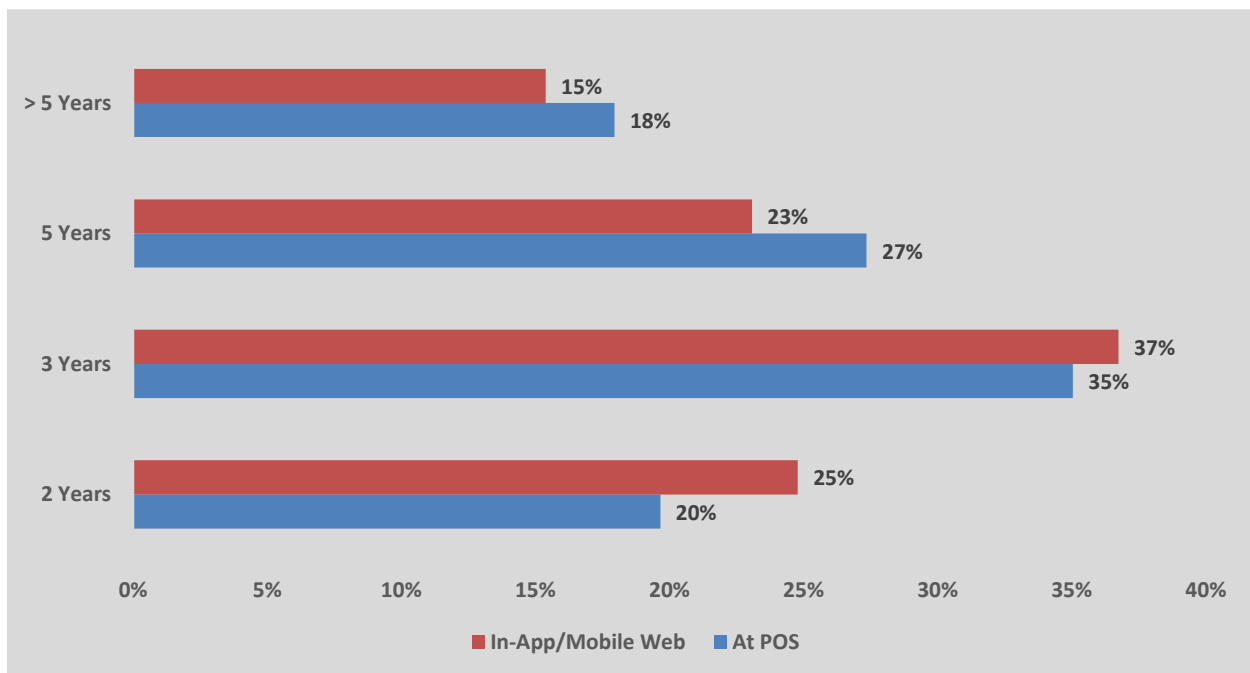
Mobile payment/wallet adoption

The participants provided their opinion about how long they thought it would take to achieve industry-wide consumer usage—that is, at least 50 percent of customers making one mobile payment within 90 days. As chart 22 shows, the outlook is generally a long-term one. Only 20 percent and 25 percent think that goal would be achieved at the POS and using applications or the mobile browser respectively within the next two years. Slightly more than half (55 percent) thought it would happen at the POS within three years and 18 percent thought it would be more than five years out. Respondents indicated that the in-app/mobile browser would ramp up faster, with 62 percent believing it would be three years or less but 15 percent believing it will take more than five years.

Chart 22

Consumer mobile payment adoption timeframe

Q. In your opinion, how long do you think it will take for industry-wide CONSUMER adoption of mobile payments to exceed 50%? (n=117)



Business customer mobile payment/wallet offering

Respondents were asked if they currently offer or plan to offer mobile payment/wallet services to their business customers. Twenty percent of the 69 respondents indicated they currently make the service available to their business customers and an additional 25 percent indicated they plan to do so within the next two years. Surprisingly, only 43 percent of the business banks, compared to 50 percent of the credit unions, currently offer or plan to offer this service to their business customers.

