

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

Federal Reserve Bank of Atlanta

Retail Payments Risk Forum

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February 2017

The charts and tables in this report reflect data the Atlanta Fed received from financial institutions responding to the *Mobile Banking and Payments Survey of Financial Institutions in the Sixth District*. The Atlanta Fed conducted the survey in the fall of 2016. We provide this supplemental information, with the responses broken down, to help financial institutions better compare their mobile banking and payments plans to those from other, similar-sized financial institutions. You can find the full report on the Atlanta Fed website.

You can find the full report on the [Atlanta Fed website](#).



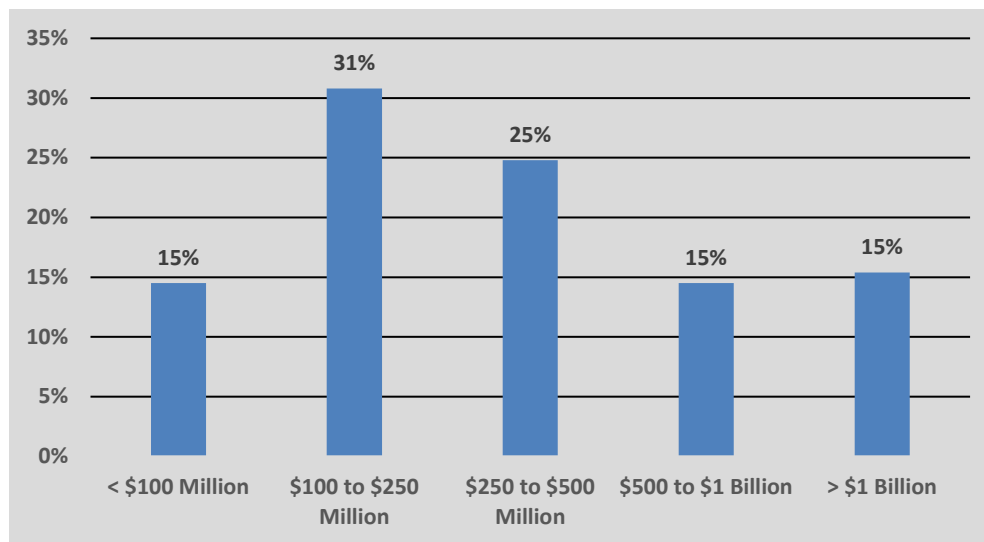
2016 Federal Reserve Mobile Banking and Payments Survey

What is your FI's asset size?

Asset Size	% of Respondents	Banks	Credit Unions
< \$100 Million	15%	6%	44%
\$100 to \$250 Million	31%	32%	26%
\$250 to \$500 Million	25%	30%	7%
\$500 to \$1 Billion	15%	16%	11%
> \$1 Billion	15%	17%	11%

Number of Responses

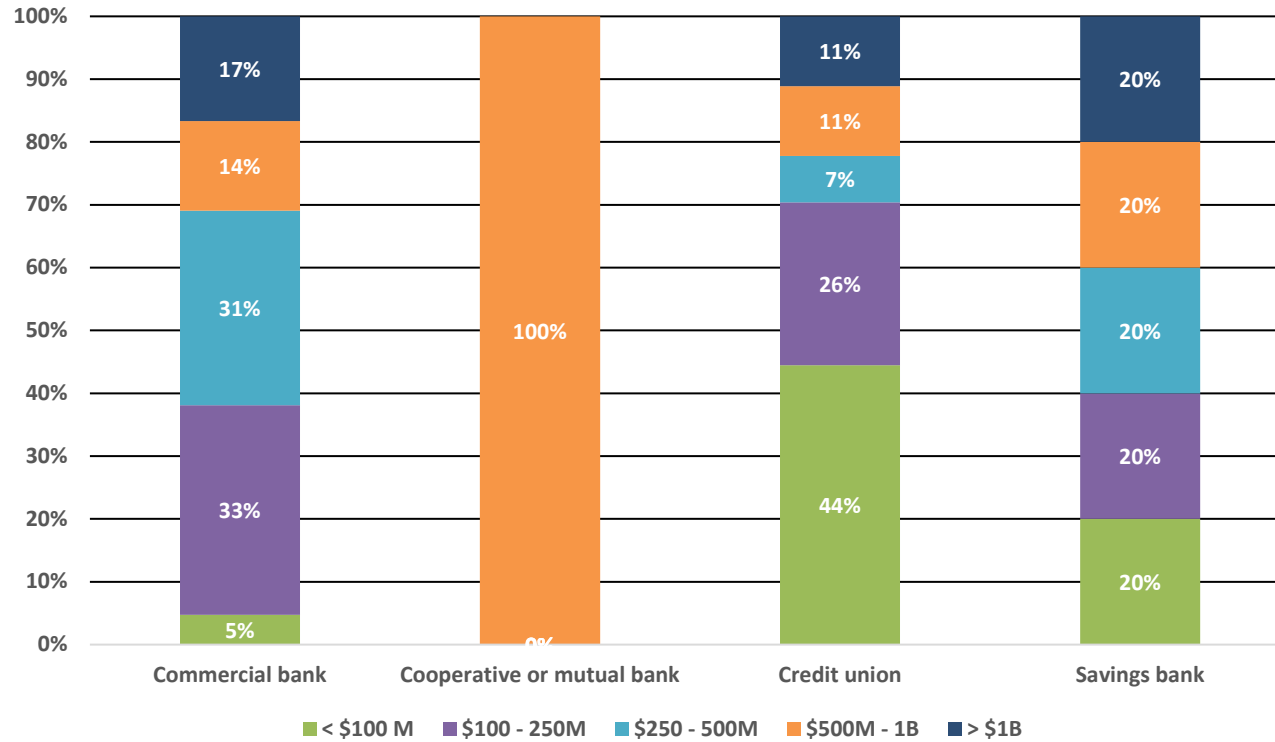
117



2016 Federal Reserve Mobile Banking and Payments Survey

Please indicate your financial institution type:

FI Type	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B	Responses
Commercial bank	5%	33%	31%	14%	17%	84
Cooperative or mutual bank	0%	0%	0%	100%	0%	1
Credit union	44%	26%	7%	11%	11%	27
Savings bank	20%	20%	20%	20%	20%	5



2016 Federal Reserve Mobile Banking and Payments Survey

Please indicate to whom you provide services. (Check ALL that apply)

Customer Segments	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Consumers (retail customers)	100%	100%	100%	100%	100%	100%
Corporate/commercial entities	74%	27%	78%	86%	76%	89%
Small businesses	87%	40%	94%	93%	94%	100%
Government agencies (including local)	57%	27%	56%	62%	65%	78%
Educational and/or non-profit	68%	27%	69%	79%	76%	78%
Other:	1%	7%	0%	0%	0%	0%

Number of Responses

115

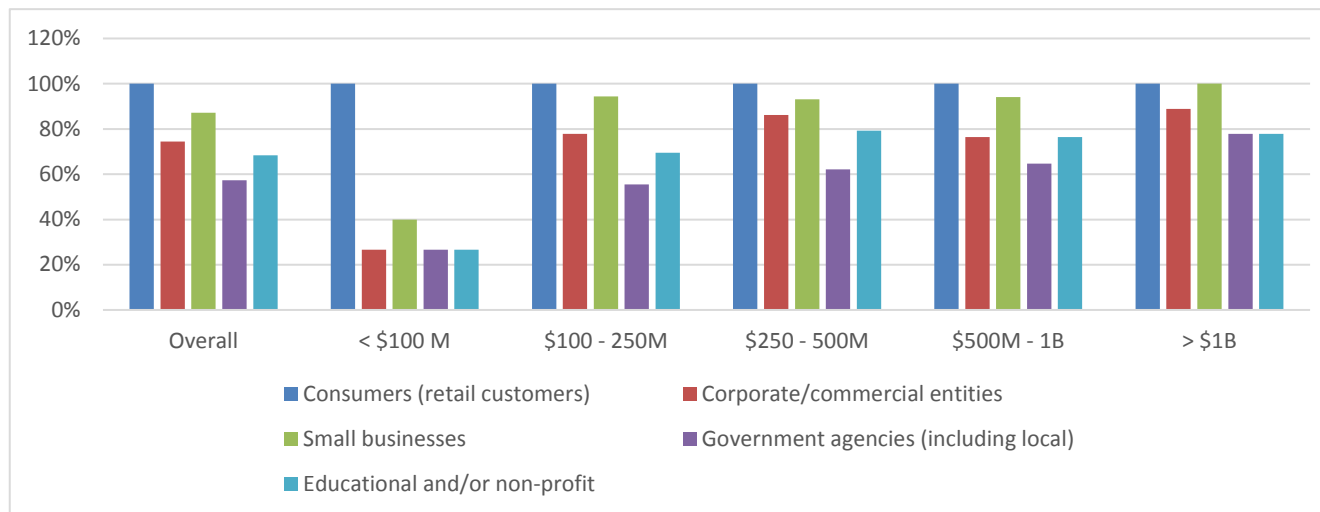
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2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Within the past year	13%	27%	11%	17%	12%	0%
More than one year ago	77%	60%	6%	72%	88%	94%
Currently not offering mobile banking, but plan to	9%	13%	11%	10%	0%	6%

Number of Responses

115

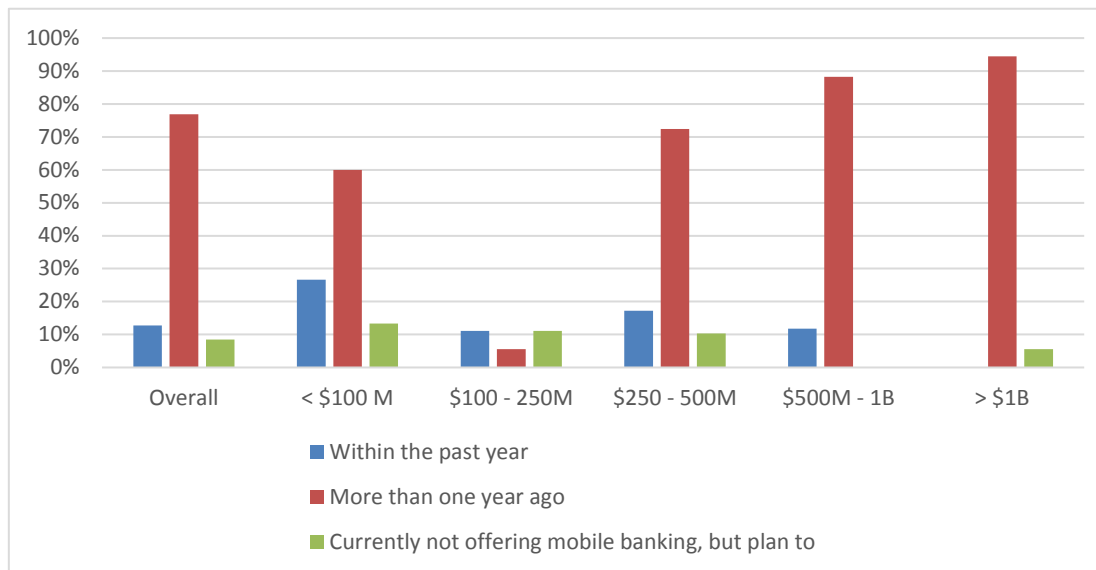
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2016 Federal Reserve Mobile Banking and Payments Survey

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

Primary Reason	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Retain existing customers	29%	20%	33%	32%	24%	28%
Attract new customers	25%	40%	25%	32%	12%	17%
Be a market leader with technology	21%	13%	17%	14%	47%	22%
Competitive pressure	24%	27%	22%	21%	18%	33%
Increase revenue	0%	0%	0%	0%	0%	0%
Other:	2%	0%	3%	4%	0%	0%

Number of Responses

114

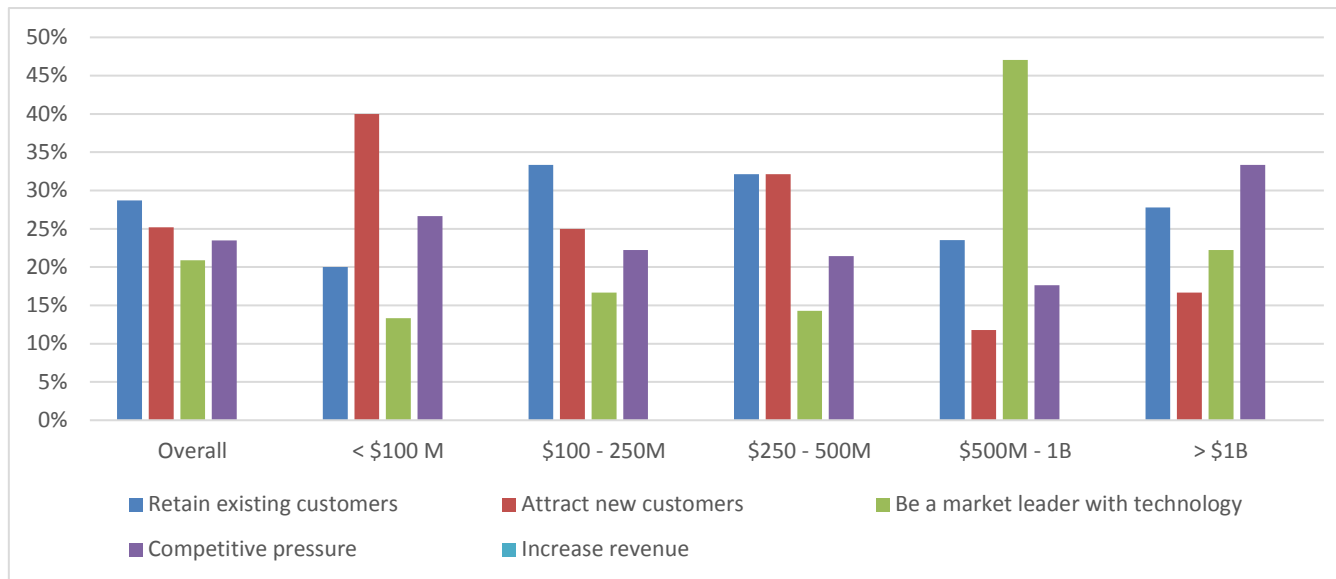
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2016 Federal Reserve Mobile Banking and Payments Survey

