

# **Mobile Banking and Payment Practices of U.S. Financial Institutions: Results from 2016 Survey of FIs in Seven Federal Reserve Districts**

---

*Data tables of survey results by FI type, asset size and FR Districts*

**December 2017**

**Data Table I: Survey Results by Financial Institution Type**

| Q9. What is your FI's asset size? | Percent, except as noted |            |               |
|-----------------------------------|--------------------------|------------|---------------|
|                                   | All FIs                  | Banks      | Credit Unions |
| < \$100M                          | 22%                      | 14%        | 44%           |
| \$100M-\$250M                     | 24%                      | 25%        | 23%           |
| \$250M-\$500M                     | 20%                      | 23%        | 12%           |
| \$500M-\$1B                       | 15%                      | 17%        | 10%           |
| > \$1B                            | 19%                      | 21%        | 11%           |
| <b>Number of Respondents</b>      | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q10. Please indicate your financial institution type: | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Commercial Bank                                       | 53%                      | 73%        |               |
| Savings Bank  | 13%                      | 17%        |               |
| Cooperative/Mutual Bank                               | 8%                       | 10%        |               |
| Credit Union  | 26%                      |            | 100%          |
| <b>Number of Respondents</b>                          | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q11. Please indicate to whom you provide services. (Check ALL that apply) | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Consumers (retail customers)  | 99%                      | 100%       | 98%           |
| Corporate/commercial entities   | 73%                      | 94%        | 15%           |
| Small businesses  | 87%                      | 98%        | 58%           |
| Government agencies (including local)                                     | 60%                      | 77%        | 11%           |
| Educational and/or non-profit   | 73%                      | 88%        | 32%           |
| Other   | 1%                       | 1%         | 0%            |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q12. When did you start offering mobile banking to CONSUMERS? (Check only ONE) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| More than one year ago   | 78%                      | 78%        | 77%           |
| Within the past year   | 11%                      | 12%        | 10%           |
| Do not yet offer mobile banking, but plan to offer within next 1-2 years       | 8%                       | 7%         | 9%            |
| Do not plan to offer mobile banking  | 3%                       | 3%         | 4%            |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q13. What is your PRIMARY business reason for offering or planning to offer mobile banking? (Check only ONE) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Retain existing customers  | 29%                      | 30%        | 26%           |
| Attract new customers  | 23%                      | 23%        | 24%           |
| Be a market leader with technology   | 21%                      | 20%        | 24%           |
| Competitive pressure   | 24%                      | 24%        | 23%           |
| Increase revenue   | 0%                       | 0%         | 0%            |
| Other  | 3%                       | 2%         | 4%            |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q14. Which mobile operating system(s) (OS) does or will your mobile banking application support? (Check ALL that apply) | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Apple iOS   | 98%                      | 99%        | 95%           |
| Google Android  | 97%                      | 97%        | 95%           |
| Windows Phone   | 24%                      | 22%        | 31%           |
| Blackberry  | 11%                      | 11%        | 9%            |
| Other   | 2%                       | 1%         | 3%            |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q15. Do you offer or plan to offer mobile banking services to consumers via a tablet? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| iPad   | 87%                      | 86%        | 88%           |
| Android  | 73%                      | 71%        | 77%           |
| Kindle   | 27%                      | 26%        | 31%           |
| No   | 10%                      | 11%        | 8%            |
| Other  | 3%                       | 3%         | 3%            |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q16. Who provides or will provide your mobile banking services? | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Core deposit processor or online banking provider               | 81%                      | 86%        | 67%           |
| Mobile solution provider  | 17%                      | 12%        | 31%           |
| In-house system   | 2%                       | 2%         | 2%            |
| <b>Number of Respondents</b>                                    | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b><i>Check balances (DDA, Savings)</i></b>  |                          |            |               |
| Currently offer  | 92%                      | 92%        | 92%           |
| Plan to offer  | 8%                       | 8%         | 8%            |
| No plans to offer  | 0%                       | 0%         | 0%            |
| <b><i>View statements and/or transaction history (DDA, Savings)</i></b>  |                          |            |               |
| Currently offer  | 89%                      | 89%        | 89%           |
| Plan to offer  | 9%                       | 8%         | 10%           |
| No plans to offer  | 2%                       | 2%         | 2%            |
| <b><i>View credit card balances, statements and/or transaction history</i></b>   |                          |            |               |
| Currently offer  | 23%                      | 12%        | 53%           |
| Plan to offer  | 13%                      | 11%        | 21%           |
| No plans to offer  | 64%                      | 77%        | 26%           |
| <b><i>Bill payment</i></b>   |                          |            |               |
| Currently offer  | 84%                      | 86%        | 80%           |
| Plan to offer  | 10%                      | 10%        | 11%           |
| No plans to offer  | 6%                       | 5%         | 8%            |
| <b><i>Bill presentment</i></b>   |                          |            |               |
| Currently offer  | 29%                      | 30%        | 27%           |
| Plan to offer  | 22%                      | 21%        | 23%           |
| No plans to offer  | 49%                      | 48%        | 50%           |
| <b><i>Transfer funds between same owner's accounts within your FI</i></b>  |                          |            |               |
| Currently offer  | 90%                      | 91%        | 89%           |
| Plan to offer  | 9%                       | 9%         | 10%           |
| No plans to offer  | 1%                       | 0%         | 1%            |
| <b><i>Transfer funds between same owner's accounts at different FIs</i></b>  |                          |            |               |
| Currently offer  | 35%                      | 35%        | 37%           |
| Plan to offer  | 28%                      | 28%        | 28%           |
| No plans to offer  | 37%                      | 37%        | 35%           |
| <b><i>Mobile person-to-person payment (P2P)</i></b>  |                          |            |               |
| Currently offer  | 44%                      | 44%        | 46%           |
| Plan to offer  | 35%                      | 36%        | 34%           |
| No plans to offer  | 21%                      | 21%        | 20%           |
| <b><i>Mobile remote deposit capture (RDC)</i></b>  |                          |            |               |
| Currently offer  | 72%                      | 72%        | 73%           |
| Plan to offer  | 18%                      | 19%        | 16%           |
| No plans to offer  | 9%                       | 9%         | 11%           |
| <b><i>ATM/branch locator</i></b>   |                          |            |               |
| Currently offer  | 81%                      | 81%        | 81%           |
| Plan to offer  | 8%                       | 8%         | 9%            |
| No plans to offer  | 11%                      | 11%        | 10%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) (Continued) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b><i>Personal financial management (PFM)</i></b>  |                          |            |               |
| Currently offer  | 13%                      | 12%        | 18%           |
| Plan to offer  | 29%                      | 30%        | 27%           |
| No plans to offer  | 58%                      | 58%        | 55%           |
| <b><i>Access to brokerage services</i></b>   |                          |            |               |
| Currently offer  | 2%                       | 2%         | 3%            |
| Plan to offer  | 6%                       | 6%         | 6%            |
| No plans to offer  | 92%                      | 92%        | 92%           |
| <b><i>Cross-border payments</i></b>  |                          |            |               |
| Currently offer  | 1%                       | 1%         | 2%            |
| Plan to offer  | 3%                       | 3%         | 5%            |
| No plans to offer  | 96%                      | 96%        | 93%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q18. Do you offer or plan to offer the following mobile features? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Enroll for mobile banking using a mobile device (mobile enrollment)                      | 71%                      | 70%        | 76%           |
| Open accounts over mobile device (mobile account opening)                                | 29%                      | 25%        | 39%           |
| Single sign-on/authentication credentials for online and mobile services                 | 68%                      | 67%        | 73%           |
| Multilingual mobile website or app   | 9%                       | 8%         | 13%           |
| None   | 14%                      | 16%        | 10%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q19. Do you market or plan to market any mobile banking products to the underbanked? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Yes, market today  | 24%                      | 22%        | 32%           |
| Yes, plan to market within next 2 years  | 22%                      | 21%        | 25%           |
| No   | 54%                      | 57%        | 43%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q20. What percentage of your RETAIL customers has used your mobile banking services? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>% of customers ENROLLED</b>   |                          |            |               |
| Less than 5%   | 8%                       | 9%         | 5%            |
| 5% to 20%  | 38%                      | 40%        | 34%           |
| 21% to 35%   | 26%                      | 26%        | 26%           |
| 36% to 50%   | 21%                      | 20%        | 24%           |
| Over 50%   | 7%                       | 5%         | 11%           |
| <b>Number of Respondents</b>   | <b>546</b>               | <b>410</b> | <b>136</b>    |
| <b>% of customers who USED services within last 90 days</b>                          |                          |            |               |
| Less than 5%   | 10%                      | 11%        | 6%            |
| 5% to 20%  | 46%                      | 46%        | 47%           |
| 21% to 35%   | 23%                      | 23%        | 22%           |
| 36% to 50%   | 13%                      | 12%        | 16%           |
| Over 50%   | 8%                       | 8%         | 9%            |
| <b>Number of Respondents</b>   | <b>503</b>               | <b>374</b> | <b>129</b>    |

| Q21. For your FI, which are the THREE most common barriers to greater CONSUMER adoption of mobile banking?<br>(Check only THREE) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Ineffective marketing by FIs   | 35%                      | 36%        | 34%           |
| Security concerns  | 70%                      | 70%        | 71%           |
| Difficulty of use  | 13%                      | 13%        | 14%           |
| Lack of trust in the technology  | 60%                      | 58%        | 66%           |
| Banking needs are being met through other channels   | 61%                      | 62%        | 56%           |
| Do not see any reason to use mobile banking  | 49%                      | 51%        | 44%           |
| Other  | 11%                      | 10%        | 15%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q22. Do you charge or plan to charge a fee for any CONSUMER mobile banking services? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Yes  | 8%                       | 10%        | 3%            |
| No   | 92%                      | 90%        | 97%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q23. Please indicate ALL services for which you charge or plan to charge a fee. (Check ALL that apply) | Percent, except as noted |           |               |
|--|--------------------------|-----------|---------------|
|  | All FIs                  | Banks     | Credit Unions |
| Mobile RDC   | 49%                      | 52%       | 20%           |
| Mobile P2P   | 75%                      | 72%       | 100%          |
| Mobile funds transfer between same customer's accounts within your institution                         | 2%                       | 2%        | 0%            |
| Mobile funds transfer between same customer's accounts at different FIs                                | 36%                      | 38%       | 20%           |
| Other  | 7%                       | 6%        | 20%           |
| <b>Number of Respondents</b>   | <b>55</b>                | <b>50</b> | <b>5</b>      |

| Q24. What types of mobile alerts does your FI offer or plan to offer? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Insufficient funds   | 74%                      | 74%        | 76%           |
| Low balance  | 86%                      | 86%        | 85%           |
| Credit card balance close to or over limit   | 12%                      | 5%         | 33%           |
| Online purchase (card-not-present) transactions  | 42%                      | 41%        | 46%           |
| Funds transfer completed   | 60%                      | 62%        | 54%           |
| Credit payment confirmation  | 14%                      | 10%        | 27%           |
| Bill payment due   | 40%                      | 39%        | 42%           |
| International charge/debit   | 13%                      | 13%        | 11%           |
| Suspicious activity/other fraud monitoring alerts  | 52%                      | 52%        | 54%           |
| Two-way actionable alerts  | 15%                      | 15%        | 14%           |
| Other  | 12%                      | 11%        | 12%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q25. Please RATE the IMPORTANCE of your FI's security concerns associated with offering mobile banking services for consumers. | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>Data breach</b>   |                          |            |               |
| High   | 56%                      | 55%        | 60%           |
| Medium   | 32%                      | 32%        | 30%           |
| Low  | 12%                      | 13%        | 10%           |
| <b>Weak authentication</b>   |                          |            |               |
| High   | 48%                      | 48%        | 46%           |
| Medium   | 37%                      | 36%        | 40%           |
| Low  | 15%                      | 16%        | 14%           |
| <b>Identity theft</b>  |                          |            |               |
| High   | 49%                      | 48%        | 51%           |
| Medium   | 40%                      | 40%        | 38%           |
| Low  | 11%                      | 12%        | 11%           |
| <b>Inadequate customer protection behavior</b>   |                          |            |               |
| High   | 66%                      | 67%        | 64%           |
| Medium   | 27%                      | 27%        | 30%           |
| Low  | 7%                       | 6%         | 6%            |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |



| Q26. Which of the following card control features does your FI's mobile banking app support or plan to support? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Activate new card  | 19%                      | 17%        | 24%           |
| Change PIN   | 14%                      | 12%        | 19%           |
| Order a replacement card   | 14%                      | 12%        | 20%           |
| Turn payment card on or off if lost/stolen   | 59%                      | 59%        | 58%           |
| Block use of credit and/or debit card  | 54%                      | 52%        | 59%           |
| Set travel notification  | 35%                      | 33%        | 41%           |
| None   | 34%                      | 34%        | 31%           |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q27. Which of the following does your FI use or plan to use to enhance mobile security? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Multi-factor authentication  | 82%                      | 81%        | 86%           |
| Time-out due to inactivity   | 87%                      | 88%        | 87%           |
| Out-of-band authentication   | 41%                      | 45%        | 32%           |
| Login with PIN   | 50%                      | 49%        | 54%           |
| Biometrics   | 50%                      | 50%        | 49%           |
| Mobile notifications   | 60%                      | 60%        | 61%           |
| Mobile device ID   | 40%                      | 40%        | 41%           |
| Geo-location   | 25%                      | 26%        | 21%           |
| Other  | 1%                       | 1%         | 3%            |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>505</b> | <b>177</b>    |

| Q28. Do you offer or plan to offer mobile banking services to your BUSINESS customers? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Yes  | 77%                      | 78%        | 72%           |
| No   | 23%                      | 22%        | 28%           |
| <b>Number of Respondents</b>   | <b>607</b>               | <b>500</b> | <b>107</b>    |



| <b>Q29. What mobile banking services do you offer or plan to offer within the next 2 years to your BUSINESS customers? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |              |                      |
|---|---------------------------------|--------------|----------------------|
|   | <b>All FIs</b>                  | <b>Banks</b> | <b>Credit Unions</b> |
| Check corporate balances and monitor accounts   | 94%                             | 96%          | 82%                  |
| Cash management functions   | 48%                             | 54%          | 17%                  |
| Mobile funds transfer between same business customer's accounts within your institution   | 94%                             | 94%          | 90%                  |
| Mobile funds transfer between same business customer's accounts at different FIs  | 38%                             | 36%          | 45%                  |
| Mobile funds transfer from one business customer's account to another business customer's account at same or different FIs                        | 28%                             | 27%          | 34%                  |
| Administration tools (e.g., setup and manage users, reset passwords, etc.)  | 31%                             | 31%          | 30%                  |
| Mobile card acceptance plug-in reader/mobile POS  | 11%                             | 11%          | 10%                  |
| Other   | 4%                              | 5%           | 3%                   |
| <b>Number of Respondents</b>  | <b>465</b>                      | <b>388</b>   | <b>77</b>            |

| <b>Q30. Do you charge or plan to charge your BUSINESS customers a fee for any mobile banking services?</b> | <b>Percent, except as noted</b> |              |                      |
|--|---------------------------------|--------------|----------------------|
|  | <b>All FIs</b>                  | <b>Banks</b> | <b>Credit Unions</b> |
| Yes  | 25%                             | 25%          | 22%                  |
| No   | 75%                             | 75%          | 78%                  |
| <b>Number of Respondents</b>   | <b>465</b>                      | <b>388</b>   | <b>77</b>            |

| <b>Q31. Please indicate ALL BUSINESS services for which you charge or plan to charge a fee. (Check ALL that apply)</b> | <b>Percent, except as noted</b> |           |           |
|--|---------------------------------|-----------|-----------|
| Mobile RDC   | 62%                             | 63%       | 53%       |
| Other product/service (e.g., cash management) transaction fee  | 57%                             | 60%       | 41%       |
| Mobile funds transfer between same business customer's accounts within your institution                                | 11%                             | 11%       | 12%       |
| Mobile funds transfer between same business customer's accounts at different FIs                                       | 22%                             | 22%       | 18%       |
| Commercial/small business customers flat monthly fee for services  | 57%                             | 57%       | 53%       |
| Commercial/small business customers by transaction type or volume  | 37%                             | 37%       | 41%       |
| Other  | 8%                              | 7%        | 12%       |
| <b>Number of Respondents</b>   | <b>115</b>                      | <b>98</b> | <b>17</b> |

| Q32. What percentage of your BUSINESS customers has used your mobile banking services? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>% of customers ENROLLED</b>   |                          |            |               |
| Less than 5%   | 55%                      | 54%        | 59%           |
| 5% to 20%  | 32%                      | 33%        | 30%           |
| 21% to 35%   | 7%                       | 9%         | 0%            |
| 36% to 50%   | 4%                       | 3%         | 9%            |
| Over 50%   | 2%                       | 1%         | 2%            |
| <b>Number of Respondents</b>   | <b>274</b>               | <b>230</b> | <b>44</b>     |
| <b>% of customers who USED services within last 90 days</b>                            |                          |            |               |
| Less than 5%   | 58%                      | 57%        | 65%           |
| 5% to 20%  | 30%                      | 32%        | 23%           |
| 21% to 35%   | 6%                       | 7%         | 0%            |
| 36% to 50%   | 4%                       | 3%         | 13%           |
| Over 50%   | 2%                       | 2%         | 0%            |
| <b>Number of Respondents</b>   | <b>254</b>               | <b>214</b> | <b>40</b>     |

| Q33. What challenges do you see in offering mobile banking services to your BUSINESS customers? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Business banking software for mobile not available   | 24%                      | 21%        | 37%           |
| Available products do not meet business customer needs   | 39%                      | 37%        | 46%           |
| Available products are not suited to all FI segments   | 32%                      | 31%        | 39%           |
| Implementation difficult or costly   | 33%                      | 33%        | 33%           |
| Other  | 25%                      | 26%        | 19%           |
| <b>Number of Respondents</b>   | <b>388</b>               | <b>318</b> | <b>70</b>     |

| Q34. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile banking services. | Percent, except as noted |           |               |
|--|--------------------------|-----------|---------------|
|  | All FIs                  | Banks     | Credit Unions |
| <b>Lack of customer demand</b>   |                          |           |               |
| High   | 38%                      | 33%       | 44%           |
| Medium   | 42%                      | 53%       | 22%           |
| Low  | 21%                      | 13%       | 33%           |
| <b>Security concerns</b>   |                          |           |               |
| High   | 63%                      | 67%       | 56%           |
| Medium   | 29%                      | 33%       | 22%           |
| Low  | 8%                       | 0%        | 22%           |
| <b>Regulatory issues</b>   |                          |           |               |
| High   | 67%                      | 73%       | 56%           |
| Medium   | 25%                      | 20%       | 33%           |
| Low  | 8%                       | 7%        | 11%           |
| <b>Lack of standards and interoperability</b>  |                          |           |               |
| High   | 38%                      | 40%       | 33%           |
| Medium   | 38%                      | 33%       | 44%           |
| Low  | 25%                      | 27%       | 22%           |
| <b>ROI/Lack of business case</b>   |                          |           |               |
| High   | 42%                      | 47%       | 33%           |
| Medium   | 54%                      | 53%       | 56%           |
| Low  | 4%                       | 0%        | 11%           |
| <b>Lack of consistent, reliable cellular coverage</b>  |                          |           |               |
| High   | 4%                       | 0%        | 11%           |
| Medium   | 29%                      | 33%       | 22%           |
| Low  | 67%                      | 67%       | 67%           |
| <b>Processor does not offer a solution</b>   |                          |           |               |
| High   | 4%                       | 7%        | 0%            |
| Medium   | 13%                      | 7%        | 22%           |
| Low  | 83%                      | 87%       | 78%           |
| <b>Lack of resources to offer in-house solution</b>  |                          |           |               |
| High   | 25%                      | 13%       | 44%           |
| Medium   | 33%                      | 40%       | 22%           |
| Low  | 42%                      | 47%       | 33%           |
| <b>Number of Respondents</b>   | <b>24</b>                | <b>15</b> | <b>9</b>      |

