MEXICO EDITION

$17 BILLION
Value of Mexico's eCommerce market

26.1%
Percentage of cash share in 2016

90% Percentage of Mexican citizens who prefer to make payments using cash
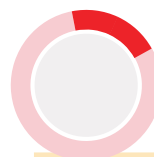
37.7 Number of ATMs per 100,000 people

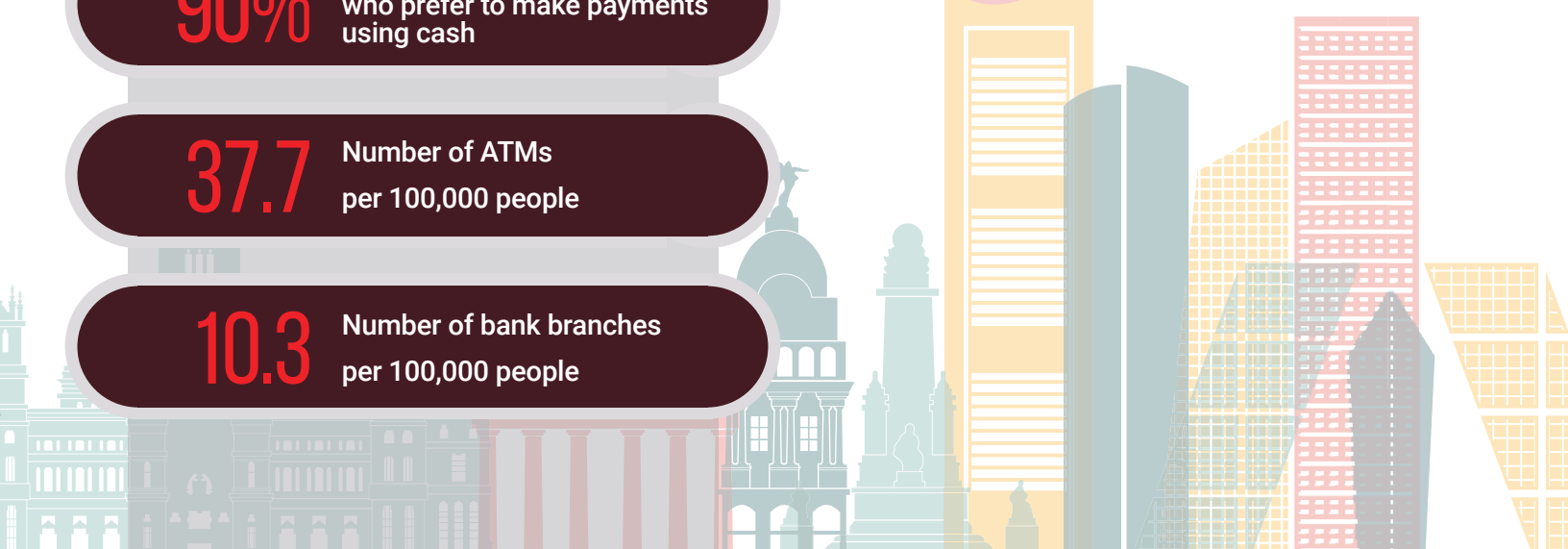**10.3** Number of bank branches per 100,000 people

CASH USAGE IN MEXICO:
INTRODUCTION

To say that cash still plays a role in Mexico's economy would be an understatement. Cold hard cash not only has a vital place in Mexican economics, but also dominates the financial landscape.

Cash's influence in Mexico is all but impossible to overlook, with 90 percent of the country's population preferring to use it to pay for any transaction.[1]

With such a significant portion of the population using cash to make payments, for retailers — national or international — doing business means keeping cash front and center of their payments strategy.

That's a phenomenon widely visible in Mexicos's fast-growing eCommerce industry, which is currently valued at more than $17 billion. For global retail giants Amazon and Walmart, doing business in Mexico has required the introduction of a "hybrid payment system" that encourages shoppers to buy goods online but pay for them using cash at physical locations like convenience stores.

In October 2017, Amazon rolled out its Amazon Cash program, which allowed customers to add credit to their online account at more than 6,000 convenience store locations and pharmacies in Mexico.

Meanwhile, Walmart installed more than 2,000 kiosks at its brick-and-mortar stores that allow customers to shop online and pay for products in-store.

Mexico's preference for cash also outpaces the rate seen in other nations in the Americas. The latest PYMNTS Global Cash Index™ – The Americas Edition, studied the role of cash in the U.S., Brazil and Mexico.[2] Of the three nations studied, Mexico demonstrated the highest propensity in 2016, boasting a cash share of 26.1 percent. Meanwhile, Brazil's was 21.4 percent that year, and the U.S. stood at 12.7 percent.

Along with the highest cash propensity rating in the Americas report, Mexico boasted the third-largest economy with a GDP of $1,046 billion dollars in 2016. As Figure 1 indicates, its nominal gross domestic product (GDP) is on track to increase at a compound annual growth rate (CAGR) of 7.6 percent from 2016 to 2021, reaching a GDP of $1,470 billion USD.

