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# Financial Institutions across the U.S. Participate in the Mobile Landscape Transformation

*Results from the 2019 Federal Reserve Mobile  
Financial Services Survey of Financial Institutions*

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## Introduction

The Federal Reserve Banks (FR Banks) have a shared mission to provide financial institutions (FIs) and the financial services industry with research and information about banking and payments in the U.S. Within this context of FR research, the biannual *Mobile Financial Services (MFS) Survey* assesses the status of mobile banking and payment services and practices of FIs located across most regions of the U.S.

Led by the Federal Reserve Bank of Boston's Payment Strategies group, this survey marks the third time that FR Banks have collaborated on a mobile banking and payments study. Five FR Banks participated in the 2014 survey and seven did so in 2016. In 2019, eight FR Banks fielded the survey to FIs in their districts.<sup>1</sup>

As in prior years, the 2019 MFS Survey sought information about:

- Number and percentage of banks and credit unions offering mobile banking and mobile payment services across reporting Fed districts
- Current and projected mobile banking service offerings
- Mobile payment solutions supported
- Business drivers for mobile banking and mobile payment service offerings
- Consumer adoption of mobile banking and mobile payment services
- Business adoption of mobile financial services
- Mobile banking and payment strategies
- Security risks and other barriers inherent to mobile banking and payments

In 2019, the MFS Survey expanded its queries on several topics:

- Mobile person-to-person (mP2P) payments and mobile remote deposit capture (mRDC) capabilities
- Mobile cardless ATM features
- Mobile education and marketing

Each MFS Survey captures a point-in-time snapshot of mobile banking and payment activities at FIs and probes for future 24-month plans in key areas. Data from the 2016 MFS survey, as well as from the Quick Hit email survey (QHS) executed in 2018, add historical context to the 2019 findings.

This study is important to the ongoing understanding of mobile financial services in the U.S. from the FI perspective. Survey respondents are predominantly FIs under \$500 million in assets and geographically dispersed across the country. Together, these characteristics provide a

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<sup>1</sup> The participating Federal Reserve Banks included Atlanta, Boston, Cleveland, Kansas City, Minneapolis, Philadelphia, Richmond, and San Francisco.

comprehensive picture of the types of mobile banking and payment services currently available to consumers and businesses in the U.S.

The 2019 MFS Survey collected data from 504 FIs – 337 banks and 167 credit unions – representing 6 percent of all banks and 3 percent of all credit unions nationally.<sup>2</sup> The credit union response rate held steady, but that of banks fell 2.4 percentage points from 2016. Nonetheless, the 2019 survey yielded a consolidated response rate of 9 percent based on 5,774 solicitations and offers the perspectives of a wide range of FIs from across the U.S.

Respondent FIs are slightly smaller institutions than those that responded to the 2016 survey. This is a key point because it demonstrates that mobile banking services – offered by 91 percent of respondents and planned by 5 percent more – are close to ubiquitous across FIs in the U.S., despite their size. Forty-three percent of survey respondents offer retail mobile payment services – almost double the 24 percent recorded in 2016 – and a further 25 percent of respondents plan to implement mobile payments by 2021. The faster pace of mobile payment services implementation reflects the fact that payments are a follow-on to mobile banking services, which build on the existing mobile infrastructure and leverage FIs' familiarity with mobile services.

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<sup>2</sup> There were 5,303 banks and 5,308 credit unions in the U.S. as of June 2019. Source: FDIC (<https://www.fdic.gov/bank/statistical/stats/2019jun/industry.pdf>) and NCUA (<https://www.ncua.gov/files/publications/analysis/quarterly-data-summary-2019-Q2.pdf>), June 2019

# Mobile Financial Services Industry Landscape

## ***Expansion of Mobile Banking Capabilities***

Mobile banking is growing, driven by more mobile phone use and steadily improving mobile banking services across the globe. In the U.S., 48 percent of online adults use a smartphone for banking activities at least once per month for a wide range of interactions that include checking account balances, viewing recent transactions, making payments, transferring money, and depositing checks.<sup>3</sup>

As functionality of mobile devices continues to expand, there are more opportunities for consumers and businesses to conduct financial activities. Consumers can use their mobile phones to purchase goods and services at a growing number of physical and remote merchant locations, as well as for public transportation and ridesharing, which generate more volume with recurring types of transactions. Consumers can also conduct many financial services without visiting their financial institution by using a mobile app or mobile browser. Mobile phones enable consumers to manage their purchases, bills, and other activities through alerts and easy access to service providers.

A growing base of consumers and businesses are becoming more comfortable in the digital space. This *digital transformation* means that customers are doing more banking activities via mobile phones or online, including enrolling in new accounts, depositing checks, or transferring money to other parties. For these customers, mobile is becoming their primary mode of banking. Younger generations of customers, in particular, have higher expectations for mobile services. Industry research estimates that the Gen Z population will be about 40 percent of all U.S. consumers in 2020.<sup>4</sup> Gen Z grew up with Google, Apple, Facebook, and Amazon and want self-service, personalization, and immediate assistance – and their requirements are influencing other consumer cohorts. This shift requires FIs to rethink their banking strategies to focus even more on the user experience, which is a prime competitive differentiator. FIs must leverage the latest mobile banking innovations to keep up with consumer preference and remain competitive, particularly in several areas discussed below.

## ***FinTechs are increasing services in the banking and retail space.***

FinTech companies are working with FIs to provide access to remote payment accounts, digital credit cards, and other digital banking solutions. Partnerships can be a winning combination because FIs have brand recognition, a deep understanding of regulations and compliance that many FinTechs lack, experience in the mobile space, and customer base to scale. Meanwhile, FinTechs potentially provide disruptive technology, products and agility.

## ***Digital Transformation through Open Banking***

FIs of all sizes need to understand the impacts of digital transformation and open banking. FIs engaged in open banking are implementing application program interfaces (APIs), and using data engines and chatbots to deliver a more unified mobile banking experience to their customers, and to accelerate digital adoption. FIs use APIs to share user data with third-party providers (TPPs) to create more robust personalized user experiences with new products and services. Customers benefit from a single login to a central hub and receive a single, comprehensive dashboard to manage all their accounts. Open banking is still emerging, especially in the U.S., as privacy, data protection, and other regulatory concerns need to be evaluated.

### ***Changes in traditional FI mobile banking services***

**Contactless payments:** In the traditional mobile banking space, FIs are enhancing several card features. They have begun to replace EMV chip credit and debit cards with contactless (i.e., dual interface) cards that include the same NFC technology<sup>5</sup> used by the Apple, Google and Samsung Pay wallets to “tap to pay” at the point-of-sale (POS). As the cards enter the market, more merchants are enabling NFC contactless at their terminals. Industry supporters are hopeful that this will have a positive impact on the growth in mobile contactless payments at the POS because greater merchant acceptance will allow customers to tap to pay using either a contactless card or NFC mobile wallet as the payment mode.

**Mobile P2P Payments:** Due to their convenience and growing availability, digital P2P payments are beginning to displace other payment forms such as cash and checks for some use cases. For example, consumers use Venmo to split restaurant bills, pay rent or pay their portion of ride-sharing services, which can reduce the number of cash, card, or check transactions. Some P2P payments are funded through bank or stored value accounts instead of cards, which can reduce the cost of payment acceptance while improving overall customer satisfaction and building loyalty.

Zelle<sup>6</sup> is a bank-centric digital P2P payment network that competes with PayPal’s Venmo mobile payment service, Square’s Cash App, and others. Early Warning Services (EWS), the network that operates Zelle, reported that in Q2 2019 total Zelle payment value was \$44

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<sup>3</sup> L’Hostis, Aurelie, Forrester. ‘State of Digital Banking, 2019.’ September 6, 2019.

<sup>4</sup> Accenture “Driving future of Payments – 10 mega trends” (2017 North American Consumer Payments Pulse Survey).

<sup>5</sup> Near field communication (NFC) is a standards-based wireless communication technology that allows data exchange between devices that are a few centimeters apart. Some NFC-enabled mobile phones incorporate a smart chip (secure element) that allows the phone to store the payment app and consumer account information securely and use the information as a virtual payment card.

<sup>6</sup> Zelle is a consumer P2P transfer service, offered by Early Warning Services for U.S. financial institutions. Users can send funds directly from their bank account to their recipient’s bank account via the recipient’s mobile phone number or email address. Cocheo, Steve, The Financial Brand, “Zelle Outpacing PayPal’s Venmo in Person-to-Person Payments.” Brand, July 2019.

billion, with a volume of 171 million transactions. The payments dollar value was an increase of almost 13 percent over Q1 2019 and an increase of 56 percent over the year-earlier quarter. (By comparison, Venmo reported total payment volume of \$24 billion in Q2 2019, representing growth of 70 percent over Q2 2018.) A 2019 EWS survey found that first-time Zelle users were 45 or older. This age group appears to be overcoming their skepticism of P2P payments, as they tend to have a high degree of trust in their financial institutions. Including the P2P service in a mobile banking app can further increase consumer confidence.

*Cardless ATMs<sup>7</sup>:* Cardless ATM features enable consumers to access their bank accounts and withdraw cash using mobile phones to tap to pay via NFC technology or a QR-code displayed on the ATM,<sup>8</sup> instead of inserting their cards into the ATM machine. Consumer interest is driving more FIs to offer this feature; however, it is still primarily limited to the large FIs with substantial ATM distribution channels.

*Biometric authentication to enhance mobile banking security:* Data breaches continue to grow as fraudsters become more sophisticated. The mobile NFC “Pay” wallets initially implemented biometric technology for consumers to authenticate when opening their wallets to tap to pay. This type of biometric authentication is now becoming a mainstream security tool that many FIs are adding to their mobile banking applications. Biometric scans (e.g., fingerprint, facial recognition) eliminate the need for a consumer to use a password when making a mobile payment or logging in to a mobile banking app. Industry experts note that consumers are prepared and willing to adapt biometrics as a PIN replacement and see it as a more secure, faster, and convenient process.

Considered collectively, mobile banking and payment services, functionality, and security requirements are converging. Developments in the mobile space are having a major impact on FIs. Institutions need to keep abreast of related mobile activities and develop a digital strategy to support their customers as they become more mobile-centric. Mobile banking was an established channel several years before mobile payments emerged. While retail mobile payment adoption has been slow, a successful mobile payments environment combines banking services and payments functionality. FIs play a key role in ensuring that the foundation for mobile payments evolves. Underlying most mobile payment transactions are payment methods supported and funded through FIs. However, in a banking industry that is typically slow to change, many FIs are behind in developing digital solutions for consumers. As innovations surface, there are opportunities for FIs to move beyond traditional services by working with FinTech and mobile solution providers to enhance their customers’ experiences.

In summary, the pace of change has yet to slow down. This makes for a frenetic MFS environment. As most respondents tend to be followers due to their limited resources, their pace is somewhat slower. Nonetheless, they still need to be aware of on the changing environment in payments. Survey respondents should work with their solution providers and industry organizations to determine the best strategies for their organizations.

## Key Findings

This study offers insights into FIs' current mobile banking practices, as well as a window into their strategies and planning. Although mobile banking services have matured, the findings present a more nuanced picture of what is taking place and a more detailed outlook of the evolution of mobile payment services.

- FIs of all sizes and business scope, including 60 percent of respondents under \$50 million in assets, provide MFS to consumers.
- Consumer adoption of mobile banking has accelerated since the 2016 MFS Survey – 65 percent of respondents, compared to 54 percent in 2016, now have at least 21 percent of their retail customers enrolled; 26 percent of respondents stated that more than 50 percent of consumer enrollees actively use mobile banking.
- Twenty-six percent of respondents issue or plan to issue contactless cards within two years, a decision that could influence retail adoption of NFC mobile wallets.
- Eighty-two percent of bank respondents and 71 percent of credit unions respondents (313 FIs in total) either offer or plan to offer mobile banking services to their business customers – and 42 percent charge or are planning to charge some type of fee.
- Ninety-five percent of respondents offer a mobile banking app – making it the predominant delivery channel for mobile banking services.
- The percent of respondents offering mRDC to retail customers increased from 73 percent in 2016 to 86 percent in 2019, with just 5 percent having no plans to offer the service.
- Mobile P2P payments are being offered by more FIs – 56 percent of respondents in 2019, up from 44 percent in 2016 – but adoption is still low: Over half (59 percent) of respondents reported that fewer than 5 percent of retail customers use their P2P services.
- The number of FIs offering mobile onboarding features has grown – 80 percent of 2019 respondents offer or plan to offer mobile enrollment, compared to 71 percent in 2016. FIs enabling mobile account openings increased from 29 percent in 2016 to 46 percent in 2019.
- Security continues to be a top concern for all FIs, and more respondents are implementing multiple tools to mitigate fraud and overcome consumer concerns.
- Although 69 percent of respondents offer or plan to offer mobile payments by 2021, adoption for most is still limited to less than 5 percent of their retail customers for digital check-out wallets (75 percent) and NFC wallets (52 percent).

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<sup>7</sup> Pinder, Jean, BAI Banking Strategies, “Top Mobile Banking Trends for 2019.” January 14, 2019.

<sup>8</sup> A QR code displayed on the ATM is an authentication of the pre-staged withdrawal completed on the mobile banking app. The phone's camera captures the QR code.



# Survey Background and Methodology

## **Background**

In 2008, the Federal Reserve Bank of Boston and NEACH, the New England ACH Association, conducted the first survey of mobile banking at FIs in the First District. Over time, the team revised the survey to reflect changes in the environment for mobile banking and payments. In 2014, the Boston Fed and four other FR Banks (Atlanta, Dallas, Minneapolis, and Richmond) fielded the first multi-regional MFS Survey, which shed light on the maturity of mobile banking and the advent of mobile payment services at FIs across the country. The 2016 MFS Survey, fielded by seven FR Banks (Atlanta, Boston, Cleveland, Dallas, Kansas City, Minneapolis, and Richmond), collected mobile banking trend information and considered FIs' strategies for mobile payments.

Except for special-purpose or very small institutions, the survey implies that the vast majority of FIs offer mobile banking to consumers and, in many cases, to businesses as well.<sup>9</sup> Each time the MFS Survey is fielded (about every two years) 20-to-30 respondent FIs indicate that they plan to offer mobile banking. With 96 percent of respondents anticipated to be offering mobile banking services by the end of 2021, new growth is coming primarily from FIs with less than \$50 million in assets.

As the FI market for basic mobile banking services becomes saturated, the survey demonstrates that more FIs are offering innovative services to enhance the customer experience. Two major patterns emerge from the survey data:

- Mobile account opening and expansion of mobile into areas such as card control/support features and/or ATM-related services
- Accelerated growth of consumer payment products and services to enhance consumer convenience and speed

Several other factors are worth noting. First, no “top 100” banks by asset size participated in this survey, so the report does not capture market-leading services and technologies. This means that future industry direction for MFS is being set outside the realm of survey participants. Second, even among mid-tier and smaller FIs, there is no monolithic approach to mobile banking and payment services. For example, the FR MFS surveys have consistently shown a pattern where the larger the FI, the more resources it has to offer advanced functionality to its customers. Third, although the banking industry has primarily shaped mobile *banking*, the big tech companies are driving mobile *payment* services, a situation that most survey respondents indicate is changing the competitive market.

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<sup>9</sup> Among respondents that have business customers, 69 percent of banks and 64 percent of credit unions offer business mobile banking services.

## ***Methodology***

The 2019 MFS Survey was open to banks and credit unions from June 3 to June 28, 2019. The participating FR Banks promoted the survey directly to FIs via email and indirectly through four Regional Payment Associations: ePayResources, EPCOR, NEACH, and PaymentsFirst. All but four FIs submitted survey responses using an online survey tool: the four emailed surveys were entered manually into the survey tool.

## ***Data Presentation***

This report presents consolidated findings from the eight participating FR Banks. The report also compares results by FI type (bank or credit union), and asset size where relevant, to highlight commonalities and differences in the data. Each table and chart indicates the number of respondent institutions, as not all answered every question.

Additionally, many figures highlight differences between the 2019 and the 2016 MFS Survey findings. Because most FIs do not participate in every MFS survey, respondents change over time, which prevents a strict apples-to-apples comparison. For example, just 69 FIs (14 percent of total 2019 respondents) have participated in all three surveys since 2014, and 79 FIs (16 percent of the 2019 pool) participated in both 2016 and 2019. The upside is that “new” respondents increase the survey’s reach and confirm industry trends.

The charts and tables typically show data as percentages rounded to the nearest whole number.<sup>10</sup> Numbers are used only where percentages obscure real differences in the data or where a paucity of responses makes percentage comparisons misleading.

## ***FI Participation by Survey Section***

Of the 504 survey responses received, 95 percent (481 FIs – 327 banks and 154 credit unions) answered the retail mobile banking questions. Five percent (10 banks and 13 credit unions) had no plans to offer mobile banking and were instructed to skip to the mobile payments section and directed to the end of the survey.

The respondent pool for the mobile payments questions was 487 FIs. The 332 FIs offering or planning to offer mobile payments comprised 69 percent of bank respondents and 67 percent of credit union respondents. Thirty-two percent of respondents (155 FIs) had no plans to offer mobile payments.

The respondent pool for the business mobile financial services section was 392 FIs. Of these, 80 percent or 313 FIs (252 banks and 61 credit unions) offer or plan to offer mobile services to businesses.

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<sup>10</sup> Percentages may not add up to 100 percent due to rounding.

**Survey Respondent Demographics**

All 504 respondents answered the demographic questions.

FIs across the country, including at least one institution from each state, participated in the survey. Respondents are weighted toward states in the Northeast and South, but include a sizeable population from the Midwest and new participants from the West. **Figure 1** categorizes respondents into four regional groupings: Northeast, South, Midwest, and West.

**Figure 1: Regional Composition of Respondents<sup>11</sup>**

Respondent FIs by Region	Northeast	South	Midwest	West
<b>Number</b>	177	169	108	50
<b>Percentage</b>	35%	34%	21%	10%

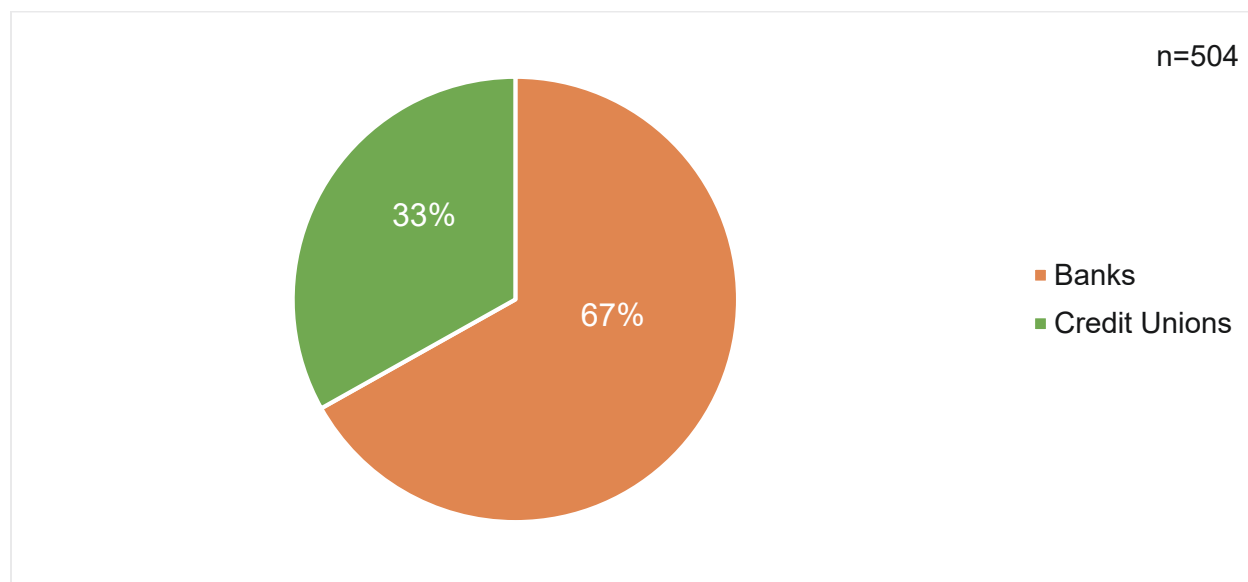
Commercial banks, mutual banks, savings banks, and credit unions participated in the survey, but respondents identified as either a bank or credit union. In aggregate, banks comprised 67 percent and credit unions 33 percent of the respondents (**Figure 2**).<sup>12</sup> This mix represents the greatest percentage of credit union respondents in the past two surveys over a five-year period, although it is still not comparable to the approximately 50/50 balance between the actual number of banks and credit unions nationally.

Several factors influence the lower credit union participation. For example, FR Banks have direct relationships with many in-district banks that they do not have with credit unions. Also, some credit unions may not offer mobile banking due to their size or the nature of their charters (e.g., municipal teachers’ associations or firefighters’ credit unions) and see no need to participate in the survey.

<sup>11</sup> As defined by Census Regions and Divisions of the United States ([https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\\_regdiv.pdf](https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us_regdiv.pdf)).

<sup>12</sup> In 2014, the survey population was 70 percent banks and 30 percent credit unions, while in 2016 respondents comprised 74 percent banks and 26 percent credit unions.

**Figure 2: Survey Respondents by FI Type** (% of respondents)



Q7. Please indicate your financial institution type.

Forty-seven percent of survey respondents were in Tiers 1, 2 or 3, with less than \$250 million in assets; 52 percent were in Tiers 4, 5, or 6, with at least \$250 million in assets (**Figure 3**). Respondents in 2019 were marginally smaller than FIs that participated in the 2016 survey, which is notable given the industry consolidation in the intervening years. In 2016, 22 percent of respondents were under \$100 million in assets, compared to 24 percent in 2019. The percent of respondents with \$250 million or more in assets was just 2 percent higher in 2016 than in 2019 (54 percent and 52 percent, respectively).

**Figure 3: Survey Respondents by Asset Size**<sup>13</sup> (% of respondents)

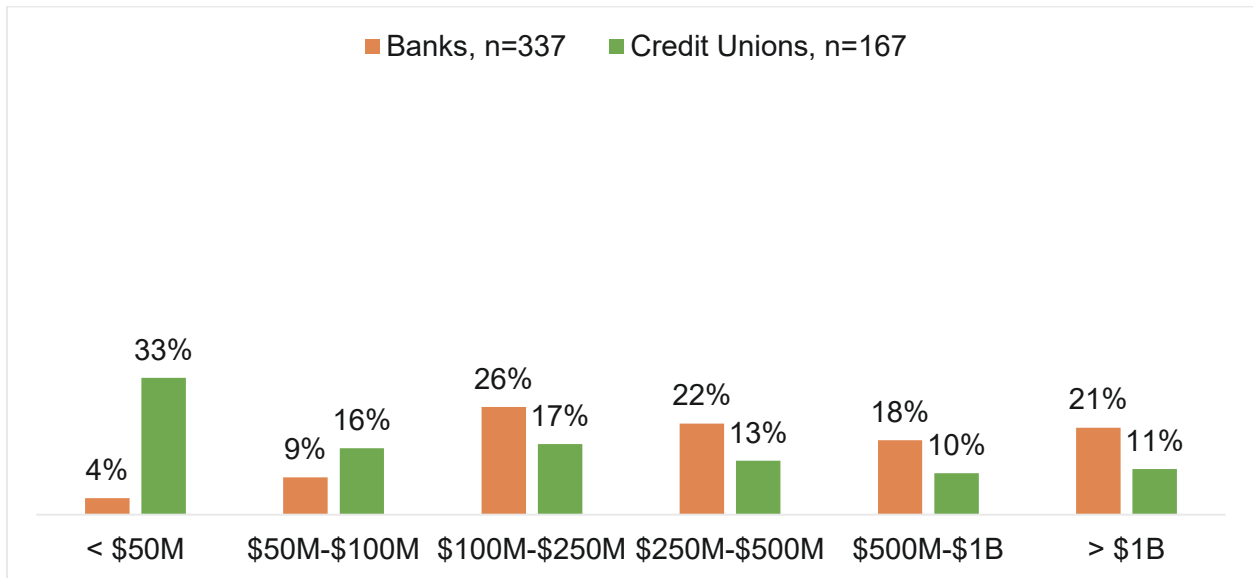
<b>Tier 1:</b>	< \$50 million	13%
<b>Tier 2:</b>	\$50-\$100 million	11%
<b>Tier 3:</b>	\$100-\$250 million	23%
<b>Tier 4:</b>	\$250-\$500 million	19%
<b>Tier 5:</b>	\$500 million – \$1 billion	15%
<b>Tier 6:</b>	>\$1 billion	20%

Q8. What is your FI's asset size?

<sup>13</sup> Previous MFS surveys measured respondent asset size according to five FDIC asset tiers that have <\$100 million as smallest range. Because the 2017 QHS revealed that many small respondents were under \$50 million, the 2019 survey added a sixth asset tier.

There are significant differences in asset size between banks and credit unions (**Figure 4**). The respondents under \$250 million represent 66 percent of the credit unions, compared to 39 percent of the banks.

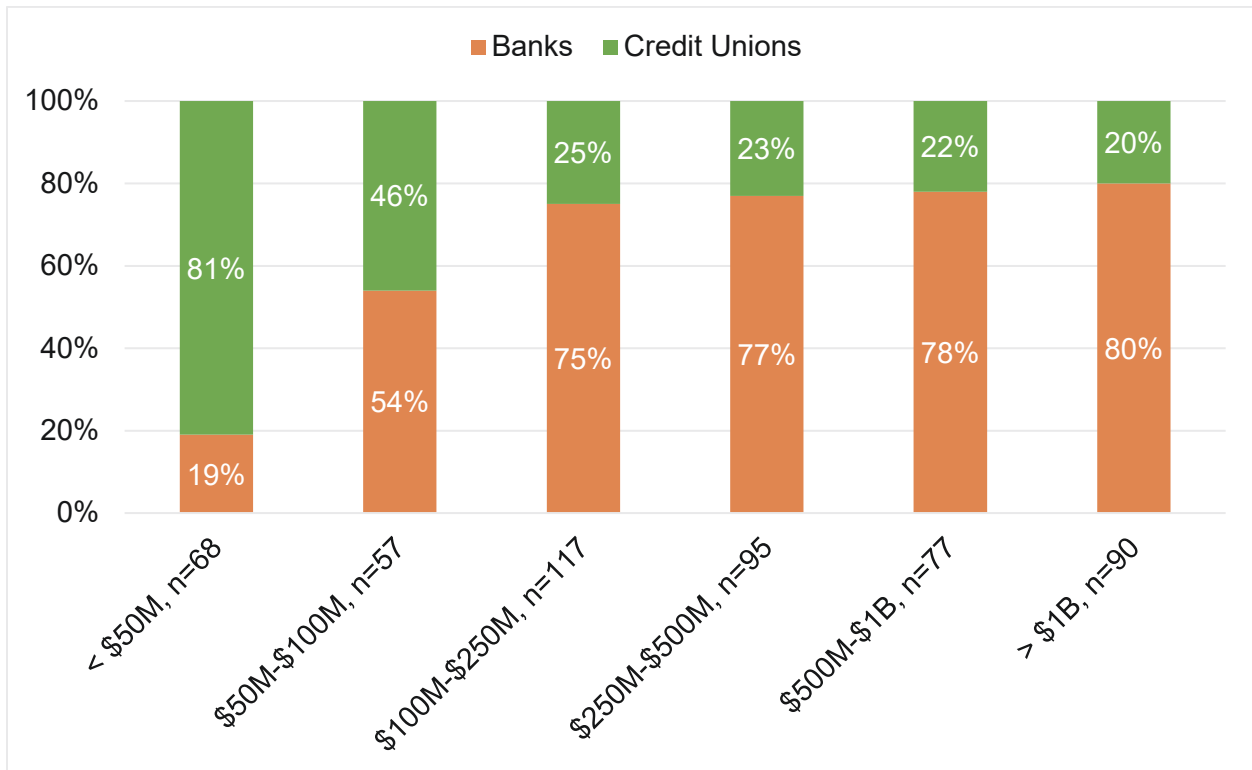
**Figure 4: Banks and Credit Unions by Asset Tier (% of respondents)**



Q8. What is your FI's asset size?

Additionally, the percentage of banks and credit unions have an inverse relationship by asset tier: The percentage of bank respondents within each tier increases with asset size, while the percentage of credit unions within each tier decreases with asset size (**Figure 5**). For example, 81 percent of respondents with assets under \$50 million are credit unions and 19 percent are banks, but 80 percent of FIs over \$1 billion in assets are banks and only 20 percent are credit unions.

**Figure 5: Banks and Credit Union Share of Each Asset Tier (% of total respondents)**



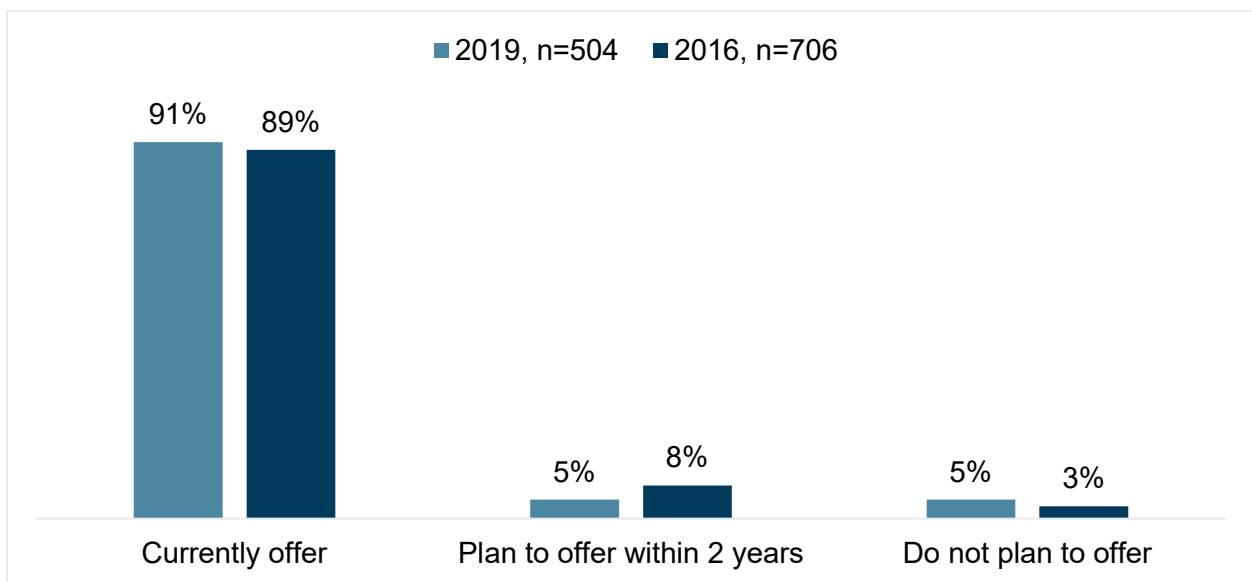
Q8. What is your FI's asset size?

# Survey Results

## Retail Mobile Banking Services

The 2019 MFS survey shows that 91 percent of respondents offered mobile banking to their retail customers. Another 5 percent planned to do so within the next two years, bringing the projected total of mobile-enabled respondents to 96 percent by 2021.<sup>14</sup> These findings are in line with those from the 2016 MFS Survey, in which 97 percent of respondents offered or expected to offer retail mobile banking services by 2018, although there were slightly more respondents in the 2016 survey. (Figure 6).

**Figure 6: FIs Offering Mobile Banking Services** (% of respondents)

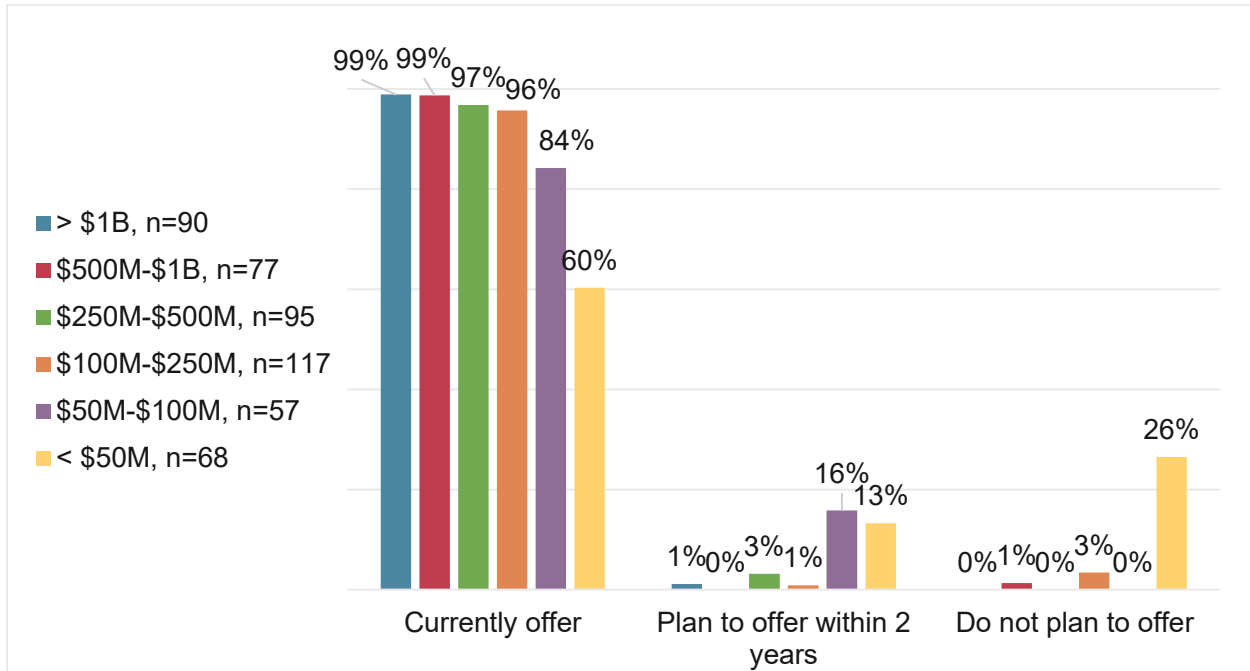


Q9. Do you currently offer or plan to offer mobile banking to retail customers?

<sup>14</sup> There is a mix of repeat and new respondents in each iteration of the MFS Survey. In 2019, 325 of 504 FIs were first-time respondents. Of those, only 23 FIs (5 percent) reported having no plans to offer mobile banking services.