| Q35. Do you offer or plan to offer mobile payment/wallet services to customers? | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Currently offer mobile payment services   | 24%                      | 22%        | 30%           |
| Plan to offer mobile payment services within next 2 years                       | 40%                      | 41%        | 37%           |
| Do not plan to offer mobile payment services                                    | 36%                      | 37%        | 33%           |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q36. Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments. | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b><i>Mobile payments are gaining momentum</i></b>   |                          |            |               |
| High   | 60%                      | 56%        | 69%           |
| Medium   | 37%                      | 40%        | 29%           |
| Low  | 3%                       | 4%         | 2%            |
| <b><i>Customer demand</i></b>  |                          |            |               |
| High   | 37%                      | 33%        | 45%           |
| Medium   | 45%                      | 46%        | 41%           |
| Low  | 19%                      | 21%        | 14%           |
| <b><i>Increase customer engagement with loyalty, rewards, and other incentives</i></b>                           |                          |            |               |
| High   | 26%                      | 23%        | 32%           |
| Medium   | 34%                      | 35%        | 34%           |
| Low  | 40%                      | 42%        | 34%           |
| <b><i>Generate revenue and/or reduce costs</i></b>   |                          |            |               |
| High   | 20%                      | 18%        | 23%           |
| Medium   | 34%                      | 33%        | 37%           |
| Low  | 46%                      | 49%        | 40%           |
| <b><i>Compete with other FIs</i></b>   |                          |            |               |
| High   | 67%                      | 69%        | 62%           |
| Medium   | 30%                      | 28%        | 36%           |
| Low  | 2%                       | 3%         | 2%            |
| <b><i>Compete with nonbanks (e.g., Amazon, Apple, Google, PayPal, etc.)</i></b>                                  |                          |            |               |
| High   | 50%                      | 48%        | 56%           |
| Medium   | 32%                      | 32%        | 33%           |
| Low  | 18%                      | 20%        | 10%           |
| <b><i>Mobile device is more secure than card or other payment methods</i></b>                                    |                          |            |               |
| High   | 34%                      | 32%        | 38%           |
| Medium   | 49%                      | 50%        | 48%           |
| Low  | 17%                      | 18%        | 15%           |
| <b><i>Provide two-way mobile communication tool with customers</i></b>   |                          |            |               |
| High   | 17%                      | 14%        | 26%           |
| Medium   | 40%                      | 41%        | 38%           |
| Low  | 42%                      | 45%        | 36%           |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q37. Please indicate the mobile wallet service(s) that you are familiar with. (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Apple Pay  | 98%                      | 98%        | 98%           |
| Android Pay  | 82%                      | 82%        | 84%           |
| Samsung Pay  | 77%                      | 76%        | 79%           |
| Microsoft Wallet   | 21%                      | 20%        | 25%           |
| Visa Checkout  | 45%                      | 41%        | 56%           |
| MasterCard MasterPass  | 37%                      | 40%        | 31%           |
| AmEx Express Checkout  | 10%                      | 11%        | 9%            |
| PayPal   | 74%                      | 74%        | 75%           |
| Amazon Payments  | 41%                      | 42%        | 39%           |
| LevelUp  | 8%                       | 8%         | 9%            |
| Walmart Pay  | 29%                      | 29%        | 31%           |
| Other  | 3%                       | 2%         | 5%            |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q38. How do you offer or plan to offer mobile payment/wallet services? (Check ALL that apply.)  | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Partner with a card network (e.g., AmEx, MasterCard, Visa or Discover to offer online digital wallet (check-out) services via mobile) | 36%                      | 32%        | 45%           |
| Partner with a NFC-enabled wallet provider (e.g., Apple Pay, Android Pay, Samsung Pay)  | 53%                      | 52%        | 58%           |
| Partner with third-party payment processor (e.g., FIS, Fiserv)  | 67%                      | 70%        | 60%           |
| Develop your own mobile payment solution (e.g., Capital One Wallet, Chase Pay, CU Wallet, Wells Fargo Wallet)                         | 4%                       | 4%         | 5%            |
| Other   | 2%                       | 2%         | 0%            |
| <b>Number of Respondents</b>  | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q39. Which of the following MOBILE WALLET service(s) do you offer or plan to offer? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>Apple Pay</b>   |                          |            |               |
| Currently offer  | 46%                      | 42%        | 55%           |
| Plan to offer  | 53%                      | 57%        | 44%           |
| <b>Android Pay</b>   |                          |            |               |
| Currently offer  | 22%                      | 18%        | 33%           |
| Plan to offer  | 62%                      | 65%        | 55%           |
| <b>Samsung Pay</b>   |                          |            |               |
| Currently offer  | 21%                      | 17%        | 32%           |
| Plan to offer  | 49%                      | 50%        | 46%           |
| <b>Microsoft Wallet</b>  |                          |            |               |
| Currently offer  | 2%                       | 2%         | 1%            |
| Plan to offer  | 5%                       | 7%         | 2%            |
| <b>Visa Checkout</b>   |                          |            |               |
| Currently offer  | 12%                      | 6%         | 27%           |
| Plan to offer  | 13%                      | 12%        | 14%           |
| <b>MasterCard MasterPass</b>   |                          |            |               |
| Currently offer  | 4%                       | 4%         | 2%            |
| Plan to offer  | 13%                      | 15%        | 7%            |
| <b>AmEx Express Checkout</b>   |                          |            |               |
| Currently offer  | 1%                       | 1%         | 0%            |
| Plan to offer  | 2%                       | 3%         | 0%            |
| <b>Other</b>   | 5%                       | 5%         | 4%            |
| <b>Number of Respondents</b>   | <b>388</b>               | <b>274</b> | <b>114</b>    |

| Q40. About how much time did it take for your FI to implement the NFC MOBILE WALLET service? (If you have not implemented NFC mobile wallet service, please check 'N/A') | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Less than 3 months   | 7%                       | 8%         | 6%            |
| 3 months   | 9%                       | 9%         | 9%            |
| 6 months   | 16%                      | 12%        | 26%           |
| More than 6 months   | 9%                       | 9%         | 12%           |
| N/A  | 58%                      | 63%        | 47%           |
| <b>Number of Respondents</b>   | <b>412</b>               | <b>293</b> | <b>119</b>    |

| Q41. What challenges did your FI experience implementing the NFC MOBILE WALLET? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Waiting for certification from card networks or processors   | 59%                      | 55%        | 68%           |
| Lengthy processor queue  | 44%                      | 40%        | 52%           |
| Software development and testing   | 25%                      | 22%        | 32%           |
| Customer/staff training, education, etc.   | 31%                      | 28%        | 36%           |
| Other  | 22%                      | 26%        | 14%           |
| <b>Number of Respondents</b>   | <b>221</b>               | <b>152</b> | <b>69</b>     |

| Q42. What types of incentives tied to mobile payments/wallets do you offer or plan to offer? (Check ALL that apply) | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Location-based offers   | 13%                      | 13%        | 14%           |
| Cash reward or account credit for mobile wallet enrollment  | 7%                       | 7%         | 8%            |
| Rewards points or cash back for mobile transactions   | 13%                      | 13%        | 11%           |
| Rewards redemption (e.g., pay with points) for mobile transactions at the POS                                       | 6%                       | 6%         | 8%            |
| None  | 71%                      | 71%        | 70%           |
| Other   | 8%                       | 9%         | 7%            |
| <b>Number of Respondents</b>  | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q43. What percentage of your RETAIL customers use your mobile payment/wallet services? | Percent, except as noted |           |               |
|--|--------------------------|-----------|---------------|
|  | All FIs                  | Banks     | Credit Unions |
| <b>% of customers ENROLLED</b>   |                          |           |               |
| Less than 5%   | 81%                      | 81%       | 79%           |
| 5% to 20%  | 15%                      | 14%       | 17%           |
| 21% to 35%   | 3%                       | 3%        | 4%            |
| 36% to 50%   | 1%                       | 1%        | 0%            |
| Over 50%   | 0%                       | 0%        | 0%            |
| <b>Number of Respondents</b>   | <b>144</b>               | <b>97</b> | <b>47</b>     |
| <b>% of customers who USED services within last 90 days</b>                            |                          |           |               |
| Less than 5%   | 82%                      | 80%       | 84%           |
| 5% to 20%  | 15%                      | 17%       | 11%           |
| 21% to 35%   | 2%                       | 2%        | 2%            |
| 36% to 50%   | 1%                       | 0%        | 2%            |
| Over 50%   | 0%                       | 0%        | 0%            |
| <b>Number of Respondents</b>   | <b>131</b>               | <b>87</b> | <b>44</b>     |



| Q44. From your FI's perspective, please RATE the SIGNIFICANCE of these barriers to consumer adoption of mobile payments. | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>Security</b>  |                          |            |               |
| High   | 51%                      | 52%        | 49%           |
| Medium   | 35%                      | 34%        | 38%           |
| Low  | 14%                      | 14%        | 13%           |
| <b>Privacy</b>   |                          |            |               |
| High   | 42%                      | 44%        | 38%           |
| Medium   | 38%                      | 37%        | 40%           |
| Low  | 20%                      | 19%        | 22%           |
| <b>Market immaturity and fragmentation</b>   |                          |            |               |
| High   | 45%                      | 46%        | 43%           |
| Medium   | 40%                      | 40%        | 40%           |
| Low  | 15%                      | 14%        | 17%           |
| <b>Lack of customer demand</b>   |                          |            |               |
| High   | 26%                      | 26%        | 24%           |
| Medium   | 56%                      | 57%        | 52%           |
| Low  | 19%                      | 17%        | 23%           |
| <b>Low merchant acceptance/lack of merchant interest</b>   |                          |            |               |
| High   | 44%                      | 44%        | 44%           |
| Medium   | 44%                      | 44%        | 42%           |
| Low  | 12%                      | 11%        | 15%           |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q45. Do you offer or plan to offer mobile payment/wallet services for your BUSINESS customers? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Currently offer  | 18%                      | 17%        | 26%           |
| Plan to offer within the next 2 years  | 32%                      | 34%        | 23%           |
| No plans to offer  | 50%                      | 49%        | 51%           |
| <b>Number of Respondents</b>   | <b>412</b>               | <b>324</b> | <b>88</b>     |

| Q46. Please RATE the IMPORTANCE of your FI's security concerns associated with mobile payment/wallet services. | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b><i>Account takeover during or after mobile enrollment process</i></b>                                       |                          |            |               |
| High   | 46%                      | 48%        | 43%           |
| Medium   | 39%                      | 39%        | 38%           |
| Low  | 15%                      | 13%        | 19%           |
| <b><i>Card-not-present fraud (for online purchases made via mobile phone)</i></b>                              |                          |            |               |
| High   | 63%                      | 64%        | 61%           |
| Medium   | 30%                      | 31%        | 30%           |
| Low  | 6%                       | 6%         | 9%            |
| <b><i>Data breach</i></b>  |                          |            |               |
| High   | 56%                      | 55%        | 60%           |
| Medium   | 33%                      | 35%        | 27%           |
| Low  | 11%                      | 10%        | 12%           |
| <b><i>Inadequate customer security behavior</i></b>  |                          |            |               |
| High   | 64%                      | 65%        | 62%           |
| Medium   | 32%                      | 32%        | 35%           |
| Low  | 3%                       | 3%         | 3%            |
| <b><i>Inadequate mobile device security</i></b>  |                          |            |               |
| High   | 57%                      | 58%        | 56%           |
| Medium   | 37%                      | 37%        | 37%           |
| Low  | 6%                       | 5%         | 7%            |
| <b><i>Inconsistent customer authentication methods</i></b>   |                          |            |               |
| High   | 40%                      | 41%        | 37%           |
| Medium   | 48%                      | 47%        | 51%           |
| Low  | 12%                      | 12%        | 12%           |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q47. Do you use or plan to use the following mobile security tools? (Check ALL that apply) | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| Biometrics   | 68%                      | 69%        | 67%           |
| Geo-location   | 36%                      | 38%        | 31%           |
| Payment tokenization   | 66%                      | 62%        | 76%           |
| Customer notification of attempt/success in provisioning card to mobile wallet             | 54%                      | 56%        | 48%           |
| Mobile device ID   | 49%                      | 49%        | 48%           |
| One-time password (OTP)  | 32%                      | 31%        | 35%           |
| Ability for customer to remotely disable mobile wallet if phone lost/stolen                | 48%                      | 49%        | 47%           |
| 3-D Secure (3DS) for ecommerce transactions  | 13%                      | 15%        | 9%            |
| Other  | 5%                       | 5%         | 4%            |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>326</b> | <b>124</b>    |

| Q48. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| <b><i>Lack of customer demand</i></b>   |                          |            |               |
| High  | 58%                      | 56%        | 65%           |
| Medium  | 28%                      | 29%        | 23%           |
| Low   | 14%                      | 14%        | 13%           |
| <b><i>Limited benefit to FI</i></b>   |                          |            |               |
| High  | 41%                      | 41%        | 39%           |
| Medium  | 42%                      | 42%        | 44%           |
| Low   | 17%                      | 17%        | 18%           |
| <b><i>Security concerns</i></b>   |                          |            |               |
| High  | 60%                      | 60%        | 60%           |
| Medium  | 28%                      | 29%        | 23%           |
| Low   | 12%                      | 10%        | 18%           |
| <b><i>Regulatory issues</i></b>   |                          |            |               |
| High  | 44%                      | 43%        | 48%           |
| Medium  | 41%                      | 44%        | 32%           |
| Low   | 14%                      | 13%        | 19%           |
| <b><i>Lack of standards and interoperability</i></b>  |                          |            |               |
| High  | 25%                      | 24%        | 31%           |
| Medium  | 54%                      | 58%        | 42%           |
| Low   | 20%                      | 18%        | 27%           |
| <b><i>ROI/Lack of business case</i></b>   |                          |            |               |
| High  | 38%                      | 39%        | 35%           |
| Medium  | 41%                      | 42%        | 40%           |
| Low   | 21%                      | 20%        | 24%           |
| <b><i>Lack of consistent, reliable cellular coverage</i></b>  |                          |            |               |
| High  | 13%                      | 13%        | 10%           |
| Medium  | 25%                      | 25%        | 24%           |
| Low   | 63%                      | 62%        | 66%           |
| <b><i>Other</i></b>   | 5%                       | 3%         | 13%           |
| <b>Number of Respondents</b>  | <b>256</b>               | <b>194</b> | <b>62</b>     |

| Q49. In your opinion, do you think a mobile payment that uses payment tokenization and biometrics is more secure than a card payment? | Percent, except as noted |            |               |
|---|--------------------------|------------|---------------|
|   | All FIs                  | Banks      | Credit Unions |
| Yes   | 94%                      | 95%        | 91%           |
| No  | 6%                       | 5%         | 9%            |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>520</b> | <b>186</b>    |

| Q50. 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%? | Percent, except as noted |            |               |
|--|--------------------------|------------|---------------|
|  | All FIs                  | Banks      | Credit Unions |
| <b>At POS</b>  |                          |            |               |
| 2 Years  | 20%                      | 21%        | 19%           |
| 3 Years  | 34%                      | 33%        | 35%           |
| 5 Years  | 29%                      | 29%        | 30%           |
| > 5 Years  | 17%                      | 17%        | 16%           |
| <b>In-App/Mobile Web</b>   |                          |            |               |
| 2 Years  | 25%                      | 25%        | 24%           |
| 3 Years  | 35%                      | 35%        | 35%           |
| 5 Years  | 25%                      | 25%        | 24%           |
| > 5 Years  | 16%                      | 16%        | 17%           |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>520</b> | <b>186</b>    |

**Data Table II: Survey Results by FI Asset Size**

| Q9. What is your FI's asset size? | Percent, except as noted |            |               |               |             |            |
|-----------------------------------|--------------------------|------------|---------------|---------------|-------------|------------|
|                                   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| < \$100M                          | 22%                      | 100%       |               |               |             |            |
| \$100M-\$250M                     | 24%                      |            | 100%          |               |             |            |
| \$250M-\$500M                     | 20%                      |            |               | 100%          |             |            |
| \$500M-\$1B                       | 15%                      |            |               |               | 100%        |            |
| > \$1B                            | 19%                      |            |               |               |             | 100%       |
| <b>Number of Respondents</b>      | <b>706</b>               | <b>154</b> | <b>170</b>    | <b>144</b>    | <b>106</b>  | <b>132</b> |

| Q10. Please indicate your financial institution type: | Percent, except as noted |            |               |               |             |            |
|---|--------------------------|------------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Commercial Bank                                       | 53%                      | 39%        | 61%           | 63%           | 46%         | 56%        |
| Savings Bank  | 13%                      | 6%         | 11%           | 12%           | 24%         | 16%        |
| Cooperative/Mutual Bank                               | 8%                       | 2%         | 4%            | 10%           | 12%         | 12%        |
| Credit Union  | 26%                      | 53%        | 25%           | 15%           | 18%         | 16%        |
| <b>Number of Respondents</b>                          | <b>706</b>               | <b>154</b> | <b>170</b>    | <b>144</b>    | <b>106</b>  | <b>132</b> |

| Q11. Please indicate to whom you provide services.<br>(Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Consumers (retail customers)   | 99%                      | 97%        | 100%          | 100%          | 100%        | 99%        |
| Corporate/commercial entities  | 73%                      | 42%        | 74%           | 87%           | 84%         | 86%        |
| Small businesses   | 87%                      | 63%        | 89%           | 97%           | 95%         | 98%        |
| Government agencies (including local)  | 60%                      | 42%        | 57%           | 67%           | 70%         | 69%        |
| Educational and/or non-profit  | 73%                      | 53%        | 71%           | 81%           | 88%         | 80%        |
| Other  | 1%                       | 2%         | 1%            | 1%            | 0%          | 1%         |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>154</b> | <b>170</b>    | <b>144</b>    | <b>106</b>  | <b>132</b> |

| Q12. When did you start offering mobile banking to CONSUMERS? (Check only ONE) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| More than one year ago   | 11%                      | 20%        | 13%           | 13%           | 4%          | 2%         |
| Within the past year   | 78%                      | 50%        | 74%           | 83%           | 94%         | 96%        |
| Do not yet offer mobile banking, but plan to offer within next 1-2 years       | 8%                       | 18%        | 11%           | 3%            | 0%          | 2%         |
| Do not plan to offer mobile banking  | 3%                       | 12%        | 2%            | 0%            | 2%          | 0%         |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>154</b> | <b>170</b>    | <b>144</b>    | <b>106</b>  | <b>132</b> |