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[1] Navarro, Andrea. Why Amazon orders in Mexico need cash and the corner store. The Star Online. Dec. 3, 2017. https://www.thestar.com.my/tech/tech-news/2017/12/03/why-amazon-orders-in-mexico-need-cash-and-the-corner-store/. Accessed February 2018.

[2] Author unknown. Global Cash Index – The Americas Edition. PYMNTS. December 2017. https://www.pymnts.com/cash/2018/cash-economies-americas-usa-mexico-brazil/. Accessed February 2018.

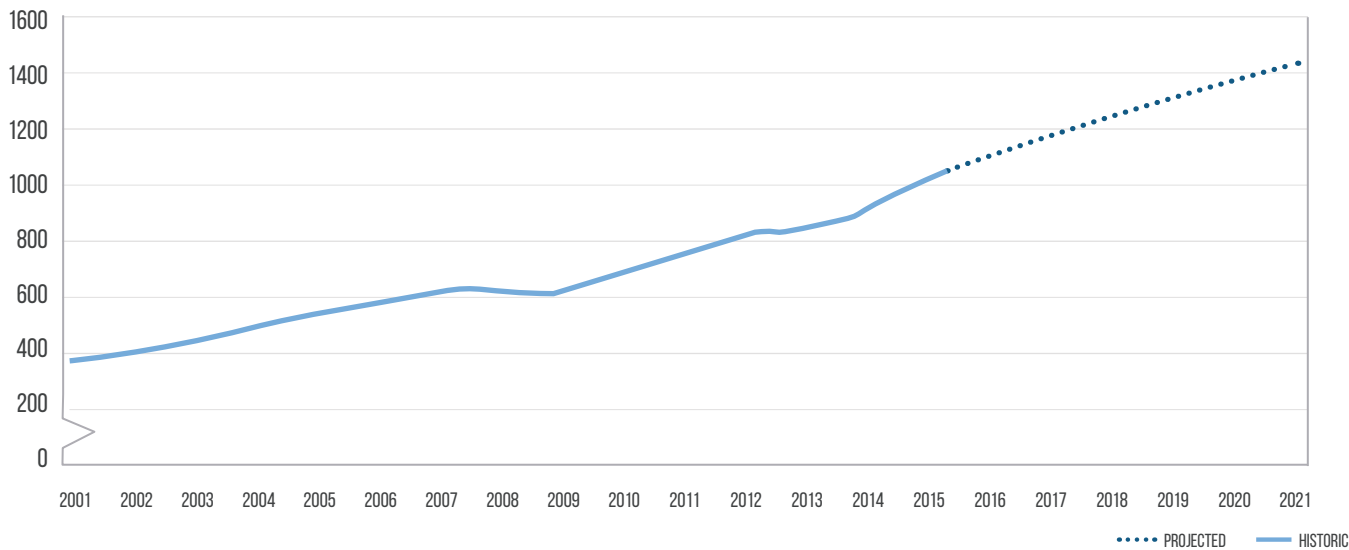**FIGURE 1.** HISTORIC AND PROJECTED GDP FOR MEXICO, 2000-2021 (NOMINAL, IN BILLION DOLLARS)

Figure 2 shows the historic growth rate of Mexico's GDP and the projected growth through 2021. As indicated, the nation's GDP experienced its largest drop during the subprime crisis from 2008 to 2009, decreasing by 1.3 percent.

FIGURE 2. HISTORIC AND PROJECTED GDP GROWTH FOR MEXICO, 2001-2021 [6]
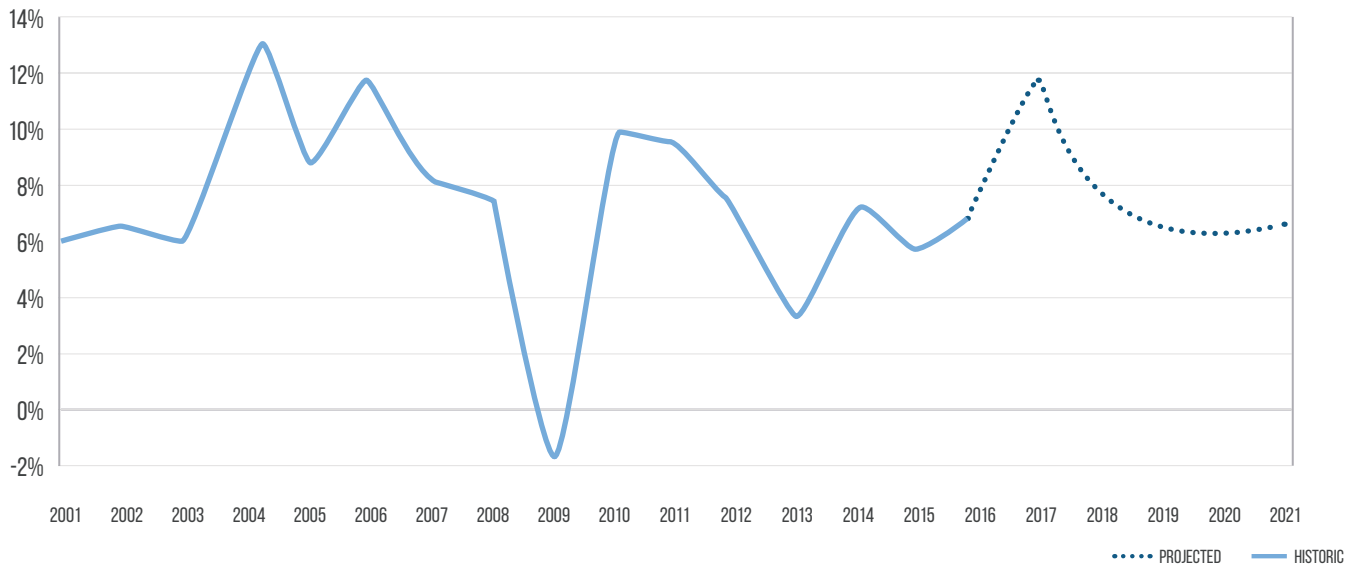
While cash share of GDP has historically been high, recent research indicates it has been on a gradual decline for more than a decade. PYMNTS' analysis indicates Mexico reduced its cash share from 36.3 percent of its GDP in 2006 to 26.1 percent in 2016.