Nearly all respondents with more than \$100 million in assets offer mobile banking services, as do the majority of banks and credit unions with assets less than \$100 million. **Figure 7** shows that 60 percent of respondents with assets less than \$50 million and 84 percent of FIs with \$50-\$100 million in assets offered mobile banking services. Another 13 percent and 16 percent of the smaller FIs, respectively, planned to offer mobile banking within two years. Of the 23 respondents that reported having no plans to offer mobile banking, 18 were in the lowest asset tier.

**Figure 7: FIs Offering Mobile Banking Services by Asset Size (% of respondents)**

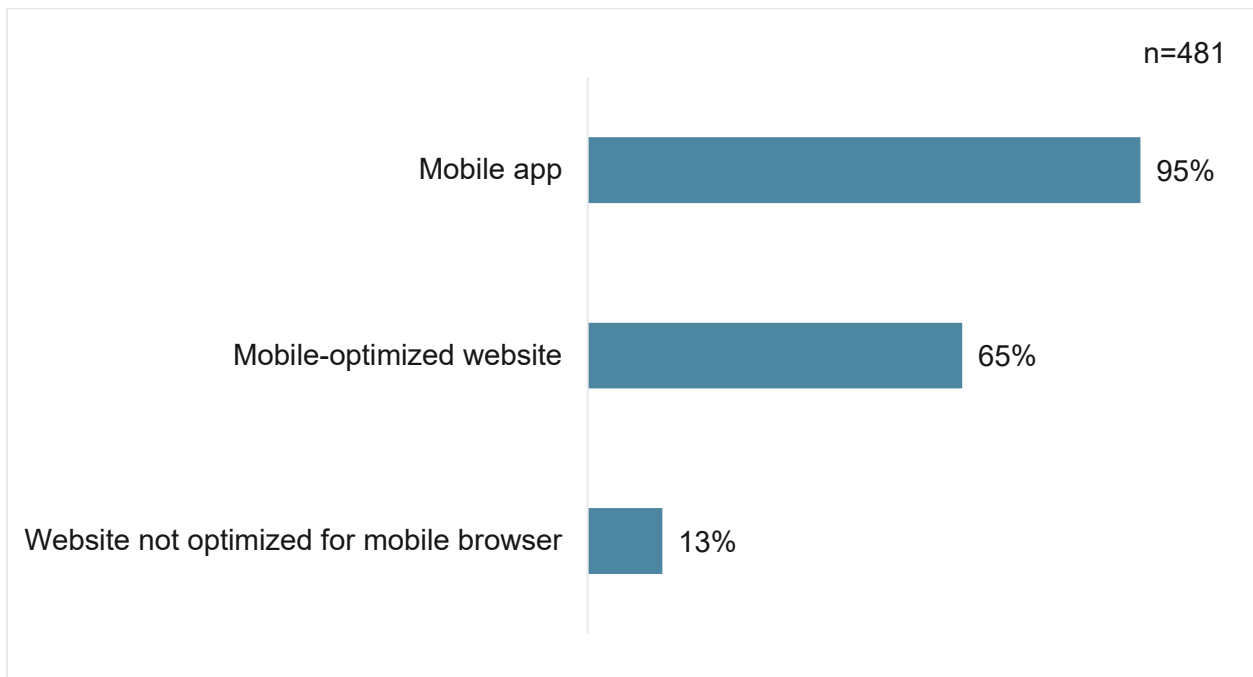


Q9. Do you currently offer or plan to offer mobile banking to retail customers?



Most FIs provide multiple mobile access channels to their customers. Mobile apps are the most common: 95 percent of respondents offered or planned to offer a mobile banking app (**Figure 8**). Nearly two-thirds (65 percent) of bank and credit union respondents also offer mobile-optimized websites. Only 10 respondents did not have either a mobile app or mobile-optimized website. The near ubiquity of the mobile app as an access channel supports industry research showing that consumers prefer mobile banking apps. According to the 2018 *TSYS Consumer Payment Study*, 66 percent of consumers indicated that they use their FI's mobile app to access their banking information from their mobile device.<sup>15</sup>

**Figure 8: FI Mobile Banking Access Interface** (% of respondents)



Q10. How do you offer retail customers access to your mobile banking services? (Check ALL that apply)

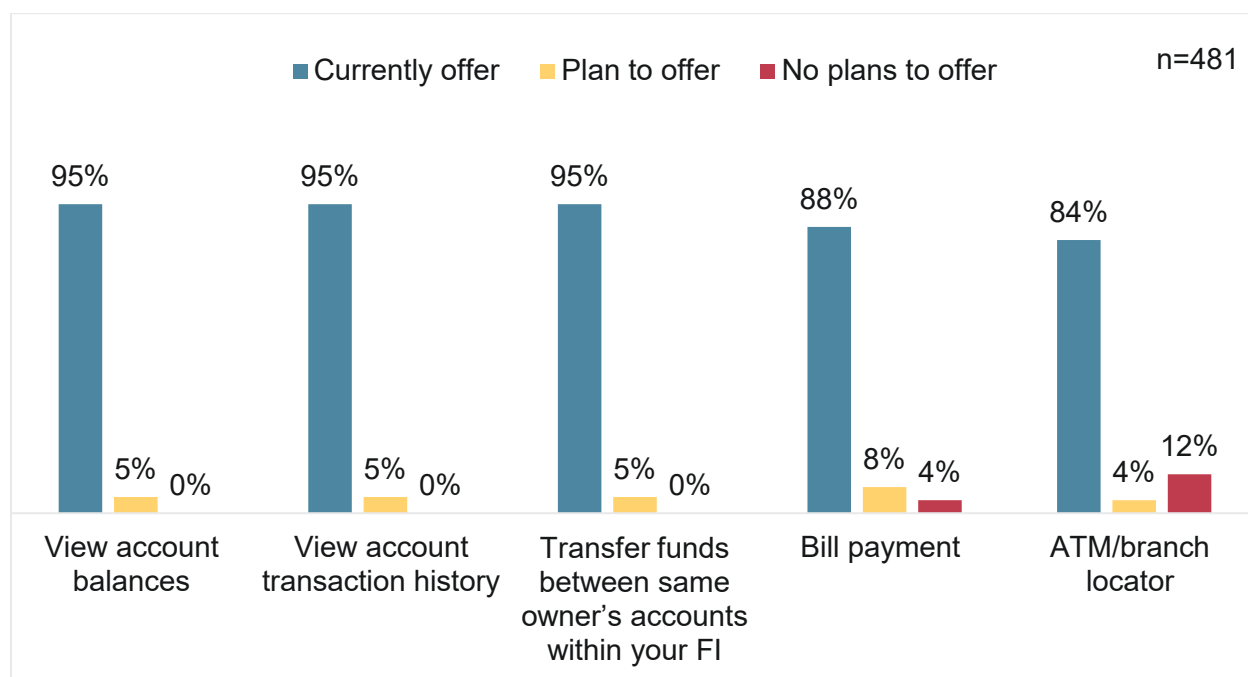
<sup>15</sup> <https://www.tsys.com/2018uspaymentstudy/>

## Retail Mobile Banking Services and Capabilities

Almost all respondents offered or planned to offer three basic mobile banking services: *view account balances*, *view transaction history*, and *transfer funds between accounts within the same institution*. **Figure 9** shows that 95 percent of respondents already offered these services and the remaining 5 percent planned to offer them within the next two years. Mobile bill payment, and ATM and branch locator features are also standard, offered by 88 percent and 84 percent of FIs, respectively. Overall, the results are consistent across FI-type, asset size, and district.

According to the 2018 *TSYS Consumer Payment Study*, the most common transactions consumers conduct through a bank's mobile app are non-financial: *view balance* at 93 percent, and *view recent transactions* at 82 percent.<sup>16</sup>

**Figure 9: Standard Mobile Banking Features Offered by FIs (% of respondents)**

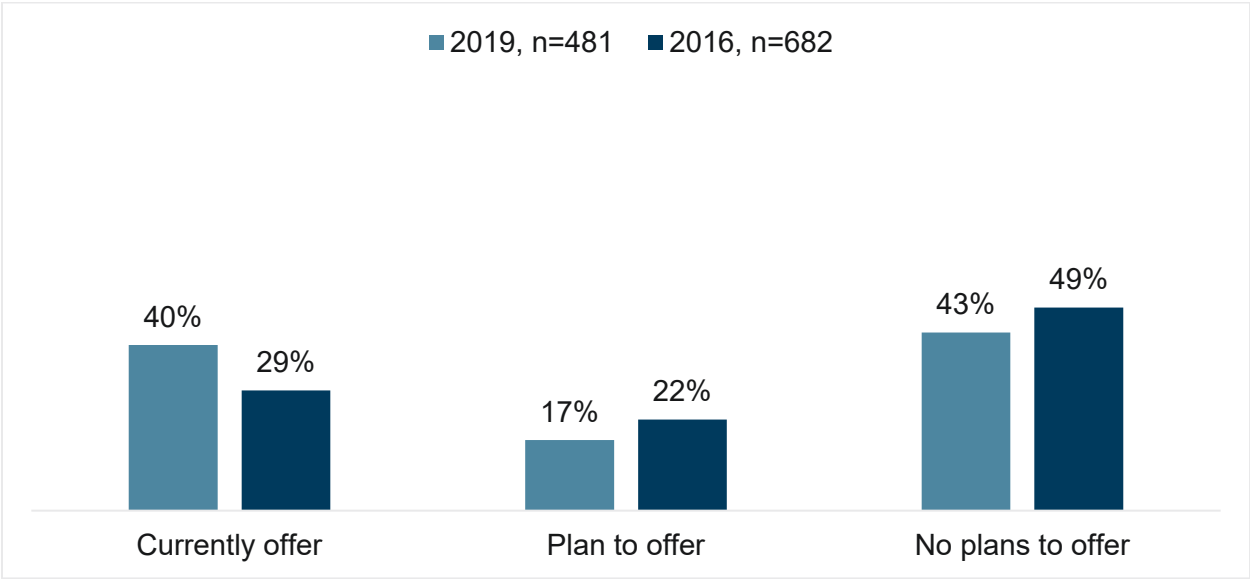


Q11. Which mobile banking features do you currently offer or plan to offer? (Check ALL that apply)

A growing number of FIs offer mobile bill presentment. **Figure 10** shows that 40 percent of respondents offered mobile bill presentment in 2019, up from the 29 percent that offered the feature in 2016. Only 43 percent had no plans to offer this service in 2016, a decrease from 49 percent in 2016.

<sup>16</sup> <https://www.tsys.com/2018uspaymentstudy/>

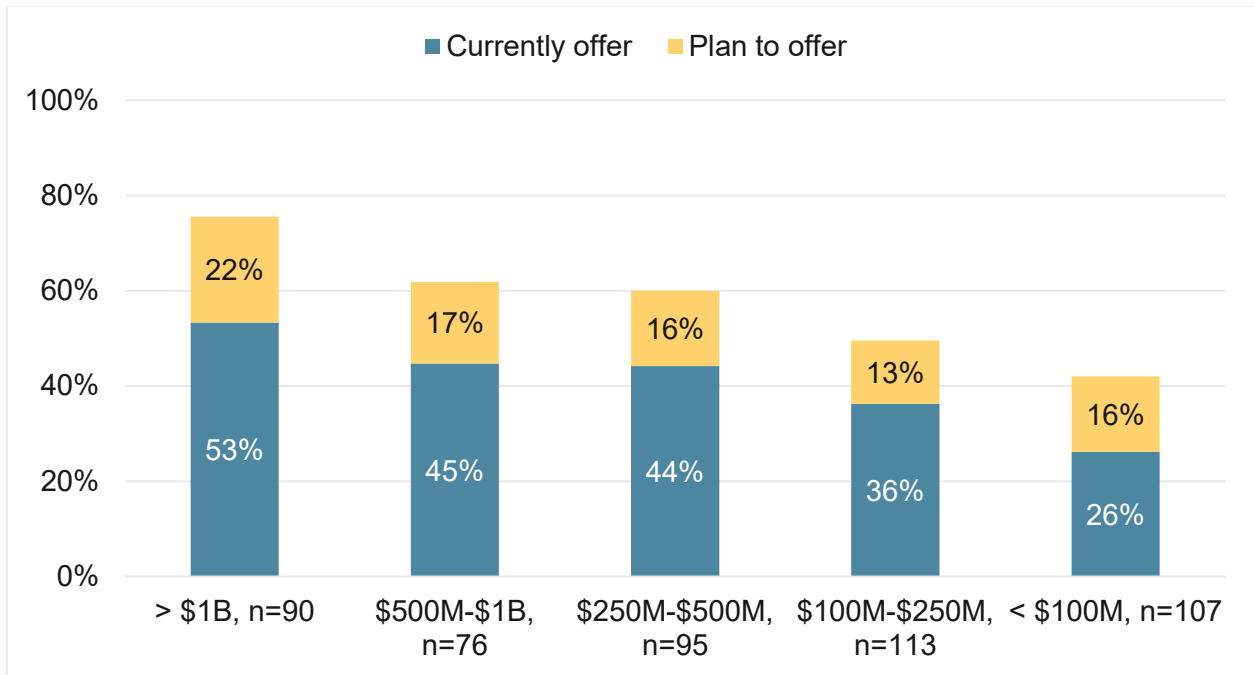
**Figure 10: Mobile Bill Presentment Offered by FIs (% of respondents)**



Q11. Which mobile banking features do you currently offer or plan to offer? (Check ALL that apply)

Examining the mobile bill presentment offering by asset size, most of the large respondents offered mobile bill presentment. More than half (53 percent) of FIs with over \$1 billion in assets offered the service (**Figure 11**), contrary to many of the smallest respondents. Approximately half (51 percent) of those with \$100-\$250 million in assets and 58 percent of those with less than \$100 million in assets did not have plans to offer mobile bill presentment.

**Figure 11: Mobile Bill Presentment Offered by FI Asset Size** (% of respondents)

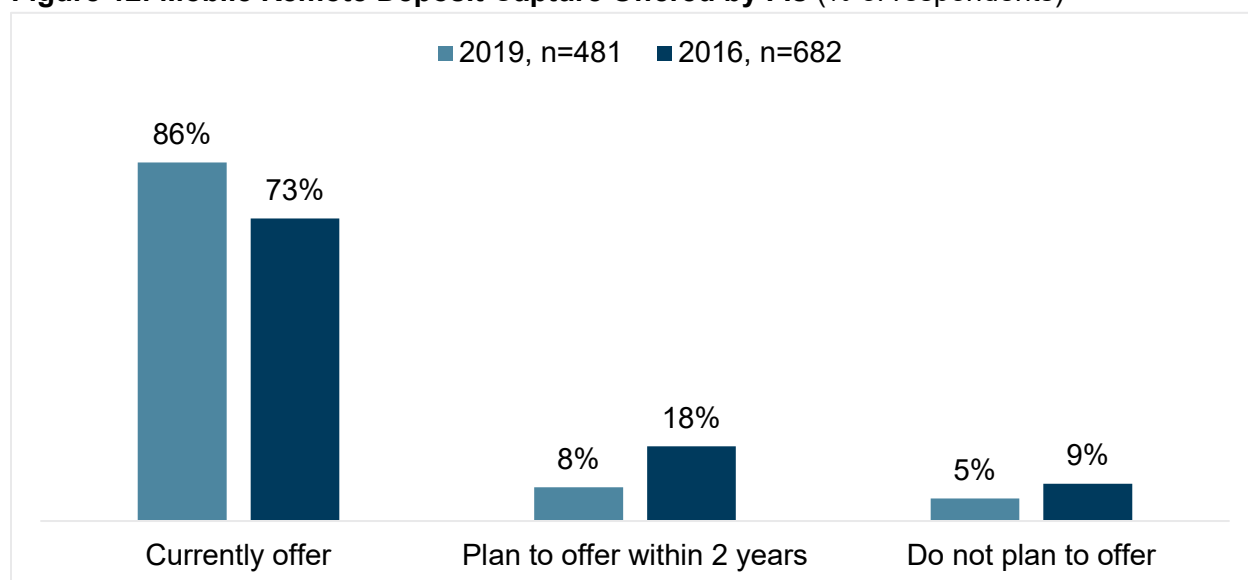


11. Which mobile banking features do you currently offer or plan to offer? (Check ALL that apply)

### Mobile Remote Deposit Capture (mRDC)

Given the growing penetration of smartphones, mobile remote deposit capture (mRDC) has emerged as a key service offering for financial institutions. Using an FI's mobile banking app and camera, customers snap a picture of the front and the back of each check and submit the images electronically to the FI to make a deposit. Depositing checks remotely via a mobile device reduces the risk of loss or theft and improves availability of funds. It also shifts customer traffic away from the branch or ATM into a more convenient channel. While “double-dipping”<sup>17</sup> of checks using a mobile remote deposit service does happen, FIs report its occurrence is minimal. Eighty-six percent of respondents offered mRDC in 2019, compared to 73 percent in 2016 (Figure 12). The percentage of those not planning to offer fell from 9 percent in 2016 to just 5 percent in this survey.

Figure 12: Mobile Remote Deposit Capture Offered by FIs (% of respondents)

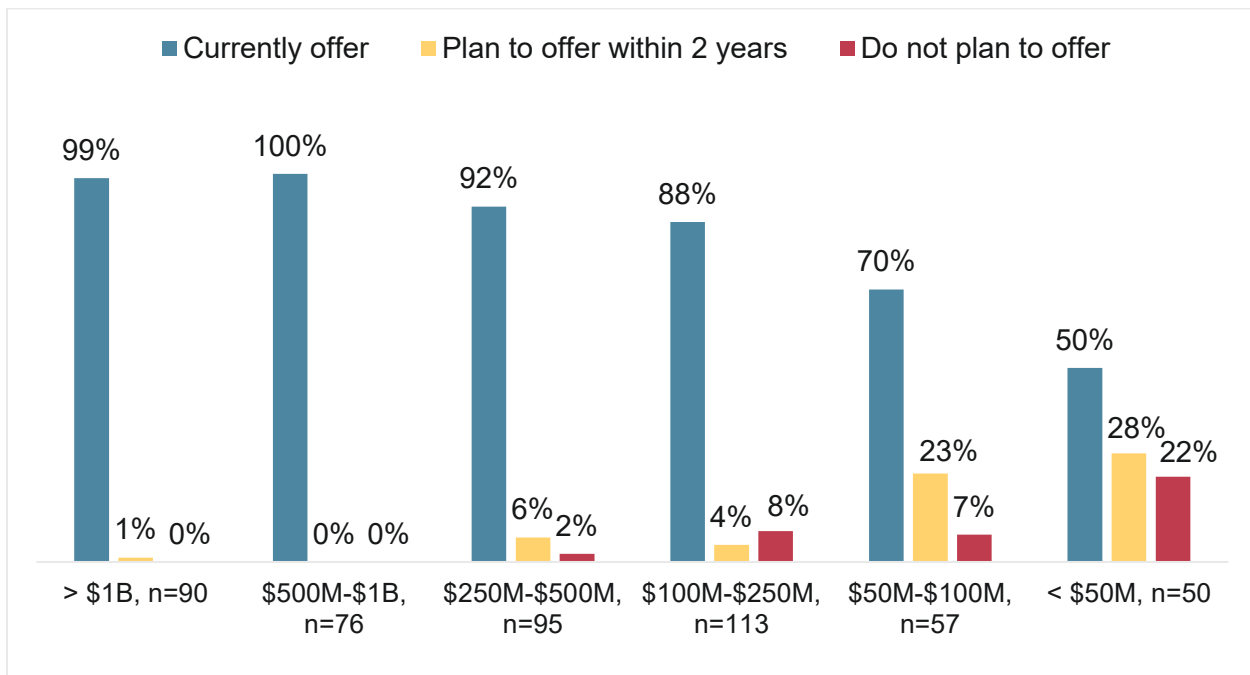


Q12. Do you currently offer or plan to offer mobile remote deposit capture (RDC)?

<sup>17</sup> *Double-dipping* is the fraudulent act of submitting a check through the remote deposit process and then negotiating that same check through another channel in order to receive double the amount of the check.

The percentage of banks and credit unions supporting mRDC increased across all asset tiers between 2016 and 2019. In 2019, all but one respondent with at least \$500 million in assets offered mRDC (**Figure 13**). Additionally, 92 percent of those with \$250-\$500 million in assets offered mRDC, a 13-percentage point increase from 79 percent in 2016. Many small respondents now offer mRDC: The percentage of respondents in the lowest asset tiers (less than \$100 million) rose sharply from 40 percent in 2016 to 61 percent in 2019. Of that group, 50 percent of the respondents with less than \$50 million in assets accepted mobile deposits, although 22 percent responded they had no plans to support this capability.

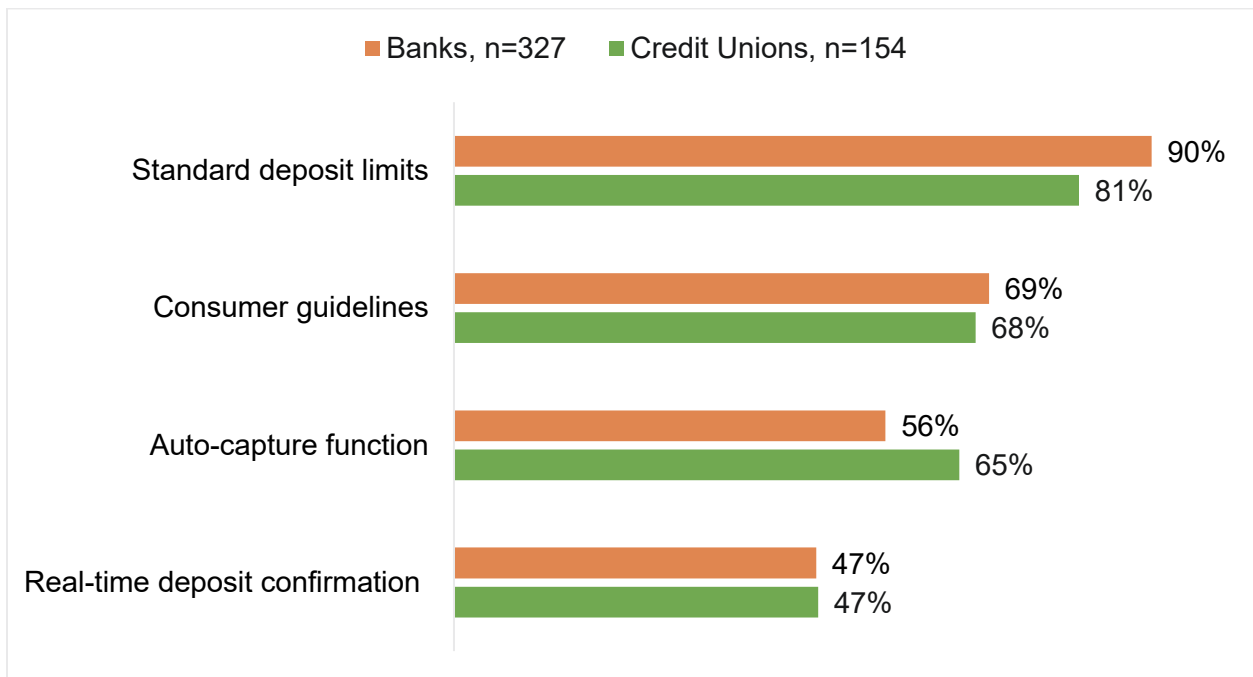
**Figure 13: Mobile Remote Deposit Capture Offered by FI Asset Size** (% of respondents)



Q12. Do you currently offer or plan to offer mobile remote deposit capture (RDC)?

The majority of respondents offered or planned to offer basic mRDC features, such as standard deposit limits (e.g., daily, monthly), consumer guidelines (e.g., recommended paper check hold times), and an auto-capture function (**Figure 14**). Most banks (90 percent) and credit unions (81 percent) set standard mRDC deposit limits. Slightly more credit unions (65 percent) than banks (56 percent) have integrated or planned to integrate an auto-capture capability into their mRDC service. Just under half of the respondents (47 percent) provided or will provide real-time mobile deposit confirmation to their customers – making this the sole feature with less than 50 percent support.

**Figure 14: Mobile RDC Features Offered by FI Type (% of respondents)**



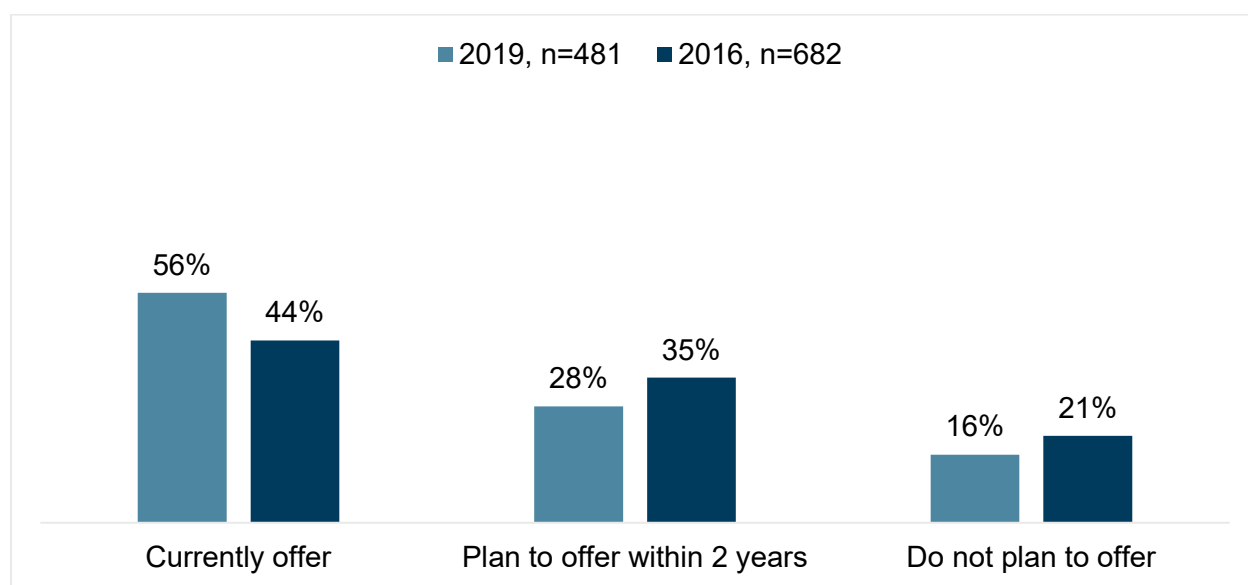
Q13. Which mobile RDC features do you currently offer or plan to offer? (Check ALL that apply)

### Mobile Person-to-Person (P2P) Payment Services

According to the 2019 Fiserv *Expectations & Experiences* consumer payment trends survey, 78 percent of consumers need to pay another person at times, and 20 percent used a FI-provided online or mobile P2P service in 2019.<sup>18</sup> Users of the service reported saving time (46 percent) and convenience (45 percent) as the primary reasons.

A higher percentage of FIs offer or plan to offer mobile P2P payment services to meet growing consumer demand. Fifty-six percent of respondents offered mobile P2P payments in 2019, compared to 44 percent in 2016 (**Figure 15**). Another 28 percent planned to offer the services by 2021.

**Figure 15: Mobile P2P Payments Offered by FIs (% of respondents)**



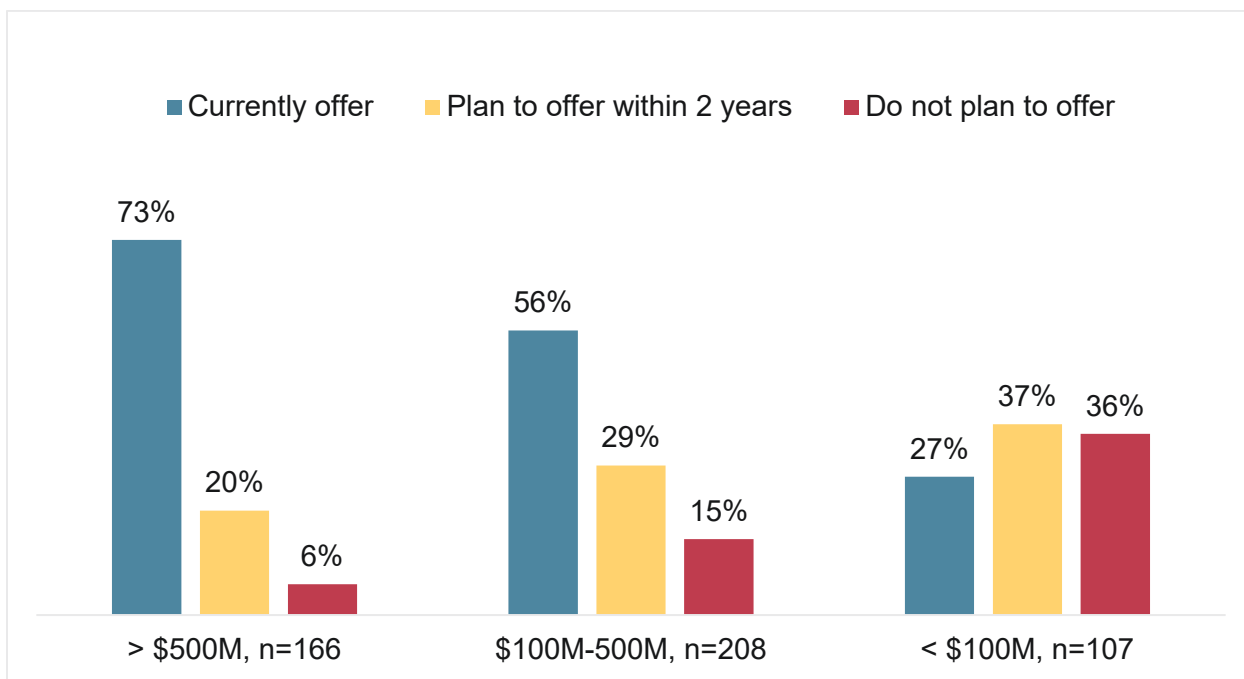
Q14. Do you currently offer or plan to offer mobile person-to-person (P2P) payment services?

<sup>18</sup> <https://www.fiserv.com/en/about-fiserv/resource-center/consumer-research/2019-expectations-and-experiences-consumer-payments.html>



The number of respondents that offered mobile P2P payment services varies by asset size. Larger FIs led the mobile P2P evolution through bank consortiums (e.g., EWS). **Figure 16** shows that 73 percent of respondents with assets over \$500 million and 56 percent of those with assets between \$100 million and \$500 million offered mobile P2P payments. Additionally, many smaller respondents are in the planning stage: 37 percent of respondents with assets under \$100 million planned to offer these services within two years.

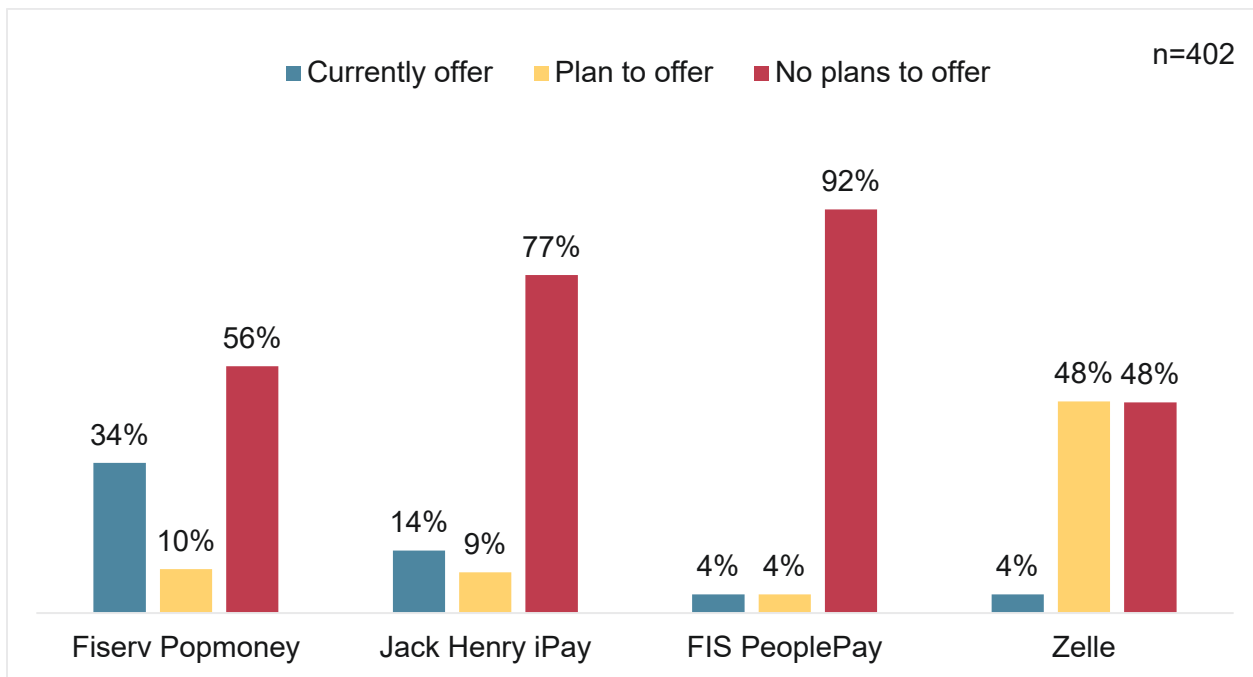
**Figure 16: Mobile P2P Payments Offered by FI Asset Size (% of respondents)**



Q14. Do you currently offer or plan to offer mobile person-to-person (P2P) payment services?

Growing consumer demand suggests that there are significant opportunities for FIs to offer mobile P2P services. The MFS survey asked which P2P solutions respondents offer or plan to offer. Nearly half of the respondents (48 percent) planned to offer Zelle, a new direct bank-to-bank mobile P2P network (**Figure 17**), although only 4 percent offered this FI-centric solution today. The oldest P2P offering (Fiserv's Popmoney – 2010) currently leads the market of the respondents with 34 percent currently offering and another 10 percent planning to offer.