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

Operating System	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Apple iOS	98%	87%	100%	104%	100%	100%
Google Android	96%	93%	94%	96%	100%	100%
Windows Phone	24%	47%	28%	14%	6%	28%
Blackberry	11%	13%	17%	7%	6%	11%

Number of Responses

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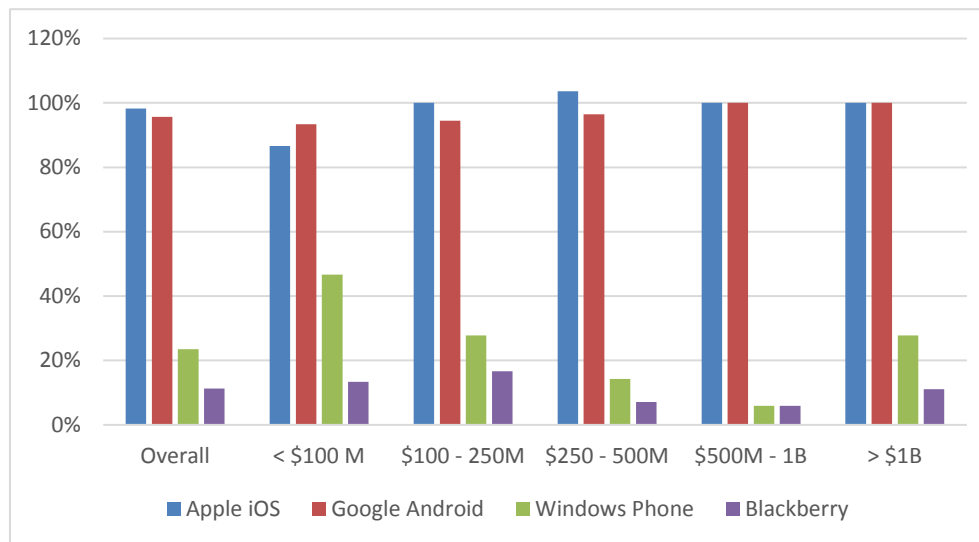
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2016 Federal Reserve Mobile Banking and Payments Survey

Do you offer or plan to offer mobile banking services to consumers via a tablet? (Check ALL that apply)

Device Type	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
iPad	87%	87%	86%	86%	82%	94%
Android	64%	87%	56%	59%	71%	67%
Kindle	22%	33%	8%	24%	12%	44%
No	12%	7%	14%	14%	18%	6%
Other:	0%	0%	0%	3%	0%	0%

Number of Responses

115

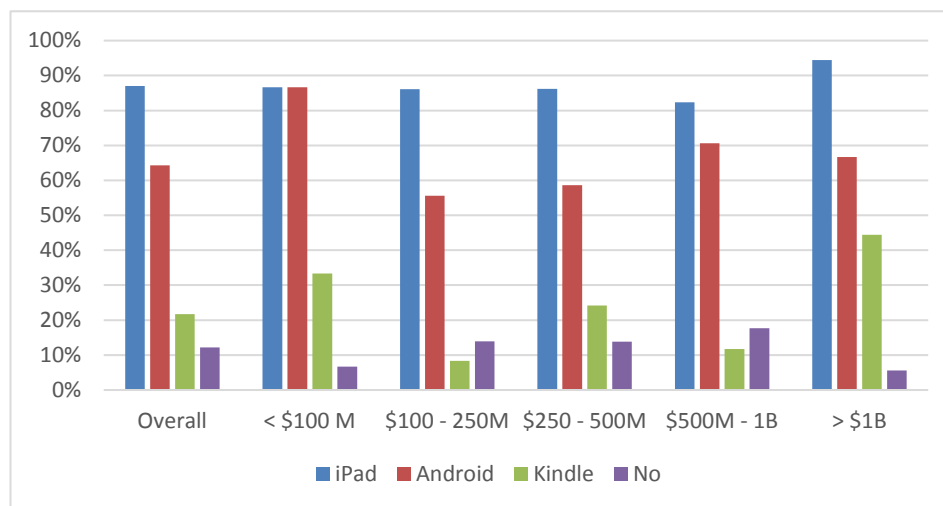
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2016 Federal Reserve Mobile Banking and Payments Survey

Who provides or will provide your mobile banking services?

Provider Type	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Core deposit processor or online banking provider	75%	80%	75%	76%	82%	61%
Mobile solution provider	24%	20%	25%	24%	18%	33%
In-house system	1%	0%	0%	0%	0%	6%
Other:	0%	0%	0%	0%	0%	0%

Number of Responses

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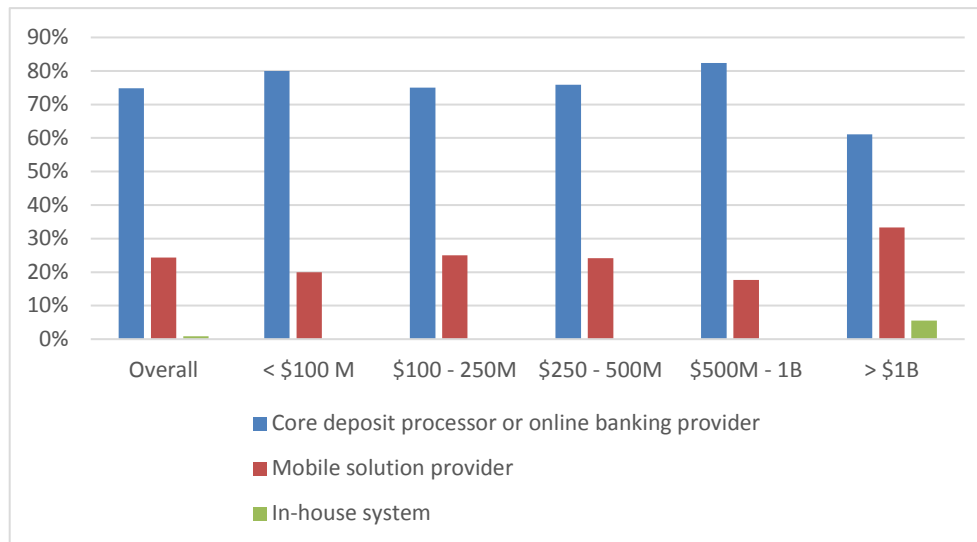
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2016 Federal Reserve Mobile Banking and Payments Survey

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)

Function	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Check balances (DDA, Savings)	100%	100%	100%	100%	100%	100%
Transfer funds between same owner's accounts within your FI	100%	100%	100%	97%	100%	100%
View statements and/or transaction history (DDA, Savings)	99%	53%	39%	28%	59%	50%
Bill payment	97%	87%	36%	97%	100%	100%
Mobile remote deposit capture (RDC)	92%	40%	39%	38%	71%	78%
ATM/branch locator	84%	100%	100%	100%	100%	100%
Mobile person-to-person payment (P2P)	76%	33%	39%	59%	82%	72%
Transfer funds between same owner's accounts at different FIs	55%	67%	61%	72%	94%	94%
Bill presentment	50%	73%	92%	97%	94%	94%
View credit card balances, stmts and/or tx history	42%	67%	86%	76%	94%	100%
Personal financial management (PFM)	41%	20%	28%	48%	59%	61%
Access to brokerage services	9%	7%	6%	3%	0%	33%
Cross-border payments	3%	0%	6%	7%	0%	0%

Number of Responses

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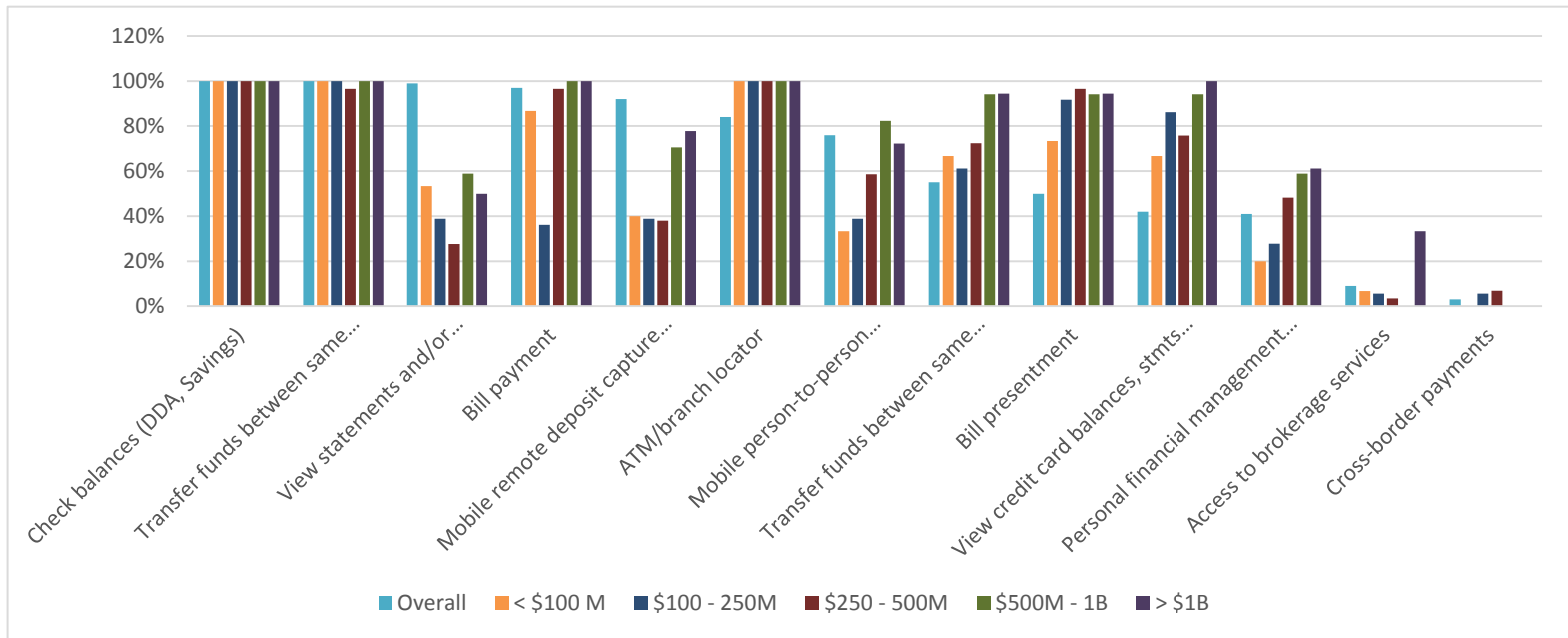
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Which of the following mobile banking features do you currently offer or plan to offer to consumers within the next 2 years? (Check ALL that apply)



2016 Federal Reserve Mobile Banking and Payments Survey

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

Function	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Enroll for mobile banking using a mobile device (mobile enrollment)	66%	47%	56%	66%	82%	89%
Open accounts over mobile device (mobile account opening)	27%	7%	14%	17%	47%	67%
Single sign-on/authentication credentials for online and mobile services	60%	33%	50%	52%	82%	94%
Multilingual mobile website or app	11%	7%	6%	10%	12%	28%
None	22%	33%	33%	21%	12%	0%

Number of Responses

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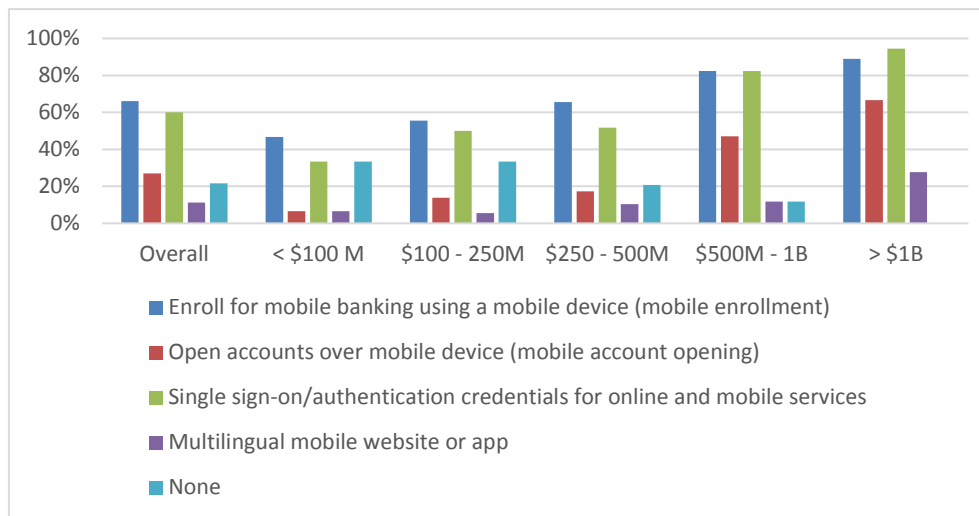
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2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Yes, market today	23%	27%	22%	10%	29%	33%
Yes, plan to market within next 2 years	25%	33%	17%	31%	35%	17%
No	52%	40%	61%	59%	35%	50%