Nonetheless, total cash use in Mexico remains high today, representing a trend that is likely to continue in the future. High cash use comes against growing availability of card and digital payments. Given the looming influence of cash in the Mexican economy, though, getting citizens to give up cash usage will likely not be an easy task.

Popularity isn't the only roadblock standing in the way of adoption of alternatives to cash. An underdeveloped banking structure and robust underground banking economy also make a transition away from cash more difficult.

CASH SHARE PROJECTION
IN MEXICO

Mexico has seen some reduction in its cash share of GDP in the past decade. Its usage there has declined by just more than 10 percent, down from 36.3 percent of its GDP in 2006 to 26.1 percent in 2016.

This decrease has largely been driven by an overall decline in the share of over-the-counter (OTC) withdrawals. As Figure 3 indicates, OTC withdrawal usage has been steadily decreasing during this time, down from 22.9 percent in 2006 to 9.6 percent in 2016.

While OTC withdrawals have been in decline, use of ATMs for withdrawals has steadily increased. As Table 1 indicates, ATM withdrawals increased from 13.4 percent of Mexico's GDP in 2006 to 16.5 percent as of 2016, a trend that has kept cash usage from dipping further in the country.

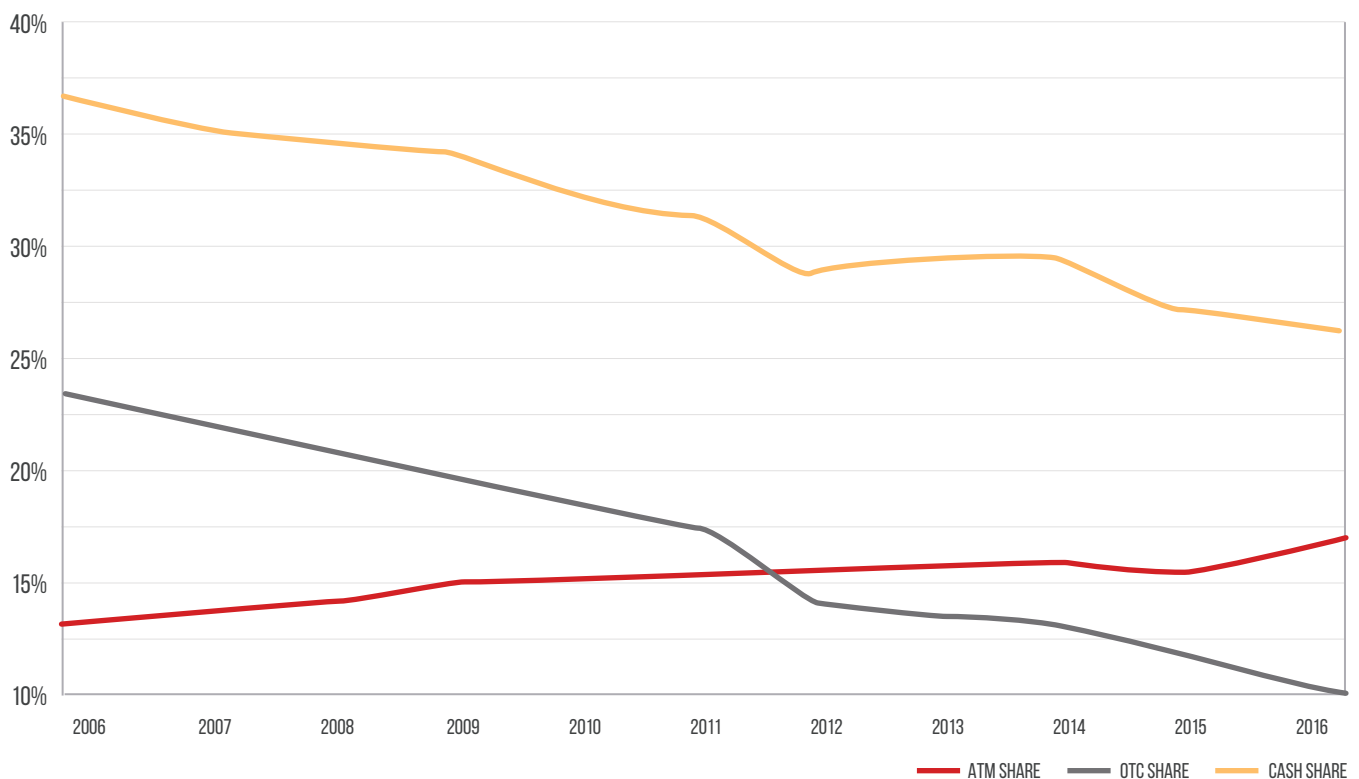**FIGURE 3.** HISTORIC ATM, OTC AND CASH SHARE AS PERCENTAGE OF GDP

ATM SHARE   OTC SHARE   CASH SHARE

TABLE 1. GDP AND CASH USAGE DATA FOR MEXICO (IN BILLION DOLLARS)

YEAR	NOMINAL GDP IN DOLLARS	CASH USAGE — BILLION DOLLARS			ATM SHARE	OTC SHARE	CASH SHARE
		ATM	OTC	TOTAL			
2006	564.8	75.8	129.4	205.2	13.4%	22.9%	36.3%
2007	611.2	85.1	131.9	217.0	13.9%	21.6%	35.5%
2008	657.0	93.7	133.0	226.7	14.3%	20.2%	34.5%
2009	648.2	98.7	122.6	221.2	15.2%	18.9%	34.1%
2010	711.9	105.6	125.5	231.1	14.8%	17.6%	32.5%
2011	779.9	114.6	130.5	245.2	14.7%	16.7%	31.4%
2012	837.6	122.5	117.8	240.2	14.6%	14.1%	28.7%
2013	863.9	130.8	117.4	248.3	15.1%	13.6%	28.7%
2014	925.1	145.4	115.9	261.3	15.7%	12.5%	28.2%
2015	978.8	153.5	106.8	260.3	15.7%	10.9%	26.6%
2016	1047.3	173.2	100.3	273.5	16.5%	9.6%	26.1%

Innovations in alternative payment methods like debit, credit cards, electronic funds transfers and mobile payments, among others, have also contributed to lower usage of cash in Mexico.

Though these newer payment methods may be contributing to a pattern of slowing cash usage in Mexico, the country's population is far from fully embracing them. This has allowed cash to retain a stronghold on the economy.