**Figure 17: Mobile P2P Payment Services Offered by FIs** (% of respondents)

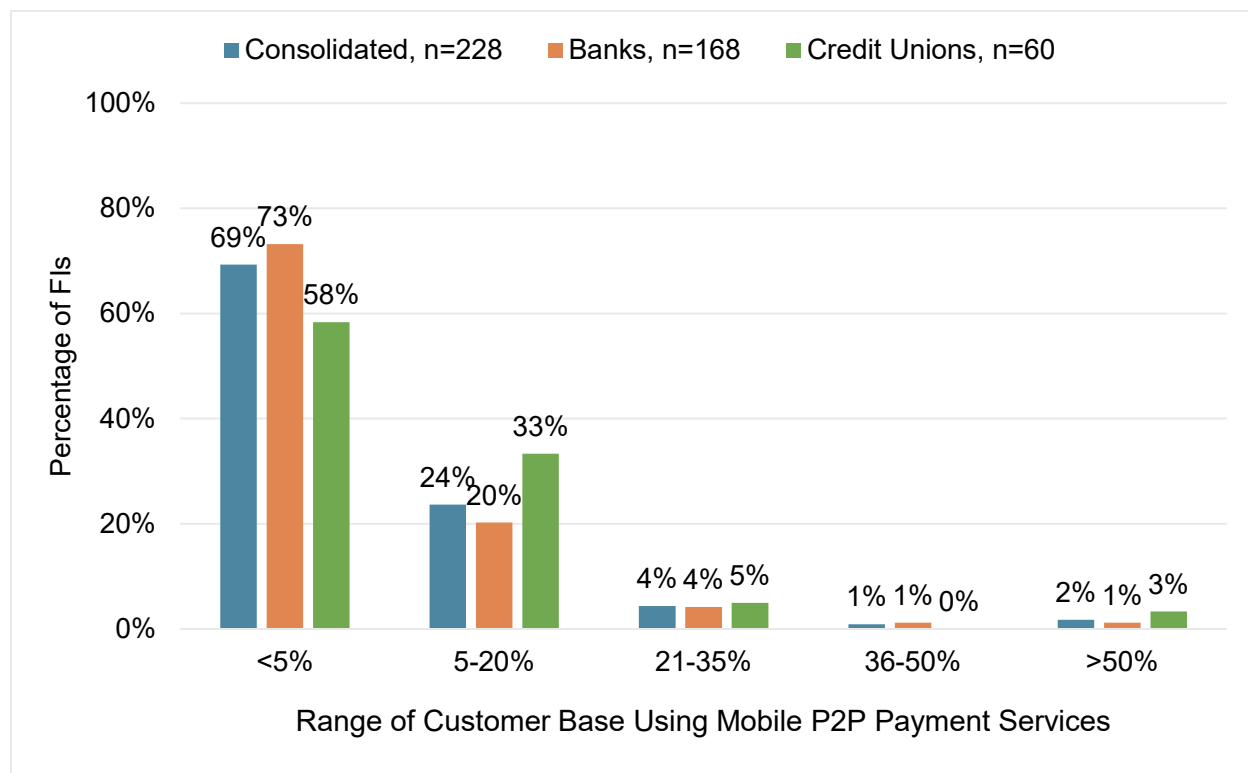


Q15. What mobile P2P payment services do you currently offer or plan to offer?

Customer adoption of FI-driven mobile P2P payments is relatively low. Most respondents that currently offer mobile P2P payment services track customer data – 228 of 267 FIs. On a consolidated level, over 90 percent of those that offer *and track* mobile P2P payment volume reported up to 20 percent customer usage in the last 12 months: 69 percent with < 5% and 24 percent with 5-20% of customers using their mobile P2P service.

Credit union respondents reported higher use of their mobile P2P services than bank respondents did: 33 percent of credit unions indicated that between 5-20% of their customers used mobile P2P services, compared to 20 percent of banks that reported customer usage in the same range (Figure 18).

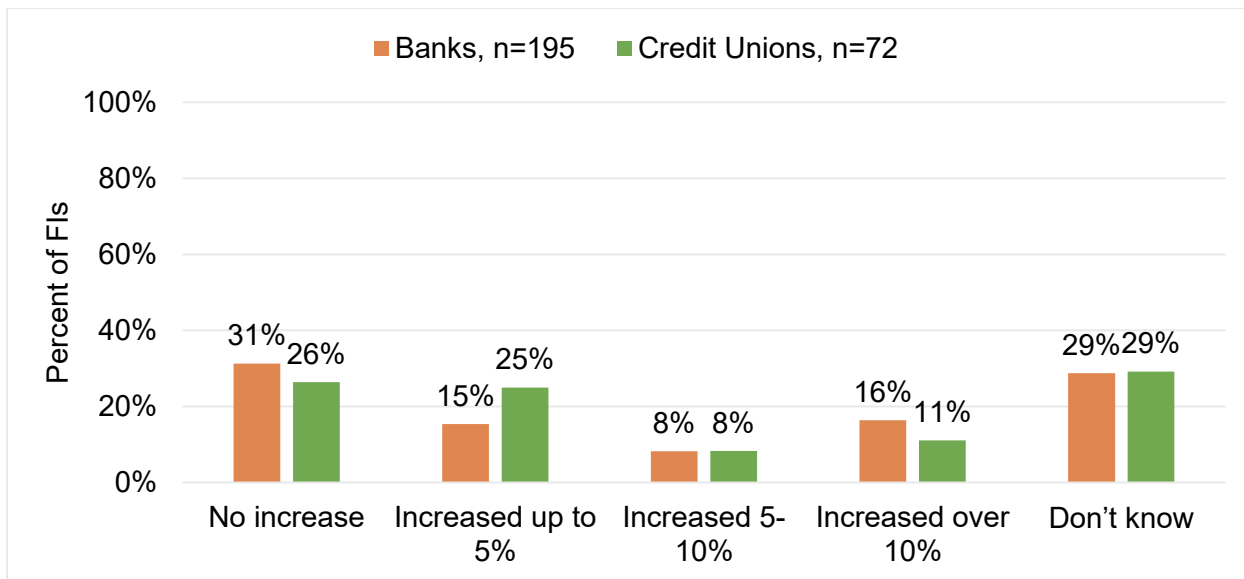
**Figure 18: Mobile P2P Payments Customer Adoption** (% of respondents)



Q16. What percentage of your customers used your mobile P2P payment services in the last 12 months?

Over half of the respondents that tracked mobile P2P transaction volume saw an increase in the previous 12 months. More credit unions (25 percent) than banks (15 percent) observed an increase of up to 5 percent in their mobile P2P transaction volume (**Figure 19**). However, a higher percentage of banks (16 percent) than credit unions (11 percent) saw an increase of more than 10 percent.

**Figure 19: Changes in FI Mobile P2P Transaction Volume** (% of respondents)



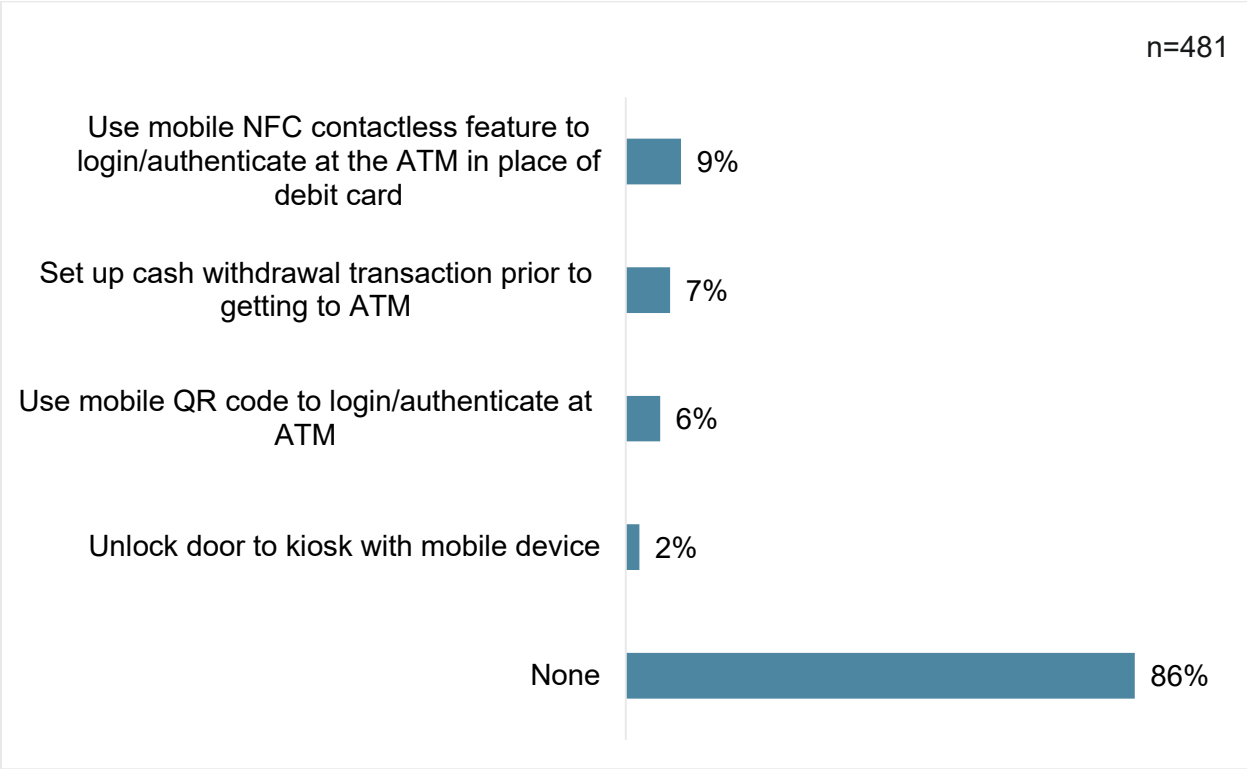
Q17. Please select the response that best reflects your mobile P2P transaction volume over the last 12 months:

**Cardless ATM Capabilities**

Cardless ATM features are relatively new. They require FIs to install contactless readers and/or barcode scanners and make software changes to accept contactless cards at an ATM. Only 14 percent of respondents offered or planned to offer cardless ATM features (**Figure 20**). One-third (33 percent) of those with over \$1 billion in assets offered at least one cardless ATM function. Nine percent of respondents enabled customers to authenticate with an NFC-enabled mobile device at the ATM in lieu of a debit card. Most of these FIs also supported or planned to support NFC mobile wallets (e.g., Apple Pay, Google Pay, Samsung Pay), which leverage the same contactless technology.

None of the smallest respondents (less than \$50 million in assets) have enabled NFC to authenticate at the ATM, and less than 10 percent of respondents in each asset tier under \$500 million offered it. The pattern is similar for the other mobile ATM features. Industry efforts to develop a QR code standard to support mobile device ATM withdrawals are underway and adoption of such a standard may encourage smaller FIs to add this capability to their mobile banking product in the future.

**Figure 20: Cardless ATM Features Offered by FIs (% of respondents)**



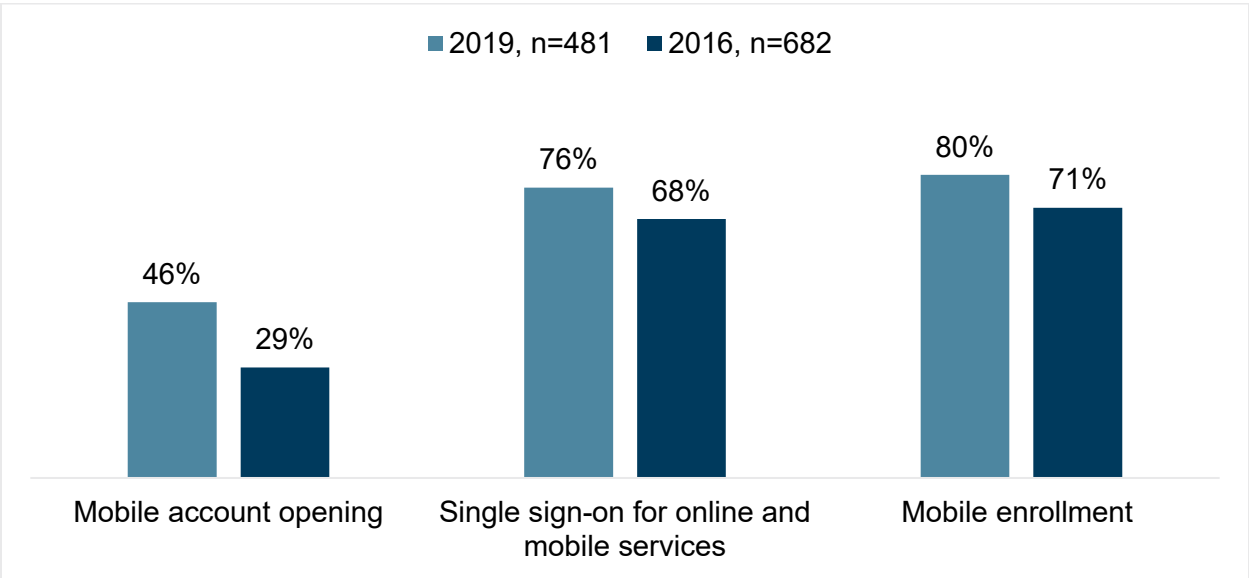
Q18. Do you currently offer or plan to offer any cardless ATM features via your mobile banking app? (Check ALL that apply)

**Other Mobile Banking Features**

FI support for mobile onboarding and usability features – enrollment, single sign-on (SSO), and account opening - is growing (**Figure 21**). Mobile enrollment enables an existing FI customer to download and enroll in the mobile banking app with their online username and password (or biometric fingerprint). Mobile account opening enables a new or existing customer to open a new bank account or apply for one of the FI’s credit products via a mobile device.

The number of respondents offering mobile onboarding features has been increasing. In 2019, 80 percent of respondents offered or planned to offer mobile enrollment, compared to 71 percent in 2016. Seventy-six percent of respondents supported or planned to support single sign-on (SSO), i.e., using the same login credentials for both online and mobile banking access, up from 68 percent in 2016. The percentage of respondents enabling mobile account opening increased from 29 percent in 2016 to 46 percent in 2019. This is noteworthy because of the higher risks associated with authentication and the legal, regulatory, and compliance requirements associated with bank account opening, particularly for remote access.

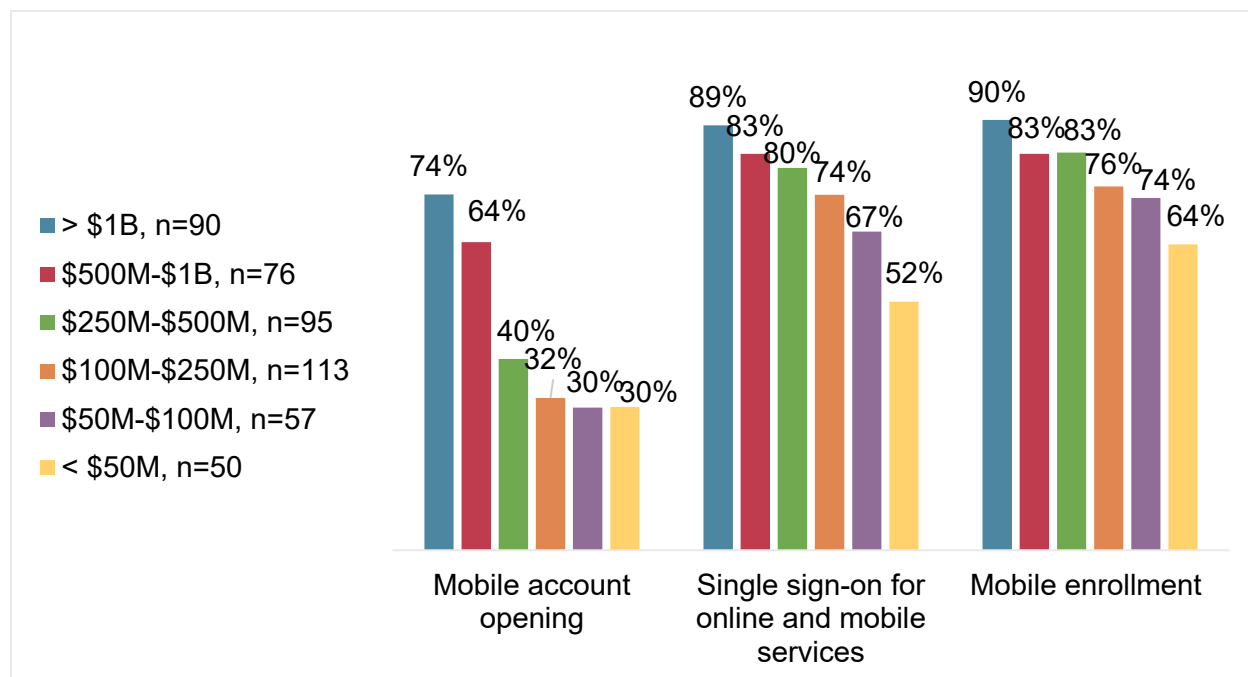
**Figure 21: Mobile Banking Usability Features Offered by FIs** (% of respondents)



Q19. Do you currently offer or plan to offer the following mobile features? (Check ALL that apply)

Respondents across all asset tiers supported or planned to support mobile enrollment, SSO, and mobile account opening, but percentages decrease in line with the FI asset size. About 90 percent of respondents with over \$1 billion in assets offer mobile enrollment and SSO, and 74 percent support mobile account opening (**Figure 22**). Many respondents in the smallest asset tier (< \$50 million) also offer or plan to offer all three mobile features: mobile enrollment at 64 percent, SSO at 52 percent, and mobile account opening at 30 percent.

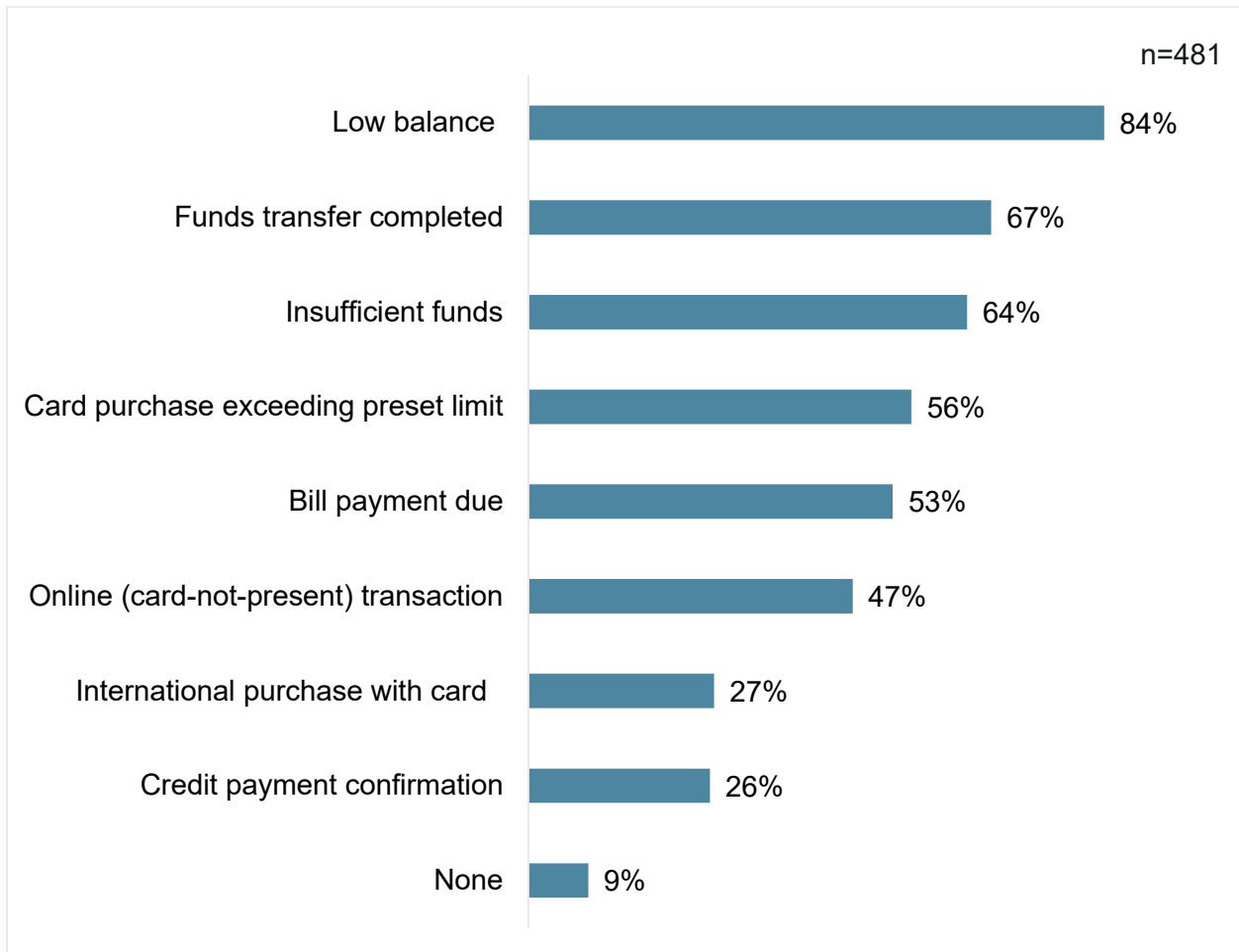
**Figure 22: Mobile Banking Usability Features Offered by FI Asset Size (% of respondents)**



Q19. Do you currently offer or plan to offer the following mobile features? (Check ALL that apply)

Mobile alerts are becoming a critical way for banks and credit unions to communicate with customers about account activity and potential fraud, as indicated by the high percentage of respondents that offer various mobile alerts. *Low balance* is the most commonly supported alert, offered by 84 percent of respondents (**Figure 23**). More than half the respondents also offer mobile alerts for *funds transfer completed*, *insufficient funds*, *card purchase exceeding preset limit*, and *bill payment due*.

**Figure 23: Mobile Alerts Offered by FIs** (% of respondents)



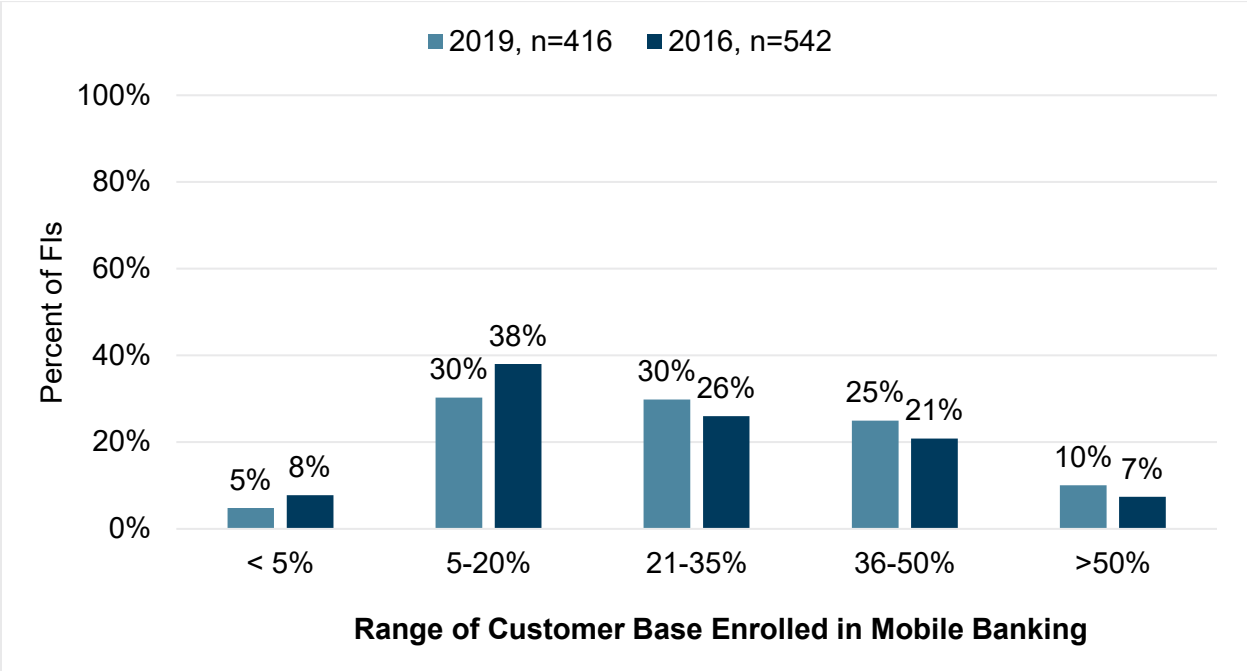
Q20. What types of mobile alerts do you currently offer or plan to offer? (Check ALL that apply)



**Consumer Adoption of Mobile Banking Services**

Between 2016 and 2019, the percentage of FIs with customers who enrolled and used mobile banking showed a significant increase. In 2019, 65 percent of respondents had enrolled customers in either the 21%-35%, 36%-50% or over 50% ranges, compared to 54 percent in 2016 (Figure 24). The percentage of respondents reporting over 50 percent enrollment increased from 7 percent in 2016 to 10 percent in 2019. In 2019, 91 percent of respondents (416 institutions) that offered mobile banking tracked customer enrollment data, while 29 percent (42 institutions) did not track the data.

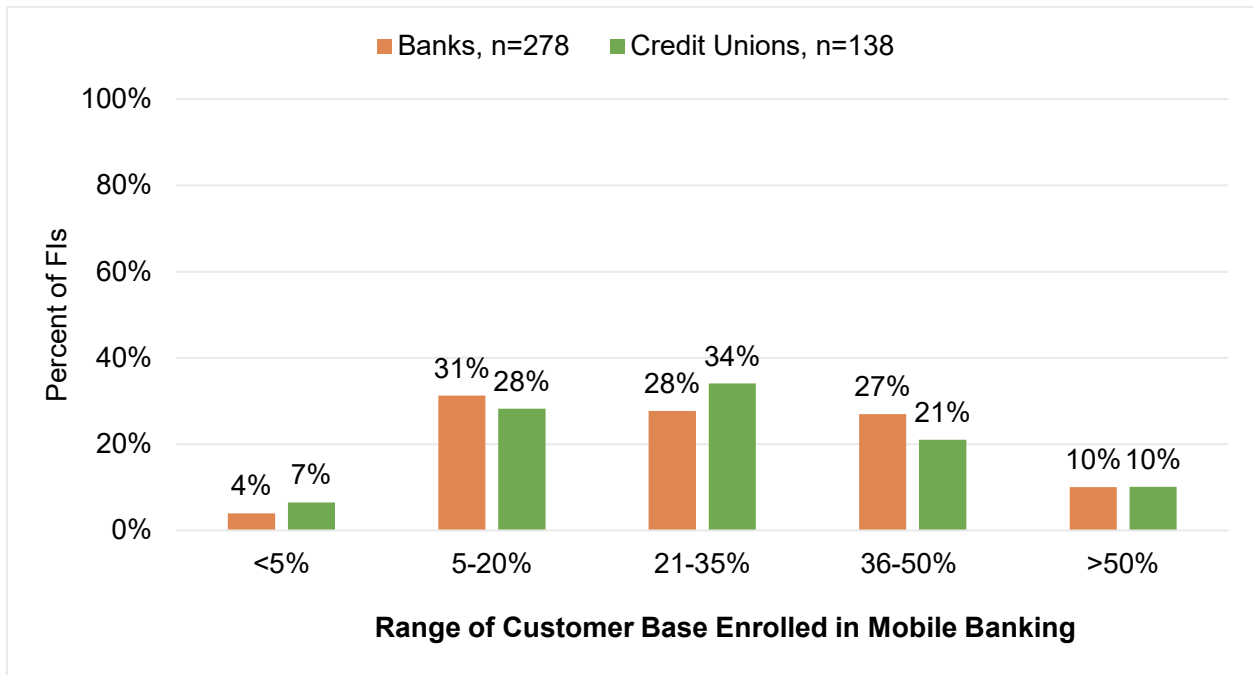
**Figure 24: Range of Retail Customers Enrolled in Mobile Banking (% of respondents)**



Q21. What percentage of your retail customers are ENROLLED in your mobile banking services?

While 65 percent of respondents indicated that they had over 20 percent of their customers enrolled in mobile banking, a greater percentage of credit unions (34 percent) than banks (20 percent) reported customer enrollment in the 21-35% range (**Figure 25**). Conversely, more banks (27 percent) said their customer enrollment was in the 36-50% range compared to 21 percent of credit unions.

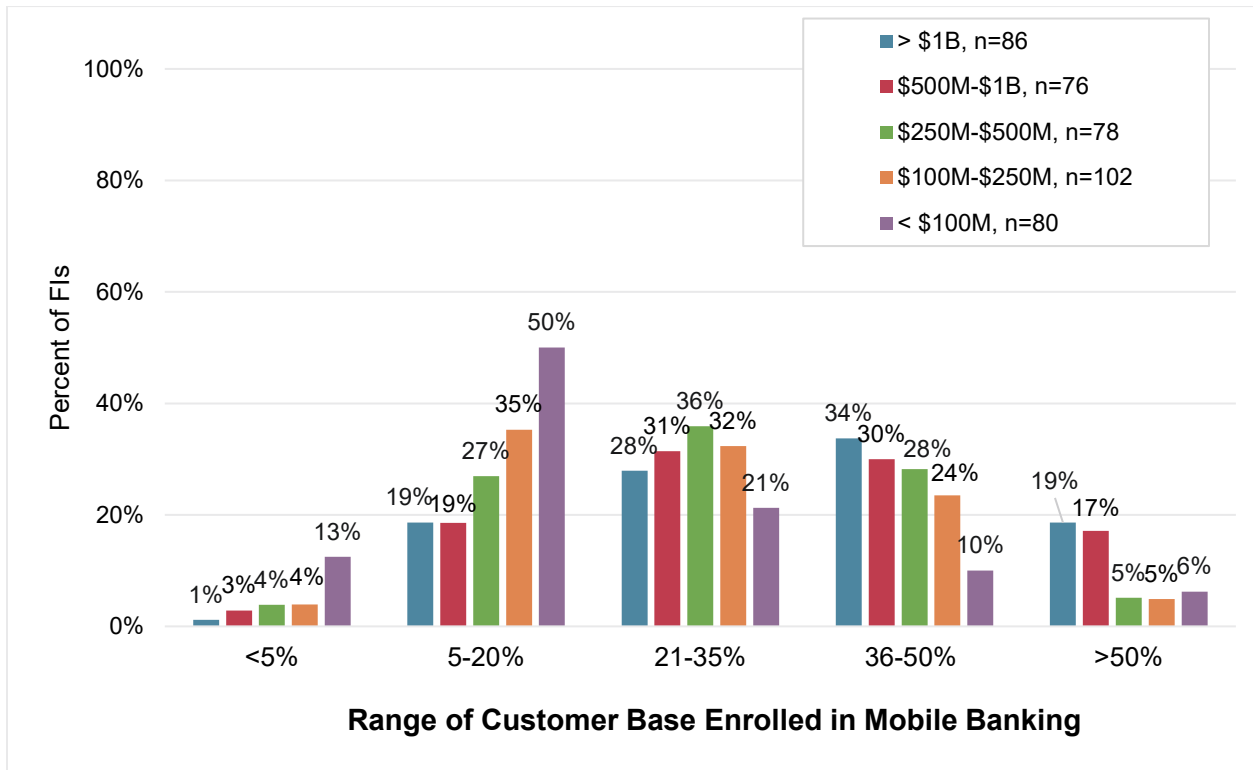
**Figure 25: Range of Retail Customers Enrolled in Mobile Banking by FI Type (% of respondents)**



Q21. What percentage of your retail customers are ENROLLED in your mobile banking services?

Larger respondents have a higher percentage of their customers enrolled in mobile banking. Nineteen percent of institutions with assets over \$1 billion had more than half of their customers enrolled (**Figure 26**), followed closely by 17 percent of responding FIs with \$500 million-\$1 billion in assets.

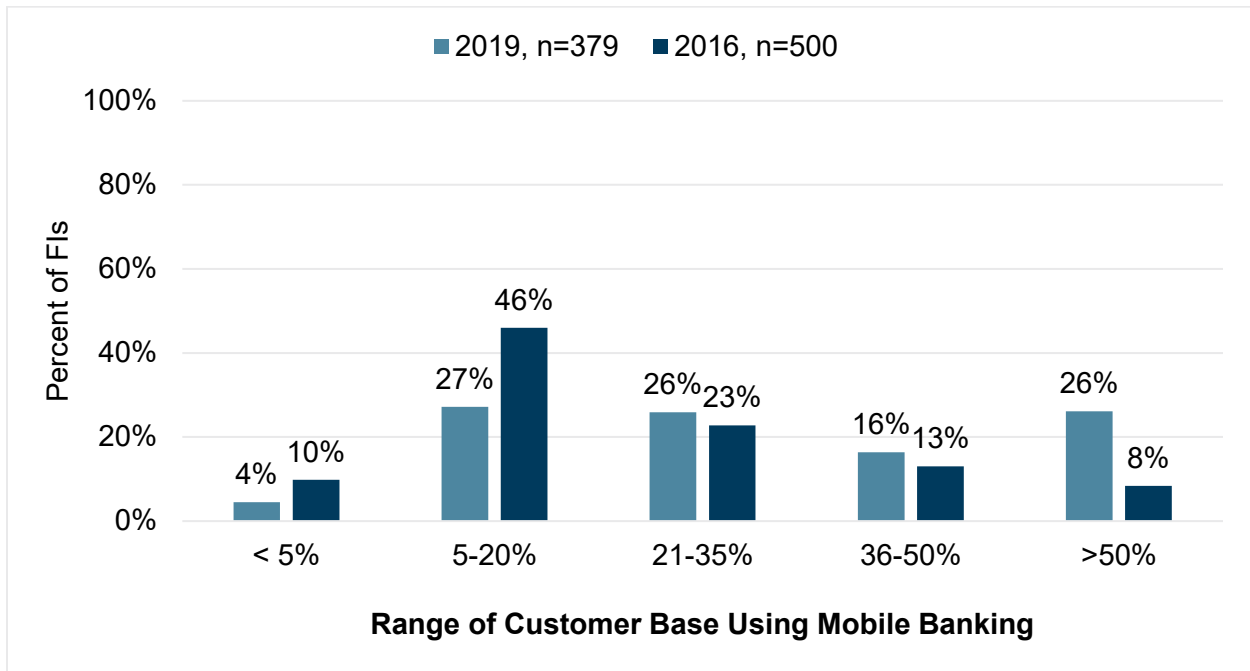
**Figure 26: Range of Retail Customers Enrolled in Mobile Banking by FI Asset Size (% of respondents)**



Q21. What percentage of your retail customers are ENROLLED in your mobile banking services?

Similar to the enrollment growth, the percentage of FI customers who actively use mobile banking increased. **Figure 27** shows the percentage range of customers who actively use mobile banking for the respondents that track activity. In 2019, 83 percent of respondents (379 institutions) that offered mobile banking reported some level of customer mobile banking usage in the 90 days prior to completing the survey. Of the FIs that tracked activity, 68 percent reported a customer usage range of 21 percent or higher, a sharp increase from the 44 percent of respondents in 2016. Seventeen percent (79 FIs) *did not track* this data.