| Q13. What is your PRIMARY business reason for offering or planning to offer mobile banking? (Check only ONE) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Retain existing customers  | 29%                      | 34%        | 30%           | 25%           | 30%         | 27%        |
| Attract new customers  | 23%                      | 29%        | 22%           | 31%           | 15%         | 16%        |
| Be a market leader with technology   | 21%                      | 12%        | 20%           | 15%           | 31%         | 30%        |
| Competitive pressure   | 24%                      | 24%        | 26%           | 26%           | 21%         | 20%        |
| Increase revenue   | 0%                       | 0%         | 0%            | 0%            | 0%          | 1%         |
| Other  | 3%                       | 1%         | 2%            | 3%            | 3%          | 5%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q14. Which mobile operating system(s) (OS) does or will your mobile banking application support? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|---|--------------------------|------------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Retain existing customers   | 29%                      | 34%        | 30%           | 25%           | 30%         | 27%        |
| Apple iOS   | 98%                      | 93%        | 98%           | 99%           | 100%        | 100%       |
| Google Android  | 97%                      | 93%        | 96%           | 98%           | 100%        | 99%        |
| Windows Phone   | 24%                      | 30%        | 25%           | 19%           | 19%         | 27%        |
| Blackberry  | 11%                      | 10%        | 12%           | 13%           | 9%          | 8%         |
| Other   | 2%                       | 4%         | 1%            | 1%            | 2%          | 0%         |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q15. Do you offer or plan to offer mobile banking services to consumers via a tablet? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Retain existing customers  | 29%                      | 34%        | 30%           | 25%           | 30%         | 27%        |
| Apple iOS  | 98%                      | 93%        | 98%           | 99%           | 100%        | 100%       |
| Google Android   | 97%                      | 93%        | 96%           | 98%           | 100%        | 99%        |
| Windows Phone  | 24%                      | 30%        | 25%           | 19%           | 19%         | 27%        |
| Blackberry   | 11%                      | 10%        | 12%           | 13%           | 9%          | 8%         |
| Other  | 2%                       | 4%         | 1%            | 1%            | 2%          | 0%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q16. Who provides or will provide your mobile banking services? | Percent, except as noted |            |               |               |             |            |
|---|--------------------------|------------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Core deposit processor or online banking provider               | 81%                      | 80%        | 77%           | 82%           | 86%         | 81%        |
| Mobile solution provider  | 17%                      | 17%        | 23%           | 17%           | 14%         | 13%        |
| In-house system   | 2%                       | 2%         | 0%            | 1%            | 0%          | 6%         |
| <b>Number of Respondents</b>                                    | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b><i>Check balances (DDA, Savings)</i></b>  |                          |            |               |               |             |            |
| Currently offer  | 92%                      | 80%        | 89%           | 96%           | 100%        | 98%        |
| Plan to offer  | 8%                       | 20%        | 11%           | 4%            | 0%          | 2%         |
| No plans to offer  | 0%                       | 0%         | 0%            | 0%            | 0%          | 0%         |
| <b><i>View statements and/or transaction history (DDA, Savings)</i></b>  |                          |            |               |               |             |            |
| Currently offer  | 89%                      | 80%        | 83%           | 91%           | 98%         | 97%        |
| Plan to offer  | 9%                       | 18%        | 14%           | 6%            | 0%          | 2%         |
| No plans to offer  | 2%                       | 1%         | 3%            | 3%            | 2%          | 1%         |
| <b><i>View credit card balances, statements and/or transaction history</i></b>   |                          |            |               |               |             |            |
| Currently offer  | 23%                      | 28%        | 22%           | 16%           | 22%         | 27%        |
| Plan to offer  | 13%                      | 13%        | 14%           | 10%           | 13%         | 17%        |
| No plans to offer  | 64%                      | 60%        | 64%           | 74%           | 65%         | 56%        |
| <b><i>Bill payment</i></b>   |                          |            |               |               |             |            |
| Currently offer  | 84%                      | 60%        | 83%           | 90%           | 99%         | 94%        |
| Plan to offer  | 10%                      | 23%        | 13%           | 6%            | 1%          | 4%         |
| No plans to offer  | 6%                       | 18%        | 4%            | 3%            | 0%          | 2%         |
| <b><i>Bill presentment</i></b>   |                          |            |               |               |             |            |
| Currently offer  | 29%                      | 18%        | 27%           | 29%           | 42%         | 35%        |
| Plan to offer  | 22%                      | 13%        | 20%           | 19%           | 26%         | 33%        |
| No plans to offer  | 49%                      | 70%        | 53%           | 51%           | 32%         | 33%        |
| <b><i>Transfer funds between same owner's accounts within your FI</i></b>  |                          |            |               |               |             |            |
| Currently offer  | 90%                      | 80%        | 86%           | 93%           | 99%         | 98%        |
| Plan to offer  | 9%                       | 19%        | 13%           | 6%            | 1%          | 2%         |
| No plans to offer  | 1%                       | 1%         | 1%            | 1%            | 0%          | 0%         |
| <b><i>Transfer funds between same owner's accounts at different FIs</i></b>  |                          |            |               |               |             |            |
| Currently offer  | 35%                      | 21%        | 28%           | 33%           | 48%         | 51%        |
| Plan to offer  | 28%                      | 18%        | 30%           | 26%           | 29%         | 36%        |
| No plans to offer  | 37%                      | 60%        | 42%           | 41%           | 23%         | 13%        |
| <b><i>Mobile person-to-person payment (P2P)</i></b>  |                          |            |               |               |             |            |
| Currently offer  | 44%                      | 32%        | 37%           | 42%           | 59%         | 57%        |
| Plan to offer  | 35%                      | 27%        | 39%           | 39%           | 31%         | 39%        |
| No plans to offer  | 21%                      | 41%        | 24%           | 19%           | 11%         | 5%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |



| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) (Continued) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All Fis                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b>Mobile remote deposit capture (RDC)</b>   |                          |            |               |               |             |            |
| Currently offer  | 72%                      | 40%        | 62%           | 79%           | 96%         | 92%        |
| Plan to offer  | 18%                      | 37%        | 28%           | 13%           | 2%          | 5%         |
| No plans to offer  | 9%                       | 23%        | 10%           | 8%            | 2%          | 3%         |
| <b>ATM/branch locator</b>  |                          |            |               |               |             |            |
| Currently offer  | 81%                      | 58%        | 80%           | 82%           | 92%         | 95%        |
| Plan to offer  | 8%                       | 17%        | 12%           | 5%            | 3%          | 3%         |
| No plans to offer  | 11%                      | 25%        | 8%            | 13%           | 5%          | 2%         |
| <b>Personal financial management (PFM)</b>   |                          |            |               |               |             |            |
| Currently offer  | 13%                      | 10%        | 9%            | 14%           | 13%         | 21%        |
| Plan to offer  | 29%                      | 14%        | 20%           | 31%           | 40%         | 45%        |
| No plans to offer  | 58%                      | 76%        | 70%           | 56%           | 46%         | 33%        |
| <b>Access to brokerage services</b>  |                          |            |               |               |             |            |
| Currently offer  | 2%                       | 1%         | 1%            | 1%            | 2%          | 7%         |
| Plan to offer  | 6%                       | 3%         | 3%            | 3%            | 5%          | 17%        |
| No plans to offer  | 92%                      | 96%        | 96%           | 96%           | 93%         | 77%        |
| <b>Cross-border payments</b>   |                          |            |               |               |             |            |
| Currently offer  | 1%                       | 1%         | 0%            | 2%            | 2%          | 2%         |
| Plan to offer  | 3%                       | 2%         | 2%            | 2%            | 5%          | 5%         |
| No plans to offer  | 96%                      | 97%        | 98%           | 96%           | 93%         | 92%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q18. Do you offer or plan to offer the following mobile features? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All Fis                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Enroll for mobile banking using a mobile device (mobile enrollment)                      | 71%                      | 58%        | 67%           | 71%           | 79%         | 86%        |
| Open accounts over mobile device (mobile account opening)                                | 29%                      | 7%         | 22%           | 25%           | 37%         | 58%        |
| Single sign-on/authentication credentials for online and mobile services                 | 68%                      | 54%        | 58%           | 69%           | 77%         | 88%        |
| Multilingual mobile website or app   | 9%                       | 4%         | 4%            | 9%            | 13%         | 17%        |
| None   | 14%                      | 24%        | 19%           | 14%           | 6%          | 5%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q19. Do you market or plan to market any mobile banking products to the underbanked? | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Yes, market today  | 24%                      | 23%        | 22%           | 24%           | 28%         | 28%        |
| Yes, plan to market within next 2 years  | 22%                      | 25%        | 21%           | 21%           | 23%         | 19%        |
| No   | 54%                      | 52%        | 57%           | 56%           | 49%         | 53%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q20. What percentage of your RETAIL customers has used your mobile banking services? | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b>% of customers ENROLLED</b>   |                          |           |               |               |             |            |
| Less than 5%   | 8%                       | 16%       | 8%            | 10%           | 2%          | 3%         |
| 5% to 20%  | 38%                      | 42%       | 40%           | 43%           | 43%         | 24%        |
| 21% to 35%   | 26%                      | 20%       | 31%           | 24%           | 26%         | 28%        |
| 36% to 50%   | 21%                      | 12%       | 17%           | 18%           | 23%         | 32%        |
| Over 50%   | 8%                       | 10%       | 4%            | 5%            | 5%          | 14%        |
| <b>Number of Respondents</b>   | <b>546</b>               | <b>92</b> | <b>126</b>    | <b>117</b>    | <b>95</b>   | <b>116</b> |
| <b>% of customers who USED services within last 90 days</b>                          |                          |           |               |               |             |            |
| Less than 5%   | 10%                      | 20%       | 9%            | 12%           | 6%          | 2%         |
| 5% to 20%  | 46%                      | 50%       | 49%           | 50%           | 48%         | 34%        |
| 21% to 35%   | 23%                      | 15%       | 24%           | 18%           | 23%         | 33%        |
| 36% to 50%   | 13%                      | 9%        | 13%           | 6%            | 15%         | 21%        |
| Over 50%   | 8%                       | 6%        | 4%            | 13%           | 9%          | 11%        |
| <b>Number of Respondents</b>   | <b>503</b>               | <b>88</b> | <b>120</b>    | <b>109</b>    | <b>82</b>   | <b>104</b> |

| Q21. For your FI, which are the THREE most common barriers to greater CONSUMER adoption of mobile banking? (Check only THREE) | Percent, except as noted |            |               |               |             |            |
|---|--------------------------|------------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Ineffective marketing by FIs  | 35%                      | 38%        | 32%           | 36%           | 30%         | 41%        |
| Security concerns   | 70%                      | 76%        | 70%           | 65%           | 65%         | 73%        |
| Difficulty of use   | 13%                      | 16%        | 14%           | 9%            | 14%         | 13%        |
| Lack of trust in the technology   | 60%                      | 68%        | 64%           | 58%           | 58%         | 52%        |
| Banking needs are being met through other channels  | 61%                      | 49%        | 54%           | 69%           | 64%         | 69%        |
| Do not see any reason to use mobile banking   | 49%                      | 41%        | 54%           | 53%           | 57%         | 40%        |
| Other   | 12%                      | 12%        | 11%           | 10%           | 12%         | 13%        |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q22. Do you charge or plan to charge a fee for any CONSUMER mobile banking services? | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Yes  | 8%                       | 3%         | 7%            | 7%            | 13%         | 12%        |
| No   | 92%                      | 97%        | 93%           | 93%           | 88%         | 88%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q23. Please indicate ALL services for which you charge or plan to charge a fee. (Check ALL that apply) | Percent, except as noted |          |               |               |             |           |
|--|--------------------------|----------|---------------|---------------|-------------|-----------|
|  | All FIs                  | < \$100M | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| Mobile RDC   | 49%                      | 100%     | 67%           | 70%           | 23%         | 31%       |
| Mobile P2P   | 75%                      | 25%      | 75%           | 60%           | 85%         | 88%       |
| Mobile funds transfer between same customer's accounts within your institution                         | 2%                       | 0%       | 8%            | 0%            | 0%          | 0%        |
| Mobile funds transfer between same customer's accounts at different FIs                                | 36%                      | 25%      | 50%           | 30%           | 38%         | 31%       |
| Other  | 7%                       | 0%       | 0%            | 10%           | 23%         | 0%        |
| <b>Number of Respondents</b>   | <b>55</b>                | <b>4</b> | <b>12</b>     | <b>10</b>     | <b>13</b>   | <b>16</b> |

| Q24. What types of mobile alerts does your FI offer or plan to offer? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Insufficient funds   | 74%                      | 74%        | 69%           | 78%           | 73%         | 77%        |
| Low balance  | 86%                      | 75%        | 82%           | 91%           | 94%         | 90%        |
| Credit card balance close to or over limit   | 12%                      | 15%        | 12%           | 8%            | 9%          | 16%        |
| Online purchase (card-not-present) transactions  | 42%                      | 35%        | 41%           | 38%           | 47%         | 52%        |
| Funds transfer completed   | 60%                      | 54%        | 54%           | 58%           | 68%         | 66%        |
| Credit payment confirmation  | 14%                      | 18%        | 9%            | 14%           | 10%         | 22%        |
| Bill payment due   | 40%                      | 35%        | 34%           | 34%           | 51%         | 52%        |
| International charge/debit   | 13%                      | 6%         | 10%           | 15%           | 19%         | 17%        |
| Suspicious activity/other fraud monitoring alerts  | 52%                      | 45%        | 44%           | 54%           | 62%         | 61%        |
| Two-way actionable alerts  | 15%                      | 6%         | 10%           | 15%           | 22%         | 25%        |
| Other  | 12%                      | 12%        | 12%           | 10%           | 12%         | 14%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q25. Please RATE the IMPORTANCE of your FI's security concerns associated with offering mobile banking services for consumers. | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b>Data breach</b>   |                          |            |               |               |             |            |
| High   | 56%                      | 63%        | 53%           | 59%           | 46%         | 58%        |
| Medium   | 32%                      | 29%        | 33%           | 27%           | 42%         | 30%        |
| Low  | 12%                      | 9%         | 14%           | 13%           | 12%         | 12%        |
| <b>Weak authentication</b>   |                          |            |               |               |             |            |
| High   | 48%                      | 48%        | 47%           | 48%           | 41%         | 53%        |
| Medium   | 37%                      | 35%        | 39%           | 36%           | 41%         | 36%        |
| Low  | 15%                      | 18%        | 14%           | 16%           | 17%         | 11%        |
| <b>Identity theft</b>  |                          |            |               |               |             |            |
| High   | 49%                      | 51%        | 46%           | 49%           | 40%         | 55%        |
| Medium   | 40%                      | 36%        | 43%           | 39%           | 49%         | 33%        |
| Low  | 11%                      | 13%        | 10%           | 12%           | 10%         | 11%        |
| <b>Inadequate customer protection behavior</b>   |                          |            |               |               |             |            |
| High   | 66%                      | 68%        | 61%           | 69%           | 68%         | 64%        |
| Medium   | 27%                      | 25%        | 33%           | 26%           | 25%         | 27%        |
| Low  | 7%                       | 7%         | 6%            | 6%            | 7%          | 8%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q26. Which of the following card control features does your FI's mobile banking app support or plan to support? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Activate new card  | 19%                      | 15%        | 9%            | 19%           | 24%         | 32%        |
| Change PIN   | 14%                      | 15%        | 10%           | 13%           | 18%         | 16%        |
| Order a replacement card   | 14%                      | 10%        | 7%            | 16%           | 17%         | 23%        |
| Turn payment card on or off if lost/stolen   | 59%                      | 45%        | 52%           | 54%           | 70%         | 77%        |
| Block use of credit and/or debit card  | 54%                      | 45%        | 48%           | 50%           | 63%         | 70%        |
| Set travel notification  | 35%                      | 29%        | 22%           | 34%           | 44%         | 51%        |
| None   | 34%                      | 44%        | 38%           | 37%           | 26%         | 20%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q27. Which of the following does your FI use or plan to use to enhance mobile security? (Check ALL that apply) | Percent, except as noted |            |               |               |             |            |
|--|--------------------------|------------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Multi-factor authentication  | 82%                      | 85%        | 80%           | 76%           | 84%         | 88%        |
| Time-out due to inactivity   | 87%                      | 82%        | 87%           | 86%           | 91%         | 92%        |
| Out-of-band authentication   | 41%                      | 23%        | 31%           | 41%           | 57%         | 61%        |
| Login with PIN   | 50%                      | 49%        | 51%           | 52%           | 52%         | 47%        |
| Biometrics   | 50%                      | 23%        | 41%           | 46%           | 62%         | 83%        |
| Mobile notifications   | 60%                      | 48%        | 57%           | 59%           | 64%         | 73%        |
| Mobile device ID   | 40%                      | 38%        | 36%           | 35%           | 45%         | 51%        |
| Geo-location   | 25%                      | 10%        | 18%           | 19%           | 37%         | 45%        |
| Other  | 1%                       | 2%         | 2%            | 1%            | 2%          | 1%         |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>136</b> | <b>166</b>    | <b>144</b>    | <b>104</b>  | <b>132</b> |

| Q28. Do you offer or plan to offer mobile banking services to your BUSINESS customers? | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Yes  | 77%                      | 58%       | 68%           | 79%           | 82%         | 92%        |
| No   | 23%                      | 42%       | 32%           | 21%           | 18%         | 8%         |
| <b>Number of Respondents</b>   | <b>607</b>               | <b>89</b> | <b>149</b>    | <b>139</b>    | <b>101</b>  | <b>129</b> |

| Q29. What mobile banking services do you offer or plan to offer within the next 2 years to your BUSINESS customers? (Check ALL that apply) | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Check corporate balances and monitor accounts  | 94%                      | 90%       | 91%           | 95%           | 93%         | 97%        |
| Cash management functions  | 48%                      | 19%       | 27%           | 47%           | 63%         | 70%        |
| Mobile funds transfer between same business customer's accounts within your institution  | 94%                      | 90%       | 92%           | 93%           | 96%         | 95%        |
| Mobile funds transfer between same business customer's accounts at different FIs   | 38%                      | 23%       | 27%           | 25%           | 51%         | 56%        |
| Mobile funds transfer from one business customer's account to another business customer's account at same or different FIs                 | 28%                      | 21%       | 18%           | 21%           | 36%         | 40%        |
| Administration tools (e.g., setup and manage users, reset passwords, etc.)   | 31%                      | 21%       | 21%           | 28%           | 43%         | 37%        |
| Mobile card acceptance plug-in reader/mobile POS   | 11%                      | 12%       | 9%            | 7%            | 14%         | 13%        |
| Other  | 4%                       | 0%        | 3%            | 4%            | 7%          | 6%         |
| <b>Number of Respondents</b>   | <b>465</b>               | <b>52</b> | <b>101</b>    | <b>110</b>    | <b>83</b>   | <b>119</b> |

| Q30. Do you charge or plan to charge your BUSINESS customers a fee for any mobile banking services? | Percent, except as noted |           |               |               |             |            |
|---|--------------------------|-----------|---------------|---------------|-------------|------------|
|   | All Fis                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Yes   | 25%                      | 13%       | 13%           | 23%           | 34%         | 35%        |
| No  | 75%                      | 87%       | 87%           | 77%           | 66%         | 65%        |
| <b>Number of Respondents</b>  | <b>465</b>               | <b>52</b> | <b>101</b>    | <b>110</b>    | <b>83</b>   | <b>119</b> |