Barriers to mobile payments adoption

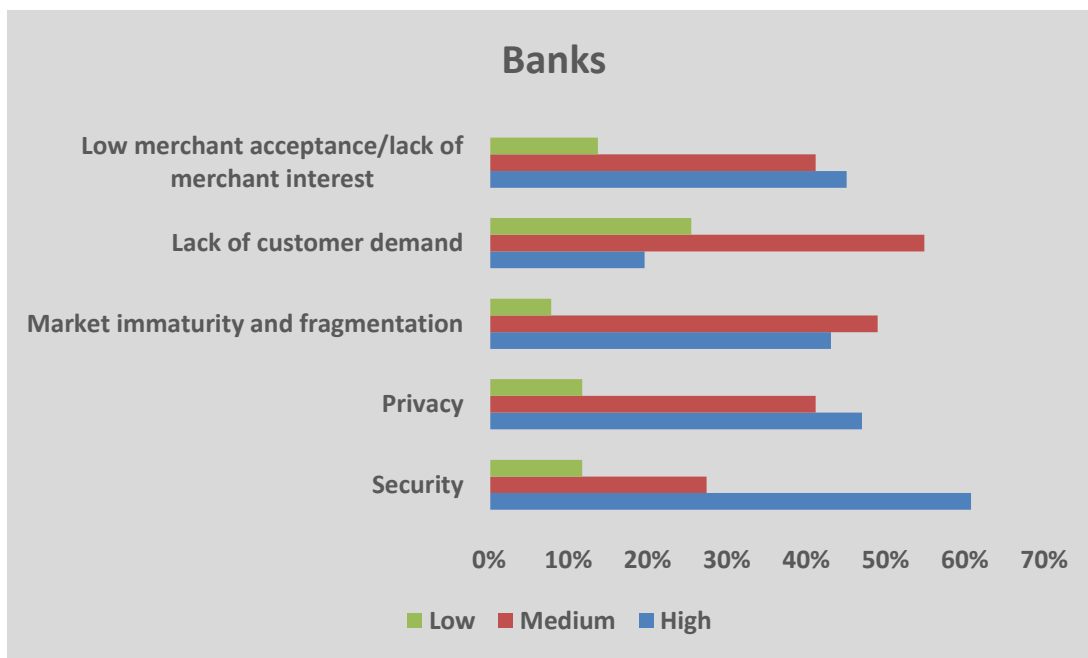
The FIs were asked to rate the relative significance of a list of barriers to the consumer adoption of mobile payments. Overall, the greatest number of the 69 respondents gave security a high significance. Low merchant acceptance, privacy, and market fragmentation/immaturity also scored as major barriers in the overall ratings.

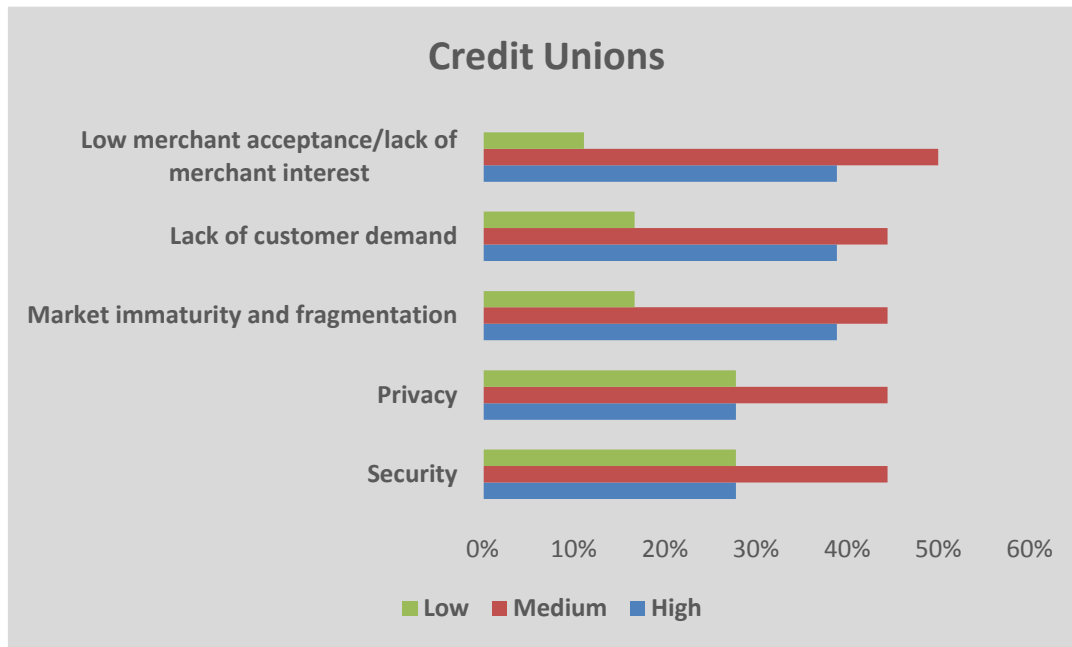
Banks and credit unions differ significantly in the relative ratings they gave (see chart 23). The credit unions gave 40–55 percent fewer “High” significance ratings to security and privacy but cited lack of consumer demand twice as frequently as banks as a barrier of high significance. Conversely, they rated security, privacy, and market fragmentation/immaturity with “Low” ratings twice as frequently as banks.