Number of Responses

115

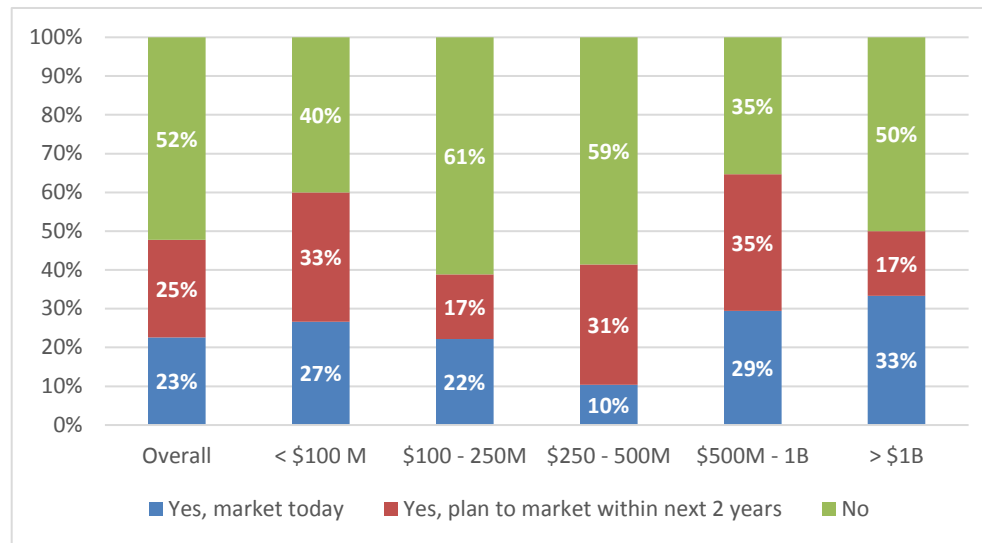
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2016 Federal Reserve Mobile Banking and Payments Survey

What percentage of your RETAIL customers is enrolled and has used your mobile banking services (within last 90 days)?

Responses

	Overall						105
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	9%	31%	21%	13%	10%	14%	
% Used	9%	38%	16%	10%	8%	19%	

	< \$100 Million						14
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	0%	50%	7%	0%	29%	14%	
% Used	0%	64%	0%	7%	14%	14%	

	\$100 - 250M						31
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	16%	29%	19%	10%	6%	19%	
% Used	10%	39%	10%	13%	3%	26%	

	\$250 - 500M						26
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	15%	27%	23%	19%	8%	8%	
% Used	15%	35%	19%	8%	12%	12%	

	\$500M - 1B						17
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	0%	47%	24%	12%	0%	18%	
% Used	12%	41%	18%	6%	0%	24%	

	> \$1B						17
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% Enrolled	0%	12%	29%	24%	18%	18%	
% Used	0%	18%	35%	18%	12%	18%	

2016 Federal Reserve Mobile Banking and Payments Survey

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

Barrier	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Ineffective marketing by FIs	31%	40%	25%	31%	35%	33%
Security concerns	70%	80%	64%	69%	71%	78%
Difficulty of use	14%	20%	17%	7%	12%	17%
Lack of trust in the technology	59%	93%	53%	59%	53%	50%
Banking needs are being met through other channels	62%	20%	61%	72%	65%	78%
Do not see any reason to use mobile banking	51%	27%	64%	55%	59%	33%
Other:	12%	20%	17%	7%	6%	11%

Number of Responses

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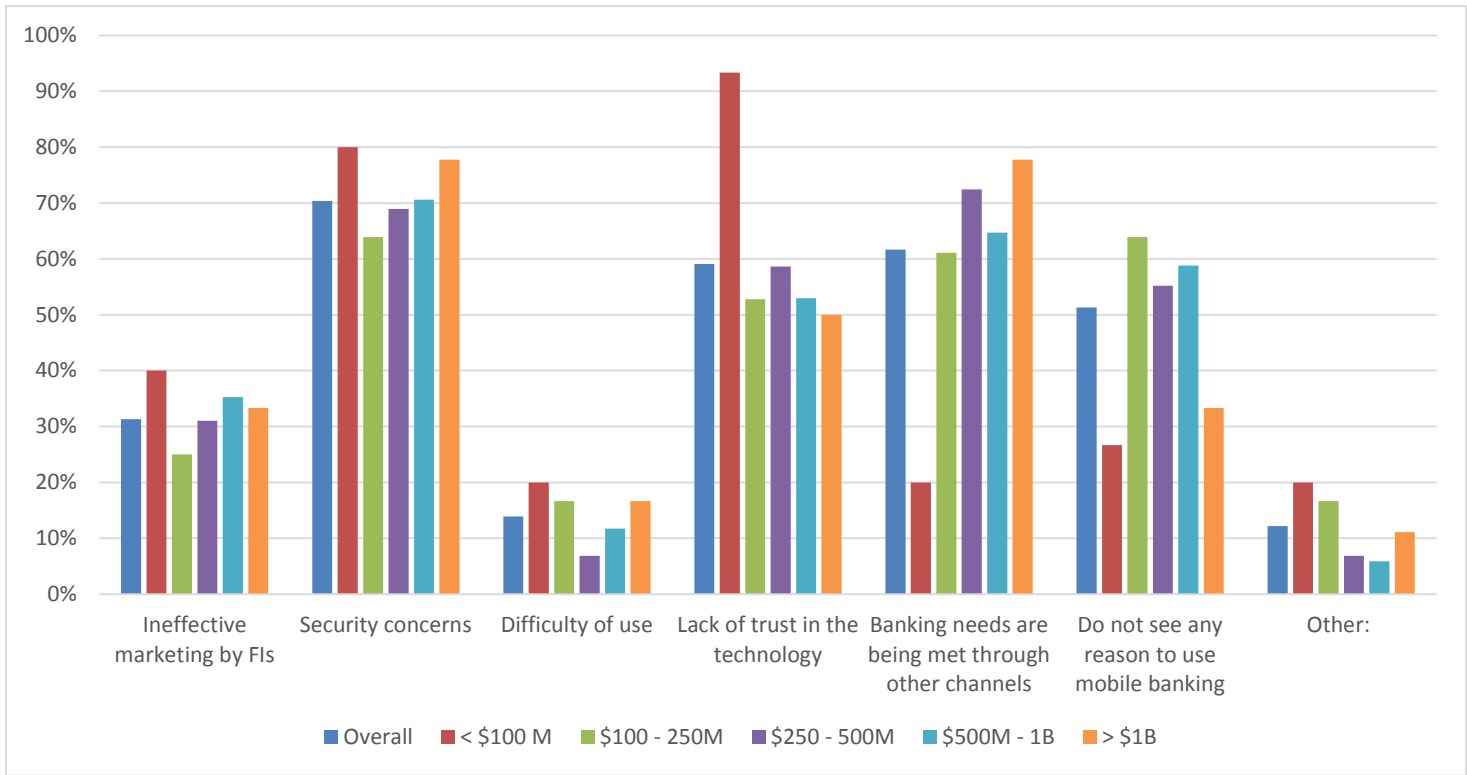
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For your FI, which are the THREE most common barriers to greater CONSUMER adoption of mobile banking? (Check only THREE)

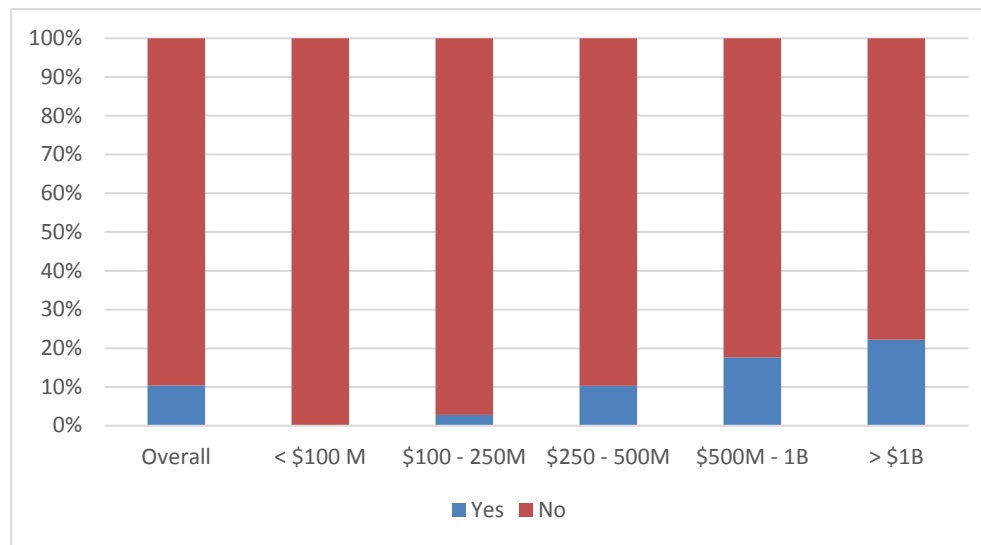


2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Yes	10%	0%	3%	10%	18%	22%
No	90%	100%	97%	90%	82%	78%

Number of Responses 115 15 36 29 17 18

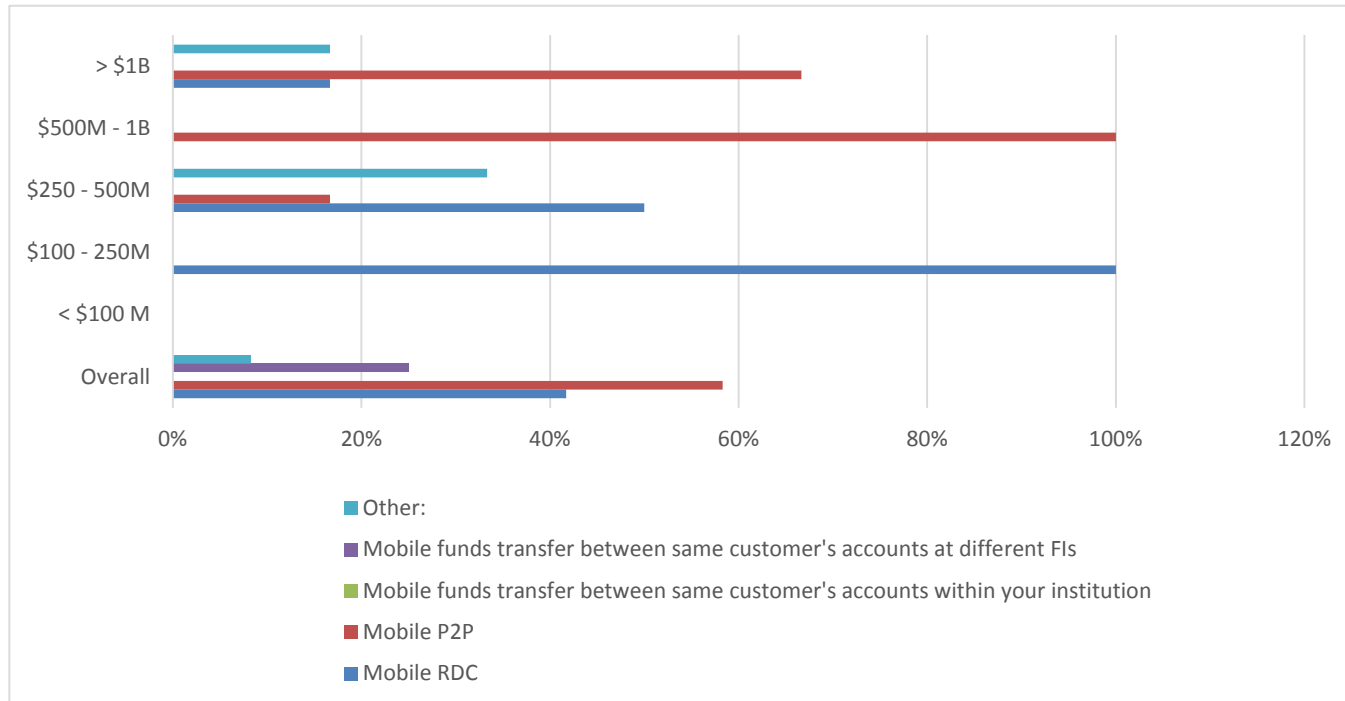


2016 Federal Reserve Mobile Banking and Payments Survey

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

Service	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Mobile RDC	42%	0%	100%	50%	0%	17%
Mobile P2P	58%	0%	0%	17%	100%	67%
Mobile funds transfer between same customer's accounts within your institution	0%	0%	0%	0%	0%	0%
Mobile funds transfer between same customer's accounts at different FIs	25%	0%	0%	0%	0%	0%
Other:	8%	0%	0%	33%	0%	17%
Number of Responses	15	0	1	6	2	6