| Q31. Please indicate ALL BUSINESS services for which you charge or plan to charge a fee. (Check ALL that apply) | Percent, except as noted |          |               |               |             |           |
|---|--------------------------|----------|---------------|---------------|-------------|-----------|
|   | All Fis                  | < \$100M | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| Mobile RDC  | 62%                      | 71%      | 85%           | 64%           | 50%         | 25%       |
| Other product/service (e.g., cash management) transaction fee   | 57%                      | 14%      | 62%           | 48%           | 60%         | 67%       |
| Mobile funds transfer between same business customer's accounts within your institution                         | 11%                      | 0%       | 23%           | 16%           | 11%         | 7%        |
| Mobile funds transfer between same business customer's accounts at different Fis                                | 22%                      | 14%      | 23%           | 20%           | 21%         | 24%       |
| Commercial/small business customers flat monthly fee for services   | 57%                      | 86%      | 54%           | 64%           | 57%         | 48%       |
| Commercial/small business customers by transaction type or volume   | 37%                      | 14%      | 31%           | 40%           | 29%         | 48%       |
| Other   | 8%                       | 0%       | 0%            | 8%            | 11%         | 10%       |
| <b>Number of Respondents</b>  | <b>115</b>               | <b>7</b> | <b>13</b>     | <b>25</b>     | <b>28</b>   | <b>42</b> |

| Q32. What percentage of your BUSINESS customers has used your mobile banking services? | Percent, except as noted |           |               |               |             |           |
|--|--------------------------|-----------|---------------|---------------|-------------|-----------|
|  | All Fis                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| <b>% of customers ENROLLED</b>   |                          |           |               |               |             |           |
| Less than 5%   | 55%                      | 26%       | 8%            | 12%           | 0%          | 1%        |
| 5% to 20%  | 32%                      | 37%       | 40%           | 38%           | 22%         | 22%       |
| 21% to 35%   | 7%                       | 11%       | 30%           | 25%           | 28%         | 28%       |
| 36% to 50%   | 4%                       | 19%       | 19%           | 18%           | 24%         | 24%       |
| Over 50%   | 2%                       | 7%        | 3%            | 5%            | 14%         | 14%       |
| <b>Number of Respondents</b>   | <b>274</b>               | <b>27</b> | <b>53</b>     | <b>68</b>     | <b>52</b>   | <b>74</b> |
| <b>% of customers who USED services within last 90 days</b>                            |                          |           |               |               |             |           |
| Less than 5%   | 58%                      | 81%       | 59%           | 66%           | 61%         | 40%       |
| 5% to 20%  | 30%                      | 12%       | 35%           | 20%           | 28%         | 45%       |
| 21% to 35%   | 6%                       | 0%        | 4%            | 8%            | 7%          | 5%        |
| 36% to 50%   | 4%                       | 7%        | 0%            | 2%            | 4%          | 9%        |
| Over 50%   | 2%                       | 0%        | 2%            | 4%            | 0%          | 0%        |
| <b>Number of Respondents</b>   | <b>254</b>               | <b>26</b> | <b>49</b>     | <b>64</b>     | <b>46</b>   | <b>69</b> |

| <b>Q33. What challenges do you see in offering mobile banking services to your BUSINESS customers? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| Business banking software for mobile not available  | 24%                             | 22%                | 20%                  | 28%                  | 30%                | 21%              |
| Available products do not meet business customer needs  | 39%                             | 31%                | 35%                  | 41%                  | 32%                | 48%              |
| Available products are not suited to all FI segments  | 32%                             | 29%                | 38%                  | 29%                  | 23%                | 38%              |
| Implementation difficult or costly  | 33%                             | 31%                | 30%                  | 38%                  | 44%                | 25%              |
| Other   | 25%                             | 31%                | 19%                  | 22%                  | 26%                | 28%              |
| <b>Number of Respondents</b>  | <b>388</b>                      | <b>45</b>          | <b>80</b>            | <b>87</b>            | <b>73</b>          | <b>103</b>       |

| <b>Q34. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile banking services.</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| <b><i>Lack of customer demand</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 38%                             | 44%                | 0%                   | 0%                   | 50%                | 0%               |
| Medium  | 42%                             | 33%                | 75%                  | 0%                   | 50%                | 0%               |
| Low   | 21%                             | 22%                | 25%                  | 0%                   | 0%                 | 0%               |
| <b><i>Security concerns</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 63%                             | 61%                | 75%                  | 0%                   | 50%                | 0%               |
| Medium  | 29%                             | 28%                | 25%                  | 0%                   | 50%                | 0%               |
| Low   | 8%                              | 11%                | 0%                   | 0%                   | 0%                 | 0%               |
| <b><i>Regulatory issues</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 67%                             | 67%                | 75%                  | 0%                   | 50%                | 0%               |
| Medium  | 25%                             | 28%                | 0%                   | 0%                   | 50%                | 0%               |
| Low   | 8%                              | 6%                 | 25%                  | 0%                   | 0%                 | 0%               |
| <b><i>Lack of standards and interoperability</i></b>  |                                 |                    |                      |                      |                    |                  |
| High  | 38%                             | 39%                | 25%                  | 0%                   | 50%                | 0%               |
| Medium  | 38%                             | 28%                | 75%                  | 0%                   | 50%                | 0%               |
| Low   | 25%                             | 33%                | 0%                   | 0%                   | 0%                 | 0%               |
| <b><i>ROI/Lack of business case</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 42%                             | 39%                | 75%                  | 0%                   | 0%                 | 0%               |
| Medium  | 54%                             | 56%                | 25%                  | 0%                   | 100%               | 0%               |
| Low   | 4%                              | 6%                 | 0%                   | 0%                   | 0%                 | 0%               |
| <b><i>Lack of consistent, reliable cellular coverage</i></b>  |                                 |                    |                      |                      |                    |                  |
| High  | 4%                              | 0%                 | 0%                   | 0%                   | 50%                | 0%               |
| Medium  | 29%                             | 33%                | 0%                   | 0%                   | 50%                | 0%               |
| Low   | 67%                             | 67%                | 100%                 | 0%                   | 0%                 | 0%               |
| <b>Number of Respondents</b>  | <b>24</b>                       | <b>18</b>          | <b>4</b>             | <b>0</b>             | <b>2</b>           | <b>0</b>         |



| Q34. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile banking services. (Continued) | Percent, except as noted |           |               |               |             |        |
|--|--------------------------|-----------|---------------|---------------|-------------|--------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B |
| <b>Processor does not offer a solution</b>   |                          |           |               |               |             |        |
| High   | 4%                       | 6%        | 0%            | 0%            | 0%          | 0%     |
| Medium   | 13%                      | 17%       | 0%            | 0%            | 0%          | 0%     |
| Low  | 83%                      | 78%       | 100%          | 0%            | 100%        | 0%     |
| <b>Lack of resources to offer in-house solution</b>  |                          |           |               |               |             |        |
| High   | 25%                      | 22%       | 0%            | 0%            | 100%        | 0%     |
| Medium   | 33%                      | 33%       | 50%           | 0%            | 0%          | 0%     |
| <b>Number of Respondents</b>   | <b>24</b>                | <b>18</b> | <b>4</b>      |               | <b>2</b>    |        |

| Q35. Do you offer or plan to offer mobile payment/wallet services to customers? | Percent, except as noted |            |               |               |             |            |
|---|--------------------------|------------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Currently offer mobile payment services   | 24%                      | 8%         | 14%           | 19%           | 39%         | 48%        |
| Plan to offer mobile payment services within next 2 years                       | 40%                      | 25%        | 43%           | 51%           | 42%         | 41%        |
| Do not plan to offer mobile payment services                                    | 36%                      | 66%        | 44%           | 31%           | 20%         | 11%        |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>154</b> | <b>170</b>    | <b>144</b>    | <b>106</b>  | <b>132</b> |

| Q36. Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments. | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b>Mobile payments are gaining momentum</b>  |                          |           |               |               |             |            |
| High   | 60%                      | 63%       | 60%           | 59%           | 60%         | 58%        |
| Medium   | 37%                      | 35%       | 39%           | 39%           | 35%         | 36%        |
| Low  | 3%                       | 2%        | 1%            | 2%            | 5%          | 6%         |
| <b>Customer demand</b>   |                          |           |               |               |             |            |
| High   | 37%                      | 48%       | 31%           | 39%           | 27%         | 41%        |
| Medium   | 45%                      | 40%       | 52%           | 43%           | 45%         | 42%        |
| Low  | 19%                      | 12%       | 17%           | 18%           | 28%         | 17%        |
| <b>Increase customer engagement with loyalty, rewards, and other incentives</b>                                  |                          |           |               |               |             |            |
| High   | 26%                      | 31%       | 25%           | 21%           | 18%         | 33%        |
| Medium   | 34%                      | 23%       | 43%           | 38%           | 40%         | 26%        |
| Low  | 40%                      | 46%       | 32%           | 41%           | 42%         | 41%        |
| <b>Generate revenue and/or reduce costs</b>  |                          |           |               |               |             |            |
| High   | 20%                      | 29%       | 17%           | 17%           | 16%         | 22%        |
| Medium   | 34%                      | 33%       | 41%           | 31%           | 31%         | 34%        |
| Low  | 46%                      | 38%       | 43%           | 52%           | 53%         | 44%        |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>52</b> | <b>96</b>     | <b>100</b>    | <b>85</b>   | <b>117</b> |

| <b>Q36. Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments.</b> | <b>Percent, except as noted</b> |           |           |            |           |            |
|---|---------------------------------|-----------|-----------|------------|-----------|------------|
| <b><i>Compete with other FIs</i></b>  |                                 |           |           |            |           |            |
| High  | 67%                             | 67%       | 63%       | 65%        | 67%       | 73%        |
| Medium  | 30%                             | 33%       | 38%       | 32%        | 27%       | 25%        |
| Low   | 2%                              | 0%        | 0%        | 3%         | 6%        | 3%         |
| <b><i>Compete with nonbanks (e.g., Amazon, Apple, Google, PayPal, etc.)</i></b>   |                                 |           |           |            |           |            |
| High  | 50%                             | 50%       | 53%       | 47%        | 47%       | 54%        |
| Medium  | 32%                             | 33%       | 35%       | 28%        | 40%       | 26%        |
| Low   | 18%                             | 17%       | 11%       | 25%        | 13%       | 20%        |
| <b><i>Mobile device is more secure than card or other payment methods</i></b>   |                                 |           |           |            |           |            |
| High  | 34%                             | 46%       | 30%       | 31%        | 36%       | 31%        |
| Medium  | 49%                             | 44%       | 54%       | 52%        | 51%       | 44%        |
| Low   | 17%                             | 10%       | 16%       | 17%        | 13%       | 25%        |
| <b><i>Provide two-way mobile communication tool with customers</i></b>  |                                 |           |           |            |           |            |
| High  | 17%                             | 27%       | 17%       | 16%        | 16%       | 15%        |
| Medium  | 40%                             | 37%       | 43%       | 49%        | 31%       | 40%        |
| Low   | 42%                             | 37%       | 41%       | 35%        | 53%       | 45%        |
| <b>Number of Respondents</b>  | <b>450</b>                      | <b>52</b> | <b>96</b> | <b>100</b> | <b>85</b> | <b>117</b> |

| <b>Q37. Please indicate the mobile wallet service(s) that you are familiar with. (Check ALL that apply)</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| Apple Pay   | 98%                             | 94%                | 99%                  | 98%                  | 100%               | 99%              |
| Android Pay   | 82%                             | 71%                | 80%                  | 77%                  | 86%                | 91%              |
| Samsung Pay   | 77%                             | 62%                | 70%                  | 70%                  | 82%                | 91%              |
| Microsoft Wallet  | 21%                             | 25%                | 23%                  | 17%                  | 15%                | 26%              |
| Visa Checkout   | 45%                             | 40%                | 42%                  | 30%                  | 47%                | 62%              |
| MasterCard MasterPass   | 37%                             | 27%                | 36%                  | 23%                  | 41%                | 52%              |
| AmEx Express Checkout   | 10%                             | 12%                | 14%                  | 6%                   | 4%                 | 16%              |
| PayPal  | 74%                             | 73%                | 71%                  | 71%                  | 68%                | 85%              |
| Amazon Payments   | 41%                             | 38%                | 40%                  | 34%                  | 33%                | 55%              |
| LevelUp   | 8%                              | 4%                 | 2%                   | 4%                   | 7%                 | 19%              |
| Walmart Pay   | 29%                             | 29%                | 18%                  | 19%                  | 33%                | 44%              |
| Other   | 3%                              | 2%                 | 4%                   | 1%                   | 1%                 | 4%               |
| <b>Number of Respondents</b>  | <b>450</b>                      | <b>52</b>          | <b>96</b>            | <b>100</b>           | <b>85</b>          | <b>117</b>       |

| <b>Q38. How do you offer or plan to offer mobile payment/wallet services? (Check ALL that apply)</b>                                  | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All Fis</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| Partner with a card network (e.g., AmEx, MasterCard, Visa or Discover to offer online digital wallet (check-out) services via mobile) | 36%                             | 33%                | 33%                  | 28%                  | 34%                | 47%              |
| Partner with a NFC-enabled wallet provider (e.g., Apple Pay, Android Pay, Samsung Pay)  | 53%                             | 37%                | 49%                  | 43%                  | 64%                | 66%              |
| Partner with third-party payment processor (e.g., FIS, Fiserv)  | 67%                             | 67%                | 68%                  | 72%                  | 68%                | 62%              |
| Develop your own mobile payment solution (e.g., Capital One Wallet, Chase Pay, CU Wallet, Wells Fargo Wallet)                         | 4%                              | 4%                 | 2%                   | 1%                   | 2%                 | 9%               |
| Other   | 2%                              | 4%                 | 2%                   | 1%                   | 0%                 | 2%               |
| <b>Number of Respondents</b>  | <b>450</b>                      | <b>52</b>          | <b>96</b>            | <b>100</b>           | <b>85</b>          | <b>117</b>       |

| <b>Q39. Which of the following MOBILE WALLET service(s) do you offer or plan to offer? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All Fis</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| <b><i>Apple Pay</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 46%                             | 26%                | 24%                  | 31%                  | 52%                | 59%              |
| Plan to offer   | 53%                             | 67%                | 58%                  | 47%                  | 42%                | 32%              |
| <b><i>Android Pay</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 22%                             | 19%                | 16%                  | 12%                  | 21%                | 29%              |
| Plan to offer   | 62%                             | 60%                | 56%                  | 48%                  | 60%                | 52%              |
| <b><i>Samsung Pay</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 21%                             | 14%                | 14%                  | 13%                  | 19%                | 29%              |
| Plan to offer   | 49%                             | 44%                | 35%                  | 34%                  | 55%                | 47%              |
| <b><i>Microsoft Wallet</i></b>  |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 2%                              | 0%                 | 1%                   | 2%                   | 1%                 | 3%               |
| Plan to offer   | 5%                              | 0%                 | 4%                   | 7%                   | 7%                 | 3%               |
| <b><i>Visa Checkout</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 12%                             | 5%                 | 6%                   | 8%                   | 13%                | 17%              |
| Plan to offer   | 13%                             | 9%                 | 18%                  | 10%                  | 11%                | 9%               |
| <b><i>MasterCard MasterPass</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 4%                              | 2%                 | 1%                   | 4%                   | 2%                 | 5%               |
| Plan to offer   | 13%                             | 12%                | 9%                   | 8%                   | 11%                | 15%              |
| <b><i>AmEx Express Checkout</i></b>   |                                 |                    |                      |                      |                    |                  |
| Currently offer   | 1%                              | 0%                 | 0%                   | 2%                   | 0%                 | 0%               |
| Plan to offer   | 2%                              | 2%                 | 1%                   | 1%                   | 1%                 | 3%               |
| <b><i>Other</i></b>   | 5%                              | 7%                 | 2%                   | 8%                   | 2%                 | 3%               |
| <b>Number of Respondents</b>  | <b>388</b>                      | <b>43</b>          | <b>79</b>            | <b>79</b>            | <b>80</b>          | <b>107</b>       |

| Q40. About how much time did it take for your FI to implement the NFC MOBILE WALLET service? (If you have not implemented NFC mobile wallet service, please check 'N/A') | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Less than 3 months   | 7%                       | 2%        | 3%            | 4%            | 11%         | 11%        |
| 3 months   | 9%                       | 4%        | 4%            | 4%            | 11%         | 15%        |
| 6 months   | 16%                      | 15%       | 10%           | 18%           | 15%         | 16%        |
| More than 6 months   | 9%                       | 6%        | 4%            | 6%            | 13%         | 13%        |
| N/A  | 58%                      | 72%       | 68%           | 56%           | 48%         | 38%        |
| <b>Number of Respondents</b>   | <b>412</b>               | <b>47</b> | <b>86</b>     | <b>88</b>     | <b>83</b>   | <b>108</b> |

| Q41. What challenges did your FI experience implementing the NFC MOBILE WALLET? (Check ALL that apply) | Percent, except as noted |           |               |               |             |           |
|--|--------------------------|-----------|---------------|---------------|-------------|-----------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| Waiting for certification from card networks or processors   | 59%                      | 44%       | 20%           | 23%           | 39%         | 40%       |
| Lengthy processor queue  | 44%                      | 39%       | 19%           | 19%           | 25%         | 27%       |
| Software development and testing   | 25%                      | 28%       | 9%            | 12%           | 12%         | 16%       |
| Customer/staff training, education, etc.   | 31%                      | 33%       | 8%            | 15%           | 18%         | 21%       |
| Other  | 22%                      | 28%       | 10%           | 14%           | 9%          | 10%       |
| <b>Number of Respondents</b>   | <b>221</b>               | <b>18</b> | <b>35</b>     | <b>47</b>     | <b>46</b>   | <b>75</b> |

| Q42. What types of incentives tied to mobile payments/wallets do you offer or plan to offer? (Check ALL that apply) | Percent, except as noted |           |               |               |             |            |
|---|--------------------------|-----------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Location-based offers   | 13%                      | 6%        | 14%           | 8%            | 9%          | 22%        |
| Cash reward or account credit for mobile wallet enrollment  | 7%                       | 4%        | 9%            | 6%            | 5%          | 10%        |
| Rewards points or cash back for mobile transactions   | 13%                      | 8%        | 17%           | 9%            | 11%         | 16%        |
| Rewards redemption (e.g., pay with points) for mobile transactions at the POS                                       | 6%                       | 10%       | 5%            | 2%            | 2%          | 12%        |
| None  | 71%                      | 85%       | 67%           | 71%           | 78%         | 63%        |
| Other   | 8%                       | 4%        | 7%            | 14%           | 6%          | 8%         |
| <b>Number of Respondents</b>  | <b>450</b>               | <b>52</b> | <b>96</b>     | <b>100</b>    | <b>85</b>   | <b>117</b> |