POWERING THE
UNDERBANKED POPULATION

A large underbanked population is one of the key reasons Mexico's population is not yet ready to adopt alternate payment options. More than three-quarters of Mexican adults do not have access to a bank account with a regulated financial institution.[3] That equates to far more underbanked consumers than in the United States, for example, where 88 to 91 percent of the population have access to financial resources, according to World Bank and FDIC estimates.[4]

Mexico's high underbanked population makes it more difficult for citizens to access earnings. Only 14 percent of Mexicans receive their salaries and wages deposited into a bank account,[5] a trend highlighting the importance of enabling workers in Mexico to access their funds in cash.

In addition to a large underbanked population, concerns surrounding banking fraud are also a significant stumbling block hindering the success of digital payment methods in the country. The latest Consumer Payments Insight Survey, conducted by GlobalData Financial Services, revealed fraud is still a significant barrier deterring consumers from regularly engaging in eCommerce in Mexico.[6] This fear is preventing growth of online shopping there, further stalling the adoption of non-cash payment methods like credit cards, debit cards and electronic funds.

Put together, these factors are helping to cement the Mexican population's preference for cash, creating a cultural inertia that is proving highly difficult to reverse.
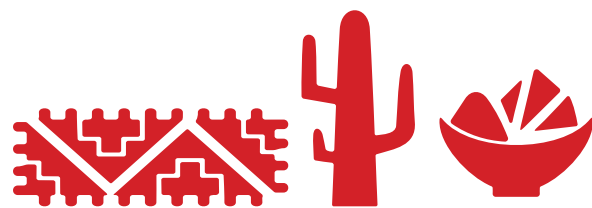
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[3] Mazzota, B. and B. Chakravorti. The cost of cash in Mexico. The Fletcher School, Tufts University. December 2014. http://fletcher.tufts.edu/~/media/Fletcher/Microsites/Cost%20of%20Cash/CCMEX-final-web.pdf. Accessed February 2018.

[4] Author Unknown. 2015 FDIC National Survey of Unbanked and Underbanked Households. FDIC. https://www.fdic.gov/householdsurvey/. Accessed February 2018.

[5] Mazzota, B. and B. Chakravorti. The cost of cash in Mexico. The Fletcher School, Tufts University. December 2014. http://fletcher.tufts.edu/~/media/Fletcher/Microsites/Cost%20of%20Cash/CCMEX-final-web.pdf. Accessed February 2018.

[6] Author unknown. Barriers to e-commerce preventing consumer engagement. Electronic Payments International. Nov. 20, 2017. https://www.verdict.co.uk/electronic-payments-international/opinion/e-commerce-consumer-engagement. Accessed February 2018.