Chart 23

Barriers to mobile payment adoption by consumers

Q. From your FI's perspective, please RATE the SIGNIFICANCE of these barriers to consumer adoption of mobile payments. (n=69)





Mobile payments security

The survey first asked the FIs to identify from a given list of eight security tools which ones they currently or plan to use. They were also given the opportunity to identify any additional tools not listed, but respondents did not identify any. As table 11 shows, biometrics is the tool most often cited by both banks and credit unions, followed by payment tokenization and the notification of the status of a payment credential enrollment to a mobile wallet.

Table 11.

Usage of mobile security tools

Q. Do you use or plan to use the following mobile security tools? (n=69)

Tool	Overall	Banks	Credit Unions
Biometrics	77%	75%	83%
Geo-location	46%	49%	39%
Payment tokenization	58%	55%	67%
Notification of card provisioning status/attempt	57%	67%	28%
Mobile device ID	52%	63%	22%
One-time password	19%	22%	11%
Remotely disable mobile wallet if phone lost/stolen	48%	51%	39%
3-D Secure for ecommerce transactions	12%	16%	0%

For the credit unions, one-time passwords and 3-D Secure are not security tools they plan to use to any degree. Although these two tools realized a greater response for use from banks, they also are the two lowest.

In another security question, FIs rated the importance of their security concerns associated with the mobile payment/wallet service. While at least 35 percent of the respondents rated all the factors high, the highest factor is inadequate customer security behavior.⁹ Inadequate mobile device security, data breaches, and card-not-present fraud are an additional three factors receiving “High” ratings from at least half of the respondents.

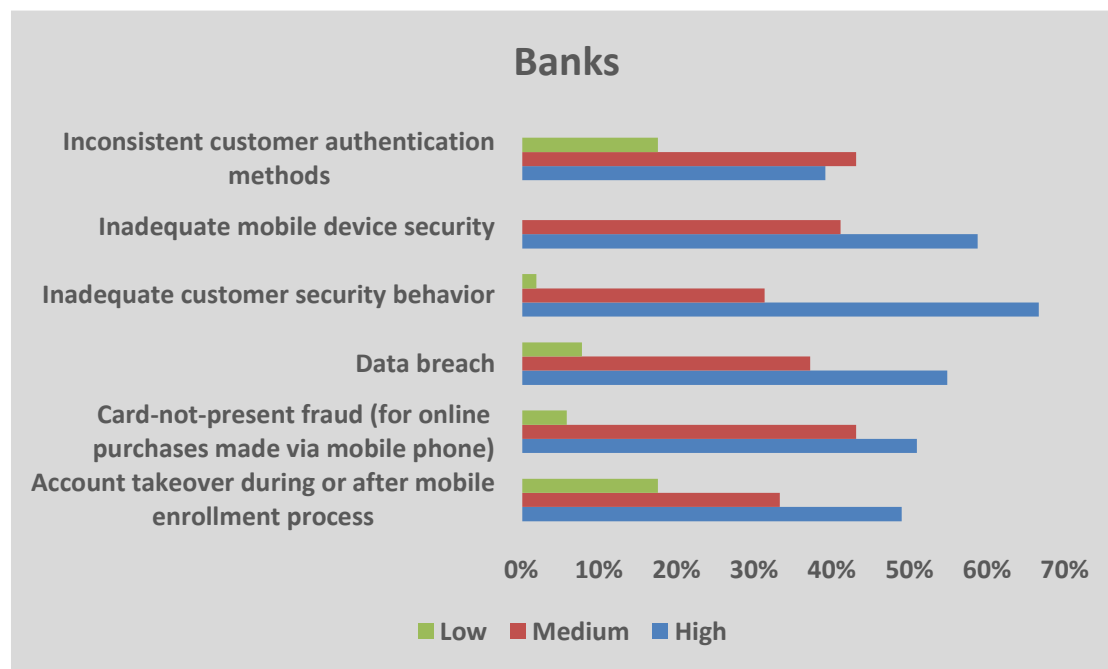
Chart 24 shows a number of differences in the ratings between the banks and the credit unions. Banks indicated greater levels of concern than credit unions, giving a higher percentage of “High” ratings to the following four factors:

- Account takeover during or after mobile enrollment process (49 percent versus 28 percent)
- Inadequate customer security behavior (67 percent versus 50 percent)
- Inadequate mobile device security (59 percent versus 44 percent)
- Inconsistent customer authentication methods (39 percent versus 22 percent)

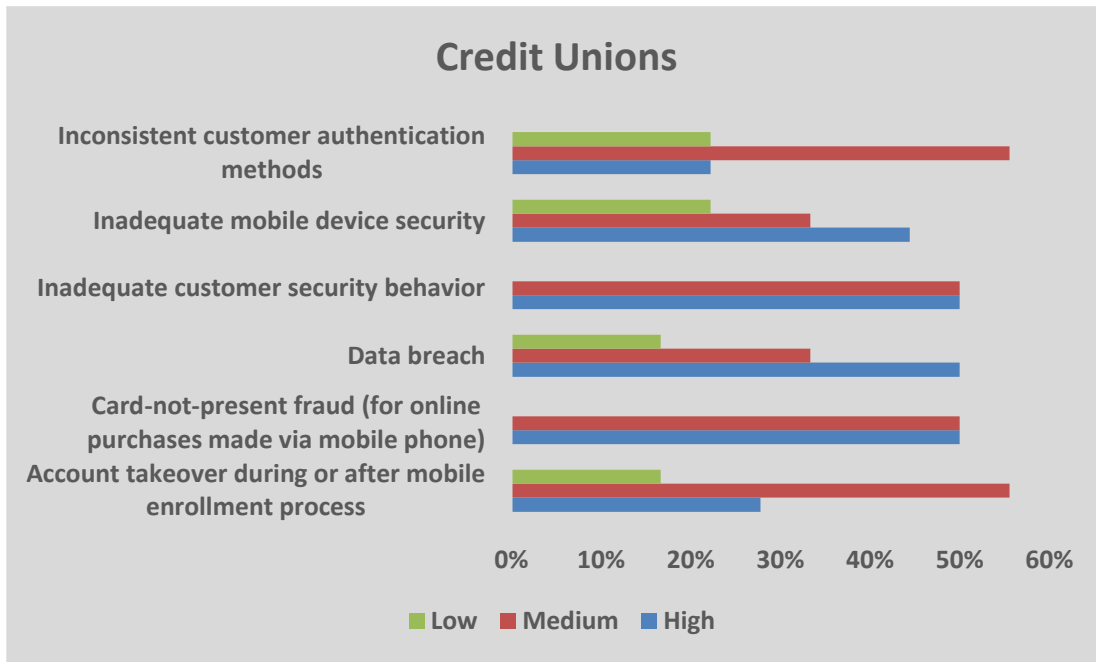
Chart 24

Security-related concerns with mobile payment services

Q. Please rate the importance of your FI’s security-related concerns associated with mobile payment services.



⁹ This factor was described in the survey document as “Consumer may use unsecured network, not use antivirus solutions, not set-up mobile password, not protect device from theft or loss.”



In the last of the security-themed questions, the survey asked if the FI thinks that a mobile payment that uses payment tokenization and biometrics is more secure than a card payment. The bank respondents indicated “Yes” 96 percent of the time compared to the credit unions at 89 percent, for an overall score of 94 percent. Based on some of the comments, additional education on tokenization and biometrics needs to take place as some respondents indicated they need more information about the two technologies before they can answer the question.

Role of the Federal Reserve System

In the final question of the survey, the FIs were asked to share their ideas on the role(s), if any, that the Federal Reserve System (FRS) can play to help the FIs increase their knowledge of mobile banking and payments. We received a total of 25 responses. By far, the most common suggestion (12 respondents) is for the Fed to conduct presentations or webinars on mobile banking and payments to better educate FI personnel, as well as share adoption and usage data. Related comments suggest that such educational efforts should be vendor-neutral.

Other comments suggest the Fed take a more active position in encouraging mobile wallet adoption. A couple of comments regarding regulatory oversight request that the Fed evaluate regulations so they are reasonable and appropriate as well as to ensure that a level playing field between small and large financial institutions—especially regarding the development of closed payment processing arrangements.

APPENDIX



2016 Federal Reserve Mobile Banking and Payments Survey

Please complete this online survey to help us better understand your organization’s mobile banking and payments initiatives and service offerings. Your responses are very important. They will enable us to give you a detailed description of mobile banking and payments activities at financial institutions within our region. Your responses will be kept confidential and data will be consolidated at the district level with no individual financial institution data being reported.