| Q43. What percentage of your RETAIL customers use your mobile payment/wallet services? | Percent, except as noted |           |               |               |             |           |
|--|--------------------------|-----------|---------------|---------------|-------------|-----------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| <b>% of customers ENROLLED</b>   |                          |           |               |               |             |           |
| Less than 5%   | 81%                      | 60%       | 69%           | 85%           | 88%         | 81%       |
| 5% to 20%  | 15%                      | 20%       | 31%           | 8%            | 12%         | 15%       |
| 21% to 35%   | 3%                       | 20%       | 0%            | 8%            | 0%          | 2%        |
| 36% to 50%   | 1%                       | 0%        | 0%            | 0%            | 0%          | 2%        |
| Over 50%   | 0%                       | 0%        | 0%            | 0%            | 0%          | 0%        |
| <b>Number of Respondents</b>   | <b>144</b>               | <b>10</b> | <b>16</b>     | <b>26</b>     | <b>33</b>   | <b>59</b> |
| <b>% of customers who USED services within last 90 days</b>                            |                          |           |               |               |             |           |
| Less than 5%   | 82%                      | 78%       | 80%           | 87%           | 83%         | 80%       |
| 5% to 20%  | 15%                      | 0%        | 20%           | 13%           | 17%         | 16%       |
| 21% to 35%   | 2%                       | 11%       | 0%            | 0%            | 0%          | 4%        |
| 36% to 50%   | 1%                       | 11%       | 0%            | 0%            | 0%          | 0%        |
| Over 50%   | 0%                       | 0%        | 0%            | 0%            | 0%          | 0%        |
| <b>Number of Respondents</b>   | <b>131</b>               | <b>9</b>  | <b>15</b>     | <b>23</b>     | <b>29</b>   | <b>55</b> |

| Q44. From your FI's perspective, please RATE the SIGNIFICANCE of these barriers to consumer adoption of mobile payments | Percent, except as noted |           |               |               |             |            |
|---|--------------------------|-----------|---------------|---------------|-------------|------------|
|   | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| <b><i>Security</i></b>  |                          |           |               |               |             |            |
| High  | 51%                      | 65%       | 56%           | 51%           | 38%         | 50%        |
| Medium  | 35%                      | 29%       | 33%           | 32%           | 51%         | 32%        |
| Low   | 14%                      | 6%        | 10%           | 17%           | 12%         | 19%        |
| <b><i>Privacy</i></b>   |                          |           |               |               |             |            |
| High  | 42%                      | 60%       | 42%           | 47%           | 28%         | 42%        |
| Medium  | 38%                      | 29%       | 45%           | 35%           | 49%         | 31%        |
| Low   | 20%                      | 12%       | 14%           | 18%           | 22%         | 27%        |
| <b><i>Market immaturity and fragmentation</i></b>   |                          |           |               |               |             |            |
| High  | 45%                      | 46%       | 43%           | 39%           | 51%         | 49%        |
| Medium  | 40%                      | 37%       | 44%           | 46%           | 39%         | 33%        |
| Low   | 15%                      | 17%       | 14%           | 15%           | 11%         | 18%        |
| <b><i>Lack of customer demand</i></b>   |                          |           |               |               |             |            |
| High  | 26%                      | 29%       | 25%           | 23%           | 28%         | 26%        |
| Medium  | 56%                      | 48%       | 61%           | 58%           | 55%         | 52%        |
| Low   | 19%                      | 23%       | 14%           | 19%           | 16%         | 22%        |
| <b><i>Low merchant acceptance/lack of merchant interest</i></b>   |                          |           |               |               |             |            |
| High  | 44%                      | 37%       | 32%           | 45%           | 53%         | 50%        |
| Medium  | 44%                      | 44%       | 55%           | 39%           | 41%         | 40%        |
| Low   | 12%                      | 19%       | 13%           | 16%           | 6%          | 10%        |
| <b>Number of Respondents</b>  | <b>450</b>               | <b>52</b> | <b>96</b>     | <b>100</b>    | <b>85</b>   | <b>117</b> |

| <b>Q45. Do you offer or plan to offer mobile payment/wallet services for your BUSINESS customers?</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| Currently offer   | 18%                             | 6%                 | 11%                  | 14%                  | 22                 | 25%              |
| Plan to offer within the next 2 years   | 32%                             | 31%                | 25%                  | 36%                  | 26                 | 34%              |
| No  | 50%                             | 63%                | 64%                  | 50%                  | 36                 | 41%              |
| <b>Number of Respondents</b>  | <b>412</b>                      | <b>35</b>          | <b>81</b>            | <b>97</b>            | <b>84</b>          | <b>115</b>       |

| <b>Q46. Please RATE the IMPORTANCE of your FI's security concerns associated with mobile payment/wallet services.</b> | <b>Percent, except as noted</b> |                    |                      |                      |                    |                  |
|---|---------------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>                  | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| <b><i>Account takeover during or after mobile enrollment process</i></b>  |                                 |                    |                      |                      |                    |                  |
| High  | 46%                             | 56%                | 42%                  | 56%                  | 40%                | 43%              |
| Medium  | 39%                             | 29%                | 40%                  | 37%                  | 41%                | 43%              |
| Low   | 15%                             | 15%                | 19%                  | 7%                   | 19%                | 15%              |
| <b><i>Card-not-present fraud (for online purchases made via mobile phone)</i></b>                                     |                                 |                    |                      |                      |                    |                  |
| High  | 63%                             | 69%                | 60%                  | 72%                  | 58%                | 59%              |
| Medium  | 30%                             | 27%                | 35%                  | 23%                  | 29%                | 35%              |
| Low   | 6%                              | 4%                 | 4%                   | 5%                   | 13%                | 6%               |
| <b><i>Data breach</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 56%                             | 71%                | 53%                  | 60%                  | 49%                | 54%              |
| Medium  | 33%                             | 23%                | 39%                  | 33%                  | 35%                | 32%              |
| Low   | 11%                             | 6%                 | 8%                   | 7%                   | 15%                | 15%              |
| <b><i>Inadequate customer security behavior</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 64%                             | 73%                | 61%                  | 77%                  | 60%                | 56%              |
| Medium  | 32%                             | 27%                | 36%                  | 22%                  | 33%                | 40%              |
| Low   | 3%                              | 0%                 | 2%                   | 1%                   | 7%                 | 4%               |
| <b><i>Inadequate mobile device security</i></b>   |                                 |                    |                      |                      |                    |                  |
| High  | 57%                             | 71%                | 54%                  | 70%                  | 53%                | 45%              |
| Medium  | 37%                             | 29%                | 38%                  | 29%                  | 41%                | 44%              |
| Low   | 6%                              | 0%                 | 8%                   | 1%                   | 6%                 | 10%              |
| <b><i>Inconsistent customer authentication methods</i></b>  |                                 |                    |                      |                      |                    |                  |
| High  | 40%                             | 52%                | 36%                  | 52%                  | 35%                | 31%              |
| Medium  | 48%                             | 44%                | 51%                  | 40%                  | 49%                | 53%              |
| Low   | 12%                             | 4%                 | 13%                  | 8%                   | 15%                | 16%              |
| <b>Number of Respondents</b>  | <b>450</b>                      | <b>52</b>          | <b>96</b>            | <b>100</b>           | <b>85</b>          | <b>117</b>       |

| Q47. Do you use or plan to use the following mobile security tools? (Check ALL that apply) | Percent, except as noted |           |               |               |             |            |
|--|--------------------------|-----------|---------------|---------------|-------------|------------|
|  | All FIs                  | < \$100M  | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B     |
| Biometrics   | 68%                      | 50%       | 60%           | 61%           | 71%         | 88%        |
| Geo-location   | 36%                      | 27%       | 26%           | 27%           | 39%         | 53%        |
| Payment tokenization   | 66%                      | 62%       | 56%           | 53%           | 76%         | 78%        |
| Customer notification of attempt/success in provisioning card to mobile wallet             | 54%                      | 46%       | 42%           | 50%           | 60%         | 65%        |
| Mobile device ID   | 49%                      | 56%       | 48%           | 40%           | 51%         | 54%        |
| One-time password (OTP)  | 32%                      | 33%       | 30%           | 30%           | 34%         | 32%        |
| Ability for customer to remotely disable mobile wallet if phone lost/stolen                | 48%                      | 50%       | 41%           | 47%           | 60%         | 47%        |
| 3-D Secure (3DS) for ecommerce transactions  | 13%                      | 12%       | 10%           | 12%           | 14%         | 16%        |
| Other  | 5%                       | 8%        | 4%            | 8%            | 4%          | 2%         |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>52</b> | <b>96</b>     | <b>100</b>    | <b>85</b>   | <b>117</b> |

| Q48. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. | Percent, except as noted |            |               |               |             |           |
|---|--------------------------|------------|---------------|---------------|-------------|-----------|
|   | All FIs                  | < \$100M   | \$100M-\$250M | \$250M-\$500M | \$500M-\$1B | > \$1B    |
| <b><i>Lack of customer demand</i></b>   |                          |            |               |               |             |           |
| High  | 58%                      | 60%        | 68%           | 48%           | 48%         | 47%       |
| Medium  | 28%                      | 30%        | 19%           | 36%           | 38%         | 13%       |
| Low   | 14%                      | 10%        | 14%           | 16%           | 14%         | 40%       |
| <b><i>Limited benefit to FI</i></b>   |                          |            |               |               |             |           |
| High  | 41%                      | 44%        | 43%           | 41%           | 29%         | 20%       |
| Medium  | 42%                      | 43%        | 42%           | 39%           | 43%         | 47%       |
| Low   | 17%                      | 13%        | 15%           | 20%           | 29%         | 33%       |
| <b><i>Security concerns</i></b>   |                          |            |               |               |             |           |
| High  | 60%                      | 72%        | 45%           | 66%           | 57%         | 47%       |
| Medium  | 28%                      | 20%        | 39%           | 23%           | 33%         | 33%       |
| Low   | 12%                      | 9%         | 16%           | 11%           | 10%         | 20%       |
| <b><i>Regulatory issues</i></b>   |                          |            |               |               |             |           |
| High  | 44%                      | 57%        | 32%           | 41%           | 33%         | 40%       |
| Medium  | 41%                      | 34%        | 49%           | 43%           | 48%         | 40%       |
| Low   | 14%                      | 9%         | 19%           | 16%           | 19%         | 20%       |
| <b><i>Lack of standards and interoperability</i></b>  |                          |            |               |               |             |           |
| High  | 25%                      | 25%        | 26%           | 30%           | 14%         | 33%       |
| Medium  | 54%                      | 53%        | 55%           | 50%           | 71%         | 47%       |
| Low   | 20%                      | 23%        | 19%           | 20%           | 14%         | 20%       |
| <b>Number of Respondents</b>  | <b>256</b>               | <b>102</b> | <b>74</b>     | <b>44</b>     | <b>21</b>   | <b>15</b> |



| Q48. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. (Continued) | Percent, except as noted |            |           |           |           |           |
|---|--------------------------|------------|-----------|-----------|-----------|-----------|
| <i>ROI/Lack of business case</i>  |                          |            |           |           |           |           |
| High  | 38%                      | 38%        | 39%       | 43%       | 33%       | 20%       |
| Medium  | 41%                      | 42%        | 42%       | 30%       | 52%       | 53%       |
| Low   | 21%                      | 20%        | 19%       | 27%       | 14%       | 27%       |
| <i>Lack of consistent, reliable cellular coverage</i>   |                          |            |           |           |           |           |
| High  | 13%                      | 15%        | 11%       | 11%       | 14%       | 7%        |
| Medium  | 25%                      | 24%        | 27%       | 27%       | 24%       | 13%       |
| Low   | 63%                      | 62%        | 62%       | 61%       | 62%       | 80%       |
| <i>Other</i>  | 5%                       | 6%         | 3%        | 2%        | 10%       | 20%       |
| <b>Number of Respondents</b>  | <b>256</b>               | <b>102</b> | <b>74</b> | <b>44</b> | <b>21</b> | <b>15</b> |

| Q49. In your opinion, do you think a mobile payment that uses payment tokenization and biometrics is more secure than a card payment? | Percent, except as noted |                    |                      |                      |                    |                  |
|---|--------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|   | <b>All FIs</b>           | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| Yes   | 94%                      | 86%                | 96%                  | 97%                  | 97%                | 94%              |
| No  | 6%                       | 14%                | 4%                   | 3%                   | 3%                 | 6%               |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>154</b>         | <b>170</b>           | <b>144</b>           | <b>106</b>         | <b>132</b>       |

| Q50. 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%? | Percent, except as noted |                    |                      |                      |                    |                  |
|--|--------------------------|--------------------|----------------------|----------------------|--------------------|------------------|
|  | <b>All FIs</b>           | <b>&lt; \$100M</b> | <b>\$100M-\$250M</b> | <b>\$250M-\$500M</b> | <b>\$500M-\$1B</b> | <b>&gt; \$1B</b> |
| <i>At POS</i>  |                          |                    |                      |                      |                    |                  |
| 2 Years  | 20%                      | 21%                | 21%                  | 23%                  | 16%                | 20%              |
| 3 Years  | 34%                      | 31%                | 28%                  | 34%                  | 36%                | 42%              |
| 5 Years  | 29%                      | 29%                | 35%                  | 26%                  | 29%                | 26%              |
| > 5 Years  | 17%                      | 19%                | 16%                  | 17%                  | 19%                | 12%              |
| <i>In-App/Mobile Web</i>   |                          |                    |                      |                      |                    |                  |
| 2 Years  | 25%                      | 21%                | 24%                  | 26%                  | 21%                | 30%              |
| 3 Years  | 35%                      | 32%                | 29%                  | 36%                  | 38%                | 42%              |
| 5 Years  | 25%                      | 27%                | 29%                  | 20%                  | 25%                | 20%              |
| > 5 Years  | 16%                      | 19%                | 18%                  | 18%                  | 17%                | 8%               |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>154</b>         | <b>170</b>           | <b>144</b>           | <b>106</b>         | <b>132</b>       |