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



2016 Federal Reserve Mobile Banking and Payments Survey

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

Response Options	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Insufficient funds	78%	87%	69%	79%	82%	83%
Low balance	90%	93%	89%	86%	100%	89%
Credit card balance close to or over limit	15%	27%	11%	10%	24%	11%
Online purchase (card-not-present) transactions	39%	20%	31%	38%	53%	61%
Funds transfer completed	63%	73%	64%	52%	71%	61%
Credit payment confirmation	15%	33%	6%	17%	18%	11%
Bill payment due	33%	47%	28%	28%	35%	39%
International charge/debit	15%	0%	8%	17%	24%	28%
Suspicious activity/other fraud monitoring alerts	54%	40%	53%	55%	53%	67%
Two-way actionable alerts (e.g., FI sends customer insufficient funds alert, customer replies to schedule transfer)	13%	7%	8%	17%	18%	17%
Other:	10%	7%	14%	7%	12%	6%

Number of Responses

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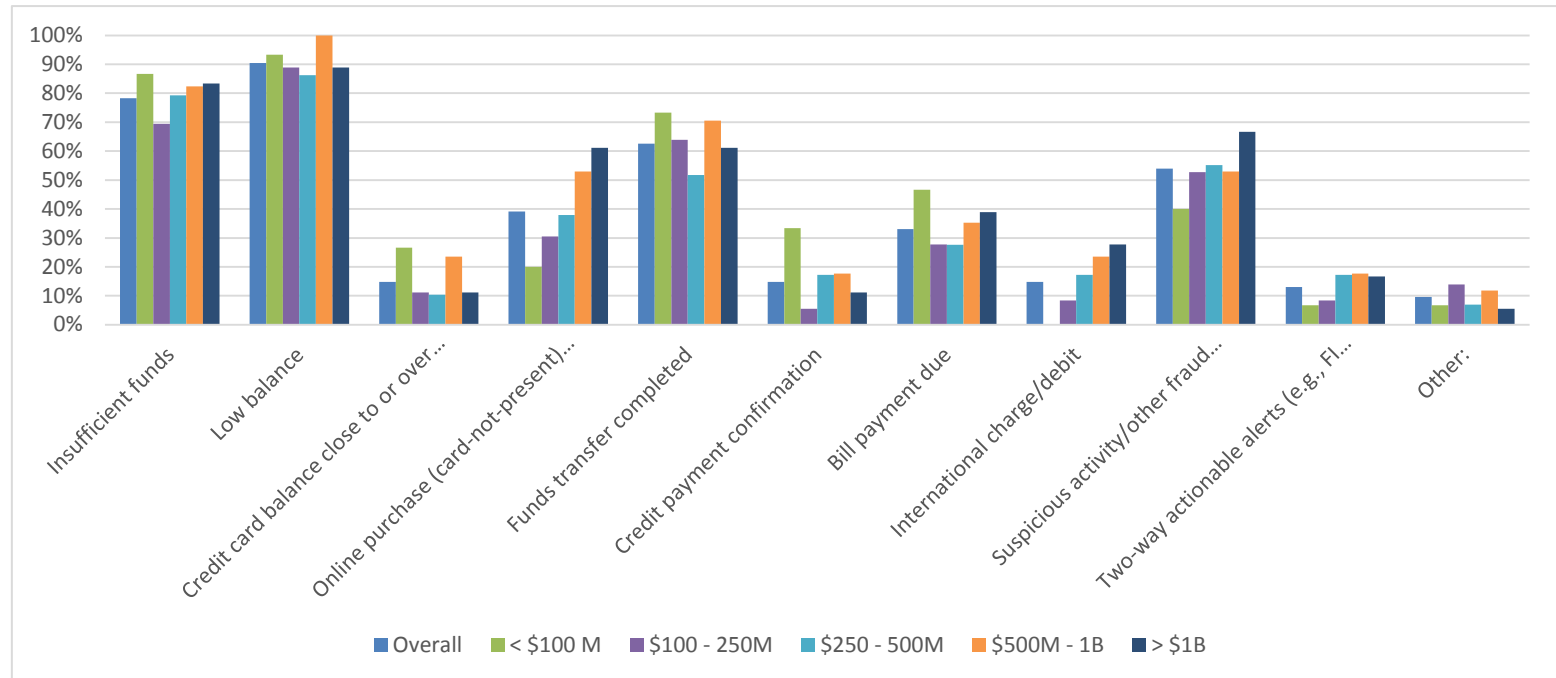
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**What types of mobile alerts does your FI offer or plan to offer?
(Check ALL that apply)**



2016 Federal Reserve Mobile Banking and Payments Survey

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

Responses

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

115

< \$100 M			
Factor	High	Medium	Low
Data breach	67%	33%	0%
Weak authentication	27%	53%	20%
Identity theft	67%	20%	13%
Inadequate customer protection behavior	80%	20%	0%

15

Responses

\$100-250M			
Factor	High	Medium	Low
Data breach	61%	28%	11%
Weak authentication	36%	47%	17%
Identity theft	44%	44%	8%
Inadequate customer protection behavior	61%	36%	3%

36

\$250 - 500M			
Factor	High	Medium	Low
Data breach	66%	17%	17%
Weak authentication	38%	41%	21%
Identity theft	48%	28%	24%
Inadequate customer protection behavior	62%	24%	14%

29

Responses

\$500M - \$1B			
Factor	High	Medium	Low
Data breach	53%	35%	12%
Weak authentication	59%	24%	18%
Identity theft	41%	59%	0%
Inadequate customer protection behavior	88%	6%	6%

17

> \$1B			
Factor	High	Medium	Low
Data breach	56%	39%	6%
Weak authentication	50%	44%	6%
Identity theft	50%	44%	6%
Inadequate customer protection behavior	61%	39%	0%

18

2016 Federal Reserve Mobile Banking and Payments Survey

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

Feature	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Activate new card	18%	13%	6%	17%	29%	39%
Change PIN	16%	20%	6%	17%	24%	22%
Order a replacement card	13%	20%	3%	10%	29%	17%
Turn payment card on or off if lost/stolen	59%	53%	47%	59%	59%	89%
Block use of credit and/or debit card	56%	60%	39%	59%	59%	78%
Set travel notification	39%	40%	31%	41%	35%	56%
None	34%	40%	39%	34%	41%	11%

Number of Responses

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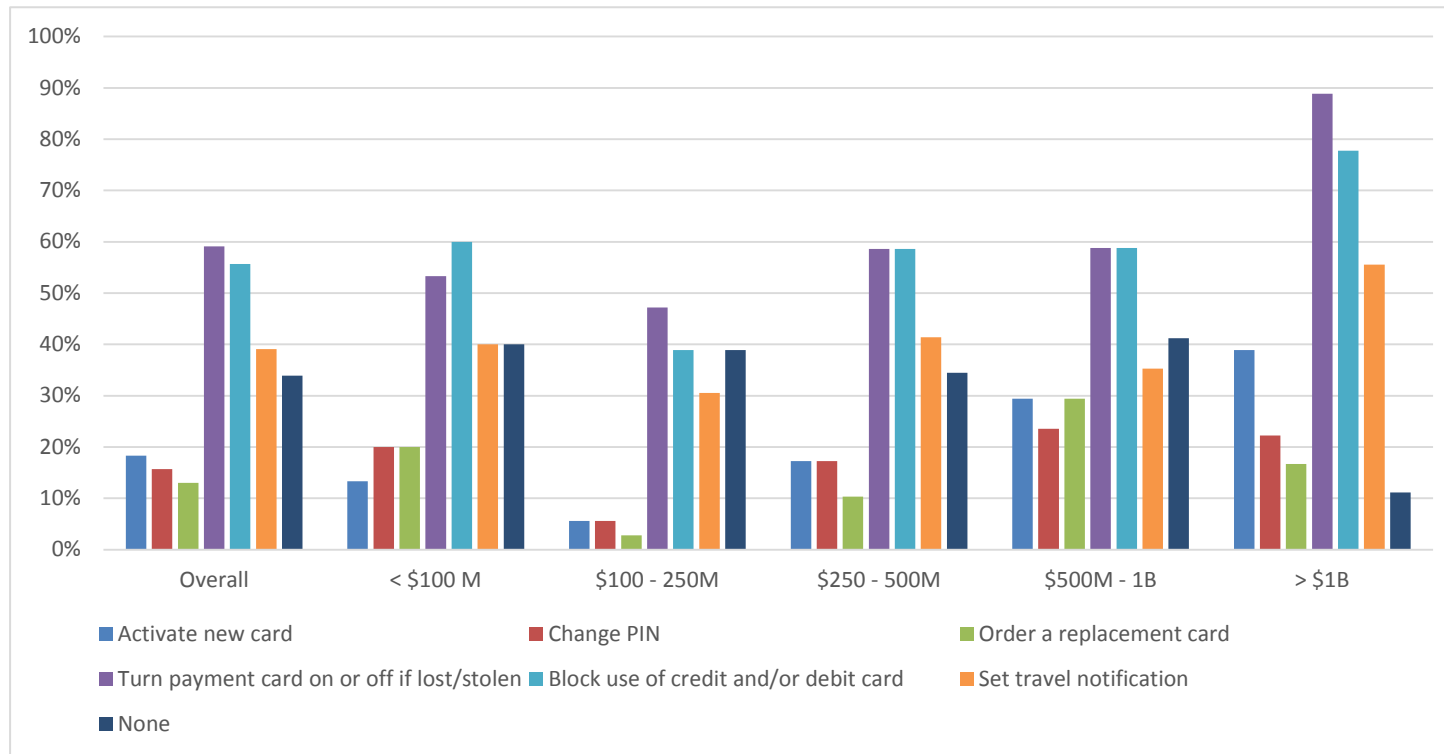
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Which of the following card control features does your FI's mobile banking app support or plan to support? (Check ALL that apply)



2016 Federal Reserve Mobile Banking and Payments Survey

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

Security Feature	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Multi-factor authentication	82%	87%	86%	72%	88%	78%
Time-out due to inactivity	86%	100%	83%	83%	88%	83%
Out-of-band authentication	43%	27%	39%	45%	65%	39%
Login with PIN	48%	40%	50%	48%	47%	50%
Biometrics	50%	20%	39%	48%	65%	83%
Mobile notifications	64%	53%	53%	62%	88%	78%
Mobile device ID	33%	33%	33%	34%	24%	39%
Geo-location	27%	20%	14%	31%	35%	44%
Other	2%	7%	0%	0%	6%	0%

Number of Responses

115

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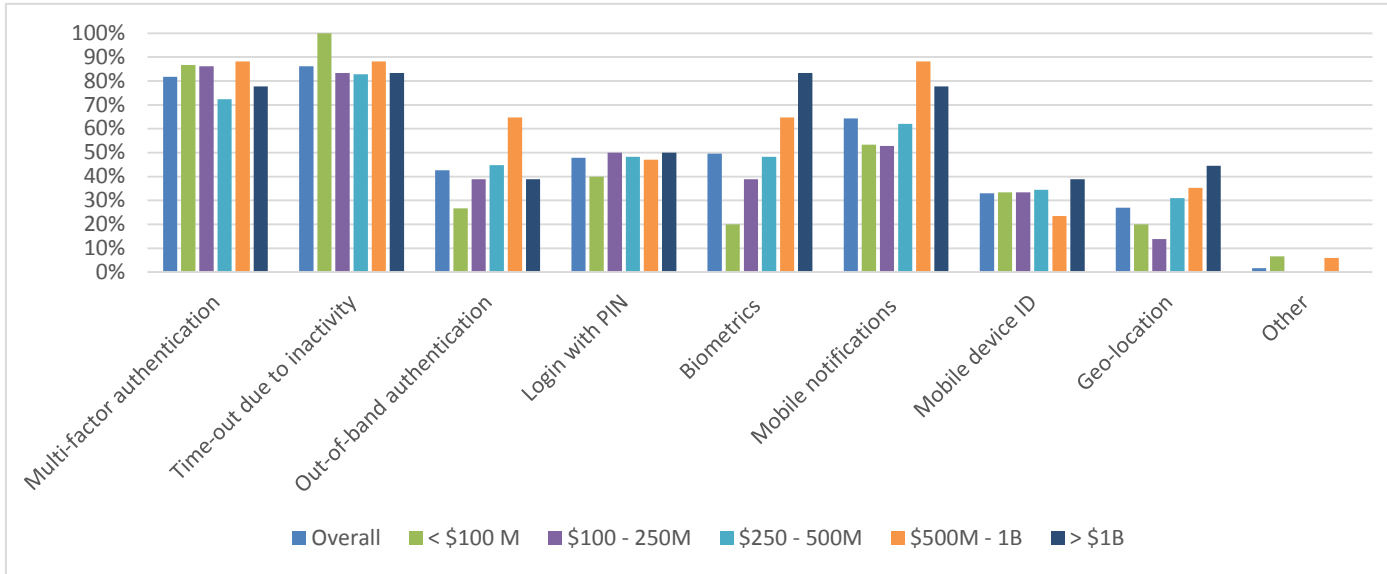
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Which of the following does your FI use or plan to use to enhance mobile security? (Check ALL that apply)