Survey Instructions:

Please answer all questions. If a question is not applicable, please answer using the “Other: (please specify)” option.

If more than one person from the same financial institution receives this survey, please consolidate your responses into a single survey.

If completing this survey using the PDF format, please scan completed survey and send as an attachment to Elisa.Tavilla@bos.frb.org.

Thank you for taking the time to complete this survey.

Section 1: Respondent Profile

1. Financial institution name: _____
2. ABA number: _____
3. Contact name: _____
4. Contact title: _____
5. Functional area of contact (e.g., business line, operations, etc.): _____
6. Email*: _____
7. Contact phone: (optional) _____

*An electronic copy of the survey results report will be emailed to respondents.

Section 2: Demographics

8. Corporate address:
Address line 1: _____
Address line 2: _____
City/town: _____
State: _____
ZIP: _____
9. What is your FI's asset size?
 - < \$100 Million
 - \$100 Million to \$250 Million
 - \$250 Million to \$500 Million
 - \$500 Million to \$1 Billion
 - > \$1 Billion
10. Please indicate your financial institution type:
 - Commercial bank
 - Cooperative or mutual bank
 - Credit union
 - Savings bank
 - Other: (please specify) _____
11. Please indicate to whom you provide services. (Check ALL that apply)
 - Consumers (retail customers)
 - Corporate/commercial entities
 - Small businesses
 - Government agencies (including local)
 - Educational and/or non-profit
 - Other: (please specify) _____

Section 3: Consumer Mobile Banking

Please refer to the definition below for questions in the **MOBILE BANKING** section:

MOBILE BANKING is the use of a mobile phone to connect to a financial institution (FI) to access bank/credit account information (e.g., view balance), transfer funds between accounts, pay bills, receive account alerts, locate ATMs, deposit checks, etc.

12. When did you start offering mobile banking to **CONSUMERS**? (Check only ONE)

- More than one year ago
- Within the past year
- Currently do not offer mobile banking, but plan to offer within next 2 years
- Do not plan to offer mobile banking*

*If you checked "Do not plan to offer mobile banking," please go directly to [Question 34](#) on Page 9.

13. What is your **PRIMARY** business reason for offering or planning to offer mobile banking? (Check only ONE)

- Retain existing customers
- Attract new customers
- Be market leader with technology
- Competitive pressure
- Increase revenue
- Other: (please specify) _____

14. Which mobile operating system(s) (OS) does or will your mobile banking application support? (Check ALL that apply)

- Apple iOS
- Google Android
- Windows Phone
- Blackberry
- Other: (please specify) _____

15. Do you offer or plan to offer mobile banking services to consumers via a tablet? (Check ALL that apply)
- iPad
 - Android
 - Kindle
 - No
 - Other: (please specify) _____

16. Who provides or will provide your mobile banking services?
- Core deposit processor or online banking provider
 - Mobile solution provider
 - In-house system
 - Other: (please specify): _____

17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply)

Mobile Banking Feature	Currently offer	Plan to offer	No plans to offer
Check balances (DDA, Savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View statements and/or transaction history (DDA, Savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View credit card balances, statements and/or transaction history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill presentment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transfer funds between same owner's accounts within your FI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transfer funds between same owner's accounts at different FIs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile person-to-person payment (P2P)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mobile remote deposit capture (RDC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ATM/branch locator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal financial management (PFM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Access to brokerage services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cross-border payments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Do you offer or plan to offer the following mobile features? (Check ALL that apply)

- Enroll for mobile banking using a mobile device (mobile enrollment)
- Open accounts over mobile device (mobile account opening)
- Single sign-on/authentication credentials for online and mobile services
- Multilingual mobile website or app
- None

19. Do you market or plan to market any mobile banking products to the underbanked?

- Yes, market today
- Yes, plan to market within next 2 years
- No

20. What percentage of your **RETAIL** customers has used your mobile banking services?

% of customers ENROLLED	% of customers who USED services within last 90 days
<input type="checkbox"/> Not yet offered	<input type="checkbox"/> Not yet offered
<input type="checkbox"/> <5%	<input type="checkbox"/> <5%
<input type="checkbox"/> 5-20%	<input type="checkbox"/> 5-20%
<input type="checkbox"/> 21-35%	<input type="checkbox"/> 21-35%
<input type="checkbox"/> 36-50%	<input type="checkbox"/> 36-50%
<input type="checkbox"/> >50%	<input type="checkbox"/> >50%
<input type="checkbox"/> Do not track customer enrollment	<input type="checkbox"/> Do not track customer use