**Data Table III: Survey Results by Federal Reserve Districts**

| Q9. What is your FI's asset size? | Percent, except as noted |            |            |           |            |           |           |           |
|-----------------------------------|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|                                   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| < \$100M                          | 22%                      | 15%        | 15%        | 22%       | 26%        | 39%       | 31%       | 16%       |
| \$100M-\$250M                     | 24%                      | 31%        | 19%        | 26%       | 28%        | 27%       | 27%       | 15%       |
| \$250M-\$500M                     | 20%                      | 25%        | 20%        | 26%       | 16%        | 20%       | 15%       | 27%       |
| \$500M-\$1B                       | 15%                      | 15%        | 21%        | 15%       | 13%        | 8%        | 9%        | 16%       |
| > \$1B                            | 19%                      | 15%        | 24%        | 11%       | 18%        | 7%        | 17%       | 27%       |
| <b>Number of Respondents</b>      | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q10. Please indicate your financial institution type: | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Commercial Bank                                       | 53%                      | 72%        | 16%        | 52%       | 66%        | 80%       | 72%       | 55%       |
| Savings Bank  | 13%                      | 4%         | 26%        | 11%       | 9%         | 4%        | 12%       | 7%        |
| Cooperative/Mutual Bank                               | 8%                       | 1%         | 23%        | 4%        | 1%         | 1%        | 2%        | 1%        |
| Credit Union  | 26%                      | 23%        | 34%        | 33%       | 24%        | 15%       | 14%       | 37%       |
| <b>Number of Respondents</b>                          | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q11. Please indicate to whom you provide services. (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Consumers (retail customers)  | 99%                      | 100%       | 99%        | 100%      | 98%        | 100%      | 99%       | 100%      |
| Corporate/commercial entities   | 73%                      | 74%        | 70%        | 70%       | 73%        | 80%       | 86%       | 61%       |
| Small businesses  | 87%                      | 87%        | 86%        | 89%       | 84%        | 89%       | 97%       | 84%       |
| Government agencies (including local)                                     | 60%                      | 57%        | 53%        | 67%       | 62%        | 69%       | 78%       | 45%       |
| Educational and/or non-profit   | 73%                      | 68%        | 70%        | 67%       | 70%        | 87%       | 88%       | 65%       |
| Other   | 1%                       | 1%         | 0%         | 0%        | 0%         | 5%        | 1%        | 0%        |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q12. When did you start offering mobile banking to CONSUMERS? (Check only ONE) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Within the past year   | 78%                      | 14%        | 7%         | 19%       | 9%         | 19%       | 14%       | 8%        |
| More than one year ago   | 11%                      | 77%        | 82%        | 74%       | 75%        | 69%       | 78%       | 83%       |
| Do not yet offer mobile banking, but plan to offer within next 1-2 years       | 8%                       | 8%         | 7%         | 7%        | 11%        | 4%        | 8%        | 4%        |
| Do not plan to offer mobile banking  | 3%                       | 2%         | 3%         | 0%        | 5%         | 8%        | 0%        | 5%        |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q13. What is your PRIMARY business reason for offering or planning to offer mobile banking?<br>(Check only ONE) | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Retain existing customers   | 29%                      | 29%        | 26%        | 26%       | 31%        | 41%       | 34%       | 20%       |
| Attract new customers   | 23%                      | 25%        | 28%        | 37%       | 21%        | 10%       | 19%       | 25%       |
| Be a market leader with technology  | 21%                      | 21%        | 20%        | 11%       | 22%        | 22%       | 16%       | 31%       |
| Competitive pressure  | 24%                      | 23%        | 23%        | 26%       | 24%        | 28%       | 28%       | 18%       |
| Increase revenue  | 0%                       | 0%         | 0%         | 0%        | 0%         | 0%        | 1%        | 0%        |
| Other   | 3%                       | 2%         | 4%         | 0%        | 3%         | 0%        | 2%        | 6%        |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q14. Which mobile operating system(s) (OS) does or will your mobile banking application support? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Apple iOS   | 98%                      | 98%        | 98%        | 96%       | 96%        | 97%       | 99%       | 100%      |
| Google Android  | 97%                      | 96%        | 98%        | 96%       | 93%        | 99%       | 100%      | 97%       |
| Windows Phone   | 24%                      | 23%        | 22%        | 11%       | 24%        | 32%       | 28%       | 27%       |
| Blackberry  | 11%                      | 11%        | 8%         | 4%        | 12%        | 12%       | 14%       | 13%       |
| Other   | 2%                       | 0%         | 3%         | 4%        | 3%         | 3%        | 0%        | 0%        |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q15. Do you offer or plan to offer mobile banking services to consumers via a tablet? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| iPad   | 87%                      | 87%        | 90%        | 85%       | 83%        | 86%       | 86%       | 85%       |
| Android  | 73%                      | 64%        | 77%        | 74%       | 67%        | 78%       | 74%       | 76%       |
| Kindle   | 27%                      | 22%        | 34%        | 37%       | 21%        | 28%       | 27%       | 25%       |
| No   | 10%                      | 12%        | 5%         | 4%        | 12%        | 13%       | 13%       | 14%       |
| Other  | 3%                       | 0%         | 5%         | 11%       | 5%         | 0%        | 0%        | 1%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q16. Who provides or will provide your mobile banking services? | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Core deposit processor or online banking provider               | 81%                      | 75%        | 86%        | 89%       | 83%        | 68%       | 84%       | 76%       |
| Mobile solution provider  | 17%                      | 24%        | 11%        | 11%       | 15%        | 26%       | 16%       | 20%       |
| In-house system   | 2%                       | 1%         | 2%         | 0%        | 2%         | 3%        | 0%        | 4%        |
| <b>Number of Respondents</b>                                    | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| <b><i>Check balances (DDA, Savings)</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 92%                      | 92%        | 92%        | 93%       | 88%        | 96%       | 92%       | 96%       |
| Plan to offer  | 8%                       | 8%         | 8%         | 7%        | 12%        | 4%        | 8%        | 4%        |
| No plans to offer  | 0%                       | 0%         | 0%         | 0%        | 0%         | 0%        | 0%        | 0%        |
| <b><i>View statements and/or transaction history (DDA, Savings)</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 89%                      | 90%        | 89%        | 85%       | 86%        | 91%       | 91%       | 90%       |
| Plan to offer  | 9%                       | 9%         | 9%         | 11%       | 12%        | 6%        | 8%        | 6%        |
| No plans to offer  | 2%                       | 1%         | 2%         | 4%        | 3%         | 3%        | 1%        | 4%        |
| <b><i>View credit card balances, statements and/or transaction history</i></b>   |                          |            |            |           |            |           |           |           |
| Currently offer  | 23%                      | 22%        | 21%        | 22%       | 26%        | 20%       | 21%       | 28%       |
| Plan to offer  | 13%                      | 20%        | 12%        | 11%       | 11%        | 7%        | 12%       | 21%       |
| No plans to offer  | 64%                      | 58%        | 67%        | 67%       | 63%        | 72%       | 67%       | 51%       |
| <b><i>Bill payment</i></b>   |                          |            |            |           |            |           |           |           |
| Currently offer  | 84%                      | 85%        | 89%        | 85%       | 81%        | 83%       | 79%       | 85%       |
| Plan to offer  | 10%                      | 12%        | 7%         | 11%       | 15%        | 7%        | 9%        | 8%        |
| No plans to offer  | 6%                       | 3%         | 4%         | 4%        | 4%         | 10%       | 12%       | 7%        |
| <b><i>Bill presentment</i></b>   |                          |            |            |           |            |           |           |           |
| Currently offer  | 29%                      | 27%        | 39%        | 26%       | 29%        | 28%       | 14%       | 28%       |
| Plan to offer  | 22%                      | 23%        | 24%        | 19%       | 20%        | 16%       | 23%       | 23%       |
| No plans to offer  | 49%                      | 50%        | 36%        | 56%       | 51%        | 57%       | 63%       | 49%       |
| <b><i>Transfer funds between same owner's accounts within your FI</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 90%                      | 90%        | 92%        | 89%       | 87%        | 93%       | 88%       | 96%       |
| Plan to offer  | 9%                       | 10%        | 8%         | 11%       | 13%        | 7%        | 9%        | 4%        |
| No plans to offer  | 1%                       | 0%         | 1%         | 0%        | 1%         | 0%        | 2%        | 0%        |
| <b><i>Transfer funds between same owner's accounts at different FIs</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 35%                      | 27%        | 47%        | 19%       | 38%        | 22%       | 40%       | 27%       |
| Plan to offer  | 28%                      | 28%        | 28%        | 37%       | 23%        | 29%       | 24%       | 35%       |
| No plans to offer  | 37%                      | 45%        | 25%        | 44%       | 39%        | 49%       | 36%       | 38%       |
| <b><i>Mobile person-to-person payment (P2P)</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 44%                      | 43%        | 49%        | 37%       | 39%        | 42%       | 49%       | 42%       |
| Plan to offer  | 35%                      | 33%        | 37%        | 41%       | 34%        | 36%       | 28%       | 41%       |
| No plans to offer  | 21%                      | 24%        | 14%        | 22%       | 27%        | 22%       | 23%       | 17%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q17. Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply) (Continued) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| <b><i>Mobile remote deposit capture (RDC)</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 72%                      | 70%        | 85%        | 70%       | 64%        | 61%       | 63%       | 80%       |
| Plan to offer  | 18%                      | 22%        | 11%        | 19%       | 25%        | 25%       | 23%       | 10%       |
| No plans to offer  | 9%                       | 9%         | 5%         | 11%       | 11%        | 14%       | 14%       | 10%       |
| <b><i>ATM/branch locator</i></b>   |                          |            |            |           |            |           |           |           |
| Currently offer  | 81%                      | 76%        | 89%        | 89%       | 73%        | 78%       | 79%       | 83%       |
| Plan to offer  | 8%                       | 9%         | 5%         | 11%       | 13%        | 7%        | 7%        | 10%       |
| No plans to offer  | 11%                      | 16%        | 6%         | 0%        | 13%        | 14%       | 14%       | 7%        |
| <b><i>Personal financial management (PFM)</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 13%                      | 9%         | 15%        | 7%        | 24%        | 7%        | 13%       | 6%        |
| Plan to offer  | 29%                      | 32%        | 33%        | 26%       | 22%        | 22%       | 27%       | 38%       |
| No plans to offer  | 58%                      | 59%        | 52%        | 67%       | 55%        | 71%       | 60%       | 56%       |
| <b><i>Access to brokerage services</i></b>   |                          |            |            |           |            |           |           |           |
| Currently offer  | 2%                       | 3%         | 2%         | 7%        | 4%         | 1%        | 1%        | 1%        |
| Plan to offer  | 6%                       | 6%         | 7%         | 4%        | 6%         | 4%        | 3%        | 8%        |
| No plans to offer  | 92%                      | 91%        | 92%        | 89%       | 90%        | 94%       | 95%       | 90%       |
| <b><i>Cross-border payments</i></b>  |                          |            |            |           |            |           |           |           |
| Currently offer  | 1%                       | 0%         | 1%         | 0%        | 2%         | 3%        | 1%        | 3%        |
| Plan to offer  | 3%                       | 3%         | 3%         | 4%        | 4%         | 1%        | 2%        | 3%        |
| No plans to offer  | 96%                      | 97%        | 96%        | 96%       | 94%        | 96%       | 97%       | 94%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q18. Do you offer or plan to offer the following mobile features? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Enroll for mobile banking using a mobile device (mobile enrollment)                      | 71%                      | 66%        | 80%        | 56%       | 69%        | 71%       | 66%       | 73%       |
| Open accounts over mobile device (mobile account opening)                                | 29%                      | 27%        | 41%        | 26%       | 24%        | 20%       | 15%       | 31%       |
| Single sign-on/authentication credentials for online and mobile services                 | 68%                      | 60%        | 76%        | 59%       | 66%        | 62%       | 64%       | 79%       |
| Multilingual mobile website or app   | 9%                       | 11%        | 9%         | 0%        | 14%        | 4%        | 6%        | 7%        |
| None   | 14%                      | 22%        | 6%         | 26%       | 14%        | 17%       | 19%       | 10%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q19. Do you market or plan to market any mobile banking products to the underbanked? | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Yes, market today  | 24%                      | 23%        | 27%        | 11%       | 30%        | 19%       | 21%       | 27%       |
| Yes, plan to market within next 2 years  | 22%                      | 25%        | 21%        | 22%       | 23%        | 20%       | 16%       | 25%       |
| No   | 54%                      | 52%        | 53%        | 67%       | 47%        | 61%       | 63%       | 48%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| <b>Q20. What percentage of your RETAIL customers has used your mobile banking services?</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| <b>% of customers ENROLLED</b>  |                                 |            |            |            |            |           |            |            |
| Less than 5%  | 8%                              | 10%        | 6%         | 5%         | 9%         | 7%        | 10%        | 7%         |
| 5% to 20%   | 38%                             | 37%        | 41%        | 68%        | 32%        | 34%       | 38%        | 34%        |
| 21% to 35%  | 26%                             | 25%        | 23%        | 14%        | 28%        | 34%       | 32%        | 22%        |
| 36% to 50%  | 21%                             | 16%        | 25%        | 9%         | 23%        | 21%       | 12%        | 26%        |
| Over 50%  | 8%                              | 12%        | 5%         | 5%         | 9%         | 3%        | 7%         | 10%        |
| <b>Number of Respondents</b>  | <b>546</b>                      | <b>89</b>  | <b>157</b> | <b>22</b>  | <b>94</b>  | <b>58</b> | <b>68</b>  | <b>58</b>  |
| <b>% of customers who USED services within last 90 days</b>                                 |                                 |            |            |            |            |           |            |            |
| Less than 5%  | 10%                             | 11%        | 9%         | 9%         | 10%        | 9%        | 13%        | 8%         |
| 5% to 20%   | 46%                             | 47%        | 40%        | 68%        | 44%        | 52%       | 47%        | 47%        |
| 21% to 35%  | 23%                             | 20%        | 30%        | 5%         | 22%        | 20%       | 23%        | 19%        |
| 36% to 50%  | 13%                             | 13%        | 11%        | 5%         | 16%        | 15%       | 11%        | 15%        |
| Over 50%  | 8%                              | 9%         | 9%         | 14%        | 7%         | 4%        | 6%         | 11%        |
| <b>Number of Respondents</b>  | <b>503</b>                      | <b>85</b>  | <b>141</b> | <b>22</b>  | <b>86</b>  | <b>54</b> | <b>62</b>  | <b>53</b>  |

| <b>Q21. For your FI, which are the THREE most common barriers to greater CONSUMER adoption of mobile banking? (Check only THREE)</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|--|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|  | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Ineffective marketing by FIs   | 35%                             | 32%        | 35%        | 30%        | 47%        | 35%       | 30%        | 31%        |
| Security concerns  | 70%                             | 70%        | 73%        | 63%        | 69%        | 71%       | 65%        | 69%        |
| Difficulty of use  | 13%                             | 14%        | 10%        | 7%         | 11%        | 17%       | 23%        | 13%        |
| Lack of trust in the technology  | 60%                             | 59%        | 56%        | 78%        | 61%        | 65%       | 58%        | 62%        |
| Banking needs are being met through other channels   | 61%                             | 62%        | 61%        | 44%        | 59%        | 58%       | 59%        | 70%        |
| Do not see any reason to use mobile banking  | 49%                             | 51%        | 48%        | 67%        | 44%        | 49%       | 53%        | 45%        |
| Other  | 11%                             | 11%        | 16%        | 11%        | 9%         | 4%        | 10%        | 10%        |
| <b>Number of Respondents</b>   | <b>682</b>                      | <b>115</b> | <b>195</b> | <b>27</b>  | <b>119</b> | <b>69</b> | <b>86</b>  | <b>71</b>  |

| <b>Q22. Do you charge or plan to charge a fee for any CONSUMER mobile banking services?</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Yes   | 8%                              | 10%        | 8%         | 4%         | 8%         | 10%       | 8%         | 3%         |
| No  | 92%                             | 90%        | 92%        | 96%        | 92%        | 90%       | 92%        | 97%        |
| <b>Number of Respondents</b>  | <b>682</b>                      | <b>115</b> | <b>195</b> | <b>27</b>  | <b>119</b> | <b>69</b> | <b>86</b>  | <b>71</b>  |

| Q23. Please indicate ALL services for which you charge or plan to charge a fee. (Check ALL that apply) | Percent, except as noted |           |           |          |           |          |          |          |
|--|--------------------------|-----------|-----------|----------|-----------|----------|----------|----------|
|  | All FIs                  | ATL       | BOS       | CLE      | DAL       | KC       | MIN      | RIC      |
| Mobile RDC   | 49%                      | 42%       | 31%       | 100%     | 50%       | 86%      | 57%      | 50%      |
| Mobile P2P   | 75%                      | 58%       | 94%       | 100%     | 60%       | 86%      | 57%      | 100%     |
| Mobile funds transfer between same customer's accounts within your institution                         | 2%                       | 0%        | 0%        | 0%       | 0%        | 14%      | 0%       | 0%       |
| Mobile funds transfer between same customer's accounts at different FIs                                | 36%                      | 25%       | 38%       | 0%       | 30%       | 57%      | 29%      | 100%     |
| Other  | 7%                       | 8%        | 13%       | 0%       | 0%        | 0%       | 14%      | 0%       |
| <b>Number of Respondents</b>   | <b>55</b>                | <b>12</b> | <b>16</b> | <b>1</b> | <b>10</b> | <b>7</b> | <b>7</b> | <b>2</b> |

| Q24. What types of mobile alerts does your FI offer or plan to offer? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Insufficient funds   | 74%                      | 78%        | 74%        | 59%       | 71%        | 75%       | 78%       | 75%       |
| Low balance  | 86%                      | 90%        | 89%        | 85%       | 82%        | 88%       | 80%       | 83%       |
| Credit card balance close to or over limit   | 12%                      | 15%        | 10%        | 11%       | 10%        | 7%        | 13%       | 21%       |
| Online purchase (card-not-present) transactions  | 42%                      | 39%        | 49%        | 33%       | 43%        | 39%       | 38%       | 41%       |
| Funds transfer completed   | 60%                      | 63%        | 55%        | 56%       | 60%        | 67%       | 56%       | 65%       |
| Credit payment confirmation  | 14%                      | 15%        | 12%        | 19%       | 15%        | 14%       | 15%       | 17%       |
| Bill payment due   | 40%                      | 33%        | 44%        | 30%       | 37%        | 46%       | 38%       | 48%       |
| International charge/debit   | 13%                      | 15%        | 14%        | 15%       | 6%         | 12%       | 16%       | 14%       |
| Suspicious activity/other fraud monitoring alerts  | 52%                      | 54%        | 56%        | 48%       | 53%        | 45%       | 48%       | 51%       |
| Two-way actionable alerts  | 15%                      | 13%        | 19%        | 7%        | 10%        | 12%       | 10%       | 27%       |
| Other  | 12%                      | 10%        | 10%        | 15%       | 13%        | 10%       | 13%       | 17%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q25. Please RATE the IMPORTANCE of your FI's security concerns associated with offering mobile banking services for consumers. | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| <b>Data breach</b>   |                          |            |            |           |            |           |           |           |
| High   | 56%                      | 61%        | 55%        | 56%       | 58%        | 49%       | 50%       | 62%       |
| Medium   | 32%                      | 29%        | 34%        | 37%       | 31%        | 30%       | 33%       | 30%       |
| Low  | 12%                      | 10%        | 11%        | 7%        | 11%        | 19%       | 17%       | 8%        |
| <b>Weak authentication</b>   |                          |            |            |           |            |           |           |           |
| High   | 48%                      | 41%        | 55%        | 37%       | 48%        | 42%       | 44%       | 52%       |
| Medium   | 37%                      | 43%        | 31%        | 48%       | 39%        | 35%       | 36%       | 39%       |
| Low  | 15%                      | 17%        | 14%        | 15%       | 13%        | 23%       | 20%       | 8%        |
| <b>Identity theft</b>  |                          |            |            |           |            |           |           |           |
| High   | 49%                      | 49%        | 53%        | 48%       | 53%        | 42%       | 35%       | 52%       |
| Medium   | 40%                      | 39%        | 37%        | 48%       | 35%        | 41%       | 51%       | 38%       |
| Low  | 11%                      | 11%        | 9%         | 4%        | 12%        | 17%       | 13%       | 10%       |
| <b>Inadequate customer protection behavior</b>   |                          |            |            |           |            |           |           |           |
| High   | 66%                      | 68%        | 70%        | 59%       | 64%        | 59%       | 66%       | 63%       |
| Medium   | 27%                      | 27%        | 23%        | 37%       | 29%        | 32%       | 28%       | 30%       |
| Low  | 7%                       | 5%         | 7%         | 4%        | 8%         | 9%        | 6%        | 7%        |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q26. Which of the following card control features does your FI's mobile banking app support or plan to support? (Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Activate new card  | 19%                      | 18%        | 18%        | 4%        | 23%        | 13%       | 17%       | 30%       |
| Change PIN   | 14%                      | 16%        | 11%        | 11%       | 18%        | 4%        | 19%       | 17%       |
| Order a replacement card   | 14%                      | 13%        | 17%        | 4%        | 16%        | 9%        | 12%       | 20%       |
| Turn payment card on or off if lost/stolen   | 59%                      | 59%        | 69%        | 41%       | 65%        | 55%       | 36%       | 59%       |
| Block use of credit and/or debit card  | 54%                      | 56%        | 62%        | 30%       | 61%        | 46%       | 34%       | 62%       |
| Set travel notification  | 35%                      | 39%        | 42%        | 22%       | 39%        | 26%       | 20%       | 34%       |
| None   | 34%                      | 34%        | 26%        | 56%       | 23%        | 41%       | 52%       | 34%       |
| <b>Number of Respondents</b>   | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |



| Q27. Which of the following does your FI use or plan to use to enhance mobile security?<br>(Check ALL that apply) | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Multi-factor authentication   | 82%                      | 82%        | 85%        | 82%       | 80%        | 77%       | 86%       | 80%       |
| Time-out due to inactivity  | 87%                      | 86%        | 88%        | 85%       | 81%        | 90%       | 91%       | 93%       |
| Out-of-band authentication  | 41%                      | 43%        | 45%        | 26%       | 43%        | 36%       | 31%       | 51%       |
| Login with PIN  | 50%                      | 48%        | 47%        | 48%       | 52%        | 57%       | 57%       | 46%       |
| Biometrics  | 50%                      | 50%        | 62%        | 41%       | 46%        | 38%       | 43%       | 45%       |
| Mobile notifications  | 60%                      | 64%        | 61%        | 67%       | 58%        | 67%       | 48%       | 59%       |
| Mobile device ID  | 40%                      | 33%        | 43%        | 22%       | 39%        | 45%       | 48%       | 39%       |
| Geo-location  | 25%                      | 27%        | 32%        | 7%        | 21%        | 19%       | 22%       | 23%       |
| Other   | 1%                       | 2%         | 1%         | 7%        | 2%         | 1%        | 0%        | 1%        |
| <b>Number of Respondents</b>  | <b>682</b>               | <b>115</b> | <b>195</b> | <b>27</b> | <b>119</b> | <b>69</b> | <b>86</b> | <b>71</b> |

| Q28. Do you offer or plan to offer mobile banking services to your BUSINESS customers? | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Yes  | 77%                      | 76%        | 82%        | 54%       | 78%        | 64%       | 76%       | 82%       |
| No   | 23%                      | 24%        | 18%        | 46%       | 22%        | 36%       | 24%       | 18%       |
| <b>Number of Respondents</b>   | <b>607</b>               | <b>101</b> | <b>171</b> | <b>24</b> | <b>101</b> | <b>64</b> | <b>84</b> | <b>62</b> |

| Q29. What mobile banking services do you offer or plan to offer within the next 2 years to your BUSINESS customers? (Check ALL that apply) | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Check corporate balances and monitor accounts  | 94%                      | 95%       | 96%        | 77%       | 92%       | 98%       | 97%       | 88%       |
| Cash management functions  | 48%                      | 57%       | 44%        | 31%       | 49%       | 46%       | 48%       | 51%       |
| Mobile funds transfer between same business customer's accounts within your institution  | 94%                      | 92%       | 96%        | 85%       | 95%       | 93%       | 92%       | 92%       |
| Mobile funds transfer between same business customer's accounts at different FIs   | 38%                      | 32%       | 46%        | 46%       | 35%       | 24%       | 34%       | 37%       |
| Mobile funds transfer from one business customer's account to another business customer's account at same or different FIs                 | 28%                      | 27%       | 29%        | 38%       | 23%       | 32%       | 28%       | 29%       |
| Administration tools (e.g., setup and manage users, reset passwords, etc.)   | 31%                      | 30%       | 33%        | 31%       | 35%       | 24%       | 28%       | 27%       |
| Mobile card acceptance plug-in reader/mobile POS   | 11%                      | 9%        | 9%         | 0%        | 18%       | 17%       | 5%        | 14%       |
| Other  | 4%                       | 5%        | 4%         | 8%        | 1%        | 0%        | 6%        | 8%        |
| <b>Number of Respondents</b>   | <b>465</b>               | <b>77</b> | <b>140</b> | <b>13</b> | <b>79</b> | <b>41</b> | <b>64</b> | <b>51</b> |