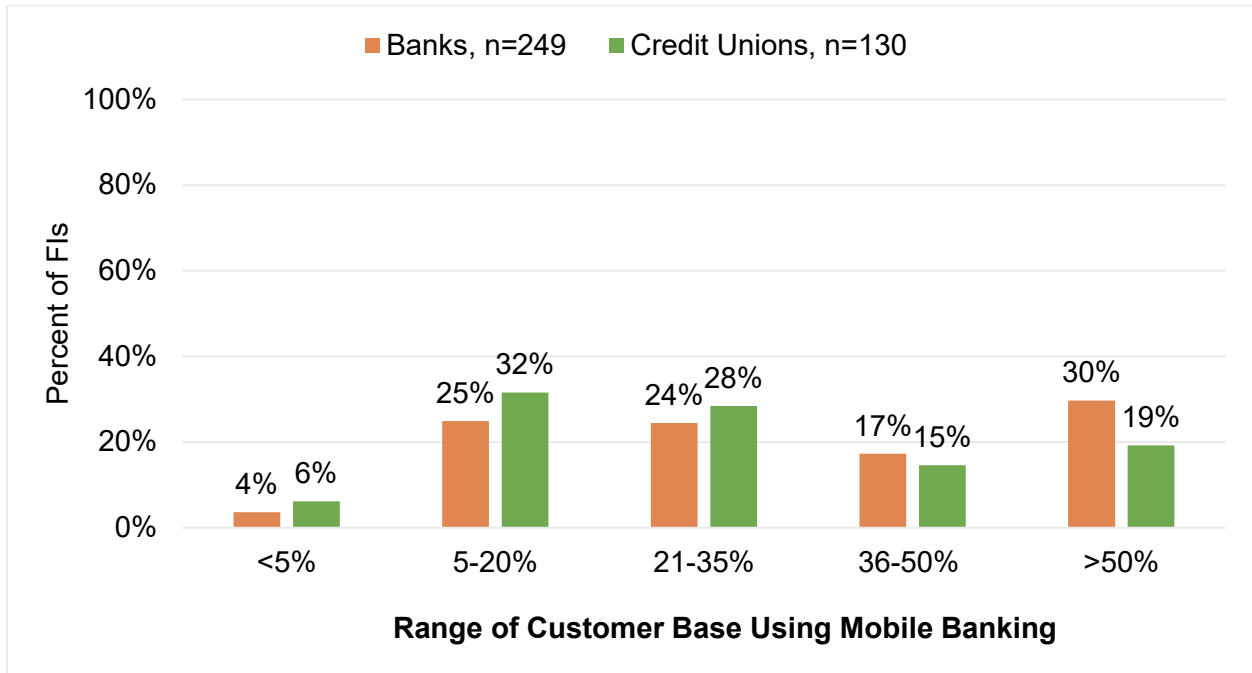
**Figure 27: Range of Retail Customers Using Mobile Banking** (% of respondents)



Q22. What percentage of enrolled customers USED your mobile banking services in the last 90 days?

More banks (71 percent) than credit unions (62 percent) reported customer usage rates of 21 percent or greater (**Figure 28**). Thirty percent of bank respondents indicated that over 50 percent of enrolled customers use mobile banking compared to 19 percent of credit union respondents.

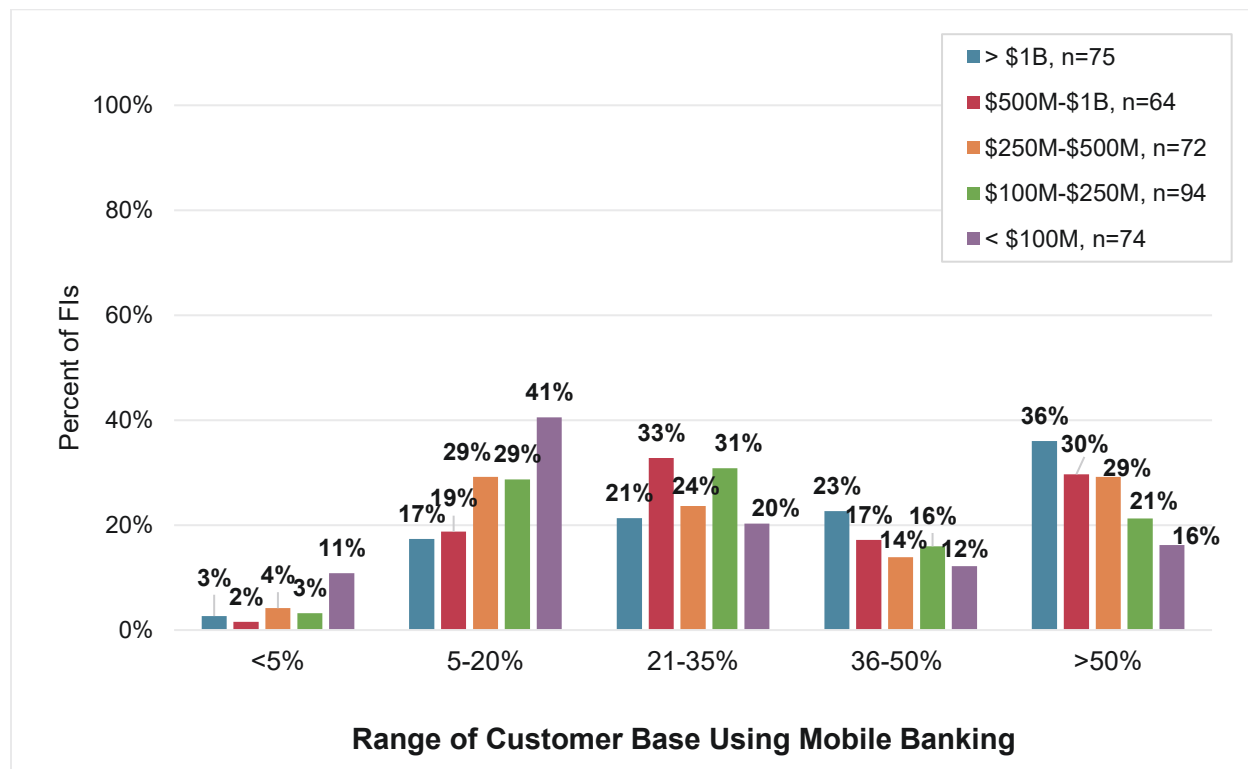
**Figure 28: Range of Retail Customers Using Mobile Banking by FI Type (% of respondents)**



Q22. What percentage of enrolled customers USED your mobile banking services in the last 90 days?

In tandem with customer enrollment, a greater percentage of customers at larger FIs use mobile banking – 36 percent of respondents with assets above \$1 billion had over half of their enrolled customers actively using mobile banking (**Figure 29**).

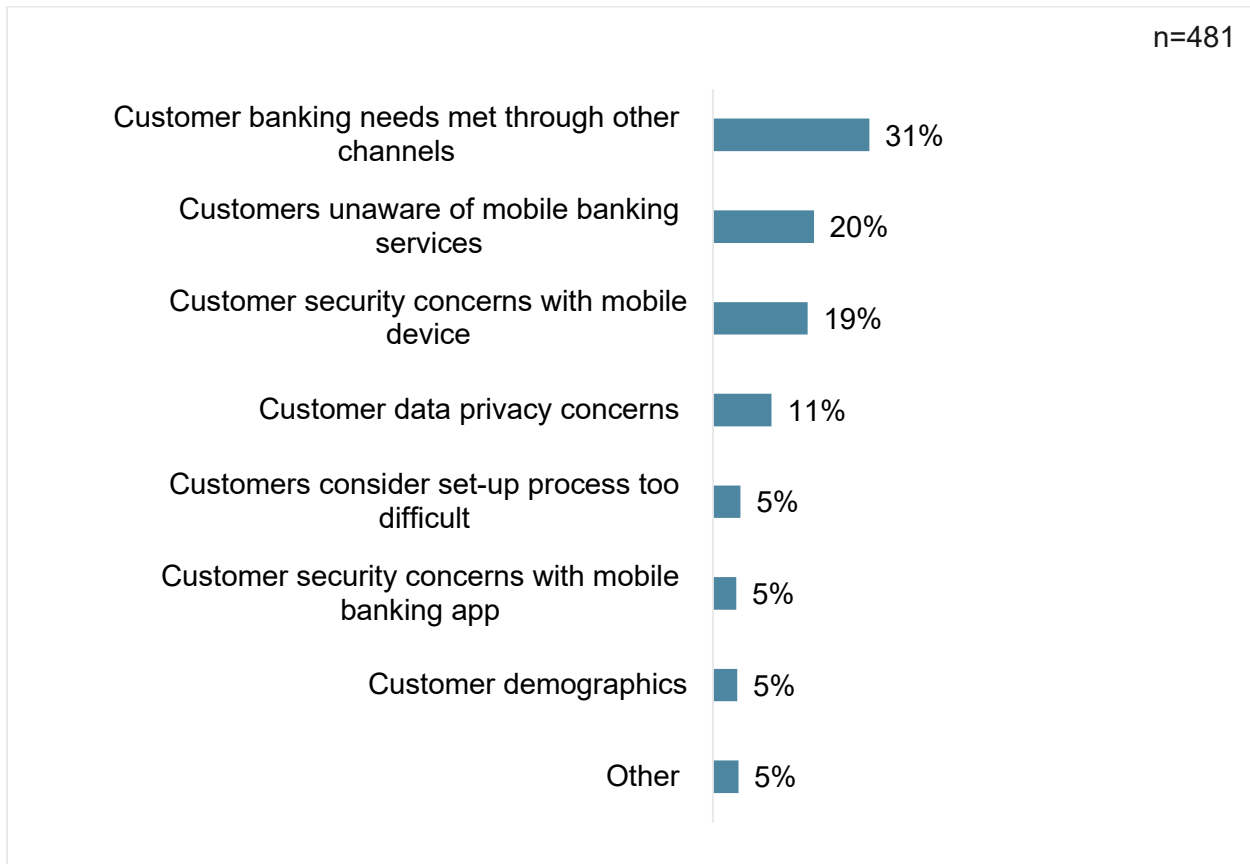
**Figure 29: Range of Retail Customers Using Mobile Banking by FI Asset Size (% of respondents)**



Q22. What percentage of enrolled customers USED your mobile banking services in the last 90 days?

**Figure 30** highlights what the FI respondents perceived as being the most significant barriers to consumer mobile banking adoption. Thirty-one percent considered *customer banking needs met through other channels* as the top barrier in preventing adoption of mobile banking. About 20 percent of respondents viewed *customers unaware of mobile banking services* and *customer security concerns with mobile device* as the greatest barriers. Another 5 percent attributed *customer demographics* as the most significant deterrent to adoption.

**Figure 30: Most Common Barriers to Customer Adoption of Mobile Banking** (% of respondents)



Q23. What do you perceive as the most significant barrier that prevents your customers from adopting mobile banking?

## Mobile Banking Security

Most FIs recognize the importance of having strong security controls to protect their mobile banking customers, apps, and services. As banks and credit unions expand their mobile and digital banking services to improve the customer experience, they need to prepare for heightened security risks. Fraud losses on credit and debit cards are increasing, as are account takeover (ATO), phishing, identity theft, and other threats, so building awareness and developing a good strategy for fraud detection and mitigation is critical. FIs are also leveraging mobile devices and related components to secure digital payments.

The 2019 MFS survey findings emphasize that FIs continue to express concerns related to the security of mobile banking in multiple areas.

More than half of the 2019 survey respondents (57 percent) continued to rate *Inadequate customer protection behavior* as “high,” but this percentage was slightly lower than the 66 percent of respondents that rated it “high” in 2016 (**Figure 31**). More FIs are improving consumer protection behavior through education, marketing, and consumer-driven security tools, as well as using stronger passwords, multi-factor authentication (MFA), and biometrics to enable customers to log in with their mobile phones.

In 2019, fewer respondents (38 percent) rated concern with *weak authentication methods* for banking services as “high” compared to 2016 (48 percent). The decrease may reflect FI experience and more data to support strong authentication for mobile banking, enabling them to identify and secure their customers more effectively when creating accounts or transacting. These results also show that more respondents are able to address security vulnerabilities associated with mobile banking, while minimizing consumer friction.

Interestingly, the percentage of respondents that rated *data breach* as a high concern in 2019 was identical to 2016’s (56 percent). Fifty-five percent of respondents also rated *identity theft* high, up from 49 percent in 2016, which is not surprising given that the use of stolen personal identity information (PII) and payment credentials obtained through data breaches enables *identity theft*.

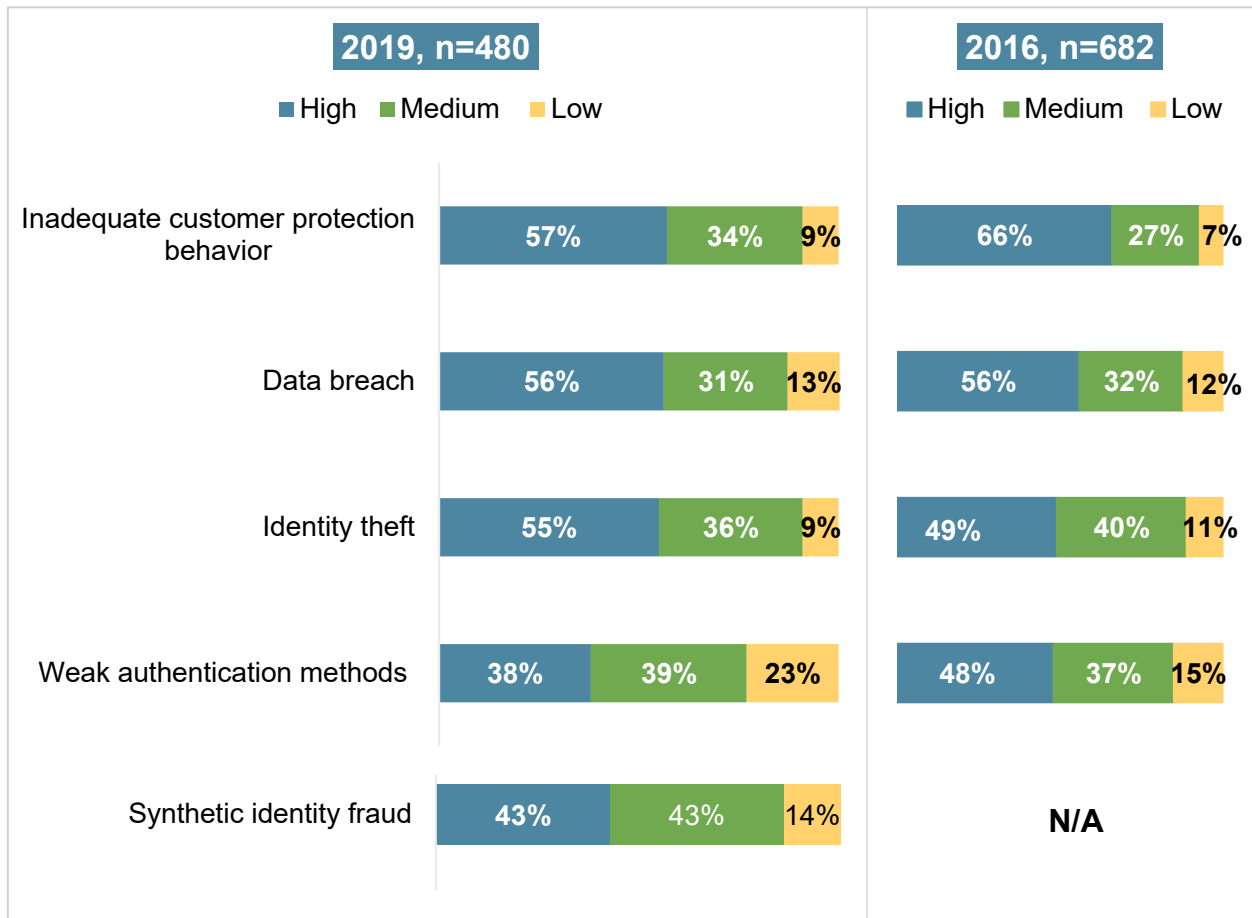
Not only are concerns shifting to *identity theft*, respondents are also worried about *synthetic ID fraud*,<sup>19</sup> which was not included in the 2016 survey. Forty-three percent of respondents rated *synthetic ID fraud* high and another 43 percent rated it medium. This is a growing industry concern with frequent warning bulletins from law enforcement agencies.

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<sup>19</sup> The generally agreed-upon definition of synthetic identity fraud is a crime in which perpetrators combine fictitious and real information, such as SSN and name, to create new identities to defraud financial institutions, government agencies, or individuals. For more information on synthetic identity fraud, see <https://fedpaymentsimprovement.org/strategic-initiatives/payments-security/synthetic-identity-payments-fraud/>.



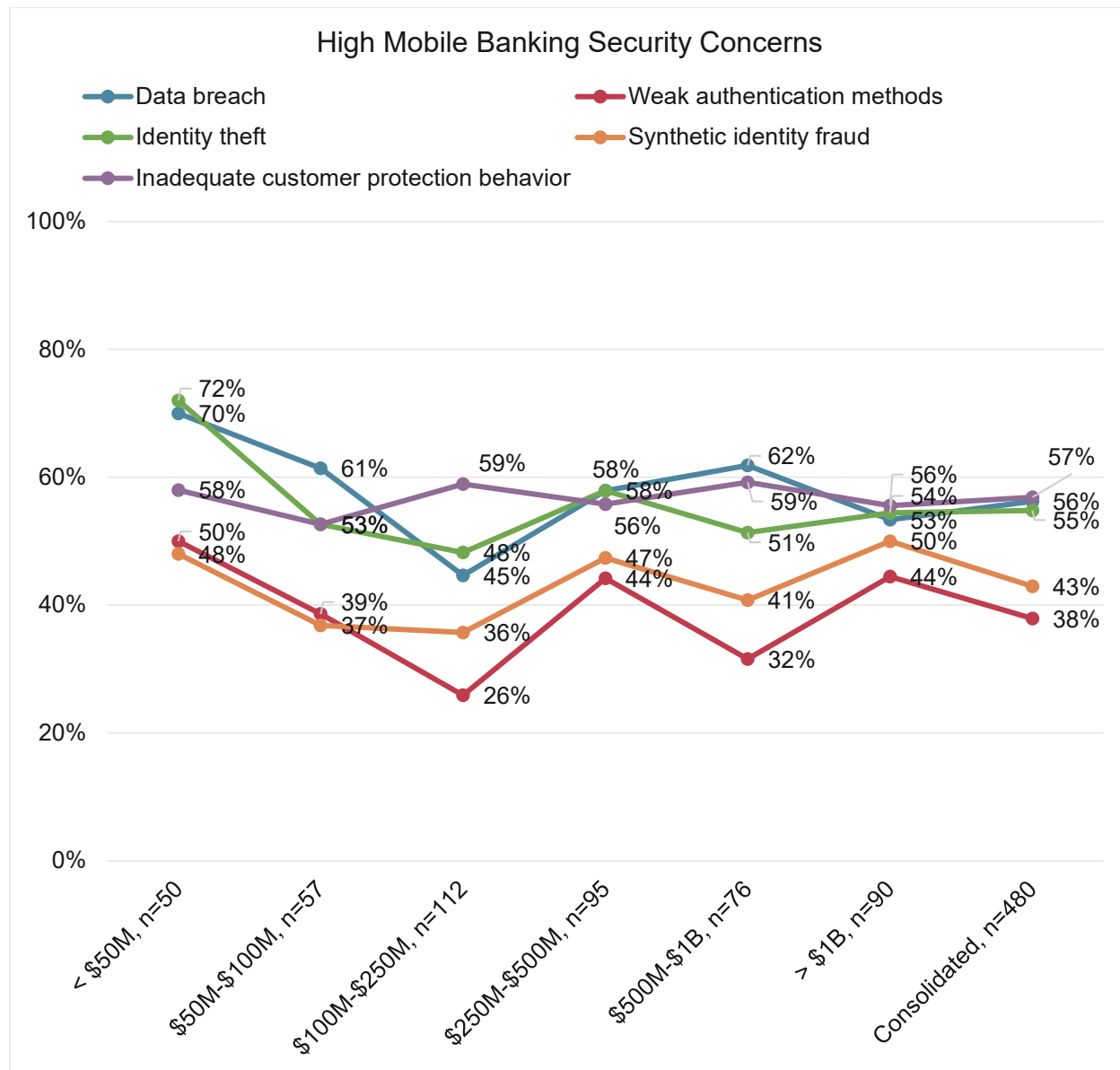
**Figure 31: FI Mobile Banking Security Concern Ratings, 2019 vs. 2016 (% of respondents)**



Q27. Please RATE the IMPORTANCE of your FI's security concerns associated with offering mobile banking services.

**Figure 32** shows that respondents across asset tiers align on their security priorities. More respondents in each of the six asset tiers had the same top three security concerns: *data breach*, *identity theft*, and *inadequate customer protection behavior*. Only the lowest tier (<\$50M) exceeded 70 percent of respondents that rated *data breach* and *identity theft* “high,” while the other asset tiers ranged from 45 percent to 62 percent of respondents.

**Figure 32: FI Mobile Banking Security Concerns by Asset Size (% of respondents)**

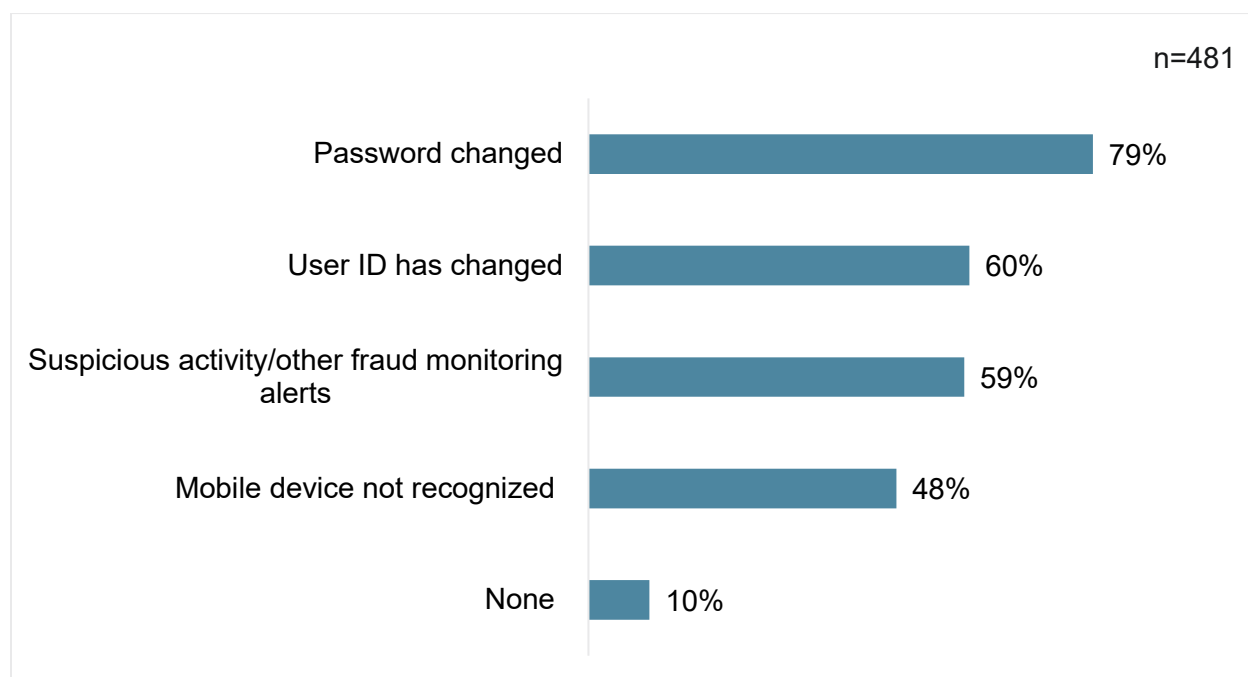


Q27. Please RATE the IMPORTANCE of your FI's security concerns associated with offering mobile banking services.

## Mobile Banking Alerts and Notifications

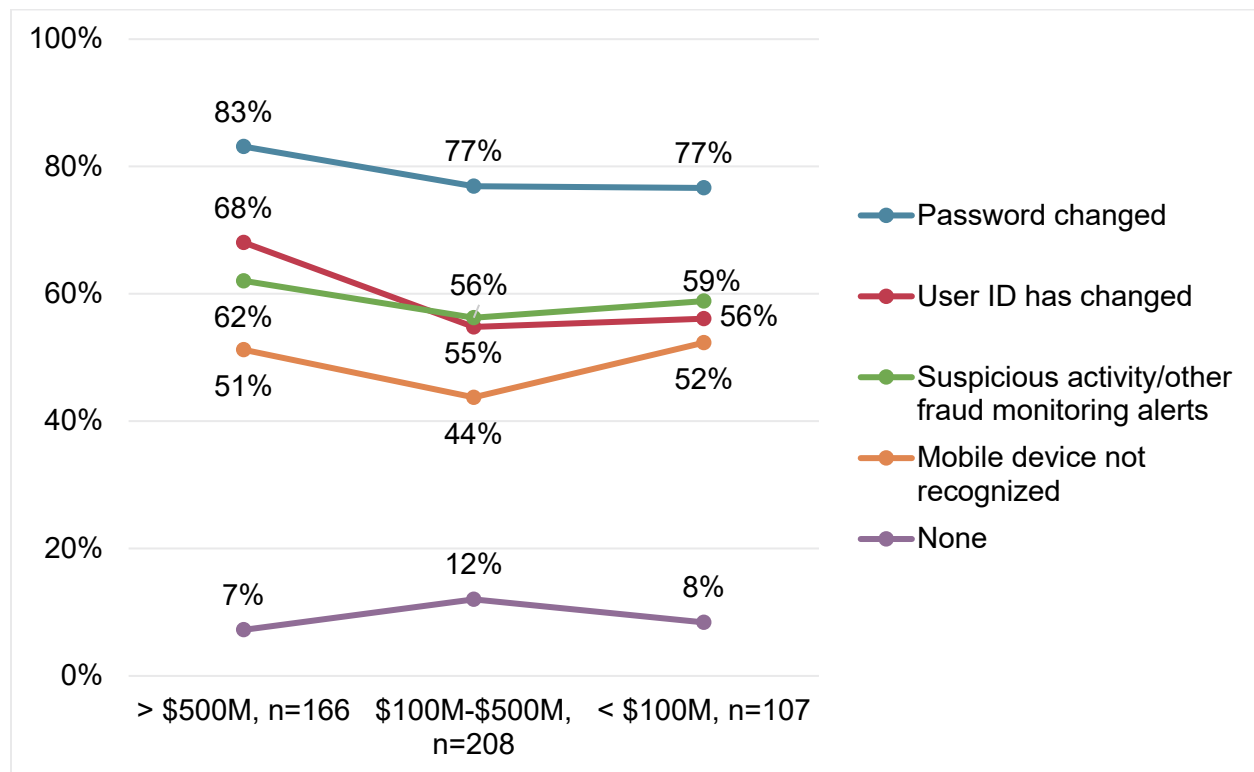
Overall, FIs understand the value of mobile alerts to mitigate fraud. FIs can influence customers to protect their bank accounts by engaging them with mobile notifications. Mobile alerts, whether text or email, can inform customers in real time when significant or high-risk changes affect their bank accounts. Examples include alerts to notify customers of changes to passwords or user IDs, to confirm that transactions and other activities are legitimate, or to indicate suspicious activity. Alerts enable customers to respond quickly if they did not initiate such changes. The 2016 survey did not include this question, but in 2019, 79 percent of respondents provided alerts for *password changes*, while 60 percent offered or planned to offer alerts for *user ID changes*, and 59 percent for *suspicious activity* (**Figure 33**). Alerting customers to use of a new mobile device is starting to gain traction with more respondents (48 percent). Only 10 percent of respondents, evenly distributed across asset tiers, did not offer any alerts (**Figure 34**).

**Figure 33: Alerts FIs Use for Mobile Banking Security** (% of respondents)



Q24. What mobile security alerts do you currently offer or plan to offer? (Check ALL that apply)

**Figure 34: Alerts FIs Use for Mobile Banking Security by Asset Size (% of respondents)**



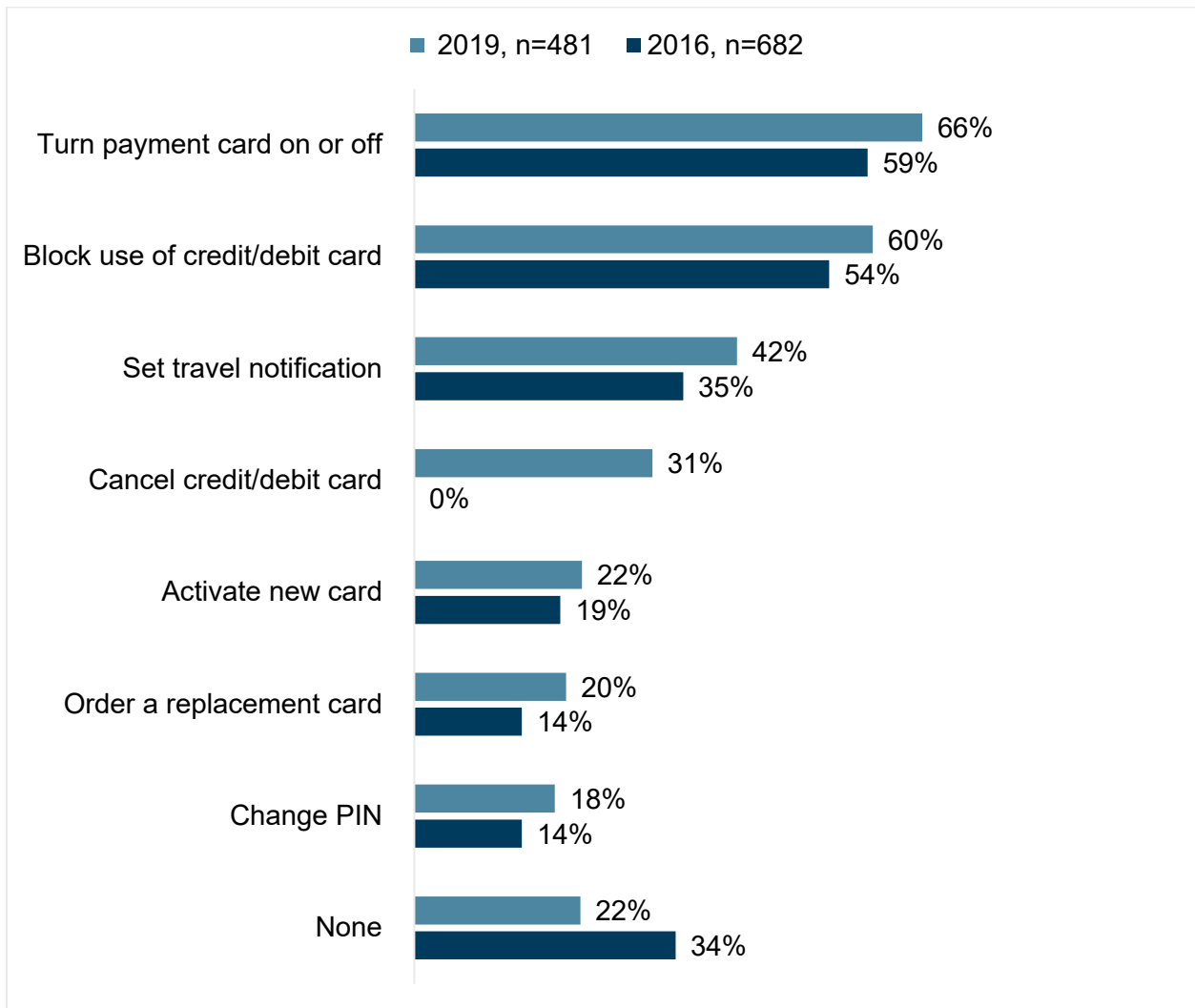
Q24. What mobile security alerts do you currently offer or plan to offer? (Check ALL that apply)

### Mobile Card Controls

Respondents offered several card controls in the mobile banking app to enable customers to manage their cards and mitigate fraud conveniently. The two most common card control features that many respondents supported in 2019 and in 2016 were the ability to *turn a payment card on or off* (66 percent compared to 59 percent) and the ability to *block use of a credit/debit card* (60 percent compared to 54 percent). Forty-two percent of the 2019 respondents allowed customers to *set travel notifications* through their mobile banking app, an increase of seven percentage points over 2016. All these features help mitigate losses if a card is lost or stolen (**Figure 35**) or avoid negative customer experiences, should the cardholder be traveling internationally.

Considered higher-risk features, allowing customers to *activate a new card*, *order a replacement card*, or *change their card PIN* via mobile, continue to show low FI adoption, with a combined average of 20 percent of respondents in 2019 compared to 16 percent in 2016. These three capabilities pose greater risk of fraudulent activity because they allow changes directly to the customer's account.