CASH VERSUS
ALTERNATIVE PAYMENT METHODS

While cash has proven a resilient economic fixture in Mexico's economy, there are signs that alternate payment methods are beginning to make inroads — albeit at a glacial pace. That includes card-based payments, electronic funds transfers, online banking transactions and mobile payments, among others, all of which have been gaining ground in recent years.

The increase in electronic funds transfers and online banking transactions can be traced back to actions taken by the Central Bank of Mexico more than a decade ago. It introduced the Sistema de Pagos Electrónicos Interbancarios (SPEI) system in 2004, enabling bank customers to make instant electronic transfers. Bank customers can now use SPEI to make transfers to other banks on a 24/7/365 basis, eliminating the previously established transfer hours of 6 a.m. to 5:30 p.m. on banking days.[7]

Meanwhile, Mexico's FinTech industry is rapidly growing, with 80 new technology startups emerging between August 2016 and June 2017 and representing a market growth rate of 50 percent.

Spanish private equity firm Finnovista's recent analysis, FinTech Radar Mexico, positions the country as the largest FinTech ecosystem in Latin America, ahead of Brazil for the first time as of 2017. It boasts 238 active startups compared to 230 in Brazil, thanks to a combination of several factors like high internet and smartphone device penetration rates, and a low "bankarization" rate for the population. Bankarization refers to the level of access a nation's population has to financial services.

FinTechs operating in the two Latin American markets may share a geographic region, but they have very different priorities. While 37 percent of Brazil's startups focus on developing solutions for B2B transactions, only 17 percent of Mexican startups share that focus. Additionally, Mexico's startup players tend to target under- and unbanked customers more frequently than their Brazilian counterparts. This enables its FinTech community to avoid direct competition with established banks, instead working toward the broader goal of financial inclusion.[8]

Mexico's FinTechs players are thriving in the fields of crowdfunding, financial management, loans, insurance, investment and financial education solutions. They are gaining traction as they eliminate consumers' need to visit bank branches to conduct operations.[9]

In addition, Mexico's lawmakers are also taking steps to further boost the nation's FinTech space. Its Senate passed a bill aimed at regulating the sector in December through legislation that included crowdfunding and cryptocurrency firms. Known as the "FinTech Law," the bill is intended to promote financial stability and implement measures against money laundering or terrorism financing — all by regulating companies that deal in virtual currencies like bitcoin.

Bill supporters believe the proposal will establish clear rules for the FinTech sector, helping to cut costs for users by encouraging competition between its main players: crowdfunding and payment firms.[10]

The seven most influential banks in Mexico currently control more than 80 percent of its banking assets, including the information of clients. The bill is to help smaller players increase their share of customers by enabling startups to compete on a more level playing field.[11]

Several organizations and companies supported the bill, including the Association of Payment Media Aggregators of Mexico, a trade organization made of more than 20 companies. It includes PayPal, MercadoPago, PayU, Conekta, Billpocket, iZettle, BanWire and the Mercadotecnia Ideas y Tecnología (MIT), among others.[12]

The bill also aims to boost bankarization rates. As stated before, just 27 percent of Mexican adults have a bank account.

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[8] Author unknown. The Mexican Fintech ecosystem grows 50% in less than a year and overtakes Brazil as the Fintech Leader in Latin America. Finnovista. https://www.finnovista.com/update-fintech-radar-mexico/?lang=en. Accessed February 2018.

[9] Galindo Manrique, Alicia Fernanda. Fintech firms: a growing Mexican industry. El Financiero. June 7, 2018. http://www.elfinanciero.com.mx/monterrey/empresas-fintech-industria-mexicana-en-crecimiento.html. Accessed February 2018.

[10] Espejo, Sheky. Mexican Senate passes fintech law. Reuters. Dec. 6, 2017. https://www.reuters.com/article/us-mexico-finance/mexican-senate-passes-fintech-law-idUSKBN1E00HX. Accessed February 2018.

[11] El Economista. Fintech sector urges deputies to pass bill. El Economista. Dec. 6, 2017. https://www.eleconomista.com.mx/sectorfinanciero/Sector-fintech-urge-a-diputados-aprobar-ley-20171206-0135.html. Accessed February 2018.

[12] Chávez, Alejandro. Financial inclusion in Mexico: the objective of the ASAMEP. My Press. Feb, 7, 2018. https://www.mypress.mx/negocios/inclusion-financiera-en-mexico-objetivo-de-asamep-694. Accessed February 2018.

MEXICAN
MOBILE BANKING

Meanwhile, mobile banking has been experiencing slow growth in Mexico and could be poised to disrupt the country's economy in the years to come. This is largely because smartphone availability is poised to increase, with the number of smartphone users in the market projected to rise from 51 million in 2017 to 75.4 million by 2022.[13]

Adding fuel to Mexico's mobile payments fire is the fact that several global companies have already launched mobile payments services in the country. Last November, for example, South Korean-based Samsung launched its mobile payments service, Samsung Pay, in Mexico. The launch was to enable users to make payments almost anywhere, and Mexico became the third Latin American country in which Samsung Pay is available, following Brazil and Puerto Rico.[14]

Two other major global retailers recently launched a solution aimed at accommodating Mexican consumers' preference for cash, while simultaneously encouraging greater eCommerce participation. Last year, Amazon and Walmart partnered on a hybrid payment system designed for Mexican consumers, one that allows shoppers to select products to purchase online and then pay for them in-person via cash.