| Q30. Do you charge or plan to charge your BUSINESS customers a fee for any mobile banking services? | Percent, except as noted |           |            |           |           |           |           |           |
|---|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|   | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Yes   | 25%                      | 31%       | 24%        | 23%       | 27%       | 17%       | 20%       | 25%       |
| No  | 75%                      | 69%       | 76%        | 77%       | 73%       | 83%       | 80%       | 75%       |
| <b>Number of Respondents</b>  | <b>465</b>               | <b>77</b> | <b>140</b> | <b>13</b> | <b>79</b> | <b>41</b> | <b>64</b> | <b>51</b> |

| <b>Q31. Please indicate ALL BUSINESS services for which you charge or plan to charge a fee. (Check ALL that apply)</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|--|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|  | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Mobile RDC   | 62%                             | 71%        | 44%        | 67%        | 67%        | 71%       | 85%        | 54%        |
| Other product/service (e.g., cash management) transaction fee  | 57%                             | 58%        | 50%        | 67%        | 67%        | 57%       | 62%        | 54%        |
| Mobile funds transfer between same business customer's accounts within your institution                                | 11%                             | 13%        | 12%        | 0%         | 24%        | 0%        | 0%         | 8%         |
| Mobile funds transfer between same business customer's accounts at different FIs                                       | 22%                             | 21%        | 18%        | 33%        | 19%        | 14%       | 23%        | 38%        |
| Commercial/small business customers flat monthly fee for services  | 57%                             | 46%        | 59%        | 67%        | 48%        | 86%       | 62%        | 62%        |
| Commercial/small business customers by transaction type or volume  | 37%                             | 29%        | 44%        | 33%        | 24%        | 57%       | 54%        | 31%        |
| Other  | 8%                              | 0%         | 6%         | 0%         | 0%         | 0%        | 8%         | 15%        |
| <b>Number of Respondents</b>   | <b>115</b>                      | <b>24</b>  | <b>34</b>  | <b>3</b>   | <b>21</b>  | <b>7</b>  | <b>13</b>  | <b>13</b>  |

| <b>Q32. What percentage of your BUSINESS customers has used your mobile banking services?</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| <b>% of customers ENROLLED</b>  |                                 |            |            |            |            |           |            |            |
| Less than 5%  | 55%                             | 53%        | 51%        | 57%        | 67%        | 61%       | 63%        | 31%        |
| 5% to 20%   | 32%                             | 35%        | 35%        | 43%        | 21%        | 25%       | 26%        | 50%        |
| 21% to 35%  | 7%                              | 5%         | 8%         | 0%         | 4%         | 14%       | 5%         | 15%        |
| 36% to 50%  | 4%                              | 2%         | 4%         | 0%         | 8%         | 0%        | 5%         | 4%         |
| Over 50%  | 2%                              | 5%         | 2%         | 0%         | 0%         | 0%        | 0%         | 0%         |
| <b>Number of Respondents</b>  | <b>274</b>                      | <b>43</b>  | <b>80</b>  | <b>7</b>   | <b>52</b>  | <b>28</b> | <b>38</b>  | <b>26</b>  |
|   |                                 |            |            |            |            |           |            |            |
| <b>% of customers who USED services within last 90 days</b>                                   |                                 |            |            |            |            |           |            |            |
| Less than 5%  | 58%                             | 56%        | 54%        | 57%        | 64%        | 72%       | 69%        | 34%        |
| 5% to 20%   | 30%                             | 33%        | 35%        | 43%        | 23%        | 16%       | 21%        | 50%        |
| 21% to 35%  | 6%                              | 5%         | 5%         | 0%         | 4%         | 8%        | 5%         | 8%         |
| 36% to 50%  | 4%                              | 3%         | 3%         | 0%         | 6%         | 4%        | 5%         | 8%         |
| Over 50%  | 2%                              | 3%         | 3%         | 0%         | 2%         | 0%        | 0%         | 0%         |
| <b>Number of Respondents</b>  | <b>254</b>                      | <b>39</b>  | <b>74</b>  | <b>7</b>   | <b>47</b>  | <b>25</b> | <b>38</b>  | <b>24</b>  |

| <b>Q33. What challenges do you see in offering mobile banking services to your BUSINESS customers? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Business banking software for mobile not available  | 24%                             | 23%        | 20%        | 0%         | 31%        | 25%       | 24%        | 30%        |
| Available products do not meet business customer needs  | 39%                             | 34%        | 39%        | 71%        | 41%        | 42%       | 29%        | 43%        |
| Available products are not suited to all FI segments  | 32%                             | 33%        | 35%        | 29%        | 29%        | 28%       | 33%        | 30%        |
| Implementation difficult or costly  | 33%                             | 42%        | 31%        | 57%        | 36%        | 39%       | 24%        | 23%        |
| Other   | 25%                             | 20%        | 28%        | 14%        | 20%        | 19%       | 33%        | 28%        |
| <b>Number of Respondents</b>  | <b>388</b>                      | <b>64</b>  | <b>126</b> | <b>7</b>   | <b>70</b>  | <b>36</b> | <b>45</b>  | <b>40</b>  |

| Q34. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile banking services. | Percent, except as noted |          |          |          |          |          |          |          |
|--|--------------------------|----------|----------|----------|----------|----------|----------|----------|
|  | All FIs                  | ATL      | BOS      | CLE      | DAL      | KC       | MIN      | RIC      |
| <b><i>Lack of customer demand</i></b>  |                          |          |          |          |          |          |          |          |
| High   | 38%                      | 50%      | 17%      | 0%       | 17%      | 33%      | 0%       | 100%     |
| Medium   | 42%                      | 0%       | 67%      | 0%       | 50%      | 50%      | 0%       | 0%       |
| Low  | 21%                      | 50%      | 17%      | 0%       | 33%      | 17%      | 0%       | 0%       |
| <b><i>Security concerns</i></b>  |                          |          |          |          |          |          |          | 0%       |
| High   | 63%                      | 50%      | 67%      | 0%       | 50%      | 67%      | 0%       | 75%      |
| Medium   | 29%                      | 50%      | 33%      | 0%       | 17%      | 33%      | 0%       | 25%      |
| Low  | 8%                       | 0%       | 0%       | 0%       | 33%      | 0%       | 0%       | 0%       |
| <b><i>Regulatory issues</i></b>  |                          |          |          |          |          |          |          |          |
| High   | 67%                      | 50%      | 67%      | 0%       | 50%      | 67%      | 0%       | 100%     |
| Medium   | 25%                      | 50%      | 17%      | 0%       | 33%      | 33%      | 0%       | 0%       |
| Low  | 8%                       | 0%       | 17%      | 0%       | 17%      | 0%       | 0%       | 0%       |
| <b><i>Lack of standards and interoperability</i></b>   |                          |          |          |          |          |          |          |          |
| High   | 38%                      | 50%      | 17%      | 0%       | 33%      | 50%      | 0%       | 50%      |
| Medium   | 38%                      | 50%      | 67%      | 0%       | 50%      | 0%       | 0%       | 25%      |
| Low  | 25%                      | 0%       | 17%      | 0%       | 17%      | 50%      | 0%       | 25%      |
| <b><i>ROI/Lack of business case</i></b>  |                          |          |          |          |          |          |          |          |
| High   | 42%                      | 0%       | 67%      | 0%       | 33%      | 17%      | 0%       | 75%      |
| Medium   | 54%                      | 100%     | 33%      | 0%       | 50%      | 83%      | 0%       | 25%      |
| Low  | 4%                       | 0%       | 0%       | 0%       | 17%      | 0%       | 0%       | 0%       |
| <b><i>Lack of consistent, reliable cellular coverage</i></b>   |                          |          |          |          |          |          |          |          |
| High   | 4%                       | 0%       | 0%       | 0%       | 0%       | 17%      | 0%       | 0%       |
| Medium   | 29%                      | 50%      | 50%      | 0%       | 17%      | 17%      | 0%       | 25%      |
| Low  | 67%                      | 50%      | 50%      | 0%       | 83%      | 67%      | 0%       | 75%      |
| <b><i>Processor does not offer a solution</i></b>  |                          |          |          |          |          |          |          |          |
| High   | 4%                       | 0%       | 0%       | 0%       | 0%       | 17%      | 0%       | 0%       |
| Medium   | 13%                      | 50%      | 17%      | 0%       | 17%      | 0%       | 0%       | 0%       |
| Low  | 83%                      | 50%      | 83%      | 0%       | 83%      | 83%      | 0%       | 100%     |
| <b><i>Lack of resources to offer in-house solution</i></b>   |                          |          |          |          |          |          |          |          |
| High   | 25%                      | 50%      | 33%      | 0%       | 0%       | 17%      | 0%       | 50%      |
| Medium   | 33%                      | 50%      | 33%      | 0%       | 33%      | 50%      | 0%       | 0%       |
| Low  | 42%                      | 0%       | 33%      | 0%       | 67%      | 33%      | 0%       | 50%      |
| <b>Number of Respondents</b>   | <b>24</b>                | <b>2</b> | <b>6</b> | <b>0</b> | <b>6</b> | <b>6</b> | <b>0</b> | <b>4</b> |

| Q35. Do you offer or plan to offer mobile payment/wallet services to customers? | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Currently offer mobile payment services   | 24%                      | 22%        | 37%        | 26%       | 17%        | 11%       | 10%       | 29%       |
| Plan to offer mobile payment services within next 2 years                       | 40%                      | 37%        | 42%        | 33%       | 42%        | 40%       | 40%       | 40%       |
| Do not plan to offer mobile payment services                                    | 36%                      | 41%        | 21%        | 41%       | 41%        | 49%       | 50%       | 31%       |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q36. Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments. | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| <b><i>Mobile payments are gaining momentum</i></b>   |                          |           |            |           |           |           |           |           |
| High   | 60%                      | 48%       | 67%        | 38%       | 64%       | 55%       | 58%       | 60%       |
| Medium   | 37%                      | 48%       | 31%        | 50%       | 31%       | 45%       | 40%       | 37%       |
| Low  | 3%                       | 4%        | 2%         | 13%       | 5%        | 0%        | 2%        | 4%        |
| <b><i>Customer demand</i></b>  |                          |           |            |           |           |           |           |           |
| High   | 37%                      | 30%       | 40%        | 31%       | 32%       | 34%       | 44%       | 38%       |
| Medium   | 45%                      | 45%       | 43%        | 56%       | 45%       | 53%       | 42%       | 42%       |
| Low  | 19%                      | 25%       | 17%        | 13%       | 23%       | 13%       | 14%       | 19%       |
| <b><i>Increase customer engagement with loyalty, rewards, and other incentives</i></b>                           |                          |           |            |           |           |           |           |           |
| High   | 26%                      | 23%       | 31%        | 19%       | 16%       | 18%       | 28%       | 29%       |
| Medium   | 34%                      | 36%       | 32%        | 50%       | 32%       | 47%       | 33%       | 29%       |
| Low  | 40%                      | 41%       | 36%        | 31%       | 51%       | 34%       | 40%       | 42%       |
| <b><i>Generate revenue and/or reduce costs</i></b>   |                          |           |            |           |           |           |           |           |
| High   | 20%                      | 20%       | 18%        | 19%       | 9%        | 11%       | 35%       | 33%       |
| Medium   | 34%                      | 35%       | 39%        | 31%       | 34%       | 42%       | 26%       | 21%       |
| Low  | 46%                      | 45%       | 43%        | 50%       | 57%       | 47%       | 40%       | 46%       |
| <b><i>Compete with other FIs</i></b>   |                          |           |            |           |           |           |           |           |
| High   | 67%                      | 70%       | 74%        | 38%       | 57%       | 53%       | 65%       | 81%       |
| Medium   | 30%                      | 26%       | 25%        | 50%       | 39%       | 47%       | 33%       | 19%       |
| Low  | 2%                       | 4%        | 1%         | 13%       | 4%        | 0%        | 2%        | 0%        |
| <b><i>Compete with nonbanks (e.g., Amazon, Apple, Google, PayPal, etc.)</i></b>                                  |                          |           |            |           |           |           |           |           |
| High   | 50%                      | 45%       | 57%        | 38%       | 39%       | 61%       | 30%       | 65%       |
| Medium   | 32%                      | 29%       | 31%        | 44%       | 36%       | 29%       | 40%       | 23%       |
| Low  | 18%                      | 26%       | 11%        | 19%       | 24%       | 11%       | 30%       | 12%       |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>159</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q36. Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments. (Continued) | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| <i>Mobile device is more secure than card or other payment methods</i>   |                          |           |            |           |           |           |           |           |
| High   | 34%                      | 28%       | 37%        | 31%       | 38%       | 29%       | 19%       | 40%       |
| Medium   | 49%                      | 57%       | 48%        | 38%       | 46%       | 58%       | 51%       | 46%       |
| Low  | 17%                      | 16%       | 15%        | 31%       | 16%       | 13%       | 30%       | 13%       |
| <i>Provide two-way mobile communication tool with customers</i>  |                          |           |            |           |           |           |           |           |
| High   | 17%                      | 14%       | 16%        | 6%        | 19%       | 24%       | 16%       | 21%       |
| Medium   | 40%                      | 41%       | 37%        | 44%       | 43%       | 53%       | 40%       | 37%       |
| Low  | 42%                      | 45%       | 47%        | 50%       | 38%       | 24%       | 44%       | 42%       |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>159</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q37. Please indicate the mobile wallet service(s) that you are familiar with. (Check ALL that apply) | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Apple Pay  | 98%                      | 100%      | 99%        | 100%      | 97%       | 100%      | 95%       | 96%       |
| Android Pay  | 82%                      | 83%       | 87%        | 94%       | 66%       | 82%       | 79%       | 88%       |
| Samsung Pay  | 77%                      | 78%       | 81%        | 88%       | 64%       | 71%       | 74%       | 85%       |
| Microsoft Wallet   | 21%                      | 30%       | 18%        | 19%       | 15%       | 26%       | 19%       | 29%       |
| Visa Checkout  | 45%                      | 33%       | 48%        | 50%       | 38%       | 45%       | 42%       | 65%       |
| MasterCard MasterPass  | 37%                      | 36%       | 37%        | 44%       | 35%       | 34%       | 40%       | 40%       |
| AmEx Express Checkout  | 10%                      | 12%       | 10%        | 13%       | 5%        | 11%       | 12%       | 15%       |
| PayPal   | 74%                      | 80%       | 75%        | 75%       | 66%       | 74%       | 74%       | 75%       |
| Amazon Payments  | 41%                      | 38%       | 37%        | 38%       | 39%       | 47%       | 40%       | 56%       |
| LevelUp  | 8%                       | 9%        | 10%        | 0%        | 7%        | 3%        | 0%        | 15%       |
| Walmart Pay  | 29%                      | 25%       | 31%        | 31%       | 23%       | 39%       | 19%       | 37%       |
| Other  | 3%                       | 1%        | 4%         | 0%        | 1%        | 3%        | 2%        | 4%        |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>159</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q38. How do you offer or plan to offer mobile payment/wallet services? (Check ALL that apply.)  | Percent, except as noted |           |            |           |           |           |           |           |
|---|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|   | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Partner with a card network (e.g., AmEx, MasterCard, Visa or Discover to offer online digital wallet (check-out) services via mobile) | 36%                      | 33%       | 31%        | 25%       | 36%       | 47%       | 35%       | 46%       |
| Partner with a NFC-enabled wallet provider (e.g., Apple Pay, Android Pay, Samsung Pay)  | 53%                      | 51%       | 60%        | 50%       | 43%       | 58%       | 35%       | 62%       |
| Partner with third-party payment processor (e.g., FIS, Fiserv)  | 67%                      | 78%       | 65%        | 69%       | 64%       | 71%       | 67%       | 60%       |
| Develop your own mobile payment solution (e.g., Capital One Wallet, Chase Pay, CU Wallet, Wells Fargo Wallet)                         | 4%                       | 3%        | 6%         | 0%        | 3%        | 5%        | 0%        | 6%        |
| Other   | 2%                       | 3%        | 1%         | 0%        | 1%        | 0%        | 5%        | 2%        |
| <b>Number of Respondents</b>  | <b>450</b>               | <b>69</b> | <b>159</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q39. Which of the following MOBILE WALLET service(s) do you offer or plan to offer? (Check ALL that apply) | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| <b>Apple Pay</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 46%                      | 53%       | 52%        | 64%       | 39%       | 31%       | 23%       | 47%       |
| Plan to offer  | 53%                      | 47%       | 48%        | 36%       | 60%       | 66%       | 71%       | 51%       |
| <b>Android Pay</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 22%                      | 15%       | 26%        | 55%       | 26%       | 16%       | 10%       | 22%       |
| Plan to offer  | 62%                      | 68%       | 58%        | 45%       | 53%       | 69%       | 74%       | 69%       |
| <b>Samsung Pay</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 21%                      | 22%       | 23%        | 55%       | 18%       | 16%       | 10%       | 22%       |
| Plan to offer  | 49%                      | 52%       | 49%        | 45%       | 39%       | 47%       | 55%       | 56%       |
| <b>Microsoft Wallet</b>  |                          |           |            |           |           |           |           |           |
| Currently offer  | 2%                       | 3%        | 2%         | 0%        | 3%        | 0%        | 0%        | 0%        |
| Plan to offer  | 5%                       | 7%        | 3%         | 0%        | 5%        | 6%        | 13%       | 7%        |
| <b>Visa Checkout</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 12%                      | 7%        | 11%        | 18%       | 13%       | 13%       | 6%        | 24%       |
| Plan to offer  | 13%                      | 10%       | 7%         | 0%        | 15%       | 22%       | 19%       | 24%       |
| <b>MasterCard MasterPass</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 4%                       | 3%        | 5%         | 0%        | 3%        | 6%        | 0%        | 2%        |
| Plan to offer  | 13%                      | 10%       | 9%         | 0%        | 19%       | 9%        | 26%       | 16%       |
| <b>AmEx Express Checkout</b>   |                          |           |            |           |           |           |           |           |
| Currently offer  | 1%                       | 2%        | 0%         | 0%        | 0%        | 3%        | 0%        | 0%        |
| Plan to offer  | 2%                       | 2%        | 1%         | 0%        | 2%        | 0%        | 6%        | 2%        |
| <b>Other</b>   | 5%                       | 2%        | 5%         | 9%        | 5%        | 9%        | 10%       | 0%        |
| <b>Number of Respondents</b>   | <b>388</b>               | <b>69</b> | <b>159</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| <b>Q40. About how much time did it take for your FI to implement the NFC MOBILE WALLET service? (If you have not implemented NFC mobile wallet service, please check 'N/A')</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Less than 3 months  | 7%                              | 7%         | 10%        | 8%         | 6%         | 5%        | 0%         | 9%         |
| 3 months  | 9%                              | 7%         | 10%        | 23%        | 4%         | 8%        | 3%         | 13%        |
| 6 months  | 16%                             | 21%        | 19%        | 8%         | 10%        | 11%       | 14%        | 16%        |
| More than 6 months  | 9%                              | 13%        | 8%         | 15%        | 10%        | 8%        | 6%         | 13%        |
| N/A   | 58%                             | 52%        | 53%        | 46%        | 69%        | 68%       | 77%        | 49%        |
| <b>Number of Respondents</b>  | <b>412</b>                      | <b>61</b>  | <b>154</b> | <b>13</b>  | <b>67</b>  | <b>37</b> | <b>35</b>  | <b>45</b>  |

