

MOBILE MONEY



Finding the value in mobile payments for merchants and consumers

Megan Chesterfield reaches into her purse to pay for a cup of coffee. Instead of a wallet, she pulls out a smartphone.

“The app has a barcode that the store’s machine reads and it withdraws the money from my account.”

Chesterfield replenishes the account, which is maintained by a third party the merchant uses for mobile transactions, every time she gets paid.

“I only keep about \$20 or \$30 in there,” she said.

She says using a “virtual wallet” is easier than getting her leather wallet out and paying with a debit or credit card, or getting cash out of the ATM and carrying it with her.

“I think it’s safer than carrying around cash and the app helps me keep track of how much I spend,” she said.

She has to use her debit card most of the time though.

“There aren’t many places that use apps or can read your phone,” she said.

This may change in the future, however, as merchants are actively developing and implementing mobile payments.

U.S. payments environment

U.S. consumers like Chesterfield, who use mobile payments, are few compared to Europe and Japan, but the payments system is trending toward mobile use.

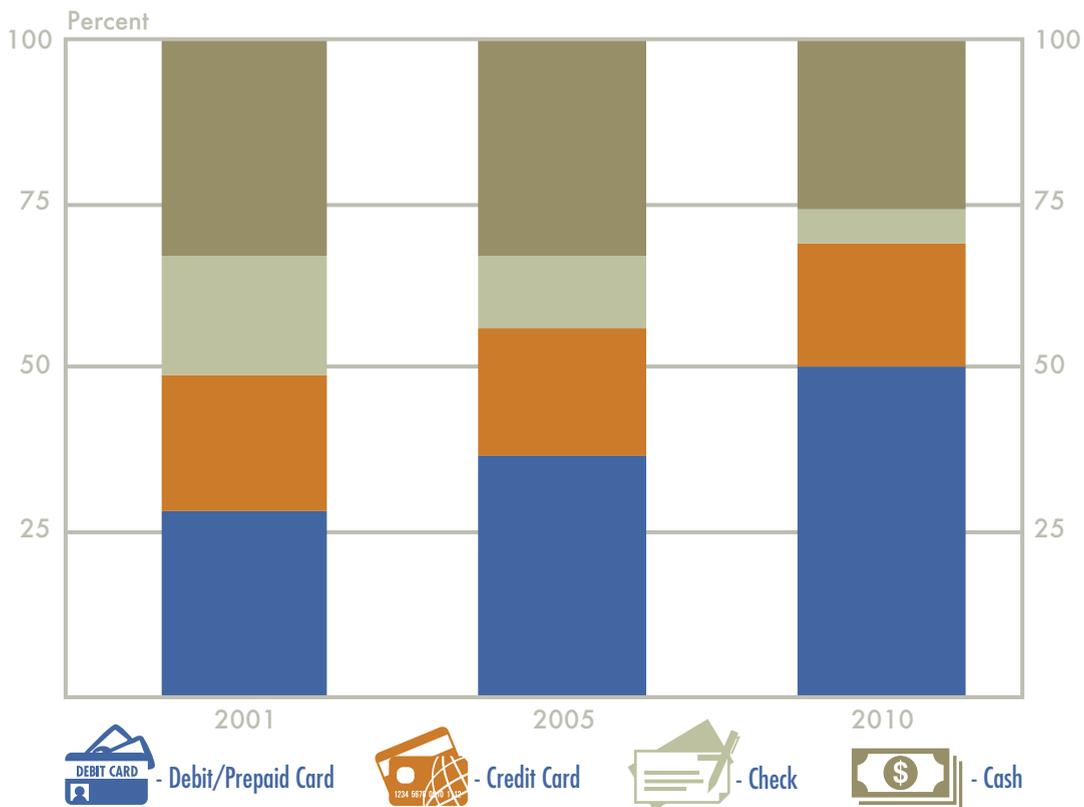
According to Federal Reserve Bank of Kansas City Senior Economist Fumiko Hayashi and Payments System Research Specialist Terri Bradford, the U.S. payment system has evolved from paper-based payments, such as checks, to electronic payments, such as payment cards.

In their research, “Mobile Payments: Merchants’ Perspectives,” Hayashi and Bradford explain that the share of consumers who prefer to use a credit, debit or prepaid card at brick-and-mortar merchants increased from 49 percent in 2001 to 69 percent in 2010.

Fees charged to merchants to process payment cards, and rules and security standards set by payment card networks, affect merchants’ net income.

“Fees merchants pay to accept card transactions have risen rapidly in the last two decades because of increased volume and value of card transactions and increased fees per transaction,” Hayashi and Bradford said. “The increased fees per transaction are attributed to

CONSUMERS' PREFERRED METHOD OF PAYMENT AT BRICK-AND-MORTAR MERCHANTS



Source: Hitachi Consulting and BAI

interchange fees, which are paid to card issuers and account for more than 80 percent of all fees merchants pay for card transactions.”

One of the merchants’ motivations to accept mobile payments is to reduce the card acceptance fees.