21. For your FI, which are the **THREE** most common barriers to greater **CONSUMER** adoption of mobile banking? (Check only THREE)

- Ineffective marketing by FIs
- Security concerns
- Difficulty of use
- Lack of trust in the technology
- Banking needs are being met through other channels
- Do not see any reason to use mobile banking
- Other: (please specify) _____

22. Do you charge or plan to charge a fee for any **CONSUMER** mobile banking services?

- Yes
- No*

*If you checked "No," please go directly to [Question 24](#) on Page 6.

23. Please indicate **ALL** services for which you charge or plan to charge a fee. (Check ALL that apply)

- Mobile RDC
- Mobile P2P
- Mobile funds transfer between same customer's accounts within your institution
- Mobile funds transfer between same customer's accounts at different FIs
- Other: (please specify)_____

Section 4: Consumer Mobile Banking Security

24. What types of mobile alerts does your FI offer or plan to offer? (Check ALL that apply)

- Insufficient funds
- Low balance
- Credit card balance close to or over limit
- Online purchase (card-not-present) transaction
- Funds transfer completed
- Credit payment confirmation
- Bill payment due
- International charge/debit
- Suspicious activity/other fraud monitoring alerts
- Two-way actionable alerts (e.g., FI sends customer insufficient funds alert, customer replies to schedule transfer)
- Other: (please specify)_____

25. Please **RATE** the **IMPORTANCE** of your FI's security concerns associated with offering mobile banking services to consumers.

	High	Medium	Low
Data breach			
Weak authentication*			
Identity theft			
Inadequate customer protection behavior**			

*e.g., 'Easy to guess' password or answers to security questions

**e.g., Consumer may use unsecured network, not use antivirus solutions, not set-up mobile password, not protect device from theft or loss

26. Which of the following card control features does your FI's mobile banking app support or plan to support? (Check ALL that apply)

- Activate new card
- Change PIN
- Order a replacement card
- Turn payment card on or off if lost/stolen
- Block use of credit and/or debit card
- Set travel notification
- None

27. Which of the following does your FI use or plan to use to enhance mobile security? (Check ALL that apply)

- Multi-factor authentication
- Time-out due to inactivity
- Out-of-band authentication (e.g., calls/texts to alternate phone number)
- Login with PIN
- Biometrics (e.g., fingerprint, facial, voice recognition, etc.)
- Mobile notifications (e.g., SMS text message, push notifications)
- Mobile device ID
- Geo-location
- Other: (please specify)_____

Section 5: Business Mobile Banking

28. Do you offer or plan to offer mobile banking services to your **BUSINESS** customers?

- Yes
- No*

* If you checked "No," please go directly to [Question 35](#) on Page 10.

29. What mobile banking services do you offer or plan to offer within the next 2 years to your **BUSINESS** customers? (Check ALL that apply)

- Check corporate balances and monitor accounts
- Cash management functions
- Mobile funds transfer between same business customer's accounts within your institution
- Mobile funds transfer between same business customer's accounts at different FIs
- Mobile funds transfer from one business customer's account to another business customer's account at same or different FIs
- Administration tools (e.g., setup and manage users, reset passwords, etc.)
- Mobile card acceptance plug-in reader/mobile POS (e.g., Square, QuickBooks GoPayment)
- Other: (please specify) _____

30. Do you charge or plan to charge your **BUSINESS** customers a fee for any mobile banking services?

- Yes
- No*

* If you checked "No," please go directly to [Question 32](#) on Page 9.

31. Please indicate **ALL BUSINESS** services for which you charge or plan to charge a fee. (Check ALL that apply)

- Mobile RDC
- Other product /service (e.g., cash management) transaction fee
- Mobile funds transfer between same business customer's accounts within your institution
- Mobile funds transfer between same business customer's accounts at different FIs
- Commercial/small business customers flat monthly fee for services
- Commercial/small business customers by transaction type or volume
- Other: (please specify) _____