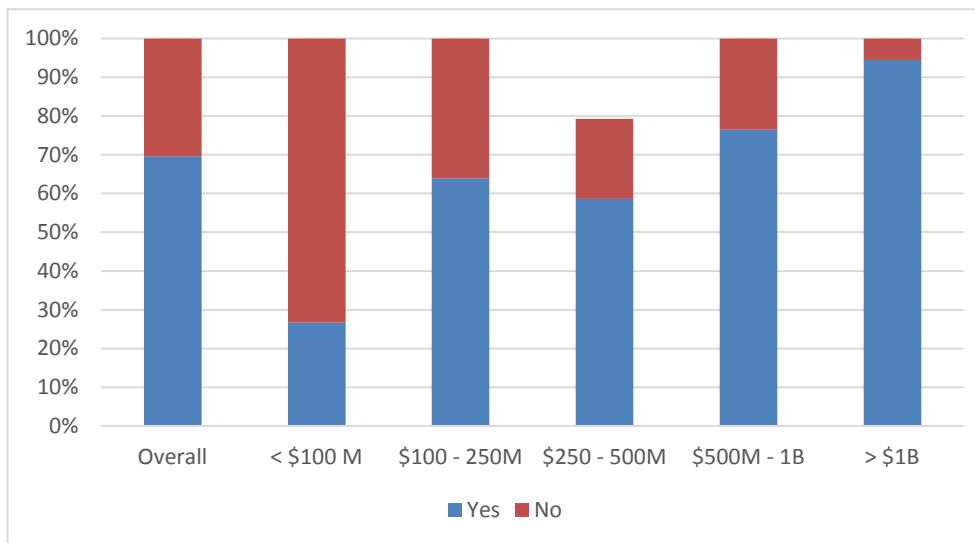


2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Yes	70%	27%	64%	59%	76%	94%
No	30%	73%	36%	21%	24%	6%

Number of Responses 115 15 36 29 17 18



2016 Federal Reserve Mobile Banking and Payments Survey

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

Service Description	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Check corporate balances and monitor accounts	95%	100%	87%	96%	93%	100%
Cash management functions	55%	0%	39%	65%	79%	53%
Mobile funds transfer between same business customer's accounts within your institution	91%	100%	96%	87%	93%	82%
Mobile funds transfer between same business customer's accounts at different FIs	31%	25%	22%	13%	114%	59%
Mobile funds transfer from one business customer's account to another business customer's account at same or different FIs	26%	25%	13%	22%	43%	35%
Administration tools (e.g., setup and manage users, reset passwords, etc.)	30%	25%	22%	13%	57%	41%
Mobile card acceptance plug-in reader/mobile POS (e.g., Square, QuickBooks GoPayment)	9%	0%	4%	9%	14%	12%
Other:	5%	0%	4%	9%	7%	0%

Number of Responses

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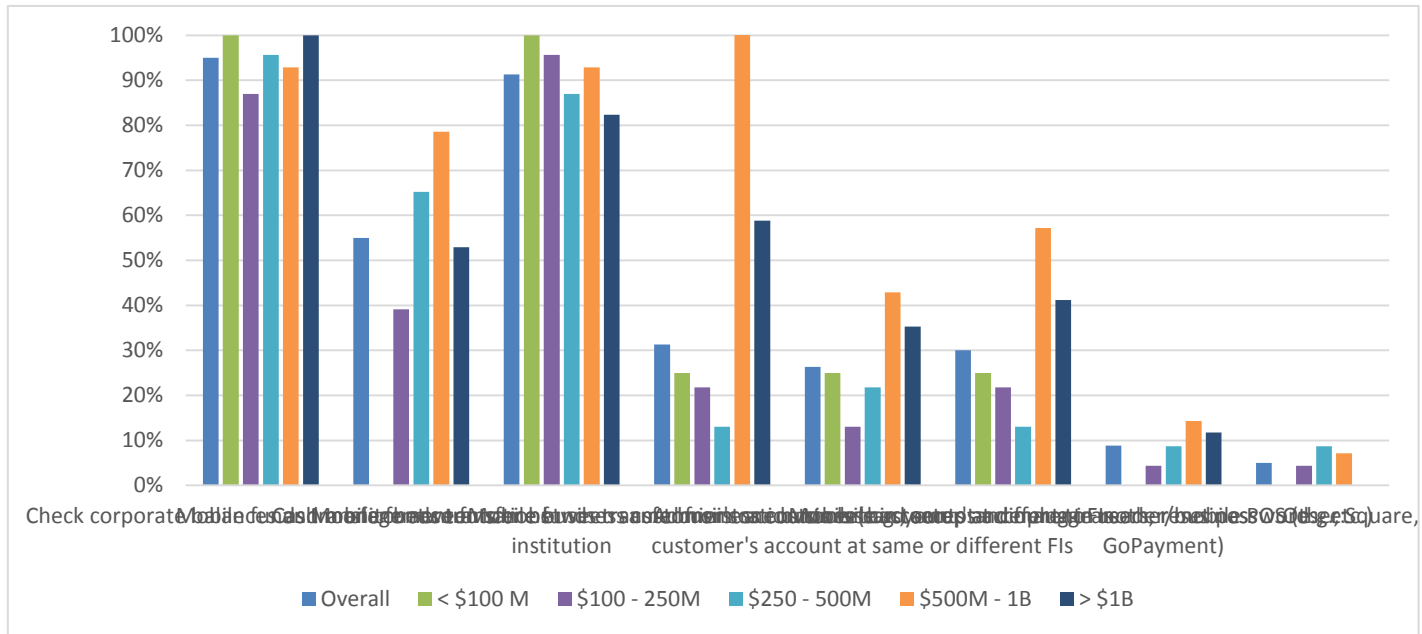
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What mobile banking services do you offer or plan to offer within the next 2 years to your BUSINESS customers? (Check ALL that apply)

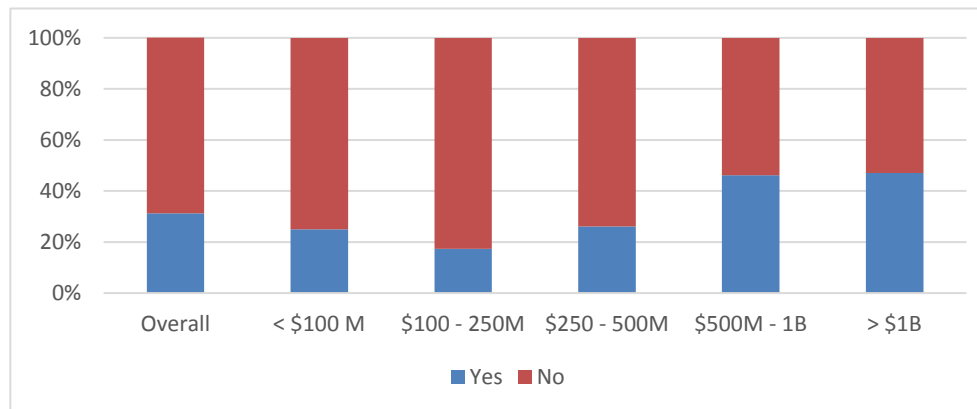


2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Yes	31%	25%	17%	26%	46%	47%
No	69%	75%	83%	74%	54%	53%

Number of Responses 80 4 23 23 13 17



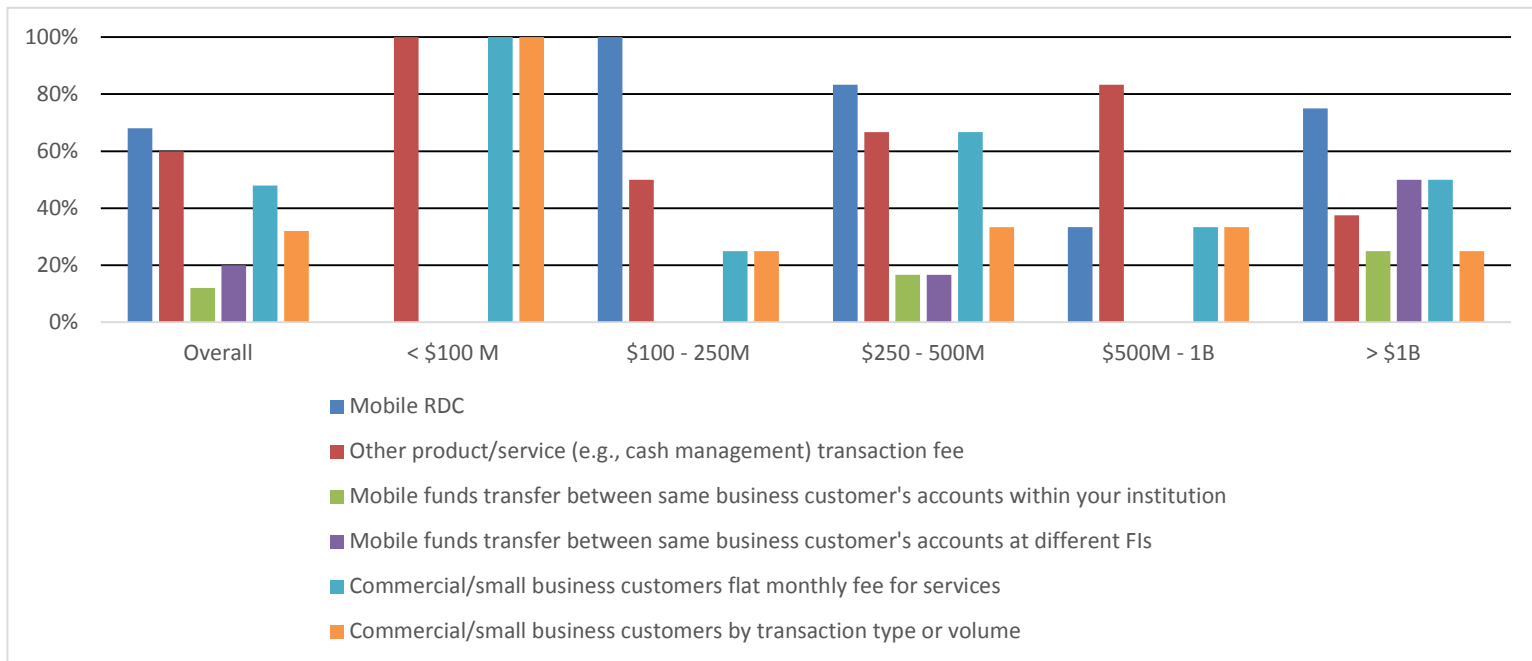
2016 Federal Reserve Mobile Banking and Payments Survey

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

Service	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Mobile RDC	68%	0%	100%	83%	33%	75%
Other product/service (e.g., cash management) transaction fee	60%	100%	50%	67%	83%	38%
Mobile funds transfer between same business customer's accounts within your institution	12%	0%	0%	17%	0%	25%
Mobile funds transfer between same business customer's accounts at different FIs	20%	0%	0%	17%	0%	50%
Commercial/small business customers flat monthly fee for services	48%	100%	25%	67%	33%	50%
Commercial/small business customers by transaction type or volume	32%	100%	25%	33%	33%	25%
Other:	0%	0%	0%	0%	0%	0%

Number of Responses	25	1	4	6	6	8
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Please indicate ALL BUSINESS services for which you charge or plan to charge a fee. (Check ALL that apply)



2016 Federal Reserve Mobile Banking and Payments Survey

What percentage of your BUSINESS customer has used your mobile banking services (within the last 90 days)?