Hayashi and Bradford based their research on a survey they conducted of merchants representing a variety of market categories. About 65 percent of merchants interviewed were from the top 100 retailers, based on 2012 retail sales, and each was either a national or large regional retailer. Participants represented various functions in their organizations and had knowledge about mobile payments.

According to Hayashi and Bradford, payment cards are more expensive for merchants than any other payment method, especially credit cards offering rewards. Recent

regulations reduced the fees on debit card transactions, but cash remains the cheapest method of payment for some merchants.

One new electronic payment method some merchants offer, Hayashi and Bradford point out, is a proprietary payment method using the automated clearinghouse (ACH) to directly debit their customers’ bank accounts. Merchants’ cost to process ACH transactions is about 15 cents per transaction, making ACH less expensive than debit or prepaid cards but likely more expensive than cash.

Recent debit card regulation and two legal settlements have allowed merchants more flexibility in how they want customers to pay and how they can keep down costs associated with card payments, but many merchants don’t take advantage of the flexibility, Hayashi and Bradford said.

In the United States, the implementation of Europay Mastercard Visa (EMV) cards—cards embedded with a computer chip—is currently underway. The cards are less susceptible to fraud than current magnetic stripe cards. The switch is expensive—card readers and cards cost merchants and card issuers.

One way payment networks are prompting merchants to make the switch to more secure chip cards is by shifting fraud loss liability for “card-present” transactions to the merchant if the merchant has not invested in EMV technology and the card issuer has—otherwise liability remains the same, with the card issuer absorbing most of the loss.

EMV technology allows for the use of contactless readers. Instead of inserting a computer-chip card into a device, a contactless reader connects with the card’s chip using near-field-communication (NFC), a technology used for mobile payments.

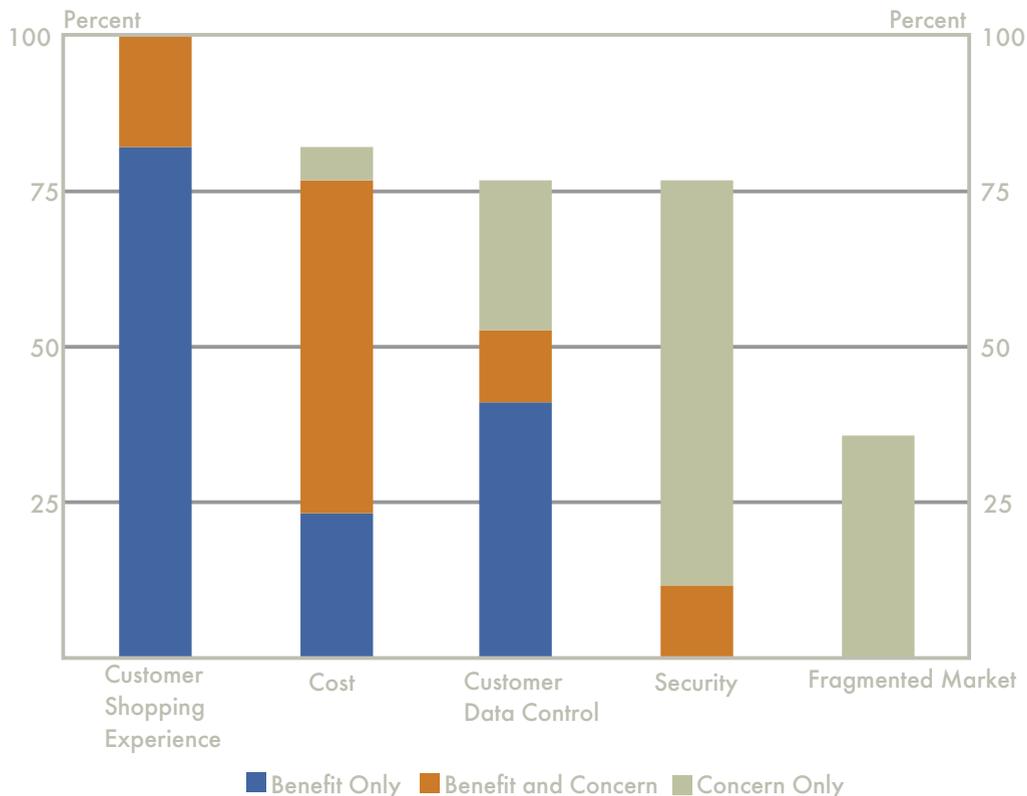
Today’s mobile payments

A Pew Internet & American Life Project survey found that a majority (65 percent) of respondents agree with the statement that by 2020 “most people will have embraced and fully adopted the use of smart-device swiping for purchases they make, nearly eliminating the need for cash or credit cards.” One-third of respondents, however, thought NFC and mobile payments will not catch on by that date.

Mobile carriers, credit card companies, Google, eBay/PayPal, Square, Intuit and various other companies are offering a range of payments tools, platforms and apps for local business owners, retailers and consumers.