The two companies are also making moves to help convince Mexican consumers to adopt mobile payments. Amazon launched its Amazon Cash program in October 2017, allowing customers to deposit money into an account that can be used at more than 6,000 convenience stores and pharmacies across Mexico. Meanwhile, Walmart's Mexican division, Walmex, has rolled out roughly 2,000 kiosks intended to both act as points of payment and also educate consumers about new payment options. With the kiosks in place, Walmart will encourage consumers to transition from cash toward using their smartphones to make payments.[15]

The hybrid system is to strengthen both firms' recently acquired footholds in the market. Amazon, which formally launched in Mexico in 2015, became the nation's top online retailer last year, generating $502.2 million in sales in 2017 and an increase of 105 percent, according to market research firm Euromonitor. Online marketplace operator Mercado Libre saw an 82 percent jump in sales during the same time.

Even with greater online shopping activity reported last year, Mexico's eCommerce market is still in its early stages. Online sales in Mexico still accounted for more than 3 percent of all retail sales last year.[16] As online sales activity increases, cash will likely stay on top of the pack. Due to fears of credit card fraud and theft, many Mexican consumers are opting to pay for online purchases using cash.

Alternative payment methods all have their perks when compared to cash. They eliminate the need for people to visit bank branches, do not require them to carry around paper bills, can save consumers time by eliminating lines and enable faster payments and checkouts.

These new payment options also have their drawbacks, however, including risk of card fraud — by cloning cards and identity theft, among other tactics — and hidden or poorly understood account fees. Fees continue to deter alternate payment methods use in Mexico, and card acceptance is fairly low. Even consumers with access to payment cards cannot simply use them whenever and wherever they want.

Given these factors, cash still has an opportunity to thrive in Mexico. What remains to be seen is how the Mexican population will adapt to new payment methods as they become more widely available.

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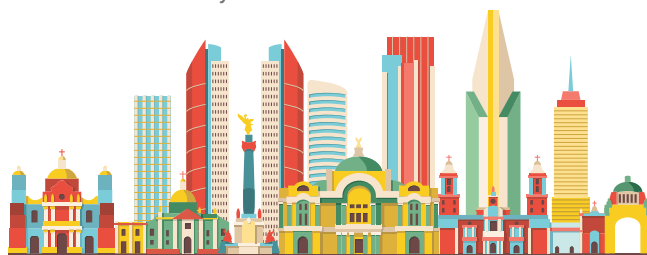
[13] Statista. Number of smartphone users in Mexico from 2015 to 2022 (in millions). Date unknown. https://www.statista.com/statistics/270970/number-of-smartphone-users-mexico/. Accessed February 2018.

[14] Author unknown. Samsung Pay arrives in Mexico. Electronic Payments International. Nov. 24. 2018. https://www.verdict.co.uk/electronic-payments-international/news/company-news/samsung-pay-arrives-mexico/. Accessed February 2018.

[15] Bloomberg News. Mexico's ecommerce can thrive with cash payments. Internet Retailer. Nov. 30, 2017. https://www.digitalcommerce360.com/2017/11/30/mexico-amazon-walmart-commerce-thrive-cash/. Accessed February 2018.

[16] Solomon, Diane Beth. Amazon becomes Mexico's top online retailer in 2017: report. AOL. Dec. 15, 2017. https://www.aol.com/article/finance/2017/12/15/amazon-becomes-mexicos-top-online-retailer-in-2017-report/23308919/. Accessed February 2018.

CASH AND THE STATE OF
ATMS IN MEXICO

To better understand cash use, PYMNTS also studied how Mexico's network of ATMs, bank branches and point of sale (POS) terminals compared to other nations. No updated data is available for some of the variables in the U.S., but compared to Brazil, Mexico has a very low number of ATMs and POS terminals per 100,000 people. This further suggests adoption of newer payment methods — like debit and credit cards — will face an uphill climb in Mexico, and cash will likely to continue to thrive.

PYMNTS research found Mexico has 37 ATM terminals per 100,000 people, far below the rate 84 terminals rate in Brazil. The distribution of POS terminals also lags behind Brazil — 702 POS terminals compared to 2,447.

These findings indicate Mexico is experiencing a lower development of everything related to electronic payments availability, particularly when compared to Brazil.

Meanwhile, in the U.S. — the largest economy in the world and third country profiled in The Americas Edition of the PYMNTS Global Cash Index™ — the rate of total ATM and OTC withdrawals per capita was expected to be higher than in Mexico and Brazil. As Table 2 indicates, that proved to be accurate.

Considering that the U.S. is a very "card-intensive" country, its card use per capita is much higher than in Mexico and Brazil. While Mexico's card payments per capita ratio is 733.4, it is far behind Brazil's rate of 1,527.3 and even further behind the 17,104.9 rate seen in the U.S.