Overall							Responses
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	38%	27%	3%	2%	3%	27%	60
% of customers who USED services	37%	23%	3%	2%	2%	33%	60

< \$100M							Responses
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	50%	0%	0%	0%	0%	50%	2
% of customers who USED services	50%	0%	0%	0%	0%	50%	2

\$100M - 250M							Responses
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	33%	40%	0%	0%	0%	27%	15
% of customers who USED services	27%	33%	0%	0%	0%	40%	15

\$250M - 500M						
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	50%	22%	6%	0%	6%	17%
% of customers who USED services	50%	17%	6%	0%	6%	22%

Responses

18

18

\$500M - 1B						
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	50%	17%	0%	0%	0%	33%
% of customers who USED services	50%	8%	0%	0%	0%	42%

12

12

> \$1B						
	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	15%	31%	8%	8%	8%	31%
% of customers who USED services	15%	38%	8%	8%	0%	31%

13

13

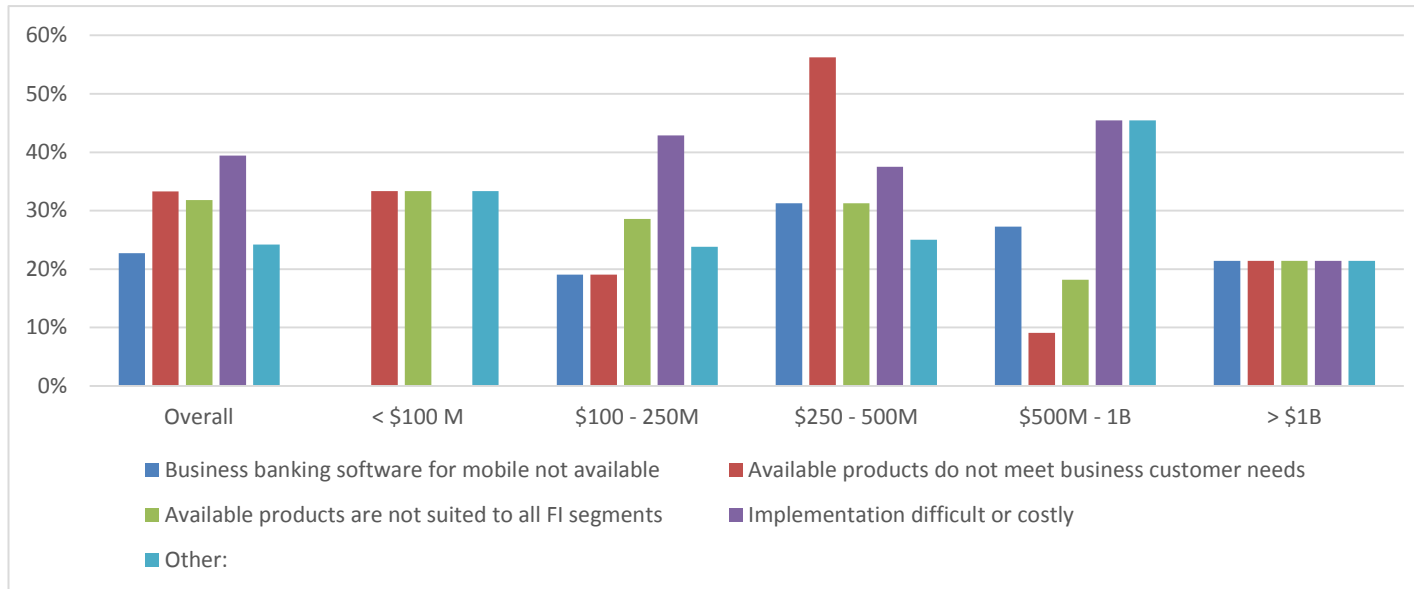
2016 Federal Reserve Mobile Banking and Payments Survey

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

Challenge Description	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Business banking software for mobile not available	23%	0%	19%	31%	27%	21%
Available products do not meet business customer needs	33%	33%	19%	56%	9%	21%
Available products are not suited to all FI segments	32%	33%	29%	31%	18%	21%
Implementation difficult or costly	39%	0%	43%	38%	45%	21%
Other:	24%	33%	24%	25%	45%	21%

Number of Responses	65	3	21	16	11	14
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What challenges do you see in offering mobile banking services to your BUSINESS customers? (Check ALL that apply)



2016 Federal Reserve Mobile Banking and Payments Survey

Do you offer or plan to offer mobile payment/wallet services to customers?

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Currently offer	22%	7%	17%	17%	35%	44%
Plan to offer	37%	20%	28%	55%	35%	44%
Do not plan to offer	41%	73%	56%	28%	29%	11%

Number of Responses

115

15

36

29

17

18



2016 Federal Reserve Mobile Banking and Payments Survey

Please RATE the IMPORTANCE of factors that influenced your FI's decision or plans to offer mobile payments. (High, Medium, Low)

Overall			
Factor	High	Medium	Low
Mobile Payments gaining momentum	48%	48%	4%
Customer demand	30%	45%	25%
Increase customer engagement	23%	36%	41%
Generate revenue and/or reduce costs	20%	35%	45%
Compete with other FIs	70%	26%	4%
Compete with nonbanks	45%	29%	26%
Mobile device is more secure	28%	57%	16%
Provide two-way communication tool	14%	41%	45%

Responses

69

< \$100M			
Factor	High	Medium	Low
Mobile Payments gaining momentum	50%	50%	0%
Customer demand	0%	100%	0%
Increase customer engagement	50%	50%	0%
Generate revenue and/or reduce costs	50%	25%	25%
Compete with other FIs	100%	0%	0%
Compete with nonbanks	75%	25%	0%
Mobile device is more secure	50%	50%	0%
Provide two-way communication tool	25%	50%	25%

4

Responses

16

\$100 - 250M			
Factor	High	Medium	Low
Mobile Payments gaining momentum	50%	50%	0%
Customer demand	31%	44%	25%
Increase customer engagement	19%	38%	44%
Generate revenue and/or reduce costs	13%	44%	44%
Compete with other FIs	75%	25%	0%
Compete with nonbanks	50%	44%	6%
Mobile device is more secure	13%	75%	13%
Provide two-way communication tool	13%	44%	44%

21

\$250 - 500M			
Factor	High	Medium	Low
Mobile Payments gaining momentum	43%	52%	5%
Customer demand	38%	38%	24%
Increase customer engagement	14%	33%	52%
Generate revenue and/or reduce costs	24%	29%	48%
Compete with other FIs	52%	38%	10%
Compete with nonbanks	29%	14%	57%
Mobile device is more secure	33%	48%	19%
Provide two-way communication tool	19%	38%	43%

Responses

12

\$500M - 1B			
Factor	High	Medium	Low
Mobile Payments are gaining momentum	42%	50%	8%
Customer demand	25%	33%	42%
Increase customer engagement	17%	42%	42%
Generate revenue and/or reduce costs	17%	33%	50%
Compete with other FIs	75%	25%	0%
Compete with nonbanks	33%	58%	8%
Mobile device is more secure	42%	58%	0%
Provide two-way communication tool	17%	33%	50%

16

> \$1B			
Factor	High	Medium	Low
Mobile Payments gaining momentum	56%	38%	6%
Customer demand	31%	50%	19%
Increase customer engagement	38%	31%	31%
Generate revenue and/or reduce costs	19%	38%	44%
Compete with other FIs	75%	19%	6%
Compete with nonbanks	63%	13%	25%
Mobile device is more secure	19%	50%	31%
Provide two-way communication tool	6%	44%	50%

2016 Federal Reserve Mobile Banking and Payments Survey

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

Mobile Wallet	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Apple Pay	100%	100%	100%	100%	100%	100%
Android Pay	83%	100%	94%	62%	92%	88%
Samsung Pay	78%	75%	81%	67%	83%	88%
Microsoft Wallet	30%	75%	31%	19%	25%	38%
Visa Checkout	33%	50%	38%	10%	33%	56%
MasterCard MasterPass	36%	50%	38%	14%	42%	56%
AmEx Express Checkout	12%	50%	13%	0%	8%	19%
PayPal	80%	100%	81%	71%	75%	88%
Amazon Payments	38%	75%	50%	29%	25%	38%
LevelUp	9%	50%	0%	5%	8%	13%
Walmart Pay	25%	75%	13%	14%	33%	31%
Other:	1%	0%	0%	0%	0%	6%

Number of Responses

69

4

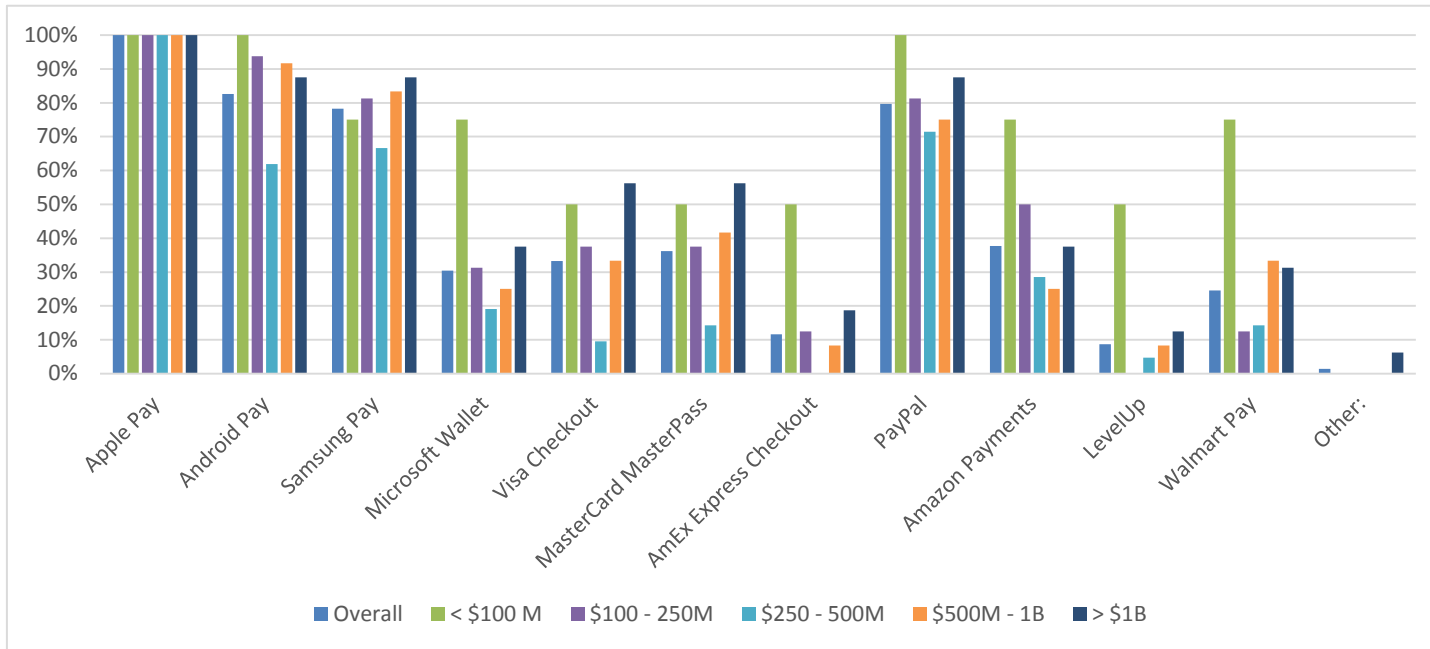
16

21

12

16

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

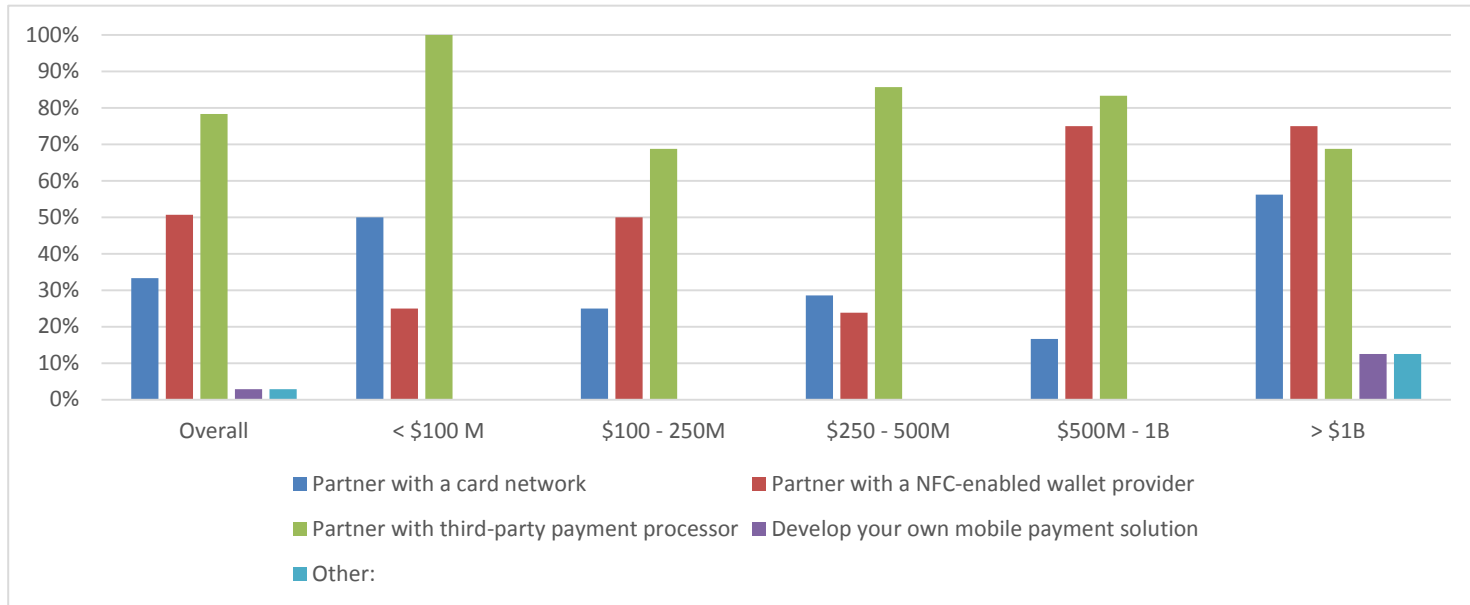


2016 Federal Reserve Mobile Banking and Payments Survey

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

Response Options	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Partner with a card network	33%	50%	25%	29%	17%	56%
Partner with a NFC-enabled wallet provider	51%	25%	50%	24%	75%	75%
Partner with third-party payment processor	78%	100%	69%	86%	83%	69%
Develop your own mobile payment solution	3%	0%	0%	0%	0%	13%
Other:	3%	0%	0%	0%	0%	13%
Number of Responses	69	4	16	21	12	16