The pace of acceptance and use of these tools and devices has been slow. Google Wallet, for example, is still having trouble with consumer adoption. By far, online bill payment in the United States remains the most common “mobile payment” activity.

SHARES OF MERCHANTS WHO CITED ATTRIBUTES AS A BENEFIT, A CONCERN, OR BOTH



Source: Hayashi and Bradford

Shane Langston, president of DCT Mobile, a Kansas City, Mo., systems integration company specializing in mobile applications, said there's a curiosity about mobile payments—clients regularly ask him and his employees about implementation. But the curiosity among some DCT clients doesn't necessarily translate into a desire to transition payment methods.

DCT provides mobile software to clients, including business-to-business companies, business-to-consumer companies, service industries and direct-store delivery businesses.

DCT representatives don't recommend mobile payment as of now, Langston said, given the U.S. market is still based on payment cards.

"The reason we haven't gotten into it is because of the complexity and cost to develop that software, and there are just not enough customers to make it worthwhile," Langston said.

The demand, however, is growing among merchants, especially merchants who serve a more technology-driven clientele.

According to a report published in *Compendium*, in 2013, 18 to 29 year olds used a smartphone more than any other

age demographic in the United States, and it is one of the fastest growing groups to likely use a smartphone for some type of financial transaction.

Matt Matros, CEO of Protein Bar, said in a recent interview with *Mobile Payments Today* that mobile payments are growing within the restaurant industry—the new technology allows merchants to better serve mobile-savvy customers with high expectations.

Mass adoption within the industry will take time, however, because merchants are still uncertain about the new technologies and the companies that support them, and consumers are concerned about transaction security, Matros said.

Available mobile payment technology

The three main technologies that have emerged for mobile payments are NFC, code-based—barcode and QR code—and cloud-based.

NFC allows a consumer to complete a transaction by tapping or waving a mobile device at a merchant's point-of-sale terminal. The information is transferred through a short, wireless transmission.

Barcodes and QR codes store information that can be read by a point-of-sale scanner.

Cloud technology uses remote servers to store data and can make transactions by using a consumer's mobile phone number with a personal identification number (PIN) entered into a PIN pad at a merchant's store. Other cloud-based methods rely on location-based technology that monitors a consumer's location with a mobile payment application.

Each of the three technologies is used in some existing mobile payment applications or ones in development, Hayashi and Bradford said.

NFC is used for mobile wallet applications provided by Google and by Isis, a joint venture of mobile network operators AT&T, T-Mobile, and Verizon. Barcodes and QR codes are



PHOTO BY ISTOCK

mainly used in a merchant's proprietary mobile payment application, such as the one used by Starbucks and for open-loop mobile payment applications offered by third-party providers, such as LevelUp.

Also, a joint venture among a growing number of leading merchants called the Merchant Customer Exchange (MCX) plans to use QR codes at least initially in its mobile payment application. Cloud technology is used by third-party mobile payment providers, such as PayPal and Square.

Requirements for consumers and merchants to use mobile payments vary by technology. NFC-based mobile payments require both consumers and merchants to make significant investment.

"However, the U.S. payment card industry's migration to EMV card technology may encourage merchants to install NFC-equipped terminals," Hayashi and Bradford said. "Merchants who plan to adopt EMV can also accept NFC-based mobile payments by installing contactless card readers. For many merchants, the cost difference between investing in EMV contactless card readers and investing in EMV contact card readers is likely small."

In contrast, code-based and cloud-based mobile payments have fewer requirements. Consumers only need a smartphone and an app. While QR-code based mobile payments may require merchants to install QR-code scanners, barcode- and cloud-based mobile payments do not require any equipment installation.

The future

Hayashi and Bradford found that among five mobile payments attributes they examined, the effects on merchants of two attributes are clear while three are unclear.

Two attributes with clear effects on merchants are customer shopping experience and fragmented markets.

Enhanced shopping experiences through mobile offerings will encourage consumer

adoption of mobile payments and help merchants stay competitive.

A marketplace with dozens of applications and devices could cause fragmentation—with fragmented technologies and applications, merchants will need to invest heavily and will have difficulty selecting mobile applications suited for them.

The effects of three other attributes—cost, customer data control and security—are uncertain. Whether mobile payments will provide cost savings to merchants depends on the technology and funding sources used for mobile payments. Whether merchants gain control or ownership of customer data depends on who provides mobile payments, and mobile payments will likely improve payment security over magnetic-stripe cards but heighten concerns about customer data security.

While Langston said he doesn't envision mobile payments becoming the new normal anytime soon, he believes payment methods in the United States will change.

"Eventually the mag stripe will go away and it will be replaced by this chip technology, but it will be across all transactions," he said.



KEVIN WRIGHT, EDITOR

FURTHER RESOURCES

"Mobile Payments: Merchants' Perspectives,"

By Fumiko Hayashi and Terri Bradford, www.kansascity-fed.org/publicat/econrev/pdf/14q2Hayashi-Bradford.pdf.

COMMENTS/QUESTIONS are welcome and should be sent to teneditors@kc.frb.org.