TABLE 2. COMPARISON OF FEATURES BETWEEN BRAZIL, MEXICO (2016) AND THE U.S. (2015)

DESCRIPTION	BRAZIL	MEXICO	UNITED STATES
Bank branches per 100,000 people	16.1	10.3	34.7
ATM terminals per 100,000 people	84.7	37.7	
POS terminals per 100,000 people	2,447.1	702.1	
ATM withdrawls per capita (USA)	1,810.8	1,358.2	2,198.5
OTC withdrawls per capita (USD)	44.5	786.5	5,137.1
Card payments per capita	1,527.3	733.4	
ATM withdrawl per ATM terminal (MM USD)	2.1	3.6	17,104.9
OTC withdrawls per bank branch (MM USD)	0.3	7.6	14.8

Mexico boasts a higher OTC withdrawal per capita rate than in Brazil, but a lower rate than in the U.S. OTC withdrawal represent 36 percent of cash use in Mexico compared to just 2.5 percent in Brazil.

In addition, Mexico's payment card usage rate is considerably lower than that of other nations. In fact, card usage per capita in the U.S. is 2,332 percent higher than that in Mexico.

In terms of withdrawals per ATM terminal, Mexico's rate is higher than that seen in Brazil. OTC withdrawals per bank branch are also much higher than in Brazil, but lower than the U.S. In this regard, Brazil sees OTC withdrawals of only $300,000 per year per bank branch.

There are also significant differences in cash and card payments per capita among the three countries. For every dollar spent with cards, $0.43 is spent with cash in the U.S. and $1.21 is spent with cash in Brazil. In Mexico, that figure is $2.92. Its cash use per capita is 141 percent higher than that of Brazil, and 582 percent higher than in the U.S.

Taking this data into consideration, it's hard to overlook a simple conclusion: Mexico strongly prefers cash.

RISK
ADJUSTMENTS

PYMNTS also considered the risk-adjusted projection of cash usage in Mexico, broken down by both the country's population and age groups. Reduction of cash could be accelerated by 50 percent among 19- to 24-year-olds, 30 percent for 25- to 34-year-olds, 15 percent among 35 to 44-year-olds and 2 percent for 45- to 54-year-olds. Assuming these reductions are realized over a five-year period, the risk-adjusted cash share depicted in Figure 4 could reach a cash share of 18.8 percent in 2021, compared to a projected 22.6 percent figure.

FIGURE 4. HISTORIC AND RISK-ADJUSTED CASH PROJECTION

······· PROJECTED   ······· RISK-ADJUSTED   —— HISTORIC
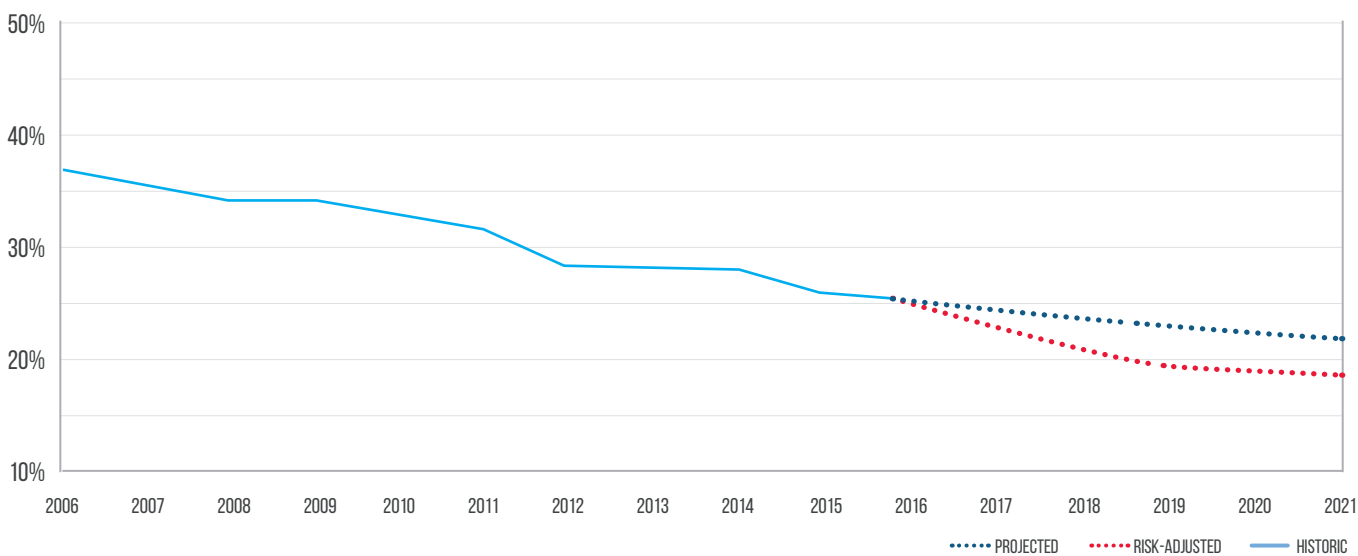
TOTAL CASH USAGE

While cash share in Mexico has seen some decline over the last decade, total cash use in the coming years is likely to increase with high growth in economic activity.