**Figure 35: Mobile Support for Card Control Features 2019 v. 2016 (% of respondents)**

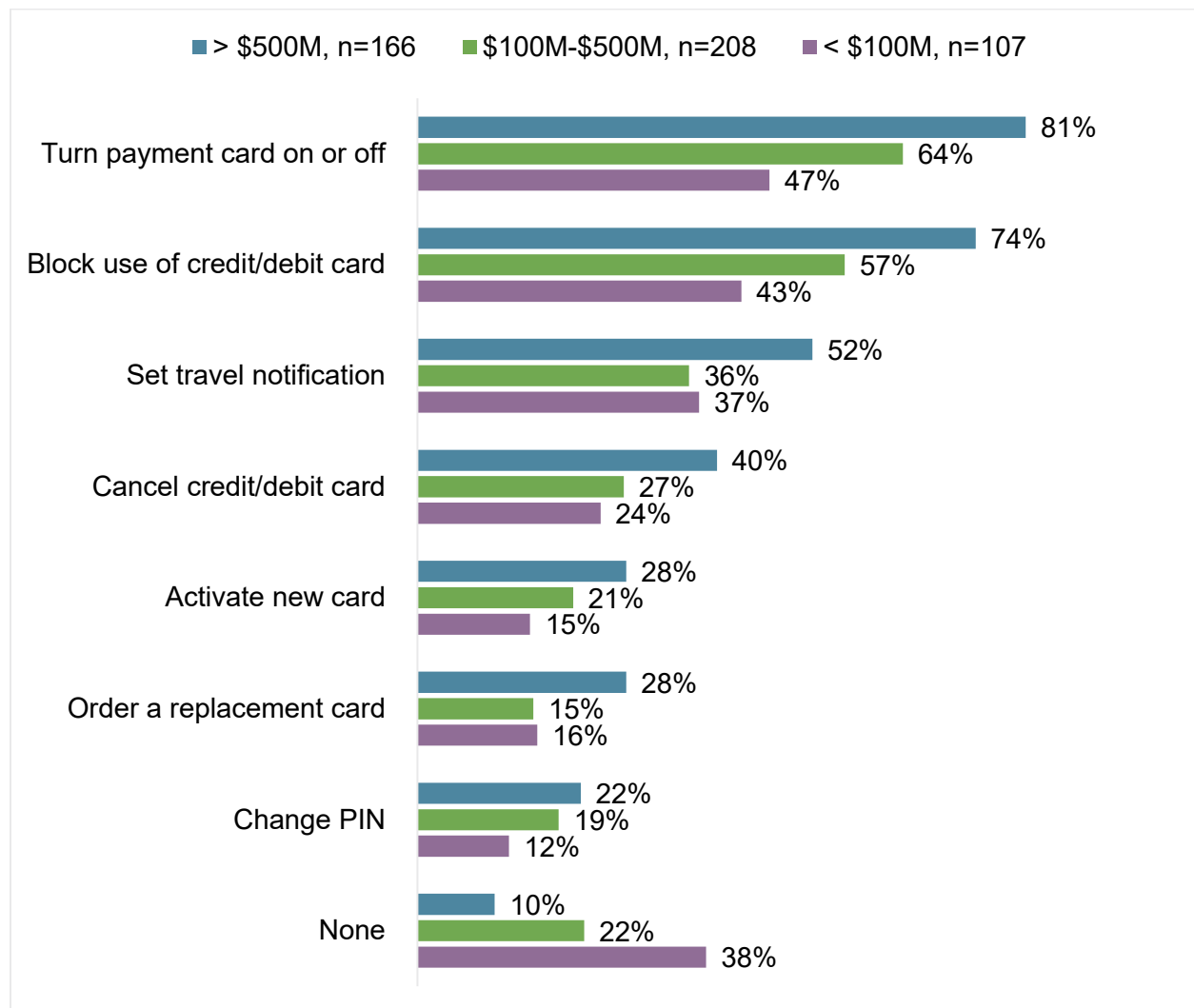


Q25. Which card control features do you currently support or plan to support via your mobile banking app?  
(Check ALL that apply)

The most notable change from 2016 to 2019 was that the percentage of respondents supporting or planning to support *at least one* card control feature increased from 66 percent in 2016 to 78 percent in 2019. Asset size influences support of card controls: Respondents not supporting any card controls in 2019 represented 38 percent of small FIs (<\$100M), 22 percent of respondents with \$100M-\$500M in assets and only 10 percent of those with assets over \$500M (Figure 36). In 2016, the comparable percentages for those not supporting card controls were 44 percent, 37 percent, and 22 percent, respectively

Larger respondents (assets > \$500M) supported or planned to support more mobile card control features, but even they reported fewer offerings of the higher-risk features. Respondents in the lowest asset tier (<\$100M) continued to support the fewest card controls. The percentages of banks and credit union respondents that supported card controls were consistent.

**Figure 36: Mobile Support for Card Control Features by FI Asset Size (% of respondents)**



Q25. Which of the following card control features does your FI's mobile banking app support or plan to support?

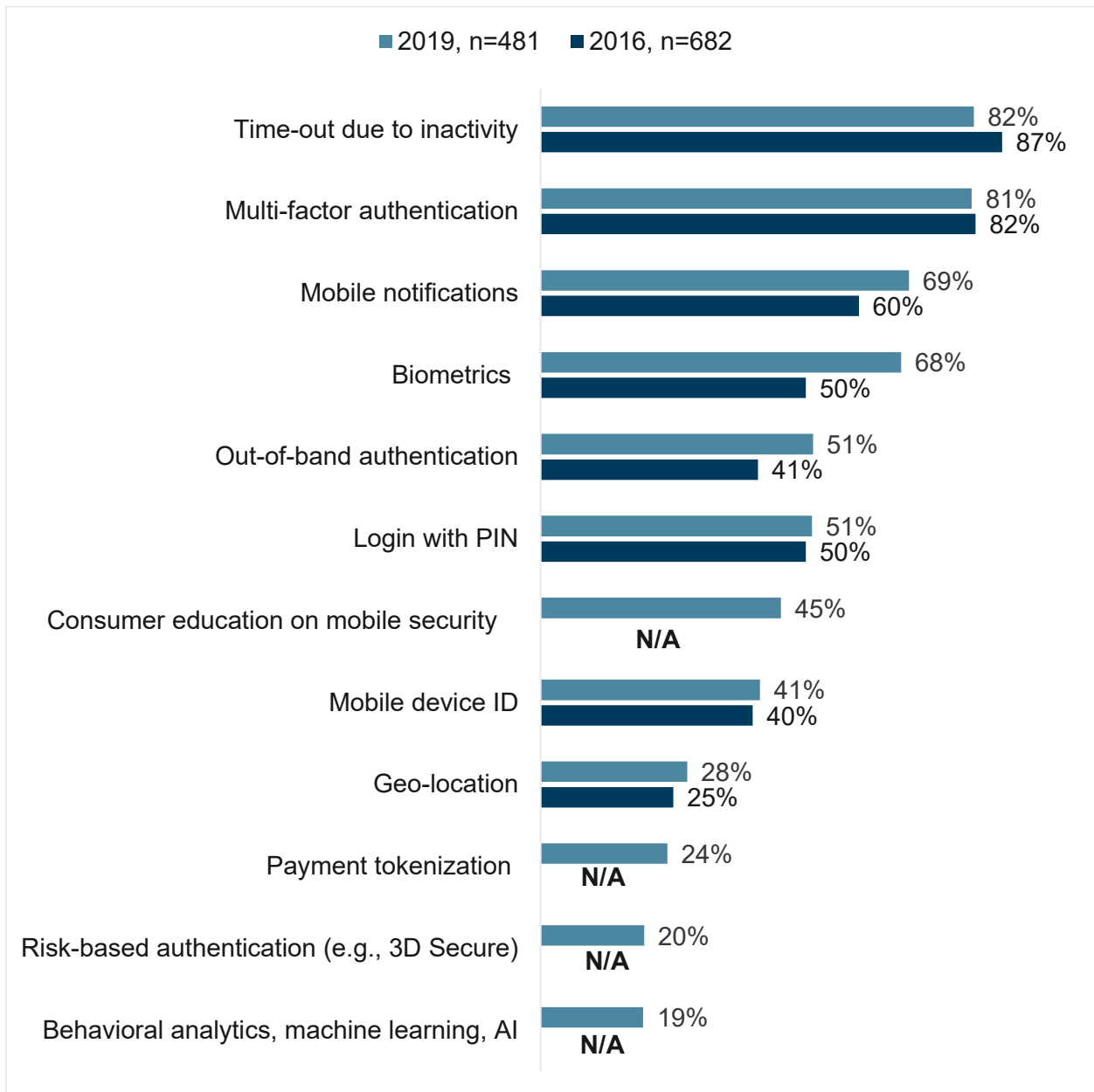
### ***Tools FIs use to enhance mobile banking security***

Responses to a question about the use of security tools yielded similar results in 2019, compared to 2016, for six of the eight options, and all were within nine percentage points (**Figure 37**). These six tools include *time-out due to inactivity*, *multifactor authentication (MFA)*, *mobile notifications*, *login with PIN*, *mobile device ID*, and *geolocation*. In 2019, at least 50 percent of respondents used all but two of the six security tools. In both years, the same three tools topped the list: *time-out due to inactivity* (2019: 82 percent), *MFA* (2019: 81 percent), and *mobile notification* (2019: 69 percent).

The security tools with the most growth between 2016 and 2019 were biometrics and OOBA (out-of-band authentication). Both of these tools support MFA and strengthen customer authentication. The percentage of respondents using biometrics increased from 50 percent in 2016 to 68 percent in 2019. The 2019 survey showed that large respondents (assets > \$500M) used biometrics more heavily (89 percent) than respondents with \$100M-\$500M in assets (66 percent). OOBA use increased from 41 percent in 2016 to 51 percent in 2019. This is an area where credit unions lagged. Only 40 percent of credit union respondents used OOBA, compared to 57 percent of bank respondents.

The 2019 survey introduced four new security tools to this question: *consumer education on mobile security*, *payment tokenization*, *risk-based authentication (e.g., 3DS)*, and *behavioral analytics/machine learning and AI*. Usage was consistent between banks and credit unions, but asset size was a determining factor.

**Figure 37: Mobile Banking Security Tools Used by FIs, 2019 vs. 2016 (% of respondents)**



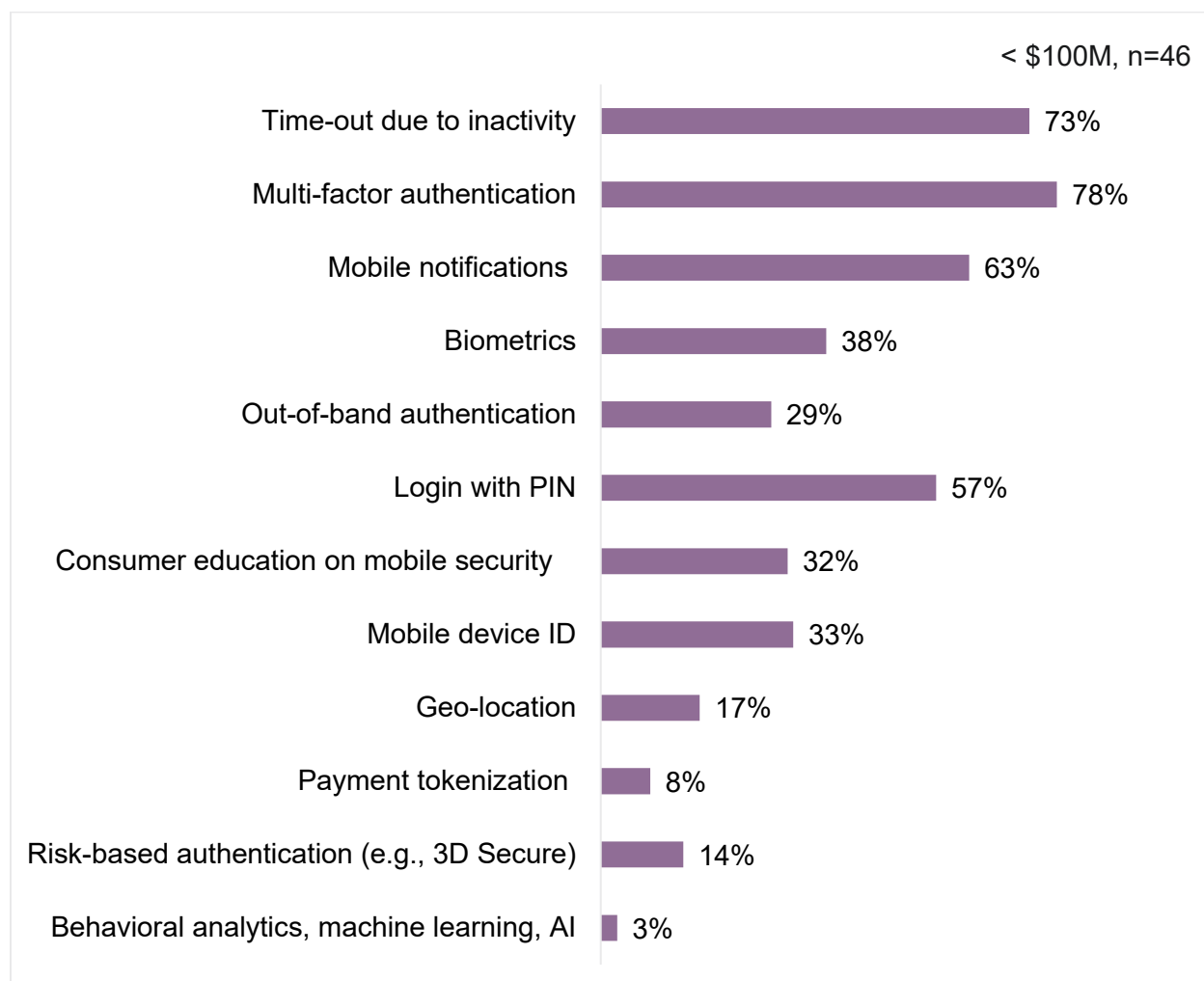
Q26. Which of the following does your FI currently use or plan to use to enhance mobile banking security?



Excluding the smallest respondents, (those with assets less than \$100M), respondents in all other asset tiers reported relatively consistent prioritization of the security tools listed.

The prioritization pattern in the consolidated table above differs for the respondents in the smallest asset tiers (T1 and T2 <\$100M) (Figure 38). Fewer small respondents use biometrics (38 percent) and OOBA (29 percent), compared to all other asset tiers, where the comparable percentages range from 80 percent to 90 percent and 48 percent to 70 percent, respectively. A higher percentage of small-tier respondents use login with PIN (57 percent), but a much smaller percentage use geolocation and other new security tools.

**Figure 38: Mobile Banking Security Tools Used by SMALLEST FIs (% of respondents)**



Q26. Which of the following does your FI currently use or plan to use to enhance mobile banking security?

About one-third (31 percent) of all respondents used at least one of the “new” security tools for mobile banking. Larger FIs tend to use multiple security methods: 6 percent of the largest respondents (> \$500 million) use all four new tools. However, 56 percent of the smallest respondents (<\$100M assets) do not use any of the new security tools. These tools are more complex and costly to implement and maintain, which explains the difference between large and small FIs, but they offer greater success in mitigating fraud.

**Figure 39: Number of Security Tools used by Respondent Asset Tiers**

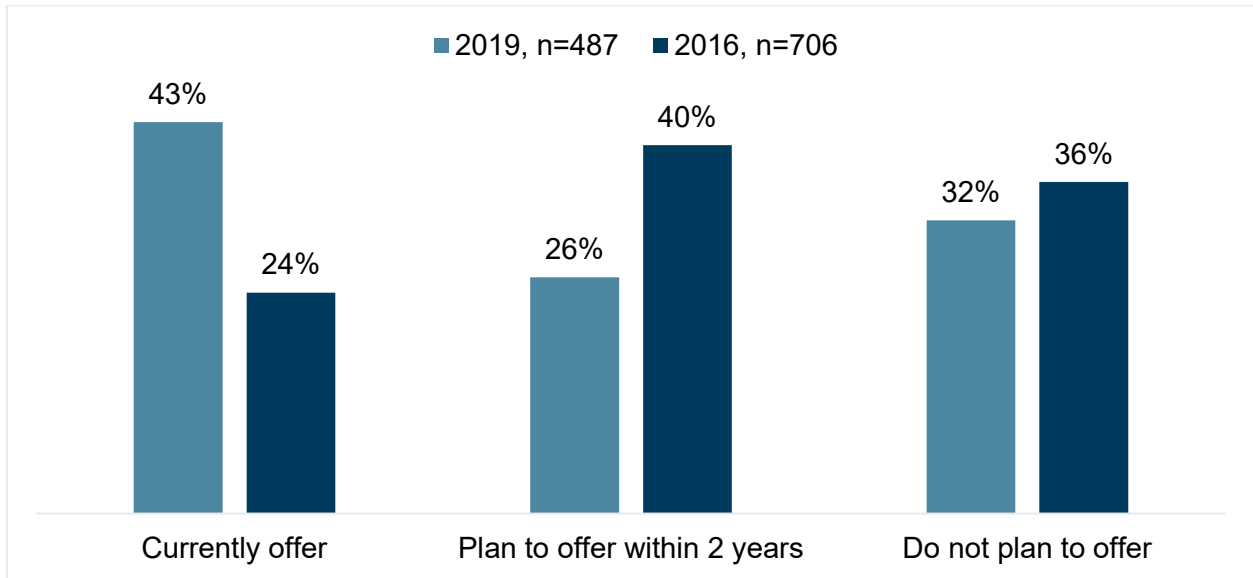
Number of new security tools used*	FI Respondents by Asset Size		
	< \$100M n=107	\$100M-\$500M n=208	> \$500M n=166
0	56%	39%	25%
1	32%	36%	23%
2	11%	18%	29%
3	1%	5%	17%
4	0%	2%	6%

\*New security tools include payment tokenization, geolocation, RBA, and behavioral analytics, machine learning, and AI

## Mobile Payment Services

More FIs have begun to support wallet services for their customers as mobile payment solutions mature, merchant acceptance broadens, and consumer awareness grows. The percentage of respondents that enable mobile payments significantly increased from 24 percent in 2016 to 43 percent in 2019, with another 26 percent planning to support mobile payments within two years (Figure 40).

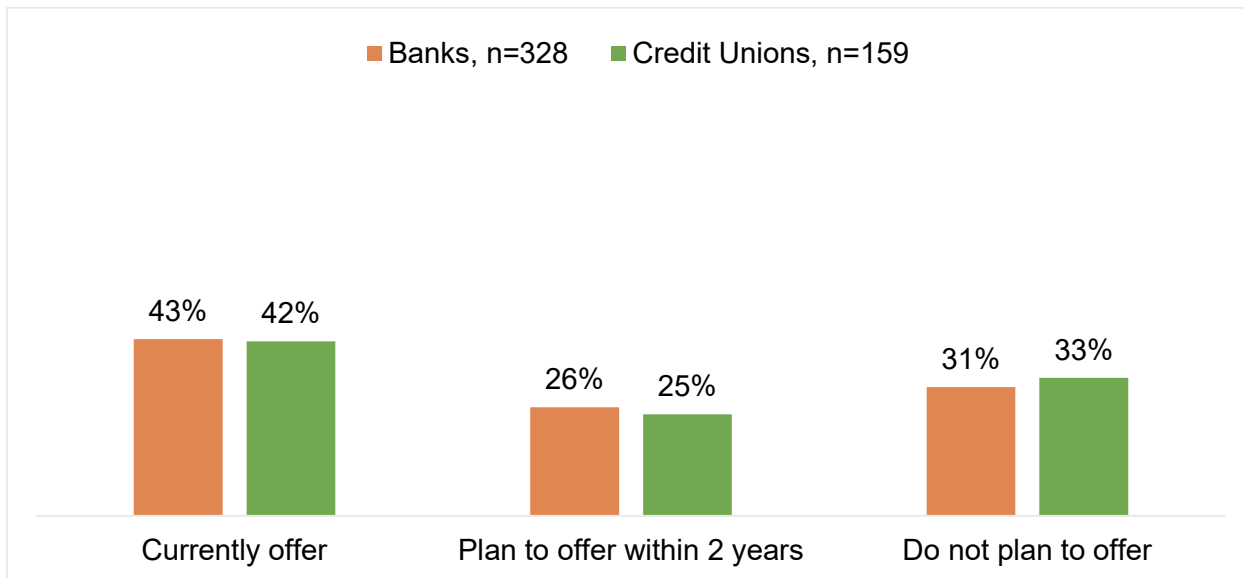
**Figure 40: FI Plans to Offer Mobile Payment Services** (% of respondents)



Q31. Do you currently offer or plan to offer any mobile payment/wallet services for retail customers?

Banks and credit unions are almost evenly divided in their plans for mobile payment services (Figure 41).

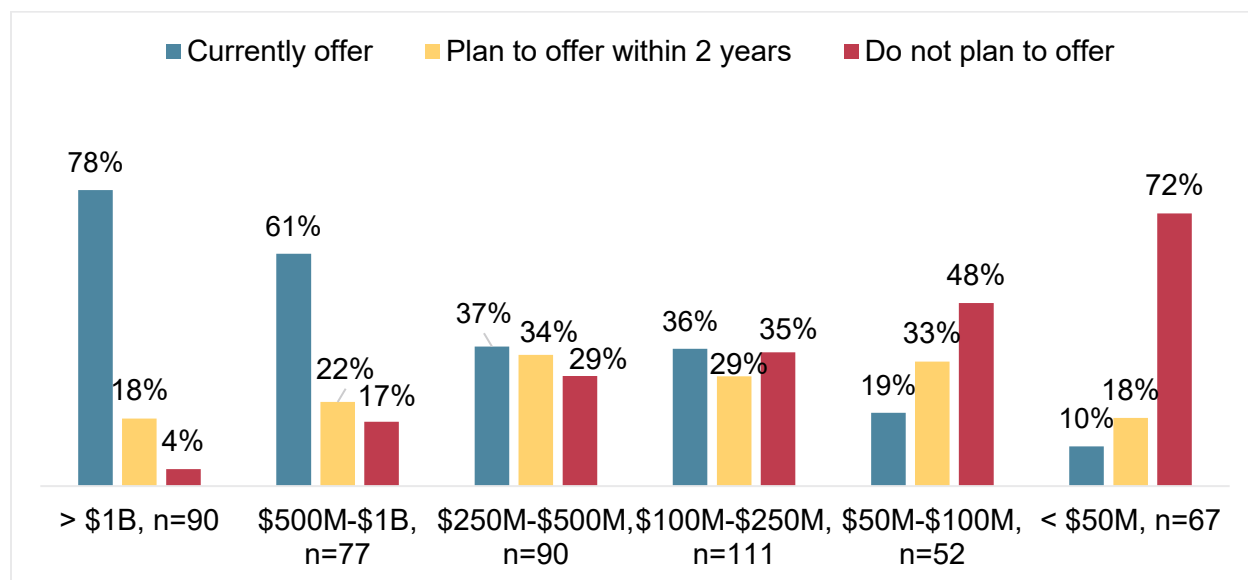
**Figure 41: FI Plans to Offer Mobile Payment Services by FI type (% of respondents)**



Q31. Do you currently offer or plan to offer any type of mobile payment/wallet services for retail customers?

**Figure 42** shows that the percentage of respondents supporting mobile payments decreases by asset tier. More than three-quarters (78 percent) of FIs with assets greater than \$1 billion currently support mobile payments, and another 18 percent will enable these services by 2021.<sup>20</sup> Only 10 percent of respondents in the smallest asset tier (< \$50 million) currently support mobile payments. Another 18 percent plan to do so in the next two years, and the majority (72 percent) had no plans to offer mobile payments at the time we conducted the survey.

**Figure 42: FI Plans to Offer Mobile Payment Services by FI Asset Size (% of respondents)**

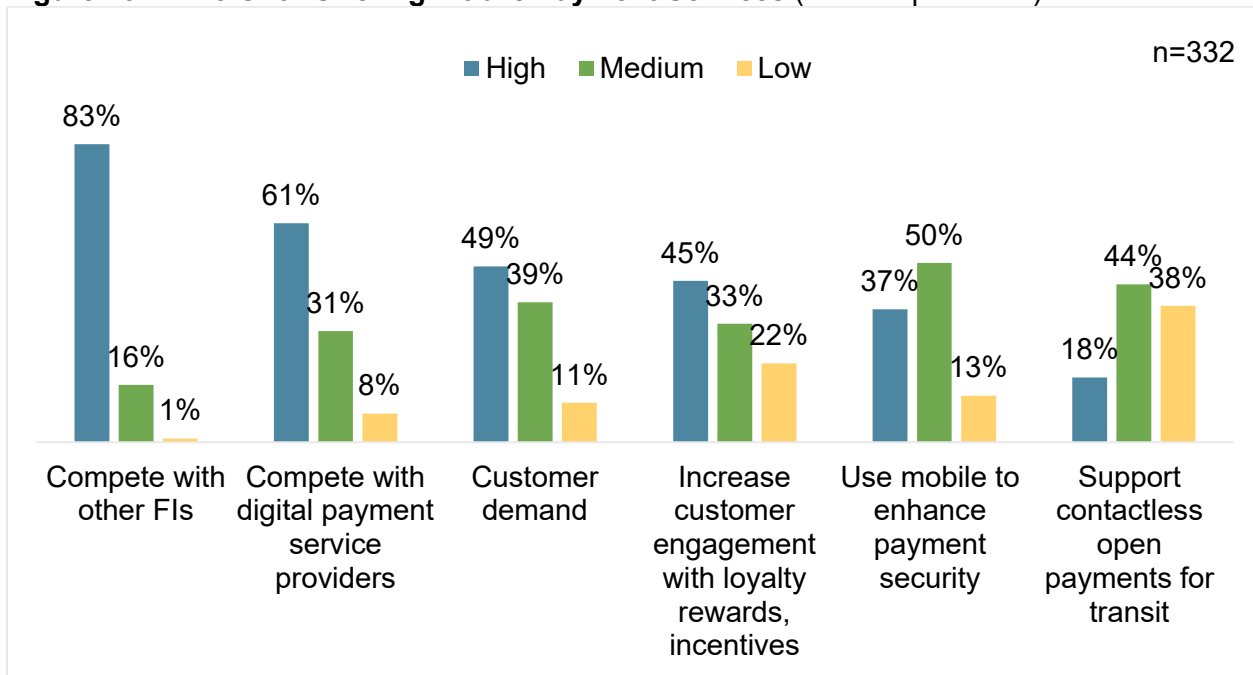


Q31. Do you currently offer or plan to offer any mobile payment/wallet services for retail customers?

Respondents rated the importance of several factors that influenced their decision to offer mobile payments (**Figure 42**). The highest percentage of respondents rated *competition with other FIs* high (83 percent) or medium (16 percent), acknowledging this as a key driver for supporting mobile payments. However, *competition with digital payment service providers* was also important, rated “high” by 61 percent of FIs. This is not surprising, as FIs provide their credit and debit cards to fund wallets from payment service providers, and while not directly competing with them for revenue, want their cards to be top-of-wallet. Just under half, (49 percent) of respondents rated *customer demand* as high, while 37 percent rated *use mobile to enhance payment security* as high. Eighteen percent of respondents rated the importance of support for transit payments high, which may correlate to FI locations in or near cities with transit systems that accept open contactless payments.

<sup>20</sup> In this survey, we define FI support for mobile payments as allowing customers to add the institution’s credit and/or debit cards to an NFC mobile wallet, such as Apple Pay, Google Pay, or Samsung Pay.

**Figure 43: Drivers for Offering Mobile Payment Services** (% of respondents)

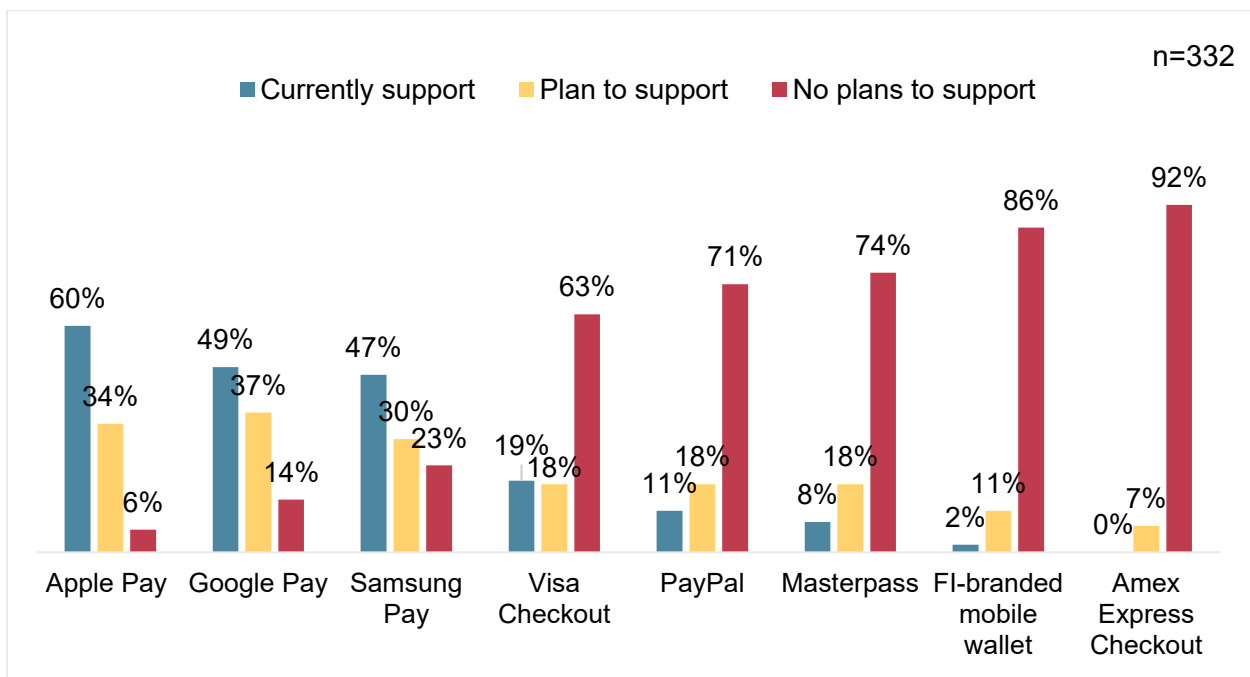


Q32. Please RATE the IMPORTANCE of factors that influenced your FI's decision to offer or plan to offer mobile payments.

Most respondents (94 percent) support or plan to support at least one NFC wallet such as Apple Pay, Google Pay, or Samsung Pay (**Figure 44**). Sixty percent of respondents enable their credit and debit cards to be loaded into Apple Pay, and 34 percent have plans to enable their cards in the Apple wallet. Almost 50 percent of respondents currently support Google Pay and Samsung Pay, while 37 percent and 30 percent, respectively, plan to enable their customers to use these two wallets. Almost 50 percent of respondents currently support Google Pay and Samsung Pay, while 37 percent and 30 percent, respectively, plan to enable their customers to use these two wallets.

Respondents are enabling customer access to other digital wallets at a slower rate than NFC mobile wallets, as the initial focus of mobile payments was physical point of sale (POS), not ecommerce transactions. The 2019 findings show that 19 percent of respondents supported Visa Checkout and 8 percent supported Masterpass,<sup>21</sup> compared to 12 percent and 4 percent, respectively, in 2016. More collaboration between FIs and merchants will drive customer adoption, as both merchant acceptance and FI participation are required.

**Figure 44: Mobile/Digital Wallets Offered by FIs (% of respondents)**



Q33. Which of the following MOBILE/DIGITAL WALLETS do you support or plan to support?

<sup>21</sup> Visa Checkout and Mastercard Masterpass enable consumers to make secure card-not-present (CNP) purchases at online merchant websites without sharing their payment credentials with the merchant.

Support for NFC wallets varies by respondent asset size (**Figure 45**). On a percentage basis, respondents that support or plan to support the NFC Pay wallets tend to decrease with asset size. Seventy-nine percent of respondents with assets over \$1 billion currently support Apple Pay, 71 percent support Google Pay, and 67 percent support Samsung Pay. Very few (3 percent, 7 percent, and 14 percent, respectively) have no plans to support any of the NFC mobile wallets. Thirty-three percent of FIs with assets under \$100 million currently support Apple Pay, and about 26 percent support Google Pay and Samsung Pay.

Compared to the 2016 MFS survey results, significantly fewer respondents in 2019 have NO plans to enable adding their cards to any NFC Pay wallets. This is true across all but the smallest asset tier.

**Figure 45: FIs with NO plans to Offer NFC Mobile Wallets, 2019 v. 2016** (% of respondents)

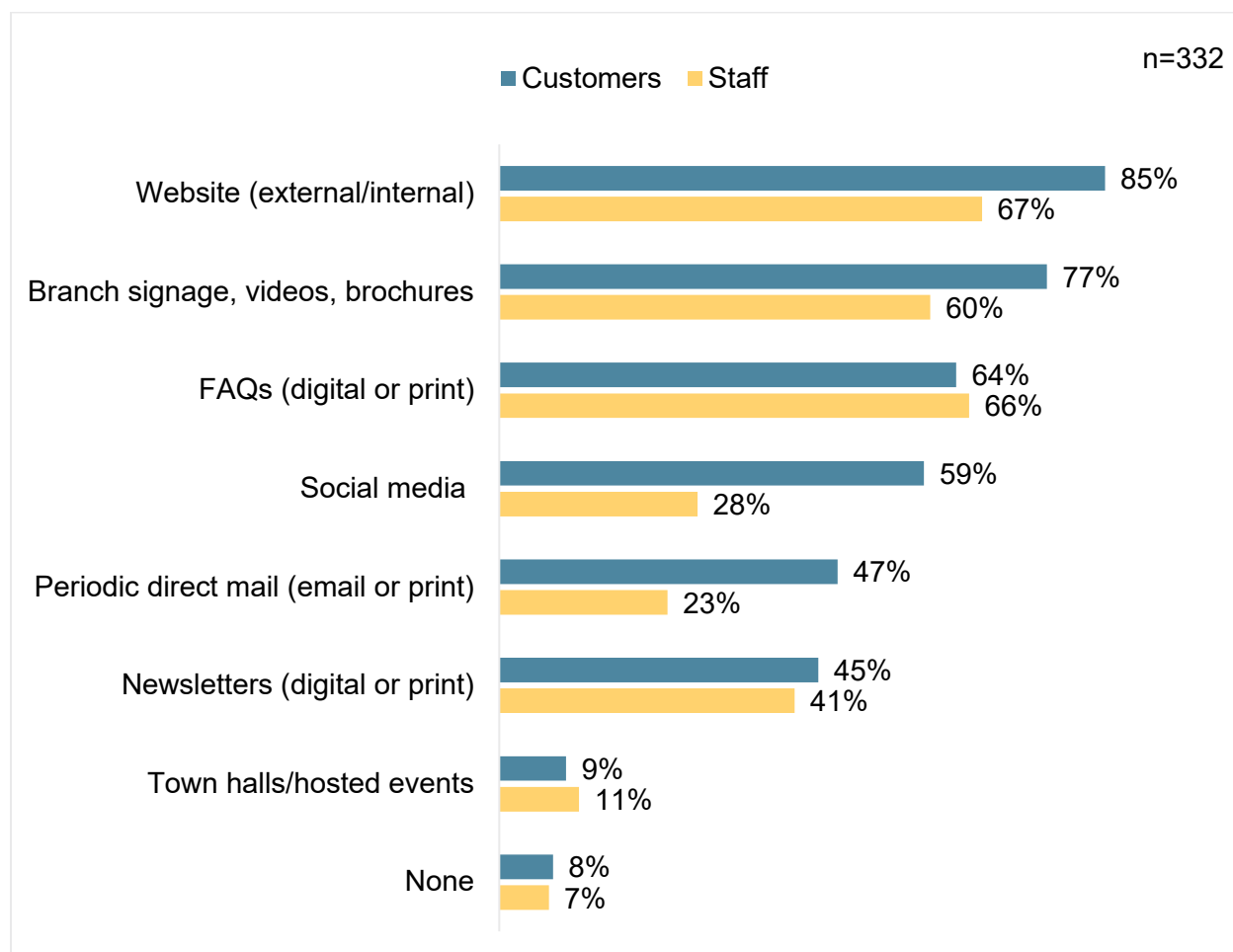
Asset Tier	Apple Pay		Google Pay		Samsung Pay	
	2019	2016	2019	2016	2019	2016
< \$100M	17%	7%	20%	21%	28%	42%
\$100M-250M	6%	18%	24%	28%	26%	51%
\$250M-500M	5%	22%	14%	40%	30%	53%
\$500M-1B	2%	6%	6%	19%	19%	26%
>\$1B	3%	9%	7%	19%	14%	24%

33. Which of the following MOBILE/DIGITAL WALLETS do you support or plan to support?



Respondents use a variety of communication channels to build awareness and educate customers and staff about mobile payments, which is key to adoption (**Figure 46**). Communicating via website is the most commonly used channel for both external and internal audiences – 85 percent use the website for customers and 67 percent for staff. Many respondents also provide branch signage, videos, brochures (77 percent), social media (59 percent), and direct mail (47 percent) to reach customers. Over 60 percent of respondents publish FAQs for customers and staff. Very few host in-person or remote events to educate customers. However, use of social media may offset that gap.