| <b>Q41. What challenges did your FI experience implementing the NFC MOBILE WALLET? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|---|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|   | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Waiting for certification from card networks or processors  | 59%                             | 59%        | 70%        | 55%        | 53%        | 86%       | 17%        | 58%        |
| Lengthy processor queue   | 44%                             | 35%        | 57%        | 36%        | 47%        | 50%       | 11%        | 45%        |
| Software development and testing  | 25%                             | 35%        | 27%        | 18%        | 13%        | 43%       | 6%         | 29%        |
| Customer/staff training, education, etc.  | 31%                             | 24%        | 39%        | 18%        | 19%        | 21%       | 17%        | 52%        |
| Other   | 22%                             | 24%        | 5%         | 27%        | 22%        | 7%        | 72%        | 26%        |
| <b>Number of Respondents</b>  | <b>221</b>                      | <b>37</b>  | <b>74</b>  | <b>11</b>  | <b>32</b>  | <b>14</b> | <b>18</b>  | <b>31</b>  |

| <b>Q42. What types of incentives tied to mobile payments/wallets do you offer or plan to offer? (Check ALL that apply)</b> | <b>Percent, except as noted</b> |            |            |            |            |           |            |            |
|--|---------------------------------|------------|------------|------------|------------|-----------|------------|------------|
|  | <b>All FIs</b>                  | <b>ATL</b> | <b>BOS</b> | <b>CLE</b> | <b>DAL</b> | <b>KC</b> | <b>MIN</b> | <b>RIC</b> |
| Location-based offers  | 13%                             | 12%        | 16%        | 13%        | 7%         | 11%       | 12%        | 15%        |
| Cash reward or account credit for mobile wallet enrollment   | 7%                              | 6%         | 5%         | 13%        | 7%         | 8%        | 14%        | 10%        |
| Rewards points or cash back for mobile transactions  | 13%                             | 14%        | 9%         | 19%        | 9%         | 11%       | 26%        | 13%        |
| Rewards redemption (e.g., pay with points) for mobile transactions at the POS  | 6%                              | 9%         | 4%         | 6%         | 5%         | 5%        | 12%        | 6%         |
| None   | 71%                             | 70%        | 69%        | 69%        | 77%        | 76%       | 63%        | 73%        |
| Other  | 8%                              | 7%         | 9%         | 6%         | 4%         | 11%       | 9%         | 10%        |
| <b>Number of Respondents</b>   | <b>450</b>                      | <b>69</b>  | <b>158</b> | <b>16</b>  | <b>74</b>  | <b>38</b> | <b>43</b>  | <b>52</b>  |

| Q43. What percentage of your RETAIL customers use your mobile payment/wallet services? | Percent, except as noted |           |           |          |           |           |          |           |
|--|--------------------------|-----------|-----------|----------|-----------|-----------|----------|-----------|
|  | All FIs                  | ATL       | BOS       | CLE      | DAL       | KC        | MIN      | RIC       |
| <b>% of customers ENROLLED</b>   |                          |           |           |          |           |           |          |           |
| Less than 5%   | 81%                      | 86%       | 79%       | 100%     | 80%       | 73%       | 75%      | 83%       |
| 5% to 20%  | 15%                      | 5%        | 19%       | 0%       | 15%       | 18%       | 25%      | 11%       |
| 21% to 35%   | 3%                       | 5%        | 2%        | 0%       | 5%        | 9%        | 0%       | 6%        |
| 36% to 50%   | 1%                       | 5%        | 0%        | 0%       | 0%        | 0%        | 0%       | 0%        |
| Over 50%   | 0%                       | 0%        | 0%        | 0%       | 0%        | 0%        | 0%       | 0%        |
| <b>Number of Respondents</b>   | <b>144</b>               | <b>21</b> | <b>62</b> | <b>4</b> | <b>20</b> | <b>11</b> | <b>8</b> | <b>18</b> |
|  |                          |           |           |          |           |           |          |           |
| <b>% of customers who USED services within last 90 days</b>                            |                          |           |           |          |           |           |          |           |
| Less than 5%   | 82%                      | 84%       | 83%       | 100%     | 79%       | 64%       | 88%      | 83%       |
| 5% to 20%  | 15%                      | 11%       | 15%       | 0%       | 16%       | 36%       | 13%      | 11%       |
| 21% to 35%   | 2%                       | 5%        | 0%        | 0%       | 5%        | 0%        | 0%       | 6%        |
| 36% to 50%   | 1%                       | 0%        | 2%        | 0%       | 0%        | 0%        | 0%       | 0%        |
| Over 50%   | 0%                       | 0%        | 0%        | 0%       | 0%        | 0%        | 0%       | 0%        |
| <b>Number of Respondents</b>   | <b>131</b>               | <b>19</b> | <b>52</b> | <b>4</b> | <b>19</b> | <b>11</b> | <b>8</b> | <b>18</b> |



| Q44. From your FI's perspective, please RATE the SIGNIFICANCE of these barriers to consumer adoption of mobile payments. | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| <b>Security</b>  |                          |           |            |           |           |           |           |           |
| High   | 51%                      | 52%       | 49%        | 50%       | 53%       | 53%       | 58%       | 44%       |
| Medium   | 35%                      | 32%       | 37%        | 44%       | 31%       | 39%       | 33%       | 38%       |
| Low  | 14%                      | 16%       | 14%        | 6%        | 16%       | 8%        | 9%        | 17%       |
| <b>Privacy</b>   |                          |           |            |           |           |           |           |           |
| High   | 42%                      | 42%       | 41%        | 37%       | 45%       | 42%       | 49%       | 42%       |
| Medium   | 38%                      | 42%       | 35%        | 50%       | 35%       | 45%       | 40%       | 37%       |
| Low  | 20%                      | 16%       | 25%        | 13%       | 20%       | 13%       | 12%       | 21%       |
| <b>Market immaturity and fragmentation</b>   |                          |           |            |           |           |           |           |           |
| High   | 45%                      | 42%       | 43%        | 38%       | 45%       | 53%       | 56%       | 46%       |
| Medium   | 40%                      | 48%       | 41%        | 44%       | 36%       | 39%       | 30%       | 38%       |
| Low  | 15%                      | 10%       | 16%        | 19%       | 19%       | 8%        | 14%       | 15%       |
| <b>Lack of customer demand</b>   |                          |           |            |           |           |           |           |           |
| High   | 26%                      | 25%       | 25%        | 31%       | 23%       | 29%       | 33%       | 23%       |
| Medium   | 56%                      | 52%       | 54%        | 56%       | 54%       | 61%       | 56%       | 62%       |
| Low  | 19%                      | 23%       | 20%        | 13%       | 23%       | 11%       | 12%       | 15%       |
| <b>Low merchant acceptance/lack of merchant interest</b>   |                          |           |            |           |           |           |           |           |
| High   | 44%                      | 43%       | 42%        | 50%       | 41%       | 47%       | 40%       | 54%       |
| Medium   | 44%                      | 43%       | 46%        | 38%       | 46%       | 45%       | 49%       | 33%       |
| Low  | 12%                      | 13%       | 12%        | 13%       | 14%       | 8%        | 12%       | 13%       |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>158</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q45. Do you offer or plan to offer mobile payment/wallet services for your BUSINESS customers? | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Currently offer  | 18%                      | 22%       | 24%        | 13%       | 17%       | 5%        | 2%        | 24%       |
| Plan to offer within the next 2 years  | 32%                      | 24%       | 31%        | 13%       | 33%       | 37%       | 42%       | 38%       |
| No   | 50%                      | 54%       | 45%        | 74%       | 50%       | 58%       | 56%       | 38%       |
| <b>Number of Respondents</b>   | <b>412</b>               | <b>63</b> | <b>144</b> | <b>15</b> | <b>64</b> | <b>38</b> | <b>43</b> | <b>45</b> |

| Q46. Please RATE the IMPORTANCE of your FI's security concerns associated with mobile payment/wallet services. | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| <i>Account takeover during or after mobile enrollment process</i>  |                          |           |            |           |           |           |           |           |
| High   | 46%                      | 43%       | 49%        | 25%       | 47%       | 37%       | 51%       | 50%       |
| Medium   | 39%                      | 39%       | 37%        | 63%       | 38%       | 55%       | 37%       | 29%       |
| Low  | 15%                      | 17%       | 14%        | 13%       | 15%       | 8%        | 12%       | 21%       |
| <i>Card-not-present fraud (for online purchases made via mobile phone)</i>                                     |                          |           |            |           |           |           |           |           |
| High   | 63%                      | 51%       | 67%        | 69%       | 64%       | 63%       | 70%       | 60%       |
| Medium   | 30%                      | 45%       | 27%        | 25%       | 27%       | 34%       | 30%       | 27%       |
| Low  | 6%                       | 4%        | 6%         | 6%        | 9%        | 3%        | 0%        | 13%       |
| <i>Data breach</i>   |                          |           |            |           |           |           |           |           |
| High   | 56%                      | 54%       | 56%        | 63%       | 54%       | 61%       | 58%       | 58%       |
| Medium   | 33%                      | 36%       | 36%        | 25%       | 35%       | 26%       | 37%       | 21%       |
| Low  | 11%                      | 10%       | 8%         | 13%       | 11%       | 13%       | 5%        | 21%       |
| <i>Inadequate customer security behavior</i>   |                          |           |            |           |           |           |           |           |
| High   | 64%                      | 62%       | 68%        | 50%       | 68%       | 58%       | 67%       | 58%       |
| Medium   | 32%                      | 36%       | 28%        | 50%       | 27%       | 42%       | 30%       | 37%       |
| Low  | 3%                       | 1%        | 3%         | 0%        | 5%        | 0%        | 2%        | 6%        |
| <i>Inadequate mobile device security</i>   |                          |           |            |           |           |           |           |           |
| High   | 57%                      | 55%       | 62%        | 50%       | 55%       | 55%       | 58%       | 50%       |
| Medium   | 37%                      | 39%       | 34%        | 50%       | 32%       | 45%       | 40%       | 40%       |
| Low  | 6%                       | 6%        | 4%         | 0%        | 12%       | 0%        | 2%        | 10%       |
| <i>Inconsistent customer authentication methods</i>  |                          |           |            |           |           |           |           |           |
| High   | 40%                      | 35%       | 41%        | 31%       | 39%       | 45%       | 37%       | 48%       |
| Medium   | 48%                      | 46%       | 49%        | 69%       | 46%       | 55%       | 51%       | 37%       |
| Low  | 12%                      | 19%       | 11%        | 0%        | 15%       | 0%        | 12%       | 15%       |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>158</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q47. Do you use or plan to use the following mobile security tools? (Check ALL that apply) | Percent, except as noted |           |            |           |           |           |           |           |
|--|--------------------------|-----------|------------|-----------|-----------|-----------|-----------|-----------|
|  | All FIs                  | ATL       | BOS        | CLE       | DAL       | KC        | MIN       | RIC       |
| Biometrics   | 68%                      | 77%       | 71%        | 75%       | 68%       | 61%       | 58%       | 63%       |
| Geo-location   | 36%                      | 46%       | 35%        | 31%       | 39%       | 26%       | 33%       | 29%       |
| Payment tokenization   | 66%                      | 58%       | 70%        | 75%       | 64%       | 55%       | 58%       | 77%       |
| Customer notification of attempt/success in provisioning card to mobile wallet             | 54%                      | 57%       | 54%        | 63%       | 46%       | 58%       | 47%       | 58%       |
| Mobile device ID   | 49%                      | 52%       | 44%        | 44%       | 51%       | 63%       | 58%       | 40%       |
| One-time password (OTP)  | 32%                      | 19%       | 34%        | 44%       | 27%       | 45%       | 37%       | 33%       |
| Ability for customer to remotely disable mobile wallet if phone lost/stolen                | 48%                      | 48%       | 49%        | 50%       | 42%       | 66%       | 47%       | 44%       |
| 3-D Secure (3DS) for ecommerce transactions  | 13%                      | 12%       | 15%        | 13%       | 11%       | 13%       | 7%        | 19%       |
| Other  | 5%                       | 3%        | 4%         | 0%        | 3%        | 5%        | 9%        | 8%        |
| <b>Number of Respondents</b>   | <b>450</b>               | <b>69</b> | <b>158</b> | <b>16</b> | <b>74</b> | <b>38</b> | <b>43</b> | <b>52</b> |

| Q48. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. | Percent, except as noted |           |           |           |           |           |           |           |
|---|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | All FIs                  | ATL       | BOS       | CLE       | DAL       | KC        | MIN       | RIC       |
| <b><i>Lack of customer demand</i></b>   |                          |           |           |           |           |           |           |           |
| High  | 58%                      | 63%       | 60%       | 45%       | 55%       | 62%       | 53%       | 61%       |
| Medium  | 28%                      | 21%       | 26%       | 45%       | 31%       | 30%       | 28%       | 26%       |
| Low   | 14%                      | 17%       | 14%       | 9%        | 14%       | 8%        | 19%       | 13%       |
| <b><i>Limited benefit to FI</i></b>   |                          |           |           |           |           |           |           |           |
| High  | 41%                      | 38%       | 33%       | 55%       | 41%       | 57%       | 40%       | 30%       |
| Medium  | 42%                      | 33%       | 47%       | 45%       | 43%       | 41%       | 40%       | 57%       |
| Low   | 17%                      | 29%       | 21%       | 0%        | 16%       | 3%        | 21%       | 13%       |
| <b><i>Security concerns</i></b>   |                          |           |           |           |           |           |           |           |
| High  | 60%                      | 65%       | 56%       | 73%       | 49%       | 73%       | 53%       | 70%       |
| Medium  | 28%                      | 25%       | 35%       | 27%       | 37%       | 19%       | 23%       | 22%       |
| Low   | 12%                      | 10%       | 9%        | 0%        | 14%       | 8%        | 23%       | 9%        |
| <b><i>Regulatory issues</i></b>   |                          |           |           |           |           |           |           |           |
| High  | 44%                      | 31%       | 44%       | 64%       | 37%       | 62%       | 40%       | 57%       |
| Medium  | 41%                      | 52%       | 44%       | 27%       | 49%       | 27%       | 42%       | 26%       |
| Low   | 14%                      | 17%       | 12%       | 9%        | 14%       | 11%       | 19%       | 17%       |
| <b><i>Lack of standards and interoperability</i></b>  |                          |           |           |           |           |           |           |           |
| High  | 25%                      | 25%       | 21%       | 27%       | 29%       | 32%       | 14%       | 35%       |
| Medium  | 54%                      | 44%       | 63%       | 64%       | 55%       | 59%       | 51%       | 52%       |
| Low   | 20%                      | 31%       | 16%       | 9%        | 16%       | 8%        | 35%       | 13%       |
| <b>Number of Respondents</b>  | <b>256</b>               | <b>48</b> | <b>43</b> | <b>11</b> | <b>51</b> | <b>37</b> | <b>43</b> | <b>23</b> |

| Q48. Please RATE the IMPORTANCE of factors that influenced your decision NOT TO OFFER mobile payment/wallet services. (Continued) | Percent, except as noted |           |           |           |           |           |           |           |
|---|--------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|   | All FIs                  | ATL       | BOS       | CLE       | DAL       | KC        | MIN       | RIC       |
| <i>ROI/Lack of business case</i>  |                          |           |           |           |           |           |           |           |
| High  | 38%                      | 38%       | 47%       | 18%       | 39%       | 38%       | 35%       | 35%       |
| Medium  | 41%                      | 40%       | 30%       | 73%       | 43%       | 51%       | 40%       | 35%       |
| Low   | 21%                      | 23%       | 23%       | 9%        | 18%       | 11%       | 26%       | 30%       |
| <i>Lack of consistent, reliable cellular coverage</i>   |                          |           |           |           |           |           |           |           |
| High  | 13%                      | 8%        | 7%        | 18%       | 14%       | 22%       | 14%       | 9%        |
| Medium  | 25%                      | 25%       | 23%       | 27%       | 27%       | 24%       | 21%       | 26%       |
| Low   | 63%                      | 67%       | 70%       | 55%       | 59%       | 54%       | 65%       | 65%       |
| <i>Other</i>  | 5%                       | 2%        | 12%       | 0%        | 6%        | 3%        | 2%        | 13%       |
| <b>Number of Respondents</b>  | <b>256</b>               | <b>48</b> | <b>43</b> | <b>11</b> | <b>51</b> | <b>37</b> | <b>43</b> | <b>23</b> |

| Q49. In your opinion, do you think a mobile payment that uses payment tokenization and biometrics is more secure than a card payment? | Percent, except as noted |            |            |           |            |           |           |           |
|---|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|   | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| Yes   | 94%                      | 94%        | 95%        | 93%       | 92%        | 95%       | 95%       | 91%       |
| No  | 6%                       | 6%         | 5%         | 7%        | 8%         | 5%        | 5%        | 9%        |
| <b>Number of Respondents</b>  | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |

| Q50. 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%? | Percent, except as noted |            |            |           |            |           |           |           |
|--|--------------------------|------------|------------|-----------|------------|-----------|-----------|-----------|
|  | All FIs                  | ATL        | BOS        | CLE       | DAL        | KC        | MIN       | RIC       |
| <i>At POS</i>  |                          |            |            |           |            |           |           |           |
| 2 Years  | 20%                      | 20%        | 21%        | 15%       | 23%        | 19%       | 16%       | 24%       |
| 3 Years  | 34%                      | 35%        | 39%        | 33%       | 28%        | 27%       | 35%       | 33%       |
| 5 Years  | 29%                      | 27%        | 27%        | 44%       | 32%        | 31%       | 31%       | 23%       |
| > 5 Years  | 17%                      | 18%        | 13%        | 7%        | 17%        | 24%       | 17%       | 20%       |
| <i>In-App/Mobile Web</i>   |                          |            |            |           |            |           |           |           |
| 2 Years  | 25%                      | 25%        | 25%        | 7%        | 29%        | 24%       | 22%       | 25%       |
| 3 Years  | 35%                      | 37%        | 36%        | 37%       | 27%        | 28%       | 36%       | 45%       |
| 5 Years  | 25%                      | 23%        | 25%        | 44%       | 29%        | 24%       | 24%       | 11%       |
| > 5 Years  | 16%                      | 15%        | 13%        | 11%       | 15%        | 24%       | 17%       | 19%       |
| <b>Number of Respondents</b>   | <b>706</b>               | <b>117</b> | <b>201</b> | <b>27</b> | <b>125</b> | <b>75</b> | <b>86</b> | <b>75</b> |