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



2016 Federal Reserve Mobile Banking and Payments Survey

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

	Overall		< \$100M		\$100 - 250M		\$250 - 500M	
Wallet	Currently offer	Plan to offer	Currently offer	Plan to offer	Currently offer	Plan to offer	Currently offer	Plan to offer
Apple Pay	53%	47%	33%	67%	36%	64%	53%	47%
Android Pay	15%	68%	33%	67%	14%	71%	6%	59%
Samsung Pay	22%	52%	33%	67%	7%	64%	24%	35%
Microsoft Wallet	3%	7%	0%	0%	0%	7%	12%	12%
Visa Checkout	7%	10%	0%	0%	7%	21%	6%	12%
MasterCard MasterPass	3%	10%	0%	0%	0%	0%	6%	18%
AmEx Express Checkout	2%	2%	0%	0%	0%	0%	6%	6%

Number of Responses

60

3

14

17

\$500M - 1B		> \$1B	
Currently offer	Plan to offer	Currently offer	Plan to offer
50%	50%	79%	21%
0%	92%	36%	50%
0%	67%	43%	43%
0%	0%	0%	7%
0%	0%	14%	7%
0%	8%	7%	14%
0%	0%	0%	0%

12

14

2016 Federal Reserve Mobile Banking and Payments Survey

About how much time did it take for your FI to implement the NFC MOBILE WALLET service? (If

Implementation Time	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Less than 3 months	14%	0%	20%	0%	17%	22%
3 months	14%	100%	20%	0%	33%	11%
6 months	45%	0%	40%	71%	17%	33%
More than 6 months	28%	0%	20%	29%	33%	33%

Number of Responses 28 1 5 7 6 9



2016 Federal Reserve Mobile Banking and Payments Survey

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

Challenge	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Waiting for certification from card networks or processors	60%	100%	80%	70%	67%	86%
Lengthy processor queue	35%	0%	40%	40%	67%	43%
Software development and testing	35%	100%	60%	40%	67%	14%
Customer/staff training, education, etc.	24%	0%	20%	20%	50%	43%
Other:	24%	0%	20%	30%	33%	29%

Number of Responses

29

1

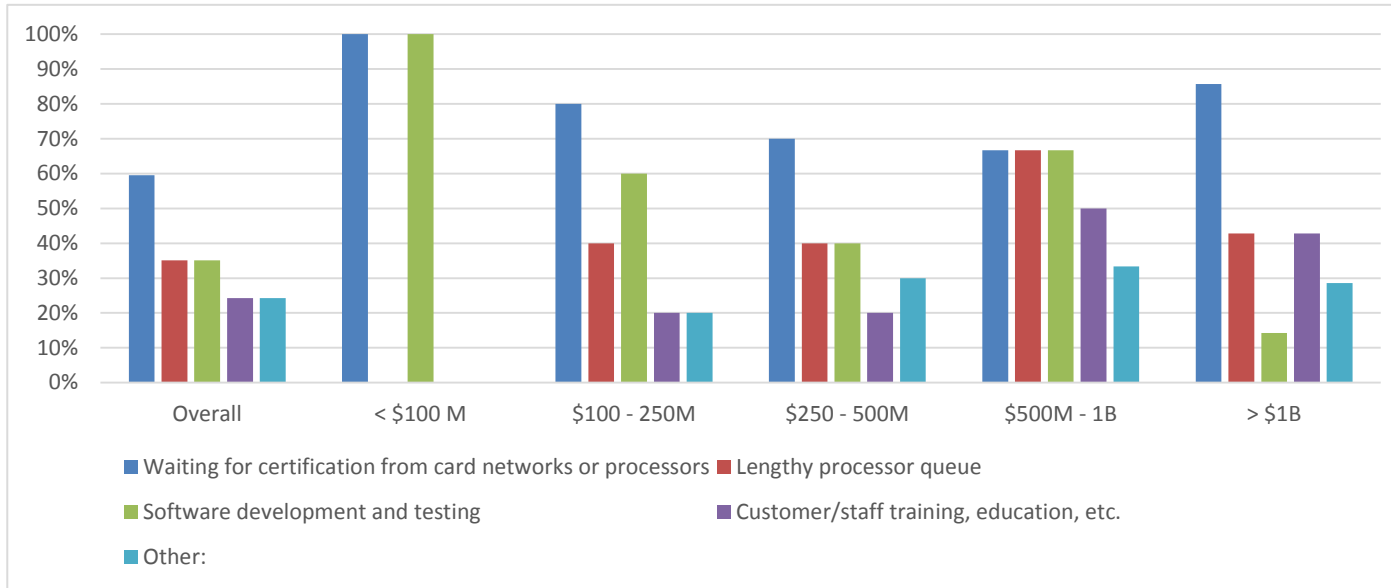
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10

6

7

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



2016 Federal Reserve Mobile Banking and Payments Survey

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

Incentive	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Location-based offers	12%	0%	6%	5%	8%	31%
Cash reward or account credit for mobile wallet enrollment	6%	0%	0%	5%	17%	6%
Rewards points or cash back for mobile transactions	15%	0%	13%	16%	17%	19%
Rewards redemption (e.g., pay with points) for mobile transactions at the POS	9%	0%	13%	5%	0%	19%
None	70%	100%	88%	79%	75%	44%
Other:	7%	0%	0%	5%	0%	13%

Number of Responses

66

3

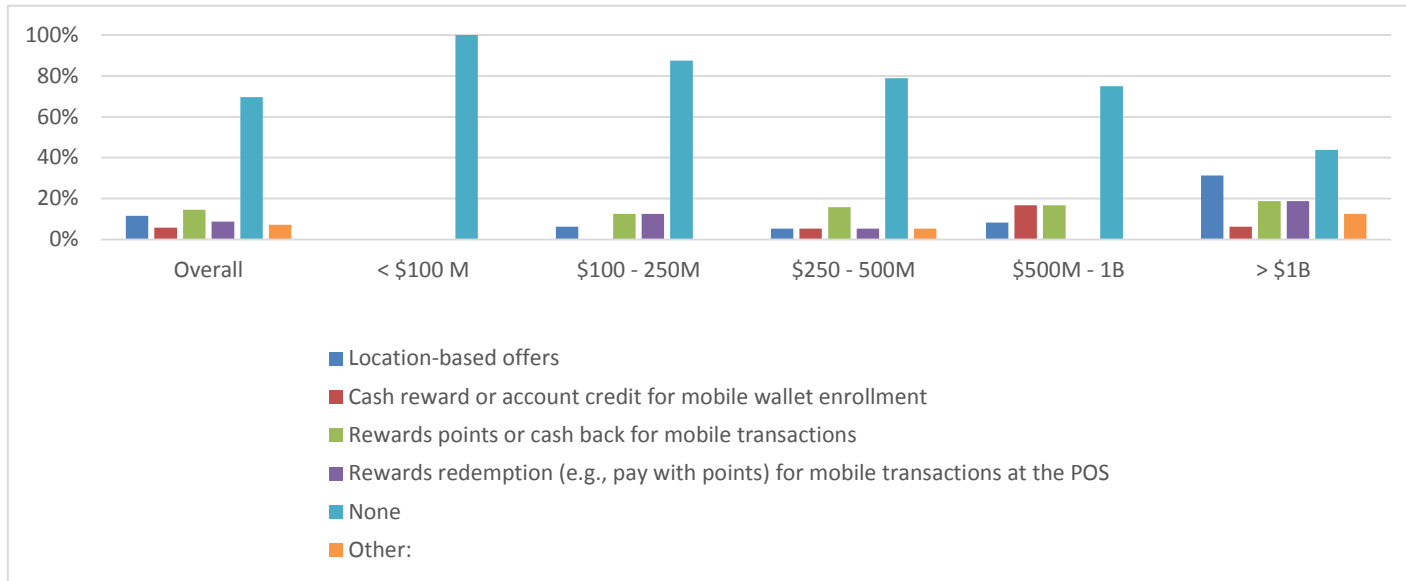
16

19

12

16

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



2016 Federal Reserve Mobile Banking and Payments Survey

What percentage of your RETAIL customers are enrolled and use your mobile payment/wallet services?

Overall							Responses
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	51%	3%	3%	3%	0%	0%	35
% of customers who USED services	46%	6%	3%	0%	0%	0%	
< \$100 M							
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	100%	0%	0%	0%	0%	0%	1
% of customers who USED services	100%	0%	0%	0%	0%	0%	
\$100 - 250M							
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track	
% of customers ENROLLED	43%	0%	0%	0%	0%	57%	7
% of customers who USED services	29%	0%	0%	0%	0%	71%	

\$250 - 500M						
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	30%	10%	10%	0%	0%	50%
% of customers who USED services	30%	10%	0%	0%	0%	60%

Responses

10

\$500M - 1B						
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	67%	0%	0%	0%	0%	33%
% of customers who USED services	50%	17%	0%	0%	0%	33%

6

> \$1B						
Retail Customer Usage	<5%	5-20%	21-35%	36-50%	>50%	Don't Track
% of customers ENROLLED	64%	0%	0%	9%	0%	27%
% of customers who USED services	64%	0%	9%	0%	0%	27%

11

2016 Federal Reserve Mobile Banking and Payments Survey

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

Responses

Overall			
Barrier	High	Medium	Low
Security	52%	32%	16%
Privacy	42%	42%	16%
Market immaturity and fragmentation	42%	48%	10%
Lack of customer demand	25%	52%	23%
Low merchant acceptance/lack of merchant interest	43%	43%	13%

69

< \$100M			
Barrier	High	Medium	Low
Security	25%	75%	0%
Privacy	25%	75%	0%
Market immaturity and fragmentation	75%	25%	0%
Lack of customer demand	100%	0%	0%
Low merchant acceptance/lack of merchant interest	50%	50%	0%

4

Responses

\$100 - 250M			
Barrier	High	Medium	Low
Security	50%	31%	19%
Privacy	31%	50%	19%
Market immaturity and fragmentation	38%	56%	6%
Lack of customer demand	25%	56%	19%
Low merchant acceptance/lack of merchant interest	31%	44%	25%

16

\$250 - 500M			
Barrier	High	Medium	Low
Security	62%	24%	14%
Privacy	67%	24%	10%
Market immaturity and fragmentation	38%	52%	10%
Lack of customer demand	14%	57%	29%
Low merchant acceptance/lack of merchant interest	38%	48%	14%

21

Responses

\$500M - 1B			
Barrier	High	Medium	Low
Security	33%	42%	25%
Privacy	17%	58%	25%
Market immaturity and fragmentation	50%	50%	0%
Lack of customer demand	25%	58%	17%
Low merchant acceptance/lack of merchant interest	58%	33%	8%

12

> \$1B			
Barrier	High	Medium	Low
Security	63%	25%	13%
Privacy	44%	38%	19%
Market immaturity and fragmentation	38%	38%	25%
Lack of customer demand	19%	50%	31%
Low merchant acceptance/lack of merchant interest	50%	44%	6%

16

2016 Federal Reserve Mobile Banking and Payments Survey

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

Response Options	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Currently offer	20%	0%	25%	10%	33%	25%
Plan to offer within the next 2 years	25%	0%	25%	33%	25%	19%
No	55%	100%	50%	57%	42%	56%

Number of Responses

69

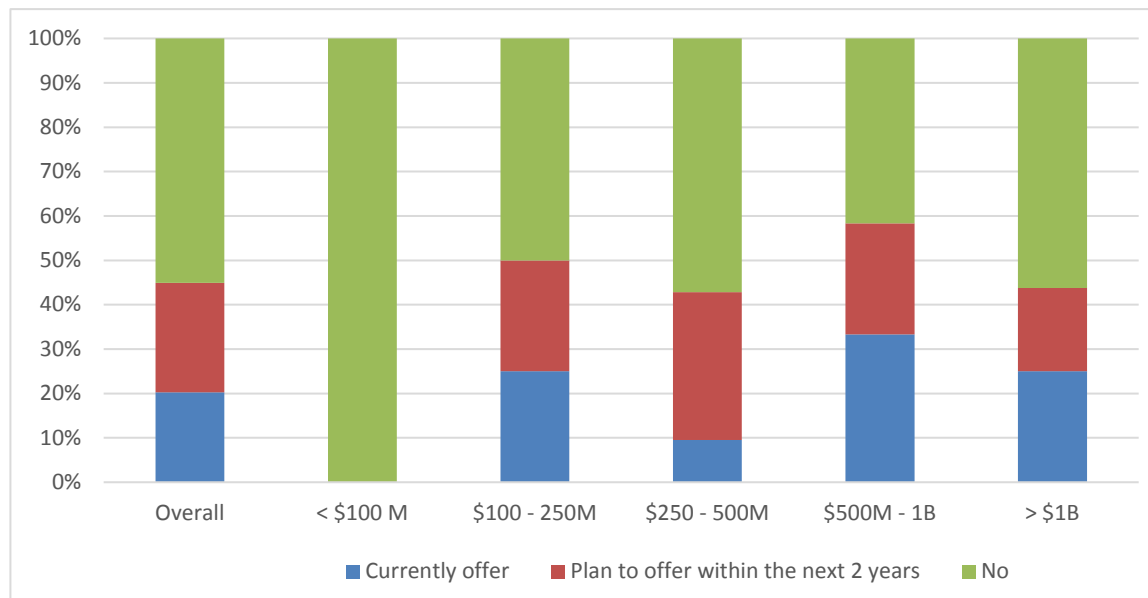
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16