**Figure 46: Customer and Staff Education about Mobile Payments** (% of respondents)



Q34. How do you currently educate your customers and staff about mobile payments? (Check ALL that apply)

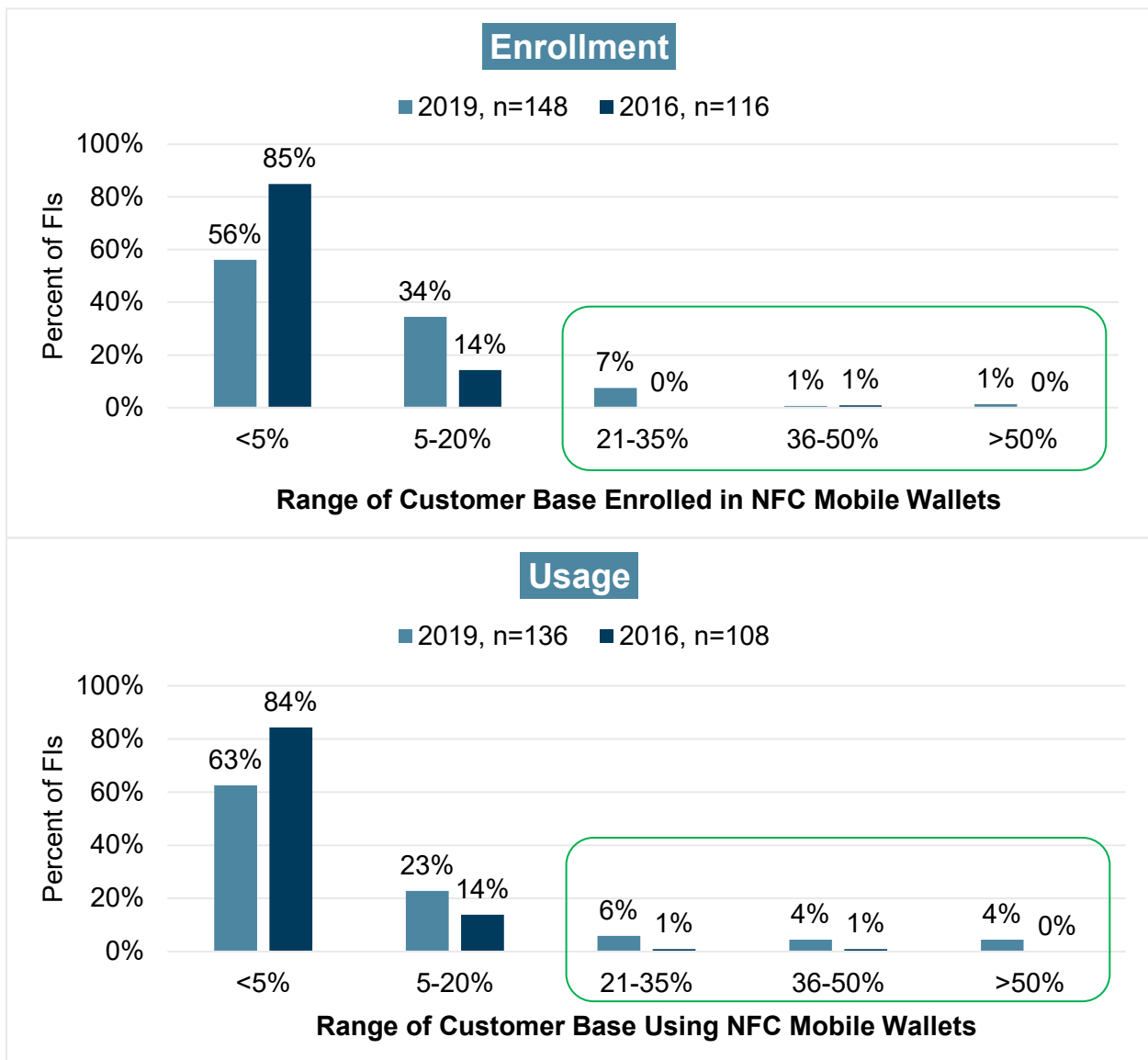
## **Consumer Adoption of Mobile Payment Services**

Consumer adoption of mobile payment services continues to grow slowly. Of the 200 respondents that supported at least one NFC mobile wallet (i.e., Apple Pay, Google Pay, and Samsung Pay) in 2019, only 148 reported tracking customer enrollment data and 136 reported tracking usage data.<sup>22</sup> **Figure 47** shows that 56 percent of respondents have < 5% of their customers enrolled, and 63 percent of the FIs with enrolled customers report that < 5% of those customers have made an NFC mobile wallet payment. Nonetheless, adoption has improved since the 2016 survey. Thirty-four percent of respondents had between 5-20% of their customers enrolled in 2019, compared to only 14 percent of FIs in 2016. Additionally, 9 percent of respondents reported having more than 20 percent of customers enrolled in 2019, compared to just 1 percent in 2016. Fourteen percent of FIs reported that more than 20 percent of enrolled customers made an NFC mobile payment in the last 90 days in 2019, versus 2 percent in 2016.

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<sup>22</sup> While not captured in the survey, smaller FIs that use processors may have access to this data, but at an additional cost.

**Figure 47: Customer Adoption of Apple, Google and Samsung Pay (% of respondents)**



Q35. What percentage of your customers uses your mobile wallet services?

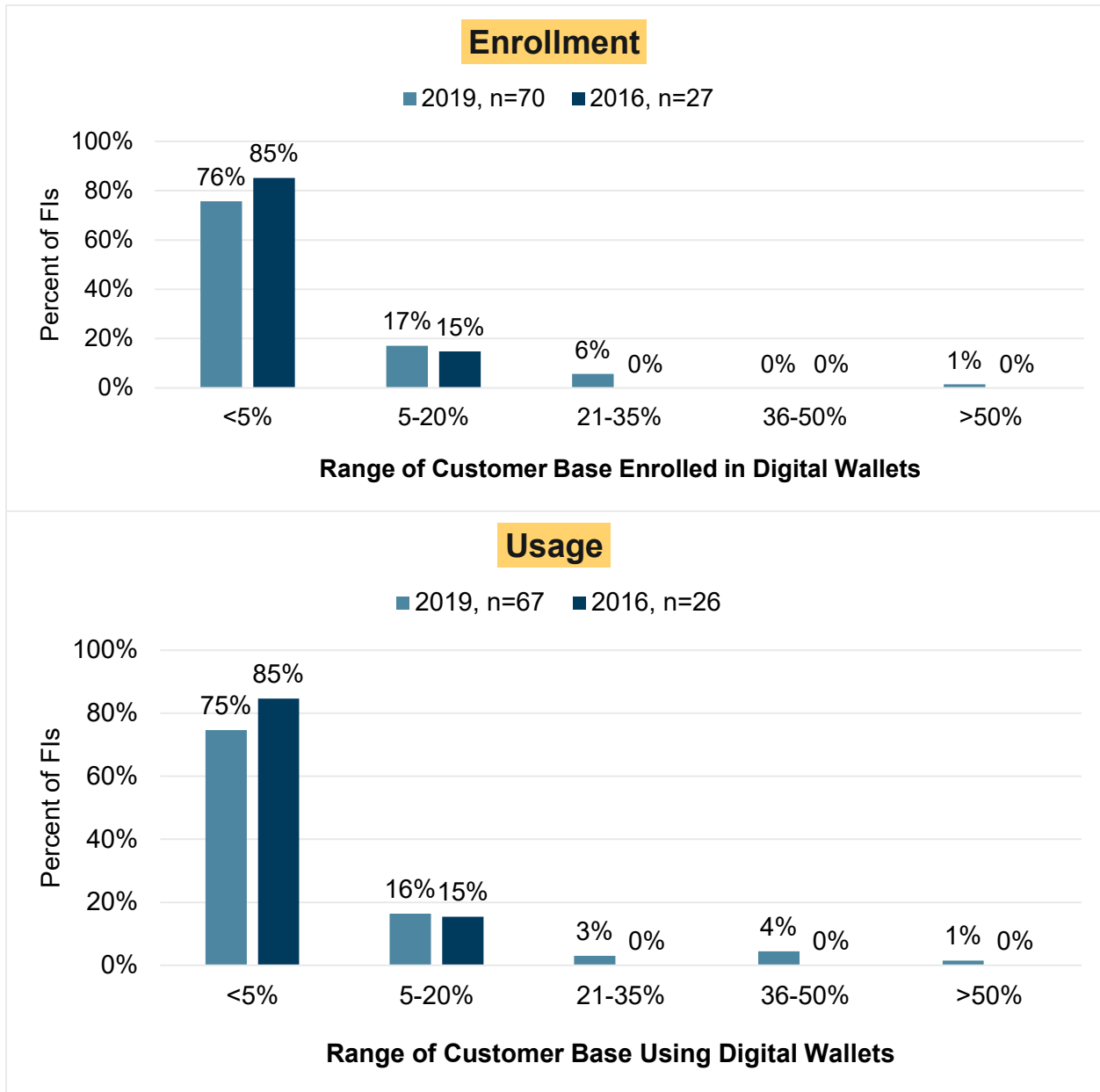
Fewer respondents support digital checkout<sup>23</sup> or card-on-file (CoF)<sup>24</sup> wallets than NFC Pay mobile wallets. Nevertheless, support for digital wallets and related customer adoption increased between 2016 and 2019. Of the 102 respondents that offered at least one digital checkout or CoF wallet in 2019, 70 track customer enrollment data, and 67 track usage data. In 2019, 25 percent of FIs reported more than 5 percent of their customers enrolled, and 24

<sup>23</sup> Digital checkout wallets include Visa Checkout, Masterpass, and AmEx Express Checkout.

<sup>24</sup> For this report, PayPal was categorized as a COF wallet.

percent reported more than 5 percent of customers had made a digital wallet or CoF purchase in the previous 90 days. This compares to only 15 percent of FIs in 2016 that had between 5-20% of customers both enrolled and using a digital wallet, and no customers in the higher ranges (**Figure 48**). It is worth noting that in 2019 many more respondents tracked enrollment (70 in 2019 compared to 27 in 2016) and usage (67 in 2019 compared to 26 in 2016).

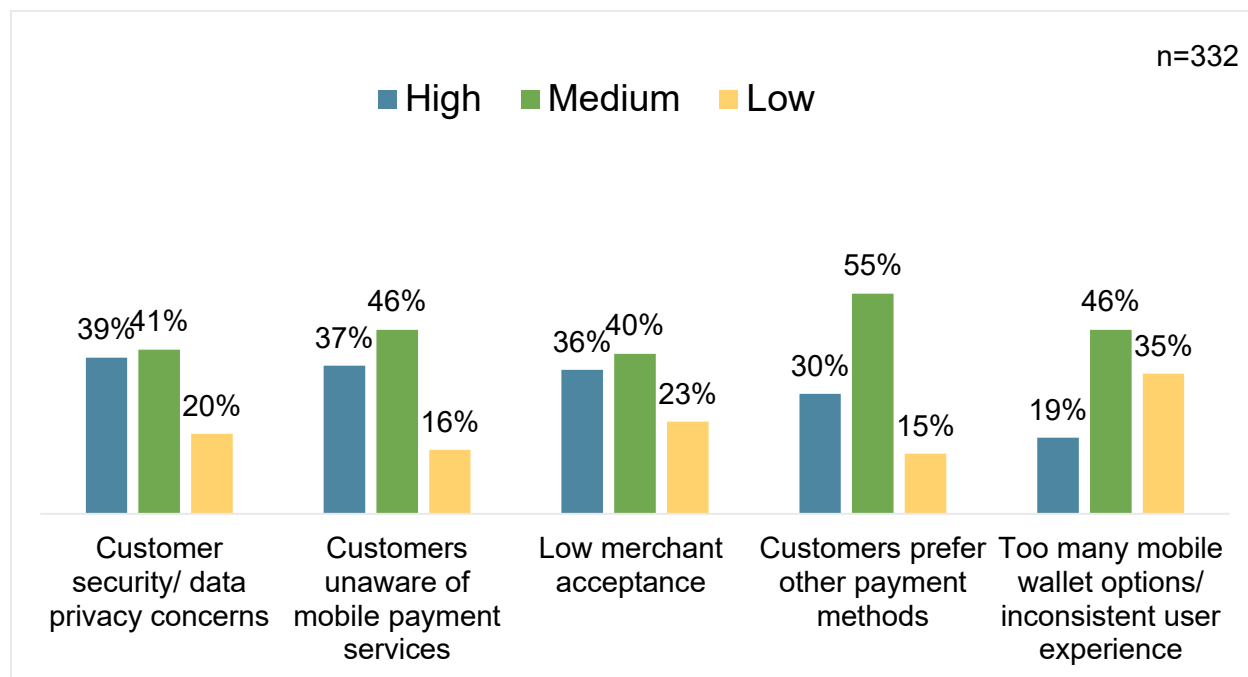
**Figure 48: Customer Adoption of Digital Wallets** (% of respondents)



Q35. What percentage of your customers uses your mobile wallet services?

Respondents rated the impacts of potential barriers to customer adoption of mobile payments. None of the barriers received a majority of *High* ratings from the respondents. Thirty-nine percent rated *customer security/data privacy concerns* as *High*, but FI responses for *lack of customer awareness* (37 percent) and *limited merchant acceptance* (36 percent) were close behind (**Figure 49**). A customer's *preference for other payment methods* was cited as a medium barrier by more than half (55 percent) of the respondents.

**Figure 49: Barriers to Consumer Adoption of Mobile Payments** (% of respondents)

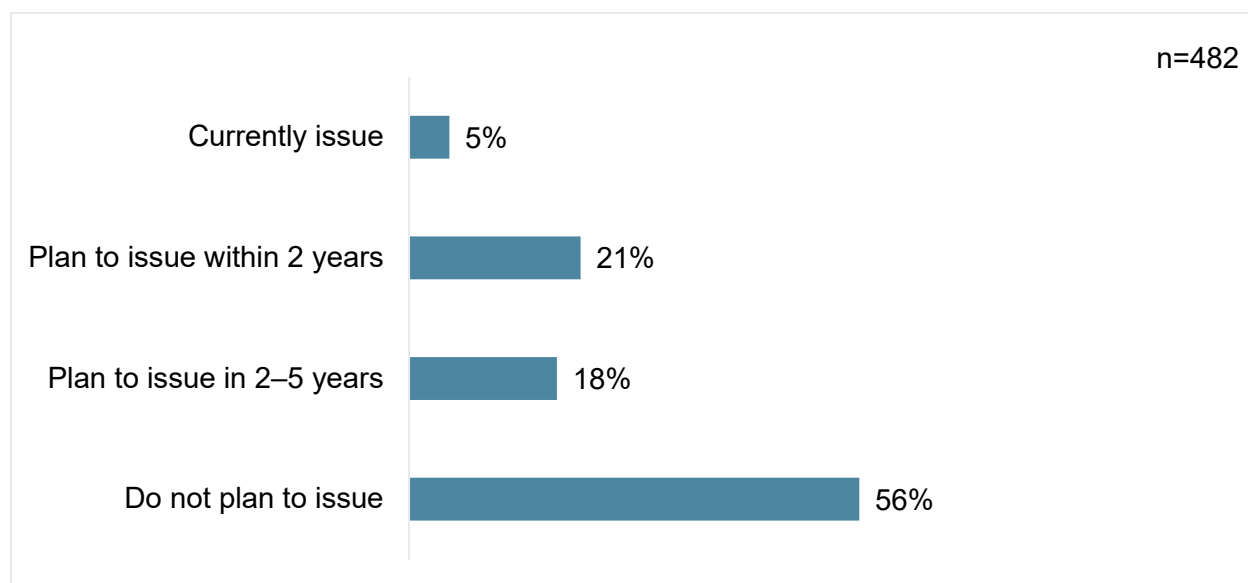


Q36. From your FI's perspective, how impactful are these issues to your customers adopting mobile payments?

Following the completion of the EMV chip card migration and growing merchant and mass transit acceptance of NFC, many FIs have begun to develop strategies to replace expiring EMV chip cards with dual-interface (contact and contactless) cards.<sup>25</sup> Dual-interface cards provide the same security as contact-only EMV chip cards, but lack some security features that NFC mobile payments have, including a tokenized account number in lieu of the card number. Contactless cards may offer a faster user experience at the POS when one considers the staging required to open a mobile NFC wallet, particularly for a new user. It is still too soon to see if contactless cards will increase consumer awareness and adoption of NFC mobile payments in the U.S., but mobile NFC payments have additional benefits.<sup>26</sup>

**Figure 50** shows that only 5 percent of respondents currently issue contactless cards, but 21 percent plan to issue them within two years, and another 18 percent plan to do so in 2-5 years. It should be noted that none of the Top 25 banks responded to the survey and a number of them have already begun to issue contactless cards. Contactless card issuance plans are comparable across bank and credit union respondents.

**Figure 50: FI Contactless Card Issuance Plans** (% of respondents)



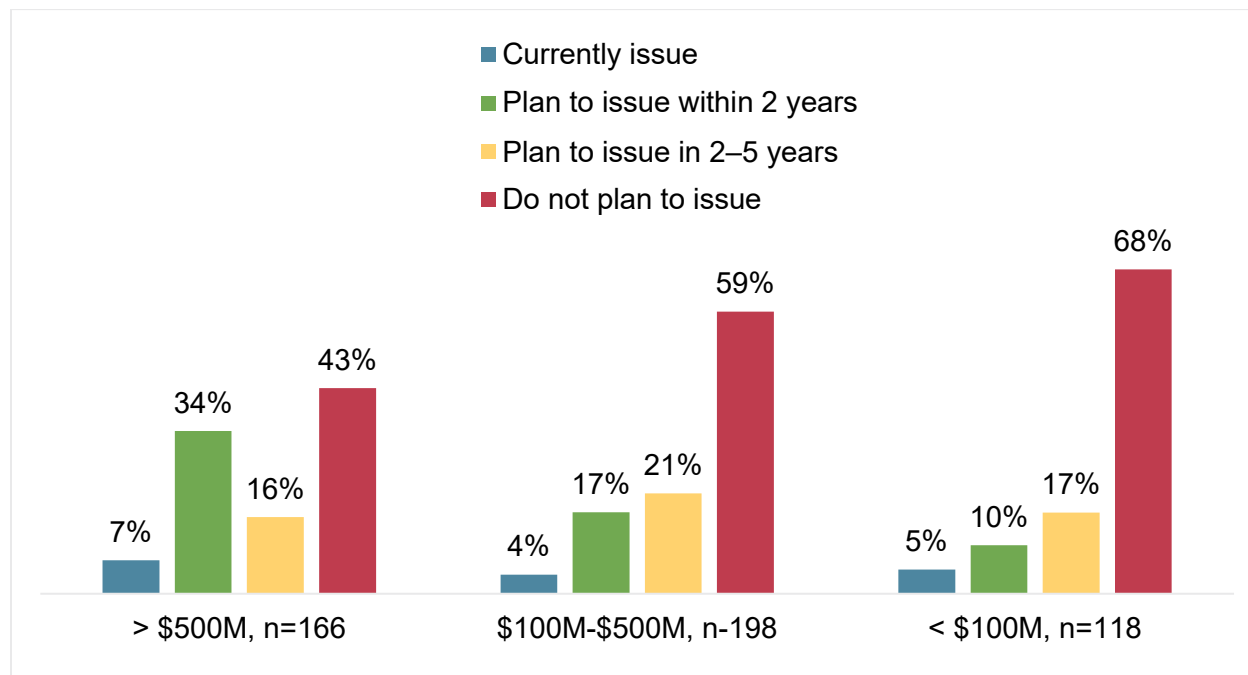
Q42. Do you currently issue or plan to issue contactless (credit and/or debit) cards?

<sup>25</sup> Magnetic stripe data (MSD) contactless cards were first introduced in the U.S. in the mid-2000s, but there was little uptake. In 2014-2015, Apple, Google, and Samsung launched contactless NFC mobile wallets. Adoption was low initially, because NFC required merchants to upgrade their POS terminals to accept contactless payments.

<sup>26</sup> See <https://www.bostonfed.org/publications/payment-strategies/tap-to-pay-will-contactless-cards-pave-the-way-for-nfc-mobile-payments-in-the-us.aspx> and <https://www.bostonfed.org/publications/mobile-payments-industry-workgroup/industry-perspectives-on-the-evolution-of-emv-payment-tokenization.aspx>

Fifty-seven percent of respondents with over \$500 million in assets issue or anticipate issuing contactless cards within the next five years (**Figure 51**). While 68 percent of small FIs (< \$100M in assets) do not have plans for contactless card issuance, relatively high percentages of FIs in the larger asset tiers also reported no plans.

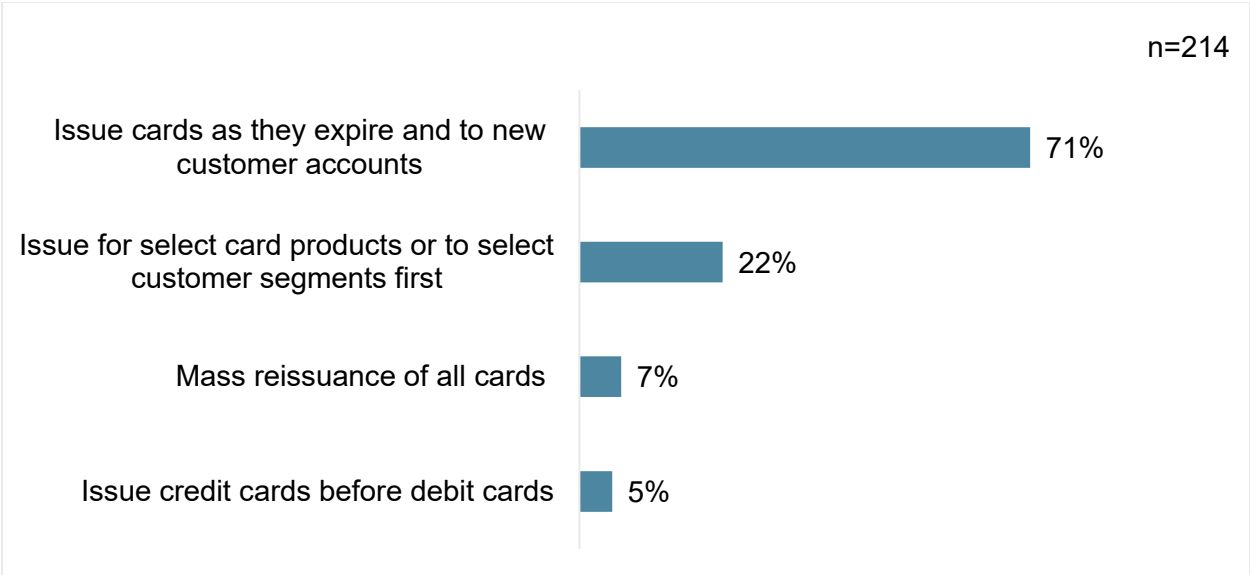
**Figure 51: Contactless Card Issuance Plans by FI Asset Size (% of respondents)**



Q42. Do you currently issue or plan to issue contactless (credit and/or debit) cards?

Seventy-one percent of respondents issuing or planning to issue contactless cards indicated they will begin with new customers and customers whose cards expire (**Figure 52**). A small percentage (22 percent) of respondents will initially issue to select product portfolios or customer segments. Only 7 percent, or 14 respondents – including eight FIs with more than \$500 million in assets – selected a mass reissuance strategy for contactless cards.

**Figure 52: FI Contactless Card Issuance Strategies** (% of respondents)



Q43. What is your strategy for issuing contactless cards? (Check ALL that apply)



## Mobile Payment Security

As referenced earlier in this report, a higher percentage of 2019 respondents enabled mobile payment services to consumers, compared to 2016. Digital wallets have evolved, providing consumers with more opportunities to use mobile devices for payments, particularly in the online or card not present (CNP) space. This shift to CNP has influenced the security priorities of the respondents.

### **Mobile payment security concerns**

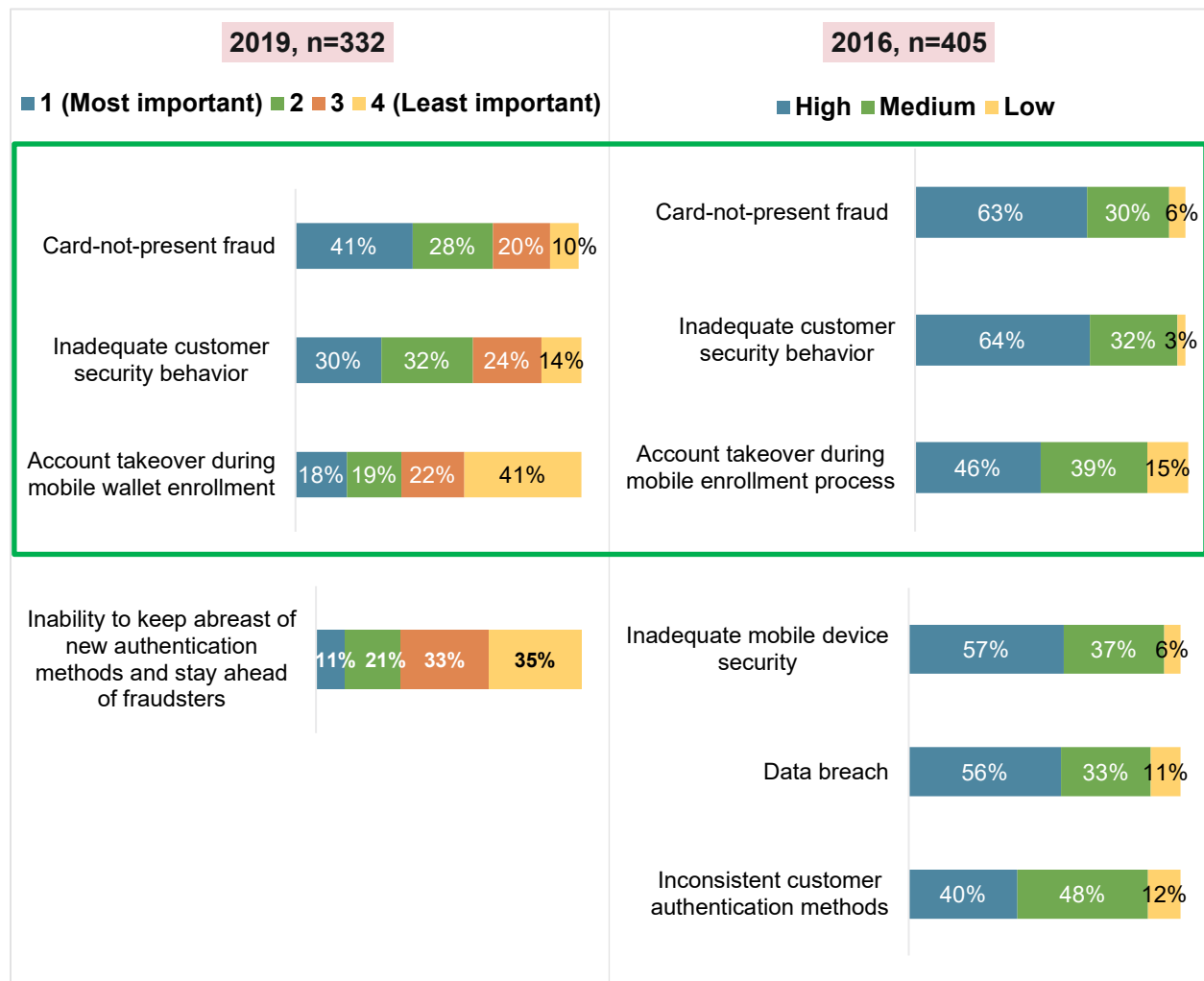
The 2019 survey formatted the question about ranking the importance of various security concerns differently from 2016. Respondents rated the importance of each concern from 1 to 4, where 1 was “most important” and 4 “least important.” In 2016, they rated the importance as “high,” “medium,” or “low.” The 2019 question also replaced three concerns – *inadequate mobile device security*, *data breach*, and *inconsistent customer authentication methods* – with one new concern – *inability to keep abreast of new authentication methods and stay ahead of fraudsters* (**Figure 53**).

In 2019, the highest percentage of respondents (41 percent) selected CNP fraud as the No. 1 most important security concern. Sixty-nine percent rated CNP fraud either No. 1 in importance (41 percent) or No. 2 (28 percent). This is close to the 63 percent of respondents who rated it “high” in 2016. In 2019, 62 percent of respondents rated *inadequate customer security behavior* No.1 or No. 2 in importance, similar to the 64 percent that rated it high in 2016.

*Account takeover (ATO) during wallet enrollment* dropped from 46 percent “high” in 2016 to a combined 37 percent of FIs that rated ATO either No. 1 or No. 2 in importance in 2019. Also, 41 percent of 2019 respondents rated *ATO during wallet enrollment* as the “least important” security concern. These results are likely due to the improved identity and verification (ID&V) controls around provisioning cards to the mobile wallet.

Over one third of respondents (35 percent) also rated *inability to stay ahead of fraudsters* as the least important security concern, which may indicate increased levels of experience and better tools available to the FIs to manage the security of their mobile banking and payment services.

**Figure 53: FI Security Concerns Associated with Mobile Payments** (% of respondents)



Q37. Please RANK the IMPORTANCE of your FI's security concerns associated with mobile payment services. (1=Most important, 4=Least important)

**Tools FIs use to enhance mobile payments security**

While many respondents use each of the security tools listed in **Figure 54** for mobile payments, some tools are more popular than others. For example, excluding those respondents with assets less than \$50 million, more than 65 percent of the remaining FIs in each asset tier have implemented biometrics. The highest percentage of respondents in 2019 (75 percent) and 2016 (68 percent) selected *biometrics* as a security tool. The second-highest percentage of respondents (68 percent) selected *providing mobile alerts for purchases* as a security tool. This supports key FI goals to engage customers in managing the security of their mobile payment activities by providing them with real-time data, such as alerts.

The percentage of 2019 respondents who reported using payment tokenization (typically with NFC “Pay” wallets) dropped significantly from 66 percent in 2016 to 44 percent in 2019.<sup>27</sup> What is unusual is that less than 50 percent of respondents in all asset tiers, excluding the largest (>\$1B), used tokenization – ranging from a low of 26 percent (\$50-\$100M in assets) to a high of 48 percent (\$500M-\$1B in assets).<sup>28</sup>

The use of device-based tools, *mobile device ID* and *geolocation*, did not change significantly from 2016 to 2019. However, use of one-time passcodes (OTP) for MFA increased as more customers have mobile phones able to receive OTPs in response to an FI request for additional verification. Similarly, the new risk-based version (2.0) of EMV 3-D Secure<sup>29</sup> will reduce customer friction and provide more data points to help authenticate the customer during an online purchase. The 3DS upgrade should increase merchant and FI adoption when it becomes commercially available in the U.S. in 2020.

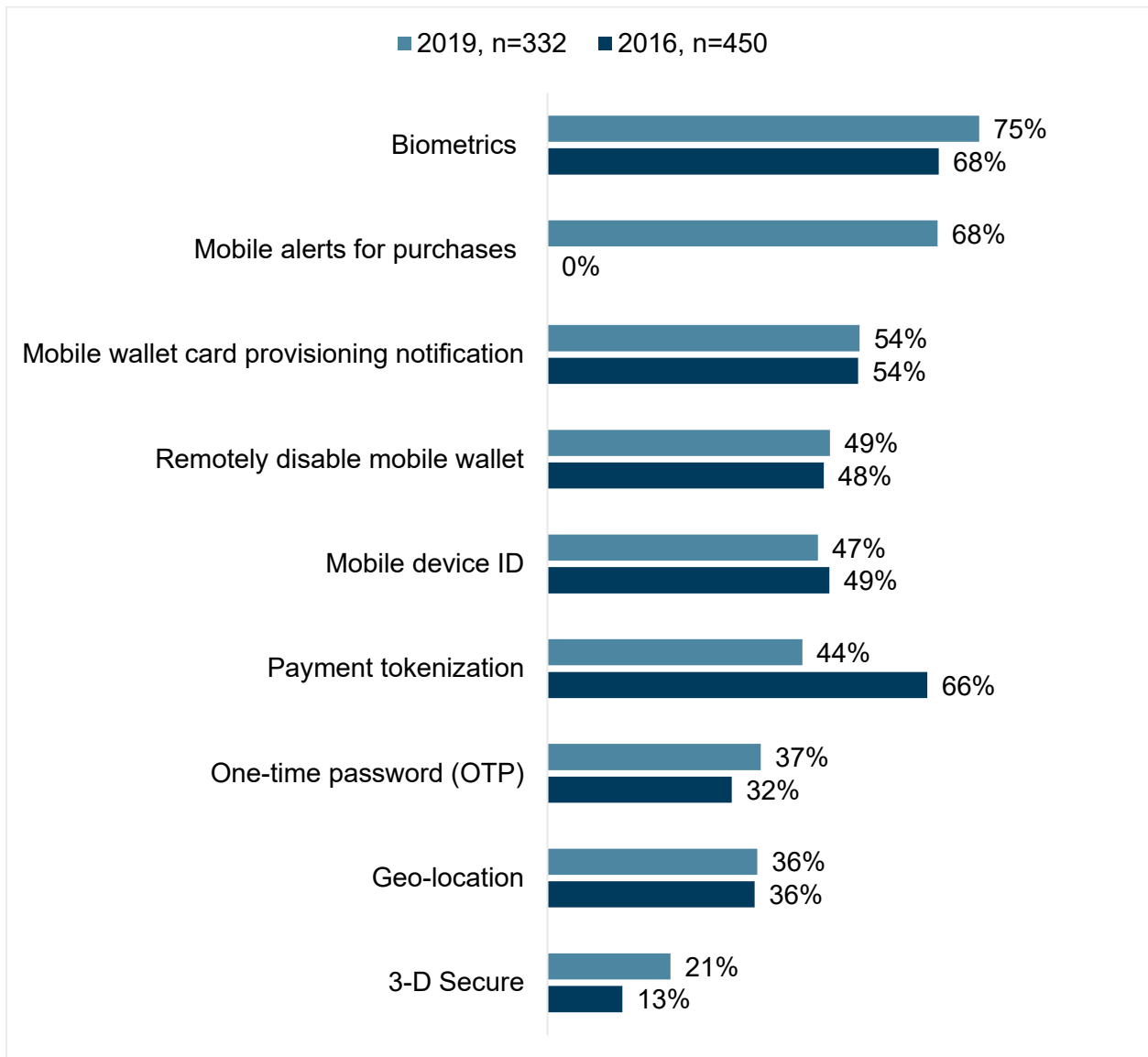
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<sup>27</sup> The 2019 MFS Survey did not specify use of payment tokenization as a stand-alone or an integrated security tool in all NFC mobile wallets, such as Apple Pay, Google Pay, and Samsung Pay. Respondents may have interpreted the answer choice as a stand-alone security tool only, as there are more FIs offering mobile NFC wallets.