32. What percentage of your **BUSINESS** customers has used your mobile banking services?



% of customers ENROLLED	% of customers who USED services within last 90 days
<input type="checkbox"/> Not yet offered <input type="checkbox"/> <5% <input type="checkbox"/> 5-20% <input type="checkbox"/> 21-35% <input type="checkbox"/> 36-50% <input type="checkbox"/> >50% <input type="checkbox"/> Do not track business customer enrollment	<input type="checkbox"/> Not yet offered <input type="checkbox"/> <5% <input type="checkbox"/> 5-20% <input type="checkbox"/> 21-35% <input type="checkbox"/> 36-50% <input type="checkbox"/> >50% <input type="checkbox"/> Do not track business customer use

33. What challenges do you see in offering mobile banking services to your **BUSINESS** customers? (Check ALL that apply)

- Business banking software for mobile not available
- Available products do not meet business customer needs
- Available products are not suited to all FI segments
- Implementation difficult or costly
- Other: (please specify) _____

34. Please **RATE** the **IMPORTANCE** of factors that influenced your decision **NOT TO OFFER** mobile banking services.

	High	Medium	Low
Lack of customer demand			
Security concerns			
Regulatory issues			
Lack of standards and interoperability			
ROI/Lack of business case			
Lack of consistent, reliable cellular coverage			
Processor does not offer a solution			
Lack of resources to offer in-house solution			
Other: (please specify)			

Section 6: Mobile Payments

Please refer to the definition below for questions in the **MOBILE PAYMENTS** section:

MOBILE PAYMENT is the use of a mobile phone to pay for a retail purchase at point of sale (POS) using near field communication (NFC) or quick response (QR) code, or to pay remotely via mobile app or web for digital content, goods and services (e.g., transit, parking, ticketing, etc.).

MOBILE WALLET is an app within the mobile phone that controls access to credit, debit, prepaid or bank account credentials (or payment token substitutes) stored securely in the mobile phone and used to pay for mobile purchases.

35. Do you offer or plan to offer mobile payment/wallet services to consumers?

- Currently offer mobile payment services
- Plan to offer mobile payment services within next 2 years
- Do not plan to offer mobile payment services*

*If you checked “Do not plan to offer mobile payment services,” please go directly to [Question 48](#) on Page 15.

36. Please **RATE** the **IMPORTANCE** of factors that influenced your FI’s decision to offer or plan to offer mobile payments.

	High	Medium	Low
Mobile payments are gaining momentum			
Customer demand			
Increase customer engagement with loyalty, rewards, and other incentives			
Generate revenue and/or reduce costs			
Compete with other FIs			
Compete with nonbanks (e.g., Amazon, Apple, Google, PayPal, etc.)			
Mobile device is more secure than card or other payment methods			
Provide two-way mobile communication tool with customers			
Other: (please specify)			

37. Please indicate the mobile wallet service(s) that you are familiar with. (Check ALL that apply)

- Apple Pay
- Android Pay
- Samsung Pay
- Microsoft Wallet
- Visa Checkout
- MasterCard MasterPass
- AmEx Express Checkout
- PayPal
- Amazon Payments
- LevelUp
- Walmart Pay
- Other: (please specify) _____

38. How do you offer or plan to offer mobile payment/wallet services? (Check ALL that apply)*

- Partner with a card network (e.g., AmEx, MasterCard, Visa or Discover to offer online digital wallet (check-out) services via mobile)
- Partner with a NFC-enabled wallet provider (e.g., Apple Pay, Android Pay, Samsung Pay)
- Partner with third-party payment processor (e.g., FIS, Fiserv)
- Develop your own mobile payment solution (e.g., Capital One Wallet, Chase Pay, CU Wallet, Wells Fargo Wallet)
- Other: (please specify) _____

*If you did not check at least one of the first two answers, please go directly to [Question 42](#) on Page 12.

39. Which of the following **MOBILE WALLET** service(s) do you offer or plan to offer? (Check ALL that apply)

Mobile Wallet	Currently offer	Plan to offer
Apple Pay	<input type="checkbox"/>	<input type="checkbox"/>
Android Pay	<input type="checkbox"/>	<input type="checkbox"/>
Samsung Pay	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Wallet	<input type="checkbox"/>	<input type="checkbox"/>
Visa Checkout	<input type="checkbox"/>	<input type="checkbox"/>
MasterCard MasterPass	<input type="checkbox"/>	<input type="checkbox"/>
AmEx Express Checkout	<input type="checkbox"/>	<input type="checkbox"/>
Other: (please specify)	<input type="checkbox"/>	<input type="checkbox"/>

40. About how much time did it take for your FI to implement the **NFC MOBILE WALLET** service? (If you have not implemented NFC Mobile Wallet service, please check 'N/A')