21

12

16



2016 Federal Reserve Mobile Banking and Payments Survey

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

Responses

69

Overall			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	43%	39%	17%
Card-not-present fraud (for online purchases made via mobile phone)	51%	45%	4%
Data breach	54%	36%	10%
Inadequate customer security behavior	62%	36%	4%
Inadequate mobile device security	55%	39%	6%
Inconsistent customer authentication methods	35%	46%	17%

Responses

< \$100 M			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	50%	25%	25%
Card-not-present fraud (for online purchases made via mobile phone)	50%	50%	0%
Data breach	50%	50%	0%
Inadequate customer security behavior	75%	25%	0%
Inadequate mobile device security	75%	25%	0%
Inconsistent customer authentication methods	50%	50%	0%

4

\$100 - 250M			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	31%	38%	31%
Card-not-present fraud (for online purchases made via mobile phone)	50%	50%	0%
Data breach	50%	38%	13%
Inadequate customer security behavior	50%	50%	13%
Inadequate mobile device security	31%	50%	19%
Inconsistent customer authentication methods	19%	50%	31%

16

Responses

\$250 - 500M			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	67%	29%	5%
Card-not-present fraud (for online purchases made via mobile phone)	62%	38%	0%
Data breach	71%	24%	5%
Inadequate customer security behavior	76%	24%	0%
Inadequate mobile device security	71%	29%	0%
Inconsistent customer authentication methods	62%	33%	0%

21

\$500M - 1B			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	33%	50%	17%
Card-not-present fraud (for online purchases made via mobile phone)	50%	25%	25%
Data breach	42%	50%	8%
Inadequate customer security behavior	67%	25%	8%
Inadequate mobile device security	58%	42%	0%
Inconsistent customer authentication methods	17%	67%	17%

12

Responses

> \$1B			
Security Concern	High	Medium	Low
Account takeover during or after mobile enrollment process	31%	50%	19%
Card-not-present fraud (for online purchases made via mobile phone)	38%	63%	0%
Data breach	44%	38%	19%
Inadequate customer security behavior	50%	50%	0%
Inadequate mobile device security	50%	44%	6%
Inconsistent customer authentication methods	25%	44%	31%

16

2016 Federal Reserve Mobile Banking and Payments Survey

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

Security Tool	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Biometrics (e.g., fingerprint, facial, voice recognition, etc.)	77%	100%	63%	71%	92%	81%
Geo-location	46%	75%	31%	38%	42%	69%
Payment tokenization	58%	75%	63%	33%	83%	63%
Customer notification of attempt/success in provisioning card to mobile wallet	57%	50%	31%	67%	75%	56%
Mobile device ID	52%	25%	50%	52%	50%	63%
One-time password (OTP)	19%	25%	6%	19%	25%	25%
Ability for customer to remotely disable mobile wallet if phone lost/stolen	48%	50%	44%	48%	67%	38%
3-D Secure* (3DS) for ecommerce transactions	12%	25%	6%	19%	8%	6%
Other:	2.9%	25%	6%	0%	0%	0%

Number of Responses

69

4

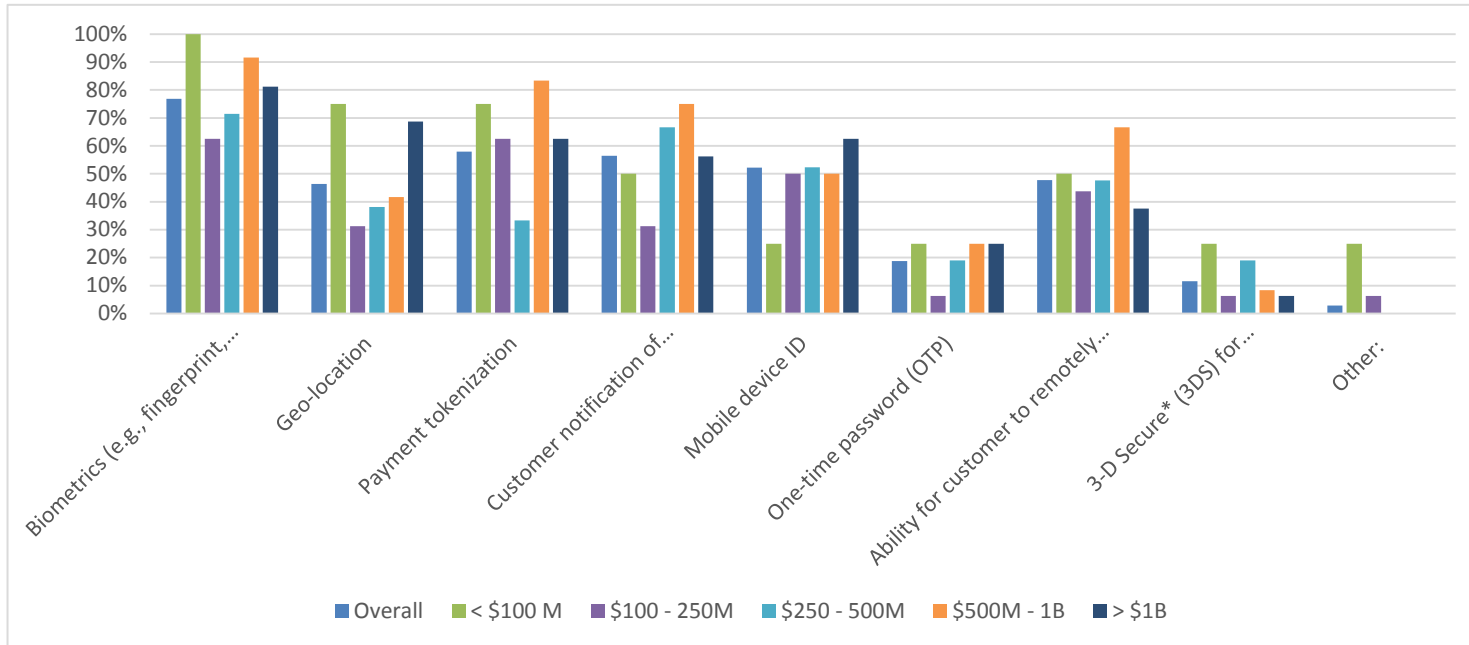
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21

12

16

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



2016 Federal Reserve Mobile Banking and Payments Survey

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

Responses

Overall			
Factor	High	Medium	Low
Lack of customer demand	63%	21%	17%
Limited benefit to FI	38%	33%	29%
Security concerns	65%	25%	10%
Regulatory issues	31%	52%	17%
Lack of standards and interoperability	25%	44%	31%
ROI/Lack of business case	38%	40%	23%
Lack of consistent, reliable cellular coverage	8%	25%	67%

46

< \$100M			
Factor	High	Medium	Low
Lack of customer demand	82%	18%	0%
Limited benefit to FI	36%	27%	36%
Security concerns	82%	18%	0%
Regulatory issues	45%	45%	9%
Lack of standards and interoperability	27%	27%	45%
ROI/Lack of business case	45%	27%	27%
Lack of consistent, reliable cellular coverage	0%	9%	91%

11

\$100 - 250M			
Factor	High	Medium	Low
Lack of customer demand	70%	10%	20%
Limited benefit to FI	40%	30%	30%
Security concerns	45%	40%	15%
Regulatory issues	20%	60%	20%
Lack of standards and interoperability	25%	40%	35%
ROI/Lack of business case	40%	40%	20%
Lack of consistent, reliable cellular coverage	15%	35%	50%

Responses
20

\$250 - 500M			
Factor	High	Medium	Low
Lack of customer demand	25%	38%	38%
Limited benefit to FI	38%	38%	25%
Security concerns	88%	0%	13%
Regulatory issues	38%	38%	25%
Lack of standards and interoperability	38%	38%	25%
ROI/Lack of business case	38%	38%	25%
Lack of consistent, reliable cellular coverage	13%	13%	75%

8

\$500M - \$1B			
Factor	High	Medium	Low
Lack of customer demand	40%	60%	0%
Limited benefit to FI	0%	80%	20%
Security concerns	80%	20%	0%
Regulatory issues	20%	80%	0%
Lack of standards and interoperability	0%	100%	0%
ROI/Lack of business case	20%	80%	0%
Lack of consistent, reliable cellular coverage	0%	40%	60%

5

> \$1B			
Factor	High	Medium	Low
Lack of customer demand	100%	0%	0%
Limited benefit to FI	100%	0%	0%
Security concerns	50%	50%	0%
Regulatory issues	50%	50%	0%
Lack of standards and interoperability	50%	50%	0%
ROI/Lack of business case	50%	0%	50%
Lack of consistent, reliable cellular coverage	0%	0%	100%

Responses

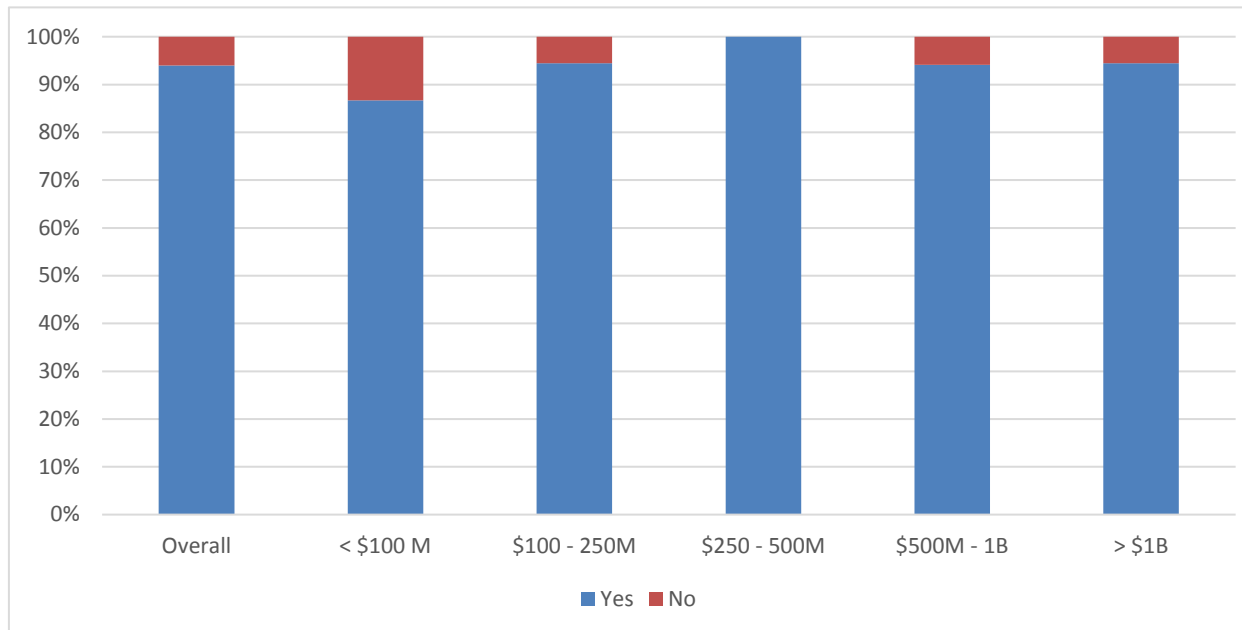
2

2016 Federal Reserve Mobile Banking and Payments Survey

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

Response	Overall	< \$100 M	\$100 - 250M	\$250 - 500M	\$500M - 1B	> \$1B
Yes	94%	87%	94%	100%	94%	94%
No	6%	13%	6%	0%	6%	6%

Number of Responses 115 15 36 29 17 18



2016 Federal Reserve Mobile Banking and Payments Survey

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%?

Responses

Overall				
	2 Years	3 Years	5 Years	> 5 Years
At POS	20%	35%	27%	18%
In-App/Mobile Web	25%	37%	23%	15%

117

< \$100M				
	2 Years	3 Years	5 Years	> 5 Years
At POS	18%	41%	35%	6%
In-App/Mobile Web	24%	29%	47%	0%

17

\$100 - 250M				
	2 Years	3 Years	5 Years	> 5 Years
At POS	28%	22%	31%	19%
In-App/Mobile Web	28%	28%	28%	17%

36

\$250 - 500M				
	2 Years	3 Years	5 Years	> 5 Years
At POS	14%	38%	28%	21%
In-App/Mobile Web	21%	45%	14%	21%

29

\$500M - \$1B				
	2 Years	3 Years	5 Years	> 5 Years
At POS	0%	41%	29%	29%
In-App/Mobile Web	18%	29%	24%	18%

17

Responses

18

> \$1B				
	2 Years	3 Years	5 Years	> 5 Years
At POS	33%	44%	11%	11%
In-App/Mobile Web	33%	56%	6%	6%