<sup>28</sup> The reporting of tokenization as a security tool appears low. It is possible that some FIs did not connect use of tokenization with NFC mobile wallets, since many smaller FIs use processors that handle their mobile banking or payment services.

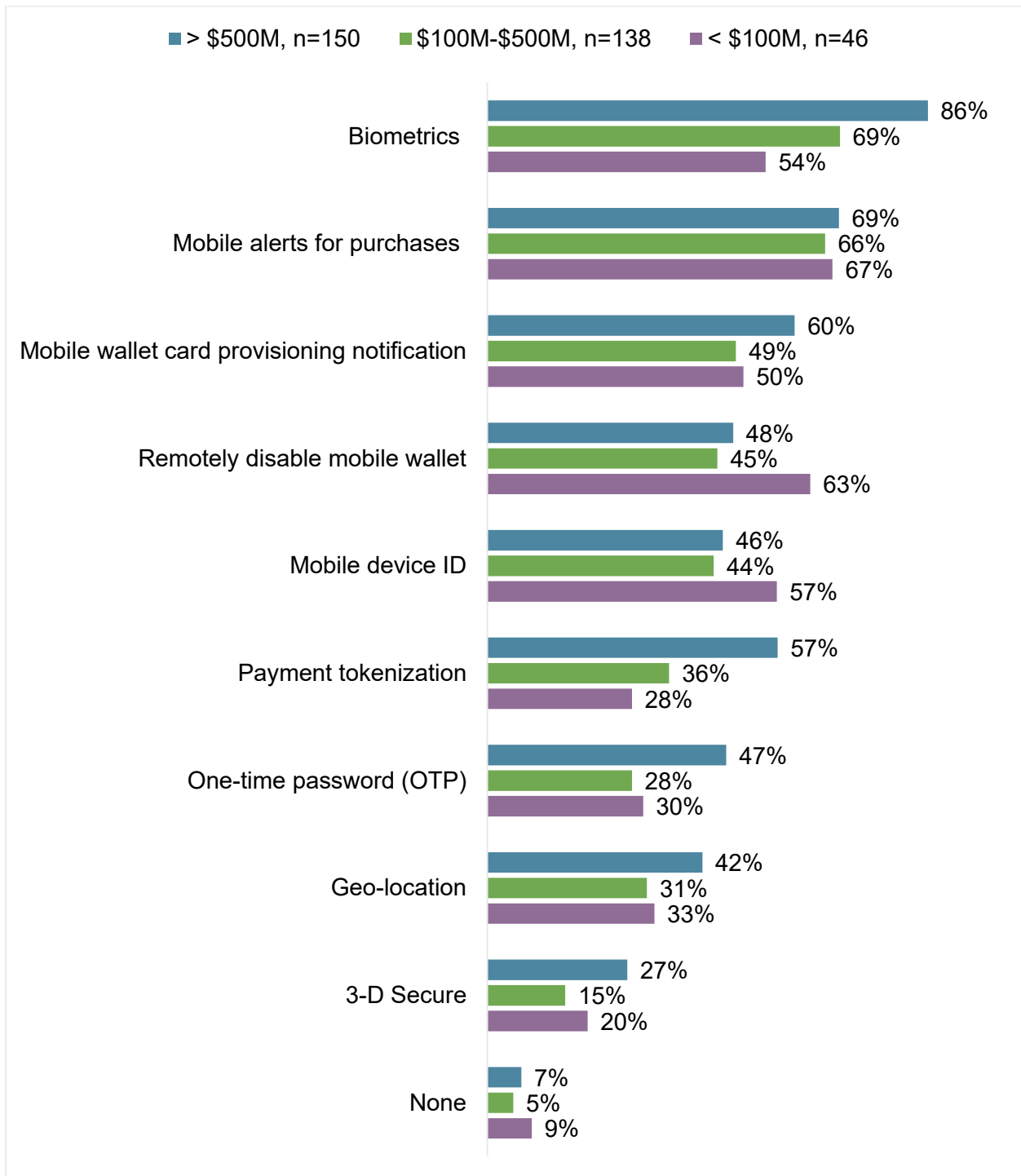
<sup>29</sup> EMV 3-D Secure (3DS) is a global risk-based secure messaging protocol that enables issuers to authenticate cardholders in real-time during an online or mobile-initiated transaction to reduce fraud and cart abandonment, improve performance, and accelerate growth in e-commerce. It can also verify identity for some non-payment activities, such as adding a payment card to a digital wallet. See *EMV 3-D Secure-Protocol and Core Functions Specification v2.0.0* at <https://www.emvco.com/specifications.aspx?id=299>

**Figure 54: Mobile Payment Security Tools Used by FIs (% of respondents)**



Q38. Do you currently use or plan to use the following security tools for mobile payments? (Check ALL that apply)

**Figure 55: Mobile Payment Security Tools used by FIs by Asset Size (% of respondents)**



Q38. Do you currently use or plan to use the following security tools for mobile payments? (Check ALL that apply)

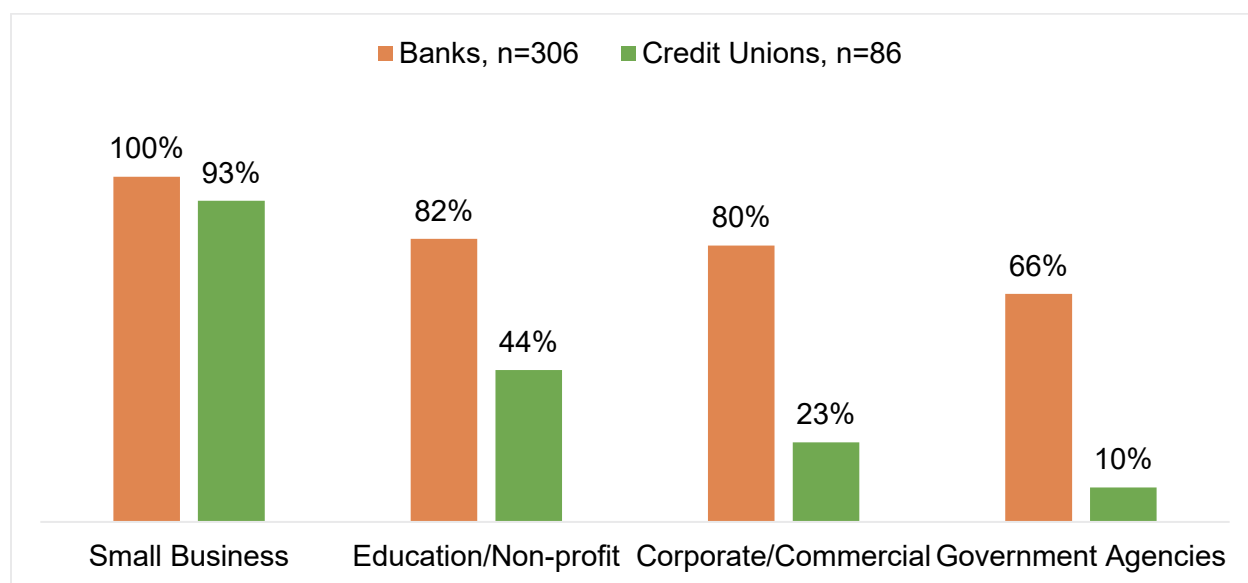
Certain security tools, such as *biometrics* (e.g., fingerprint or facial recognition), *payment tokenization*, and *mobile wallet card provisioning notification*, link to a customer's NFC mobile wallet and are not determined by the FI. Use of complex tools, such as EMV 3DS and OTP, may depend on whether an FI's processor or mobile solution provider offers such tools. There is no clear pattern based on asset size.

As adoption of mobile and digital payment wallets grows across channels, FIs and other stakeholders must manage the fraud that follows. Fraudsters are sophisticated in their ability to use stolen PII and payment credentials to perform ATO and new account fraud. FIs should consider using more secure technologies, including strong authentication and identity verification tools, analytics for behavior and transaction monitoring, and data theft prevention, among others.

## Mobile Banking Services Offered to Businesses

Eighty percent of respondents (392 FIs) indicated that they support business customers (**Figure 56**). Among these FIs, small business relationships predominate: 93 percent of credit union respondents and all bank respondents except one target small businesses. Most bank respondents with business relationships have *educational and/or non-profits* and *corporate/commercial entities*, 82 percent and 80 percent, respectively. Although 44 percent of credit union respondents also have *educational and/or non-profits* customers among their business customers, not surprisingly, only 23 percent have *corporate / commercial entities* as customers.

**Figure 56: Types of Business Customers by FI-type (% of respondents)**

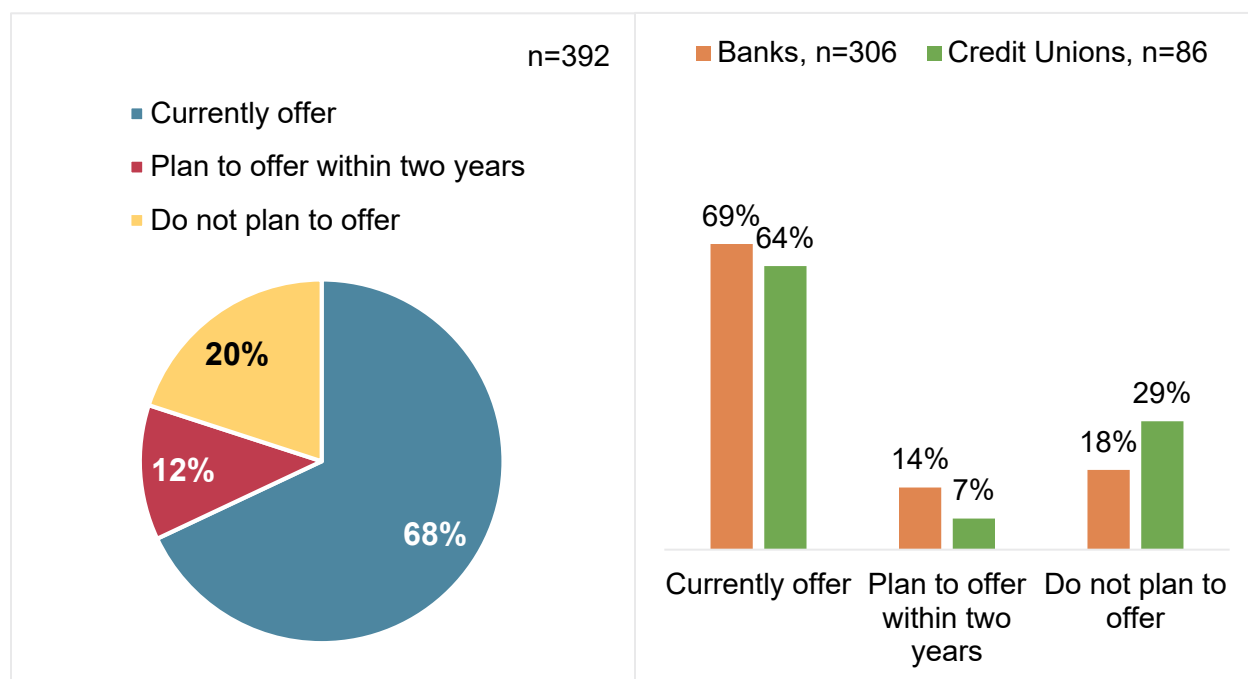


Q45. What type of **BUSINESS** customers do you serve? Check all that apply

Of the 77 respondents that do not serve business customers (not shown), almost all (92 percent) are credit unions. By FI type, 2 percent of bank and 83 percent of credit union respondents do not serve business customers. By asset size, 42 percent of Tier 1 respondents with less than \$50 million in assets do not serve business customers.

More than two-thirds (68 percent) of respondents with business customers (69 percent of banks and 64 percent of credit unions) provided mobile banking services to their business customers (**Figure 56**). The percentage of banks planning to offer business MFS is twice as great as that of credit unions, 14 percent and 7 percent, respectively. The percentage of respondents offering business MFS increases by asset size. Institutions under \$50 million in assets were far less likely to offer business MFS – just 30 percent already do so – whereas three-quarters of respondents with more than \$250 million currently offered such services.

**Figure 56: FIs Offering Mobile Financial Products to Businesses (% of respondents)**



Q46. Do you currently offer or plan to offer mobile financial services to your business customers?

The three most common mobile services that respondents offered or planned to offer to business customers are:

- *View information reporting data (e.g., balances, cash position)* – 80 percent
- *A2A funds transfer between same two accounts owned by the same business within your institution* – 74 percent
- *Remote deposit* – 70 percent

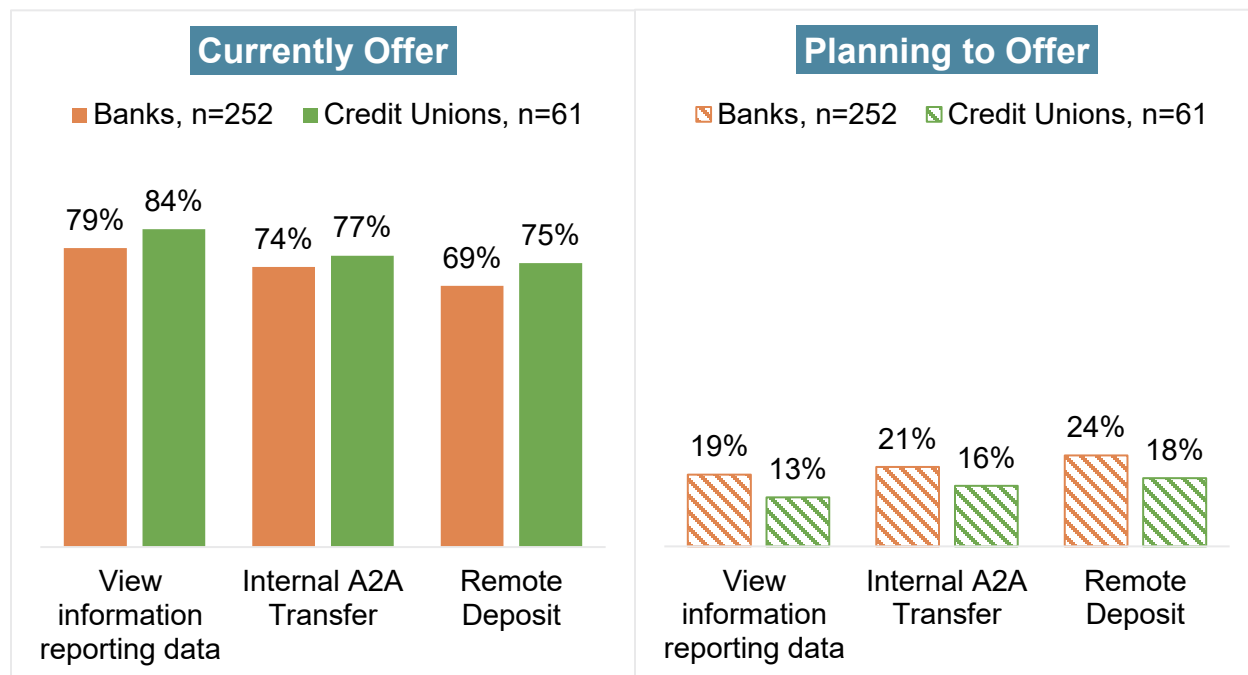
Slightly more credit unions than bank respondents offered all three services. This difference may relate to credit unions' knowledge of their business customers, their willingness to provide them with basic money movement services, and their ability to extend such services easily from consumer to small business customers. The ability to *view information reporting* was offered by 91 percent of respondents with less than \$50 million in assets, but fell to 75 percent for FIs in the \$50 million-\$100 million range, and increased with each asset tier to 84 percent of respondents over \$1 billion. Internal A2A transfers and mRDC followed the same pattern, albeit at somewhat lower percentages.

Larger respondents, predominantly banks, offered or planned to offer more complex and higher-risk services such as ACH origination, wire transfer initiation, and stop payments and positive pay. None of the respondents with less than \$50 million in assets offered wire transfer, but 55



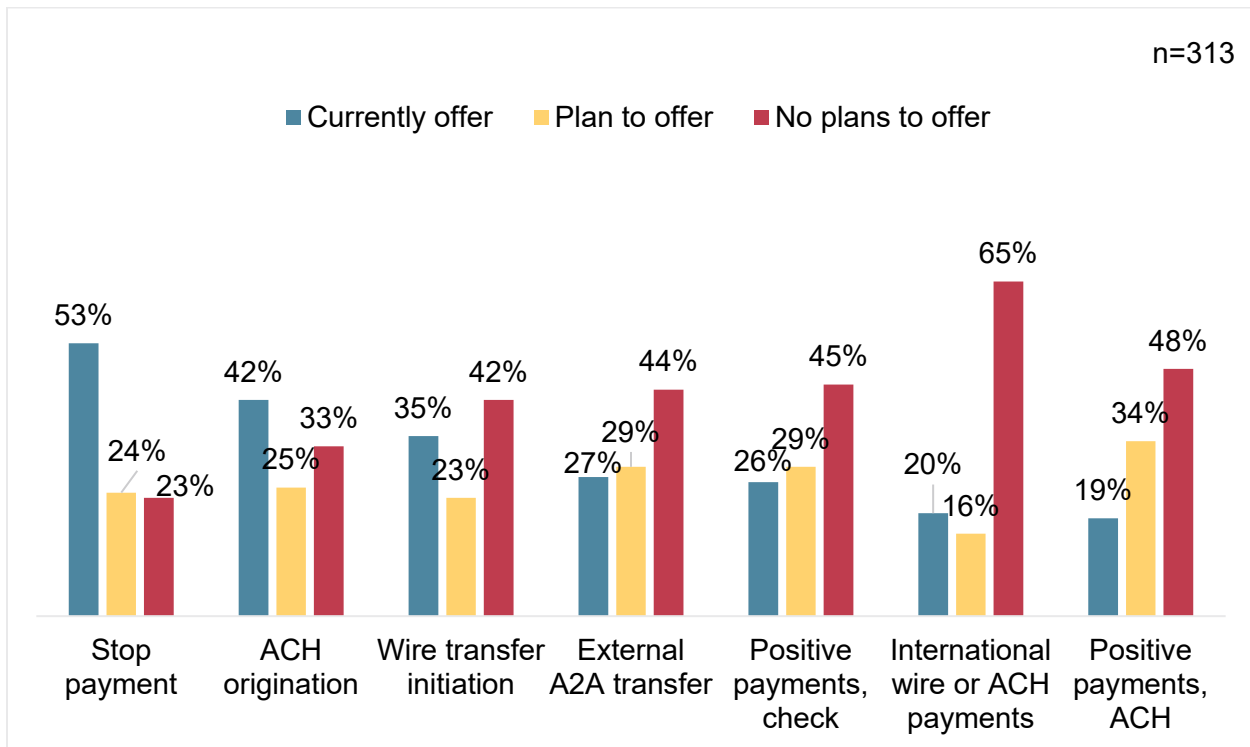
percent of respondents with assets of more than \$1 billion offered it. ACH origination was offered by only 9 percent of the smallest respondents, but by 58 percent of FIs with assets over \$1 billion. (Figure 57 shows the most common business mobile services offered or planned by respondents, and Figure 58 presents respondents' plans related to additional business MFS, which were all more commonly offered by bank respondents.)

**Figure 57: Most Common MFS Products Offered by FIs to Businesses (% of respondents)**



Q47. Which of the following mobile financial services do you currently offer or plan to offer to your business customers via mobile? (Check ALL that apply)

**Figure 58: Mobile Financial Services Offered by FIs to Businesses** (% of respondents)

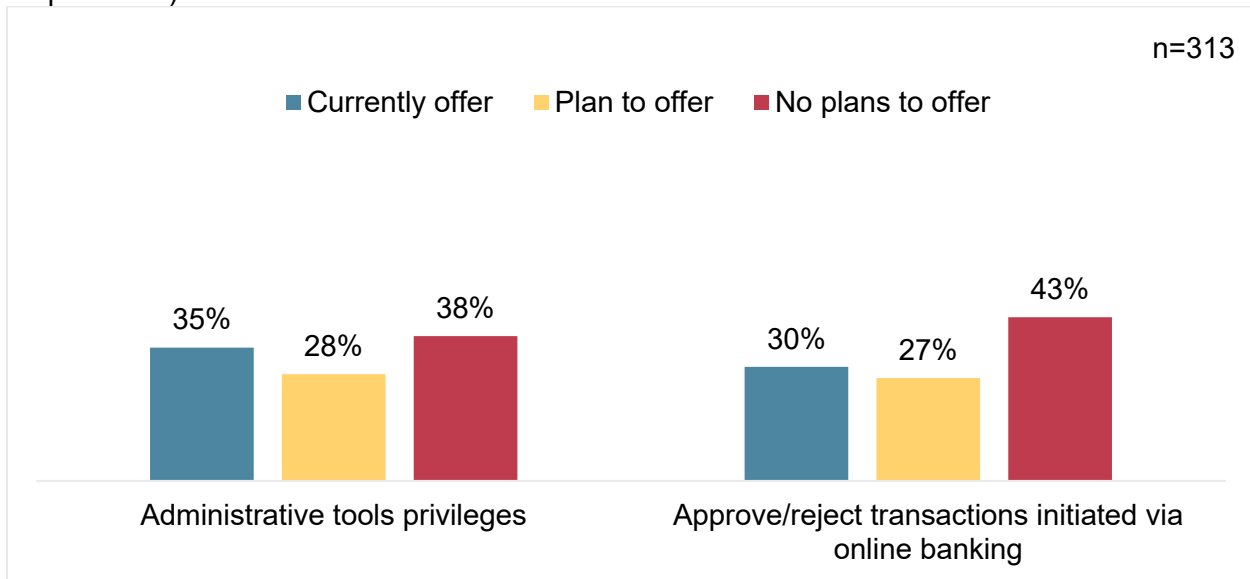


Q47. Which of the following mobile financial services do you currently offer or plan to offer to your business customers via mobile? (Check ALL that apply)

Few institutions offered the ability to add business credit and corporate prepaid card(s) to NFC mobile wallets or to upload/manage corporate card receipts, such as travel reimbursements or purchasing cards. Only 37 of the 313 respondents – 10 percent of banks and 21 percent of credit unions – offered the former, which trends upward by asset tier, and just 10 FIs provided corporate card receipt capabilities.

Additionally, about a third of respondents offered both administrative tools (e.g., tools to set up and manage users, reset passwords, etc.) and the ability to approve or reject transactions initiated via online banking (**Figure 59**). Thirty-six percent of the banks and 30 percent of the credit unions offered *administrative tools*, and the percentage of those planning to offer is identical at 28 percent. The variation between bank and credit union respondents' ability to integrate with online banking for transaction approval/rejection is more significant: 34 percent of banks supported this capability, compared to 13 percent of credit unions. Credit unions are looking to catch up, however, as 28 percent planned to offer such integration, compared to 27 percent of bank respondents.

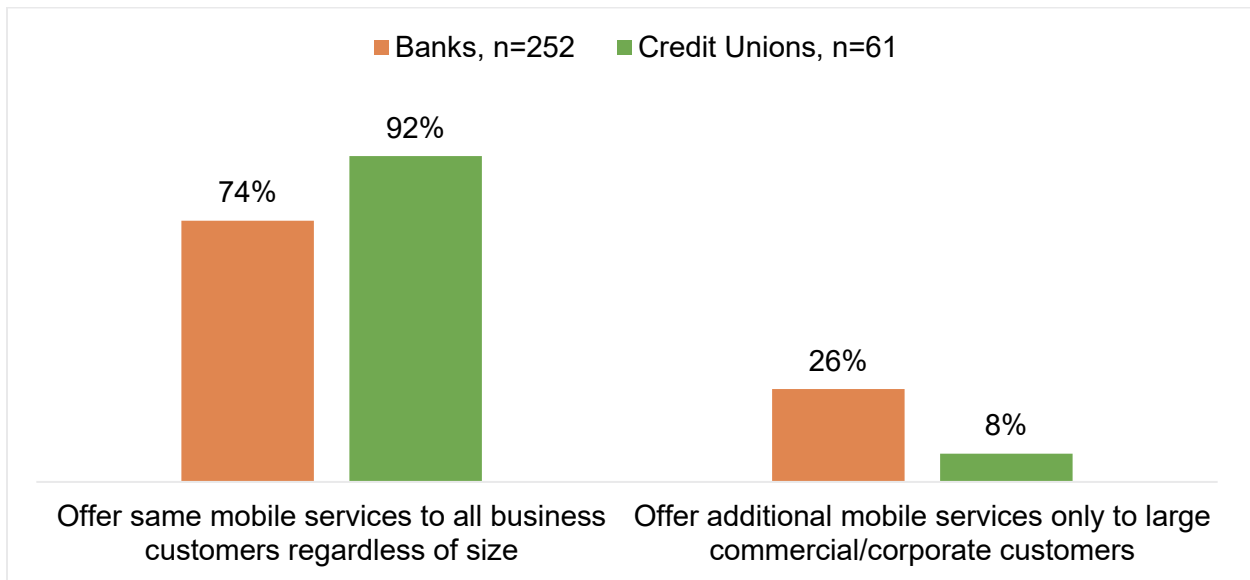
**Figure 59: Mobile Financial Capabilities Offered to Business Customers** (% of respondents)



Q47. Which of the following mobile financial services do you currently offer or plan to offer to your business customers via mobile? (Check ALL that apply)

Because of their more diverse base of business customers as well as their relationships with corporate and commercial customers, bank respondents were more likely than credit unions to differentiate mobile services by business customer segment (**Figure 60**). Although 77 percent of respondents offered the same mobile services to all business customers, credit unions did so at a far higher rate, 92 percent compared to 74 percent of banks. Twenty-six percent of bank respondents *offer more robust and/or additional mobile services only to large commercial/corporate customers*. Given the survey participant demographics, this situation correlates to asset size: all the smallest FIs offered the same MFS to business customers, which are typically small businesses; but 34 percent of respondents with \$500 million to \$1 billion in assets, and 39 percent of those with more than \$1 billion in assets, offered differentiated business MFS.

**Figure 60: Mobile Financial Services Offered by Business Segment (% of respondents)**

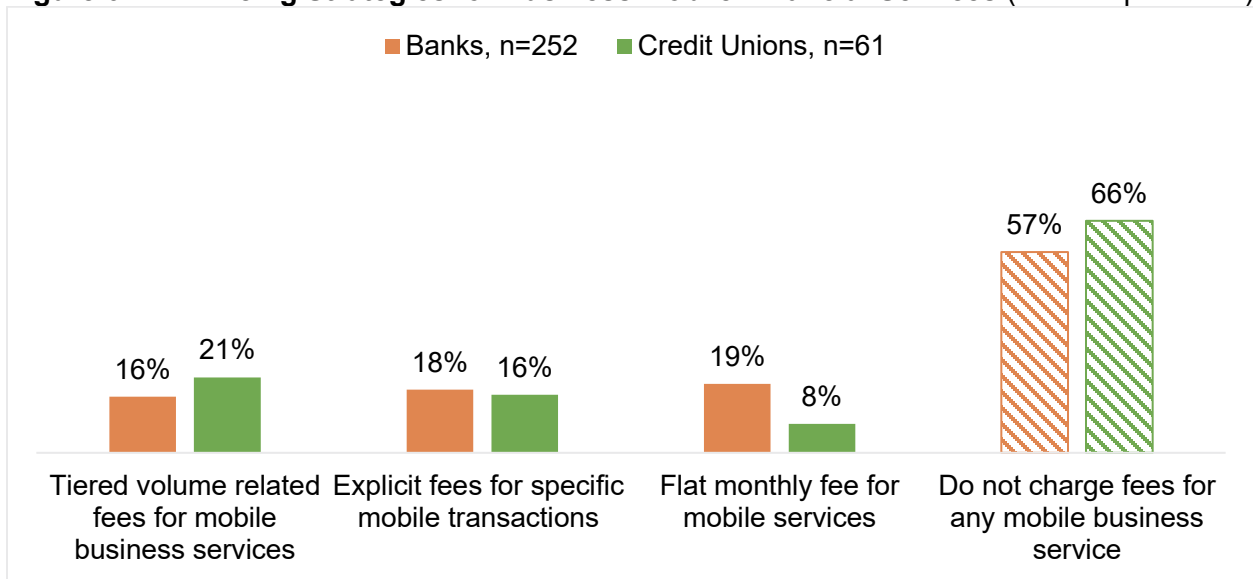


Q48. Please select the statement that best reflects your approach to business mobile services.

Fifty-eight percent of respondents did not charge or plan to charge for business mobile services – including 57 percent of the banks and 66 percent of the credit unions (**Figure 61**). Notably, 43 percent charged or planned to charge one or more fees. This percentage was far higher than 2016 findings that showed 25 percent of respondents priced or planned to price business MFS explicitly.<sup>30</sup> Overall, 17-to-18 percent of respondents selected each type of fee structure, but this consolidated rate obscures differences between bank and credit union respondents, the biggest being credit unions’ low interest in a flat monthly fee, implemented by just 8 percent, compared to 19 percent of the banks. Although the number of respondents planning to charge fees is quite small (27 FIs), on a percentage basis (56 percent) it is much greater than the 39 percent of the 103 FIs already charging a fee.

<sup>30</sup> In 2016, the question asked, “Do you charge or plan to charge to your business customers a fee for any mobile banking services?”

**Figure 61: FI Pricing Strategies for Business Mobile Financial Services** (% of respondents)

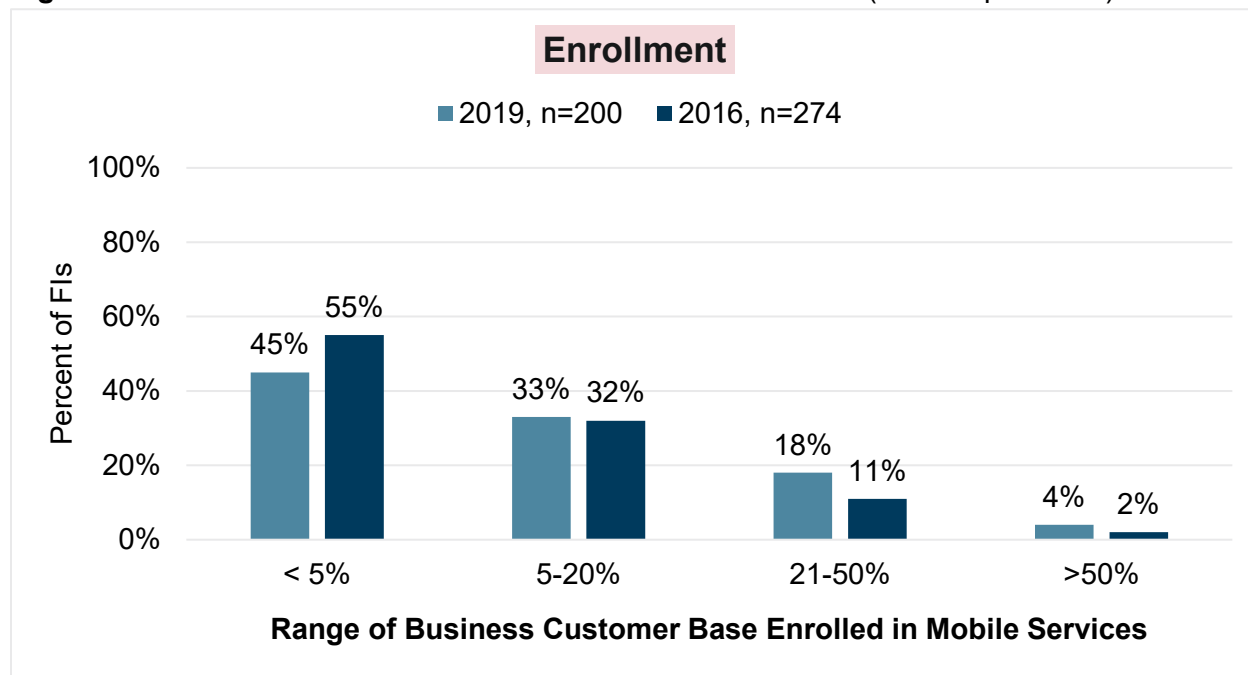


Q49. Please describe how you currently charge or plan to charge business customers for mobile services. (Check ALL that apply)

Like consumer adoption of mobile banking services, business customer adoption of mobile services is gaining traction. **Figure 62** illustrates that in 2019 (vs. 2016), a higher percentage of respondents (55 percent) had more business customers in the combined larger ranges (5-20%, 21-25% and over 50%) than in the <5% range using their mobile services. By 2019, 24 percent of respondents had enrolled 21 percent or more of their business customers, and 33 percent reported similar usage rates among enrolled customers (**Figure 63**).