- Less than 3 months
- 3 months
- 6 months
- More than 6 months
- N/A

41. What challenges did your FI experience implementing the **NFC MOBILE WALLET**? (Check ALL that apply)

- Waiting for certification from card networks or processors
- Lengthy processor queue
- Software development and testing
- Customer/staff training, education, etc.
- Other: (please specify) _____

42. What types of incentives tied to mobile payments/wallets do you offer or plan to offer? (Check ALL that apply)

- Location-based offers
- Cash reward or account credit for mobile wallet enrollment
- Rewards points or cash back for mobile transactions
- Rewards redemption (e.g., pay with points) for mobile transactions at the POS
- None
- Other: (please specify) _____

43. What percentage of your **RETAIL** customers uses your mobile payment/wallet services?

% of customers ENROLLED	% of customers who USED services within the last 90 days
<input type="checkbox"/> Not offered yet <input type="checkbox"/> <5% <input type="checkbox"/> 5-20% <input type="checkbox"/> 21-35% <input type="checkbox"/> 36-50% <input type="checkbox"/> >50% <input type="checkbox"/> Do not track customer enrollment	<input type="checkbox"/> Not offered yet <input type="checkbox"/> <5% <input type="checkbox"/> 5-20% <input type="checkbox"/> 21-35% <input type="checkbox"/> 36-50% <input type="checkbox"/> >50% <input type="checkbox"/> Do not track customer use

44. From your FI's perspective, please **RATE** the **SIGNIFICANCE** of these barriers to consumer adoption of mobile payments.

	High	Medium	Low
Security			
Privacy			
Market immaturity and fragmentation			
Lack of customer demand			
Low merchant acceptance/lack of merchant interest			
Other: (please specify)			

45. Do you offer or plan to offer mobile payment/wallet services for your **BUSINESS** customers?

- Currently offer
- Plan to offer within the next 2 years
- No plans at this time

Section 7: Mobile Payments Security

46. Please **RATE** the **IMPORTANCE** of your FI's security concerns associated with mobile payment/wallet services.

	High	Medium	Low
Account takeover during or after mobile enrollment process			
Card-not-present fraud (for online purchases made via mobile phone)			
Data breach			
Inadequate customer security behavior			
Inadequate mobile device security			
Inconsistent customer authentication methods			
Other: (please specify)			

47. Do you use or plan to use the following mobile security tools? (Check ALL that apply)

- Biometrics (e.g., fingerprint, facial, voice recognition, etc.)
- Geo-location
- Payment tokenization
- Customer notification of attempt/success in provisioning card to mobile wallet
- Mobile device ID
- One-time password (OTP)
- Ability for customer to remotely disable mobile wallet if phone lost/stolen
- 3-D Secure* (3DS) for ecommerce transactions
- Other: (please specify)_____

***3-D Secure** is an XML protocol designed to provide an additional layer of authentication to CNP online transactions, supported by Visa Verified by Visa, MasterCard SecureCode and AmEx SafeKey.

48. Please **RATE** the **IMPORTANCE** of factors that influenced your decision **NOT TO OFFER** mobile payment/wallet services.

	High	Medium	Low
Lack of customer demand			
Limited benefit to FI			
Security concerns			
Regulatory issues			
Lack of standards and interoperability			
ROI/Lack of business case			
Lack of consistent, reliable cellular coverage			
Other: (please specify)			

Section 8: Financial Institution Feedback

49. In your opinion, do you think a mobile payment that uses payment tokenization and biometrics is more secure than a card payment?

- Yes
- No (please explain)_____

50. In your opinion, how long will it take for industry-wide **CONSUMER** adoption (at least one mobile payment within 90 days) of mobile payments to exceed 50%?

At POS	In-App/Mobile Web
<input type="checkbox"/> 2 years	<input type="checkbox"/> 2 years
<input type="checkbox"/> 3 years	<input type="checkbox"/> 3 years
<input type="checkbox"/> 5 years	<input type="checkbox"/> 5 years
<input type="checkbox"/> > 5 years	<input type="checkbox"/> > 5 years

51. Please share your ideas on what role(s) the Federal Reserve can play in helping to increase your knowledge of mobile banking and payments, and other feedback.

52. Please indicate the **FIRST TWO DIGITS** of your ABA number to help us link your response with appropriate Federal Reserve district:

- 01 or 21
- 04 or 24
- 05 or 25
- 06 or 26
- 09 or 29
- 10 or 30
- 11 or 31
- Other: (please specify)_____

Thank you for taking the time to complete this survey!