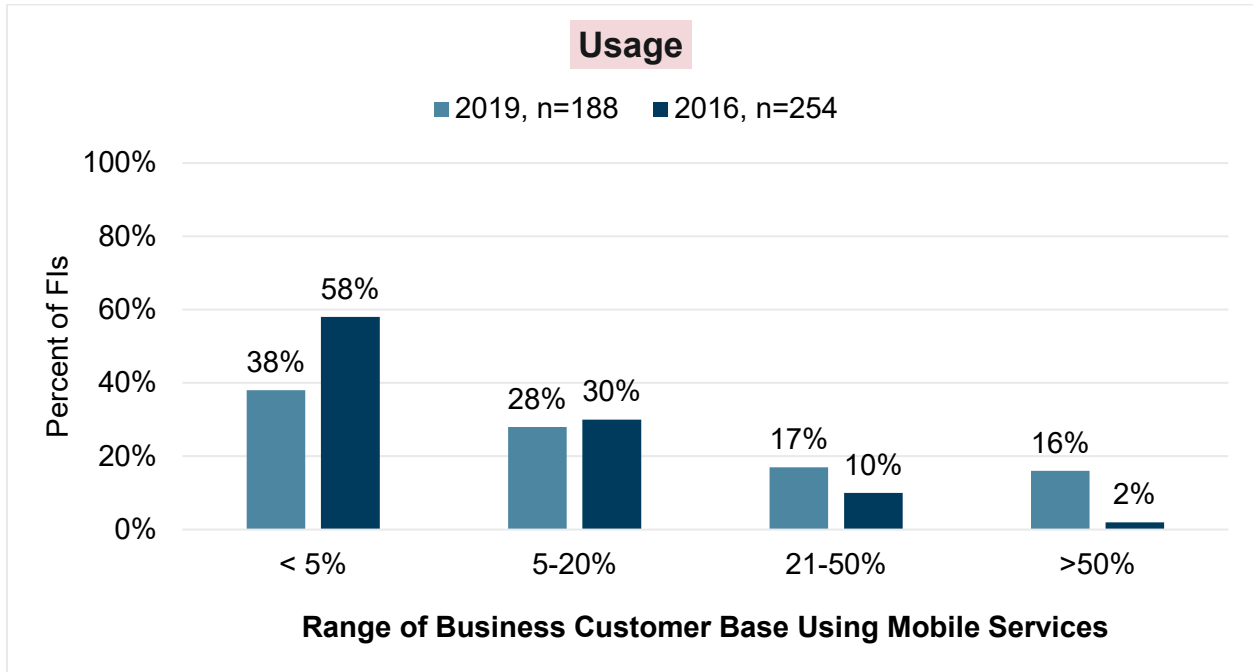
One quarter of respondents did not track enrollments, and 29 percent did not track usage data. Banks were more likely to track than credit unions, with rates that were 17 percent higher for enrollment and 14 percent higher for usage tracking.

**Figure 62: Business Enrollment in Mobile Financial Services** (% of respondents)



Q50. What percentage of your business customers has ENROLLED in your mobile services?

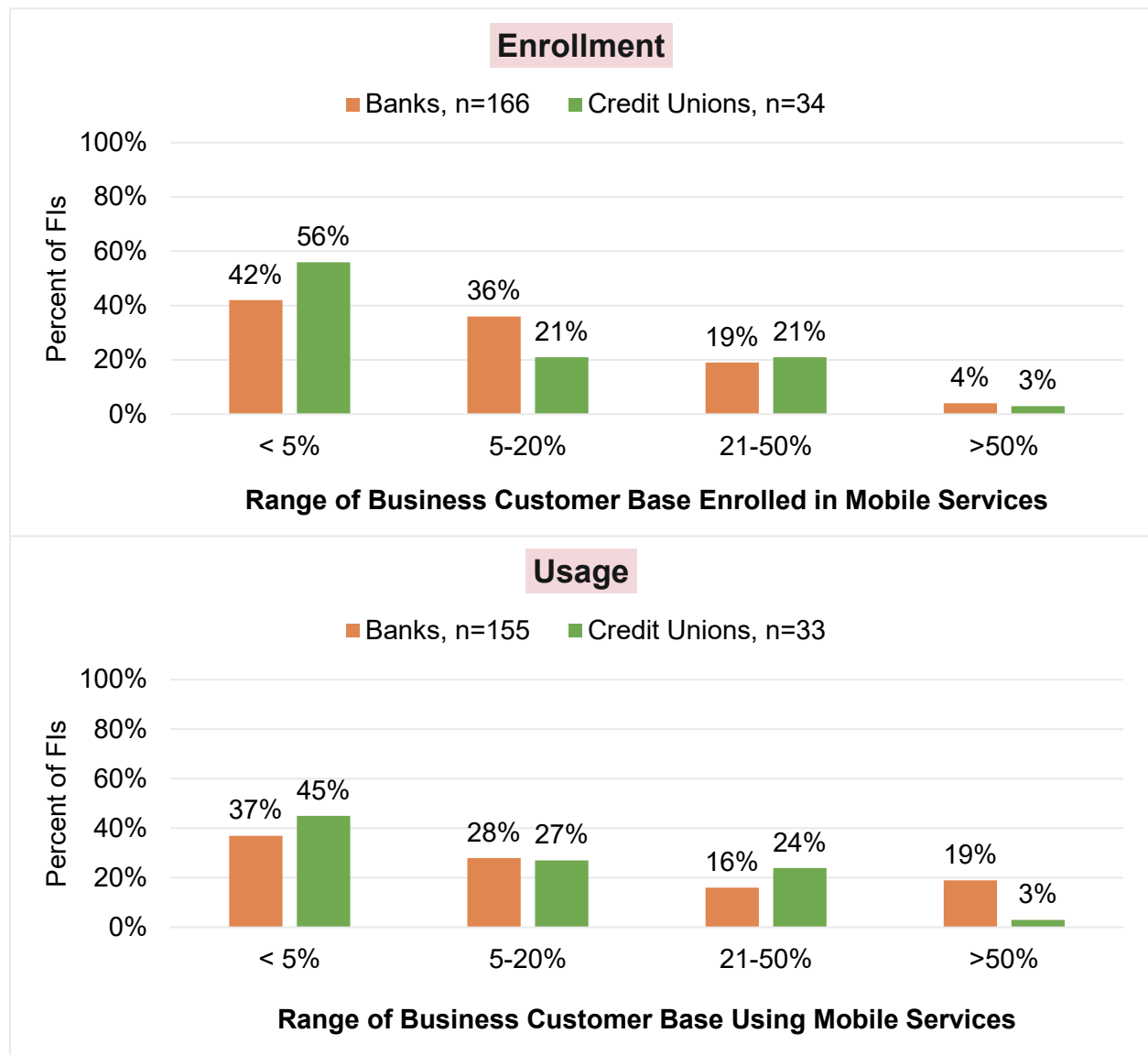
**Figure 63: Business Usage of Mobile Financial Services** (% of respondents)



Q51. What percentage of your enrolled business customers has USED your mobile services in the last 90 days?

**Figure 64** compares bank and credit union respondents' enrollment and usage data for 2019. Although respondents were still solidly in the <5% range for both enrollment and usage, a majority of banks and credit unions now had customer usage above 5 percent. A positive note for bank respondents, in particular, is that although just 4 percent had enrolled more than 50 percent of their business customers, 19 percent had usage rates in this range – indicating that certain business customers, once enrolled, are finding value in mobile banking. Notably, this high enrollment and usage was achieved by the smallest FIs (<\$50 million): 14 percent had enrolled more than 50 percent of their customers and 29 percent had more than 50 percent of customers using business MFS.

**Figure 64: Business Adoption of Mobile Financial Services by FI-type (% of respondents)**

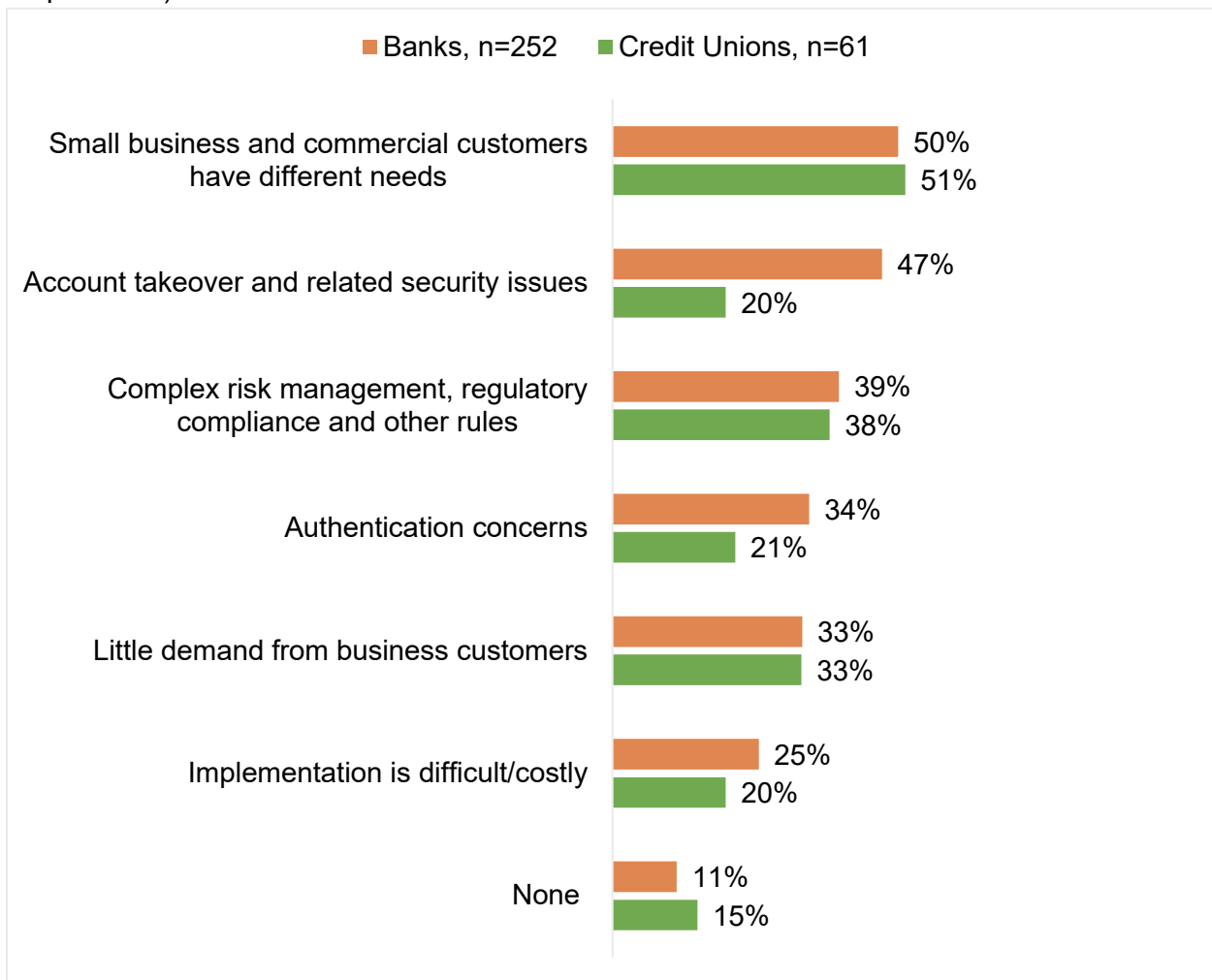


Q50 & Q51. What percentage of your business customers has ENROLLED in/USED your mobile services?



Although 12 percent of the 313 respondents perceived no challenge in offering mobile services to businesses, about half observed at least one issue (**Figure 65**). The most common concern, chosen by half the group, and by at least 40 percent of the FIs in each asset tier above \$50 million, was that *small business and large commercial/corporate customers have different needs*. (Only one institution under \$50 million in assets had this concern because respondents in Tier 1 lack large commercial customers.) This response speaks to the need for services tailored to the different business segments, which, as noted earlier, is currently beyond the reach of some FIs. *Complex risk management, regulatory compliance and other rules* were an issue for 39 percent of respondents, followed by *little demand from business customers* at 33 percent. Banks, however, were far more concerned about *account takeover and other security issues* (47 percent of banks compared to 20 percent of credit unions), and *authentication concerns* (34 percent compared to 21 percent, respectively).

**Figure 65: Challenges Perceived from Offering Business Mobile Financial Services** (% of respondents)



Q52. What challenges do you see in offering mobile services to your business customers? (Check ALL that apply)

## Conclusions

Mobile banking services for retail customers are close to ubiquitous across the U.S., with FIs standardizing around a set of basic services that include viewing account balances and transaction history and making internal A2A transfers. To stay competitive, many FIs are now moving toward advanced products and value-added services that focus on delivering a frictionless mobile customer experience. Additionally, more FIs are offering convenience-enhancing mobile capabilities like account opening and single sign-on to their customers, while mitigating the potential risks associated with those functions.

Delivering a rich customer experience is essential to further consumer adoption. As the survey found, increased consumer adoption has been the game-changer in the last two years for many institutions. Part of this increase is most likely due to greater smartphone adoption, including usage by older demographics. FIs are enhancing traditional services and adding more financially inclusive services and on-demand features in the mobile channel. Survey respondents are already embracing mP2P payments, cardless ATM capabilities, and card control features.

Mobile services for businesses must be part of this equation for FIs with such relationships. Most respondents appear comfortable with their support of small businesses, where the transition from retail has been relatively straightforward. As demonstrated in the survey's findings, however, some FIs have identified gaps in their business mobile services and are strategizing how best to provide more tailored features geared to different business types. Banks, specifically, are experiencing pressure to develop differentiated solutions for large commercial customers.

Marketing and education are key drivers to greater mobile adoption and new service development. Most FIs recognize this and market MFS to their customers. Nonetheless, many respondents have implemented tactics that rely on the consumer or business approaching them, rather than actively engaging the customer through direct outreach. Thus, respondents use their websites and branch signage more than they use direct email and social media. Effectively communicating the benefits, and risks, of mobile payments to customers remains a work in progress.

Most FIs will implement mobile payment services more quickly than they did for mobile banking services for a variety of reasons: consumer readiness, the prevalence of mobile payment apps, and the mobile/digital experience and infrastructure already in place for the institutions' mobile banking services. Competition and the emergence of additional P2P and B2C mobile use cases is also driving FIs to implement mobile payments on a more accelerated timeline.

Security and risk management are an inherent part of banking and payments and are omnipresent concerns in mobile financial services. FIs closely follow permutations in existing as well as new threats. The survey findings emphasize that respondents use a variety of tools to mitigate mobile channel risks. Use of newer technologies, such as biometrics, that strengthen

mobile security, are becoming more common, as is the prevalence of alerts to inform customers about changes in their accounts.

Whether an FI is large or small, a bank or a credit union, all should be planning for mobile to meet the growing digital banking and payment demands of consumers and businesses, rather than waiting for a myriad of factors to be resolved (consumer demand, merchant acceptance, security, etc.) before implementing mobile solutions. The biggest banks, big tech companies, and FinTechs are setting the future direction of retail banking and payment services, and many are adopting a mobile-first strategy to reach the growing population of mobile users.

The central challenge for FIs working to support these multiple requirements is to develop a digital strategy that considers online and mobile together. Strategies will differ, but a common denominator should be an assessment that includes both commonalities between the two channels – product functionality, features, service delivery, etc. – and the unique characteristics of each channel. An FI's digital strategy must also recognize emerging mobile technology trends, as well as changes in the payments landscape.

# 2019 Federal Reserve Mobile Financial Services Survey



FEDERAL RESERVE BANK of CLEVELAND



FEDERAL RESERVE BANK OF MINNEAPOLIS



Please complete this survey to help us better understand your organization's mobile banking and payment initiatives and services. Your responses will enable us to give you a detailed description of mobile banking and payment activities at financial institutions within our region and across the U.S. Your responses will be confidential and consolidated at the district level. No individual financial institution data will be reported.

## Survey Instructions:

1. If you receive multiple invitations, please complete the survey only once.
2. Please answer all questions. If a question is not applicable, please indicate **N/A** in the "Other: (please specify)" option.
3. The survey should take approximately 20 minutes to complete. If you exit prior to answering all the questions, you must use the same device to access the survey link to resume from where you left off.
4. If you are not the right person to complete the survey, please forward this request to the person who oversees your institution's mobile banking and payments initiatives.
5. If completing this survey using the PDF format, please send completed survey as an attachment to [Elisa.Tavilla@bos.frb.org](mailto:Elisa.Tavilla@bos.frb.org).

**Your financial institution's participation is voluntary and we thank you in advance 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 / department: \_\_\_\_\_
5. Email: \_\_\_\_\_
6. HQ State: \_\_\_\_\_

### Section 2: Financial Institution Description

7. Please indicate your financial institution type:

- Bank
- Credit Union
- Other: (please specify) \_\_\_\_\_

8. What is your FI's asset size?

- < \$50 million
- \$50-\$100 Million
- \$100 Million to \$250 Million
- \$250 Million to \$500 Million
- \$500 Million to \$1 Billion
- > \$1 Billion

### Section 3: Retail 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.

9. Do you currently offer or plan to offer mobile banking to retail customers?

- Currently offer
- Plan to offer within 2 years
- Do not plan to offer\*

\*If you do not plan to offer mobile banking, proceed to Q28.

10. How do you offer retail customers access to your mobile banking services? (Check ALL that apply)

- Mobile app
- Mobile-optimized website
- Website not optimized for mobile browser

11. Which of the following mobile banking features do you currently offer or plan to offer? (Check ALL that apply)

Mobile Banking Feature	Currently offer	Plan to offer	No plans to offer
View account balances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
View account transaction history	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ATM/branch locator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bill payment	<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"/>
Bill presentment	<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"/>
Initiate cross-border remittances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Do you currently offer or plan to offer **mobile remote deposit capture (RDC)**?

- Currently offer
- Plan to offer within 2 years
- Do not plan to offer\*

\*If you do not plan to offer mobile RDC, proceed to Q14.

13. Which of the following mobile RDC features do you currently offer or plan to offer? (Check ALL that apply)

- Auto-capture function
- Consumer guidelines (e.g., recommended paper check hold time)
- Standard deposit limits (e.g., daily, monthly)
- Customizable deposit limits
- Real-time deposit confirmation
- None
- Other:(please specify)\_\_\_\_\_

14. Do you currently offer or plan to offer **mobile person-to-person (P2P)** payment services?

- Currently offer
- Plan to offer within 2 years
- Do not plan to offer\*

\*If you do not plan to offer mobile P2P payment services, proceed to Q18.

15. What mobile P2P payment services do you currently offer or plan to offer?

Mobile P2P Payment Services	Currently offer	Plan to offer	No plans to offer
Zelle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiserv Popmoney	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FIS PeoplePay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jack Henry iPay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Please specify)_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. What percentage of your customers used your mobile P2P payment services in the last 12 months?

- <5%
- 5-20%
- 21-35%
- 36-50%
- >50%
- Do not track data

17. Please select the response that best reflects your mobile P2P transaction volume over the last 12 months:

- Increased over 10%
- Increased 5-10%
- Increased up to 5%
- No increase
- Don't know

18. Do you currently offer or plan to offer any cardless ATM features via your mobile banking app? (Check ALL that apply)

- Use mobile NFC contactless feature to login/authenticate at the ATM in place of debit card
- Use mobile QR code to login/authenticate at ATM
- Unlock door to kiosk with mobile device
- Set up cash withdrawal transaction prior to getting to ATM
- None
- Other: (please specify) \_\_\_\_\_

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

Mobile features	Yes	No*
Enroll for mobile banking using a mobile device (mobile enrollment)	<input type="checkbox"/>	<input type="checkbox"/>
Open accounts over mobile device (mobile account opening)	<input type="checkbox"/>	<input type="checkbox"/>
Single sign-on/authentication credentials for online and mobile services	<input type="checkbox"/>	<input type="checkbox"/>
*If you answered "No," please explain why (e.g., too risky, too complicated, etc.):		

20. What types of mobile alerts do you currently offer or plan to offer? (Check ALL that apply)

- Bill payment due
- Card purchase exceeding preset limit
- Credit payment confirmation
- Funds transfer completed
- Insufficient funds
- International purchase with card
- Low balance
- Online purchase (card-not-present) transaction
- None
- Other: (please specify) \_\_\_\_\_



### Mobile Banking Adoption

21. What percentage of your retail customers are ENROLLED in your mobile banking services?

- <5%
- 5-20%
- 21-35%
- 36-50%
- >50%
- Do not track data [Please answer Q21a]

21a. Please indicate why you do not track customer enrollment data for your mobile banking services? (Check ALL that apply)

- Customer volume too low
- Data not provided by processor (e.g., fee based)
- Do not have the technology, tools or staff to track the data
- Do not see value in tracking the data
- Plan to track customer use data within 12 months
- Other: (please specify) \_\_\_\_\_

22. What percentage of your enrolled customers USED your mobile banking services in the last 90 days?

- <5%
- 5-20%
- 21-35%
- 36-50%
- >50%
- Do not track data [Please answer Q22a]

22a. Please indicate why you do not track customer usage data for your mobile banking services? (Check ALL that apply)

- Customer volume too low
- Data not provided by processor (e.g., fee-based)Do not have the technology, tools or staff to track the data
- Do not see value in tracking the data
- Plan to track customer use data within 12 months
- Other: (please specify) \_\_\_\_\_

23. What do you perceive as the most significant barrier that prevents your customers from adopting mobile banking? (Select only ONE)

- Customer security concerns with mobile device
- Customer security concerns with mobile banking app
- Customer data privacy concerns
- Customer banking needs met through other channels
- Customers consider set-up process too difficult
- Customers unaware of mobile banking services (e.g., insufficient marketing)
- Other: (please specify)\_\_\_\_\_

### **Mobile Banking Security**

24. What mobile security alerts do you currently offer or plan to offer? (Check ALL that apply)

- Password changed
- User ID has changed
- Mobile device not recognized
- Suspicious activity/other fraud monitoring alerts
- None
- Other: (please specify)\_\_\_\_\_

25. Which card control features do you currently support or plan to support via your mobile banking app? (Check ALL that apply)

- Activate new card
- Change PIN
- Order a replacement card
- Turn payment card on or off
- Block use of credit/debit card
- Cancel credit/debit card
- Set travel notification
- None
- Other: (please specify)\_\_\_\_\_

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

- Login with PIN
- Multi-factor authentication
- Out-of-band authentication (e.g., calls/texts to alternate phone number or email)
- Biometrics (e.g., fingerprint, facial, voice recognition)
- Payment tokenization
- Mobile device ID
- Geo-location
- Risk-based authentication (e.g., 3D Secure)
- Behavioral analytics, machine learning, artificial intelligence
- Time-out due to inactivity
- Mobile notifications (e.g., SMS text message, push notifications)
- Consumer education on mobile security
- Other: (please specify) \_\_\_\_\_

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

	High	Medium	Low
Data breach			
Weak authentication methods*			
Identity theft			
Synthetic identity fraud**			
Inadequate customer protection behavior***			
Other: (please specify)			

\* For example, FI does not require strong password or uses knowledge-based authentication (KBA)  
 \*\*Synthetic identity theft is a type of fraud in which a fraudster combines real (usually stolen, e.g., SSN) and fake information to create a new identity, used to open fraudulent accounts and make fraudulent purchases.  
 \*\*\*Use unsecured network, no antivirus solutions, no mobile password, and do not protect device from theft or loss

### Section 3: Do Not Offer Retail Mobile Banking

28. Of the security concerns listed below, which, if any, most influenced your decision to not offer mobile banking services? (Check only ONE)

- Mobile banking is not secure
- Insufficient customer authentication tools
- Not familiar with mobile security requirements and technologies
- Risk of data breach and fraudulent access
- None
- Other: (please specify) \_\_\_\_\_

29. Of the regulatory and compliance concerns related to mobile banking listed below, which, if any, influenced your decision to not offer mobile banking services? (Check only ONE)

- Additional regulatory scrutiny
- Increased risk management and compliance issues
- Insufficient regulatory oversight
- Lack of clarity about regulatory requirements
- Lack of internal compliance resources
- None
- Other: (please specify) \_\_\_\_\_

30. Of the consumer-related issues listed below, which, if any, influenced your decision to not offer mobile banking services? (Check only ONE)

- Lack of customer demand
- Customer banking needs met through other channels
- Do not see value in offering mobile banking
- None
- Other: (please specify) \_\_\_\_\_

## Section 4: 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 at point of sale (POS) or remotely for a retail purchase using near field communication (NFC) or quick response (QR) code, or via mobile app or web for digital content, goods and services (e.g., transit, parking, ticketing, etc.).

**MOBILE WALLET** is a mobile app that controls access to credit, debit, prepaid or bank account credentials, as well as payment tokens that are stored securely on the mobile phone or in the cloud, and used for mobile purchases. Examples of mobile wallet apps include Apple Pay, Google Pay, Samsung Pay; merchant apps, e.g., Walmart Pay, Starbucks, Dunkin'; and FI apps, e.g., Chase Pay.

31. Do you currently offer or plan to offer any type of mobile payment/wallet services for retail customers?

- Currently offer
- Plan to offer within 2 years
- Do not plan to offer\*

\*If you do not plan to offer mobile payments, proceed to Q39.

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

	High	Medium	Low
Compete with other FIs			
Compete with digital payment service providers (e.g., Amazon, Apple, Google, PayPal, etc.)			
Customer demand			
Use mobile to enhance payment security			
Increase customer engagement with loyalty rewards, and other incentives			
Support contactless open payments for transit			
Other: (please specify)			

33. Which of the following **MOBILE/DIGITAL WALLETS** do you support?

	Currently support	Plan to support	No plans to support
Apple Pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Google Pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samsung Pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visa Checkout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Masterpass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amex Express Checkout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PayPal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proprietary/FI-branded mobile wallet (e.g., Chase Pay, Wells Fargo)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: (please specify)			

34. How do currently educate your customers and staff about mobile payments? (Check ALL that apply.)

	Customers	Staff
Branch signage, videos, brochures	<input type="checkbox"/>	<input type="checkbox"/>
Website (external public/internal company site)	<input type="checkbox"/>	<input type="checkbox"/>
FAQs (digital or print)	<input type="checkbox"/>	<input type="checkbox"/>
Newsletters (digital or print)	<input type="checkbox"/>	<input type="checkbox"/>
Periodic direct mail (email or print)	<input type="checkbox"/>	<input type="checkbox"/>
Town halls/hosted events	<input type="checkbox"/>	<input type="checkbox"/>
Social media (e.g., Twitter, Facebook, Instagram, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>
Other: (please specify)		

**Mobile Payments Adoption**

35. What percentage of your customers uses your mobile wallet services?

	<b>NFC Wallets (Apple Pay, Google Pay, Samsung Pay)</b>	<b>Digital Wallets (Visa Checkout, Masterpass, Amex Express Checkout)</b>
<b>% of customers ENROLLED</b>	<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 data	<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 data
<b>% of enrolled customers who USED services within the last 90 days</b>	<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 data	<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 data

35a. If you indicated that you track customer data in the previous question, check **N/A**. Otherwise, please indicate why you do NOT track data on mobile wallet customer enrollment and use. (Check ALL that apply)

- N/A Customer data is tracked
- Mobile offering too new
- Customer volume too low
- Data not by processor (fee-based)
- Lack technology/tools to track the data, manual process
- Lack resources to track the data
- Do not see any value in tracking the data
- Plan to track customer use data within 12 months
- Other: (please specify) \_\_\_\_\_

36. From your FI's perspective, how impactful are these issues to your customers adopting mobile payments?

	High	Medium	Low
Low merchant acceptance			
Customer security/data privacy concerns			
Too many mobile wallet options/inconsistent user experience			
Customers prefer other payment methods			
Customers unaware of mobile payment services			
Other: (please specify)			

### Mobile Payments Security

37. Please **RANK** the **IMPORTANCE** of your FI's security concerns associated with mobile payment services. (1=Most important, 4=Least important)

Security Concerns Associated with Mobile Payment Services	Ranking
Account takeover during customer enrollment in mobile wallet	
Card-not-present fraud (for online purchases initiated via mobile phone)	
Inadequate customer security behavior	
Inability to keep abreast of new authentication methods and stay ahead of fraudsters	

38. Do you currently use or plan to use the following security tools for mobile payments? (Check ALL that apply)

- Biometrics (e.g., fingerprint, facial, voice recognition, etc.)
- Geo-location
- Payment tokenization
- Mobile device ID
- One-time password (OTP)
- 3-D Secure\* (3DS v 2.0) for ecommerce transactions
- Mobile alerts for purchases
- Customer notification of attempt/success in provisioning card to mobile wallet
- Ability for customer to remotely disable mobile wallet if phone lost/stolen
- None
- Other: (please specify) \_\_\_\_\_

\*3-D Secure is a protocol that provides an additional layer of authentication to CNP online transactions, supported by Visa Verified by Visa, MasterCard SecureCode, AmEx SafeKey, and Discover ProtectBuy.



#### Section 4: Do Not Offer Mobile Payments

39. Of the security concerns listed below, which, if any, most influenced your decision to not offer mobile payment services? (Check only ONE)

- Insufficient customer authentication tools/inconsistent security methods for different mobile wallets
- Not familiar with mobile security requirements and technologies
- Risk of data breach and fraudulent access for mobile CNP transactions
- None
- Other: (please specify.) \_\_\_\_\_

40. Of the regulatory and compliance concerns related to mobile payments listed below, which, if any, influenced your decision to not offer mobile banking services? (Check only ONE)

- Additional regulatory scrutiny
- Increased risk management and compliance issues
- Insufficient regulatory oversight
- Lack of clarity about regulatory requirements
- None
- Other: (please specify) \_\_\_\_\_

41. Of the consumer-related issues listed below, which, if any, influenced your decision to not offer mobile payment services? (Check only ONE)

- Lack of customer demand
- Customer prefer other payment methods
- Do not see value in offering mobile payments
- None
- Other: (please specify) \_\_\_\_\_

## Section 5: Contactless Cards and Mobile Payments

Please refer to the definition below for questions in the **CONTACTLESS CARD** section:

**EMV contactless/dual-interface cards** combine contact- and contactless technology and are embedded with a near field communication (NFC) antenna. Cardholders either insert or tap/hold a dual-interface card close (1-2 inches) to the POS terminal to process the payment wirelessly in a few seconds. Contactless payments are as secure as contact chip transactions. Every contactless transaction creates a unique one-time code to protect the payment information.

42. Do you currently issue or plan to issue contactless (credit and/or debit) cards?

- Currently issue
- Plan to issue within 2 years
- Plan to issue in 2–5 years
- Do not plan to issue\*

\*If you do not plan to issue contactless cards, proceed to Q45.

43. What is your strategy for issuing contactless cards? (Check ALL that apply)

- Issue cards as they expire and to new customer accounts
- Issue for select card products or to select customer segments first
- Issue credit cards before debit cards
- Issue cards in large cities first (e.g., near transit systems that accept contactless open payments)
- Mass reissuance of all cards
- Other: (please specify) \_\_\_\_\_

44. How will issuance of contactless cards influence your decision to enable NFC mobile wallets?

- Already provide NFC mobile wallets
- Will provide NFC wallets
- Will not provide NFC wallets
- Other: (please specify) \_\_\_\_\_

## Section 6: Business Mobile Financial Services

45. What type of **BUSINESS** customers do you serve? Check all that apply

- Corporate/commercial entities
- Small businesses
- Government agencies (e.g., state and municipal))
- Educational and/or non-profit
- Do not have business customers\*
- Other: (please specify)\_\_\_\_\_

\*If you do not have business customers, proceed to Q53.

46. Do you currently offer or plan to offer mobile financial services to your business customers?

- Currently offer
- Plan to offer within 2 years
- Do not plan to offer\*

\*If you do not plan to offer mobile services to your business customers, proceed to Q53.

47. Which of the following mobile financial services do you currently offer or plan to offer to your business customers via mobile? (Check ALL that apply)

Business Mobile Financial Service	Currently offer	Plan to offer	No plans to offer
View information reporting data (e.g., balances, cash position)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A2A funds transfer between same business accounts within your institution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A2A funds transfer between same business accounts at different FIs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACH origination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wire transfer initiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remote deposit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stop payment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Positive payments, check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Positive payments, ACH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
International wire or ACH payments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Administrative tools / privileges (e.g., setup and manage users, reset passwords, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to add your FI's business credit and corporate prepaid card(s) in NFC mobile wallets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Upload and manage corporate card receipts (e.g., travel reimbursements, purchasing card, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Approve/reject transactions initiated via online banking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: (please specify)			

48. Please select the statement that best reflects your approach to business mobile services.

- Offer the same mobile services to all business customers regardless of size
- Offer more robust and/or additional mobile services only to large commercial/corporate customers

49. Please describe how you currently charge or plan to charge business customers for mobile services. (Check ALL that apply)

- Explicit fees for specific mobile transactions (e.g., A2A transfers, mobile deposits)
- Tiered volume related fees for mobile business services
- Flat monthly fee for mobile services
- Do not charge fees for any mobile business service
- Other: (please specify) \_\_\_\_\_

50. What percentage of your business customers has ENROLLED in your mobile services?

- <5%
- 5-20%
- 21-35%
- 36-50%
- >50%
- Do not track data

51. What percentage of your enrolled business customers has USED your mobile services in the last 90 days?

- <5%
- 5-20%
- 21-35%
- 36-50%
- >50%
- Do not track data

52. What challenges do you see in offering mobile services to your business customers? (Check ALL that apply)

- Little demand from business customers
- Implementation is difficult and/or costly
- Small business and large commercial/corporate customers have different needs
- Authentication concerns
- Account takeover and related security issues
- Complex risk management, regulatory compliance and other rules
- None
- Other: (please specify) \_\_\_\_\_

**Section 7: Financial Institution Feedback**

53. 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%?

<b>At POS</b>	<b>Remote via mobile app/mobile browser</b>
<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

54. In your opinion, how will issuance of contactless cards impact mobile payments adoption? (Check only ONE)

- Contactless cards will help increase mobile payments adoption
- Contactless cards will slow down mobile payment adoption
- Contactless cards will have minimal impact on mobile payment adoption

55. Have you seen a decline in volume in any of these channels in the last 12 months that might be attributed to mobile banking adoption? (Check ALL that apply)

- Branch traffic
- Check-writing
- Paper check deposits
- ATM check deposits
- ATM cash withdrawals
- None
- Other: (please specify) \_\_\_\_\_

56. How can the Federal Reserve help to increase your knowledge of mobile banking and payments?

- Publish more reports/whitepapers
- Host webinars
- Host in-person seminars/events
- Other feedback \_\_\_\_\_

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

- 01 or 21
- 03 or 23
- 04 or 24
- 05 or 25
- 06 or 26
- 09 or 29
- 10 or 30
- 12 or 32
- Other: (please specify) \_\_\_\_\_

**Thank you for taking the time to complete this survey!**