Table 3 and Figures 5 and 6 show real and projected figures. Though projections point to a decrease in cash share in the next five years, it will not be a very strong one. The anticipated CAGR from 2016 to 2021 is not much different than that from 2011 to 2016. Meanwhile, Mexico's GDP is expected to continue to grow 7.6 percent between 2016 and 2021, as is total cash usage in nominal terms to $341 billion dollars for 2021, but the country's CAGR will likely more than double the CAGR between 2011 and 2016.

TABLE 2. MEXICO CASH SHARE, GDP AND TOTAL CASH USAGE

	CASH USAGE AND PROJECTIONS				COMPOUND ANNUAL GROWTH RATE	
	2006	2011	2016	2021	2011 – 2016	2016 – 2021
CASH SHARE	36.3%	31.4%	26.1%	22.6%	-0.56%	-0.51%
GDP	565	780	1,047	1,510	6.07%	7.59%
TOTAL CASH USAGE	205	245	274	341	2.21%	4.50%

FIGURE 5. HISTORIC AND PROJECTED TOTAL CASH SHARE

CASH PROPENSITY

FIGURE 6. HISTORIC AND PROJECTED TOTAL CASH USAGE (IN BILLION DOLLARS)

THE STATE OF CASH IN MEXICO

Mexico clearly has an undying love for cash. Among the countries profiled in the PYMNTS Americas Report, it stands alone as the country with the highest cash usage. Despite this preference, though, there are signs that cash is starting to see some competition from digital payment forms. Usage decreased from 36.3 percent of the country's GDP in 2006 to 26.1 percent in 2016.
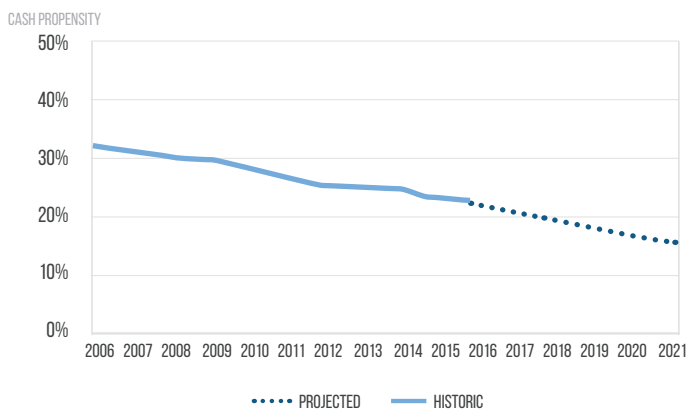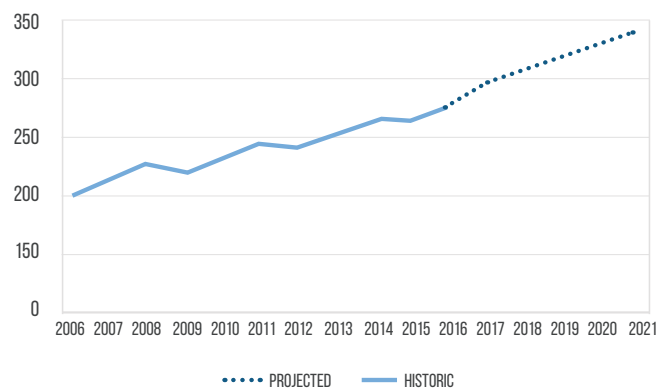
That decrease in cash share activity is not significant enough to register a decrease in the total use of cash, however. While the popularity of physical currency is certainly poised to take a hit, it will show some growth because of an increasing GDP. Total cash use increased at a CAGR of 2.2 percent between 2011 and 2016, and PYMNTS projects it will increase at 4.5 percent between 2016 and 2021.

Alternative payments may be on the rise, but it will likely be a long time before these alternatives can truly cut into cash's influence. Adoption of these payment methods remains low compared to other countries, both in the Americas and around the world.

Meanwhile, Mexico's thriving FinTech community and a large underbanked population indicate that while change is coming slowly, it appears to nonetheless be on the horizon. As FinTechs and banks promote new electronic payments, change is likely to take hold among younger, more tech-savvy consumers — especially the millions of smartphone users in the market.

Though several new investments and innovations in alternative payment methods are demonstrating promise, these alternatives have a long way to go to catch up to the role cash plays in the Mexican economy. There is room for these new payment options to expand their reach, however, but a large under- and unbanked population indicates cash will retain its influence over Mexico's economy for years to come.

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[14] World Bank. https://tradingeconomics.com/spain/rural-population-percent-of-total-population-wb-data.html. Accessed January 2018.
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[16] Buntix, JP. Spanish Government Wants To Curb Cash Usage To 1,000 Euros Per Transactions. Dec. 1, 2016. https://themerkle.com/spanish-government-wants-to-curb-cash-usage-to-1000-euros-per-transactions. Accessed January 2018.

TO WIN CONSUMERS IN MEXICO, ECOMMERCE COMPANIES PLAY THE CASH GAME

Cash is the preferred method of payment across Mexico's economy. In fact, cold hard cash is so vastly preferred that even the nation's eCommerce market — typically the domain of digital payments — is not immune to this reality.

Last year, retail giant Amazon reportedly took the top spot among retailers in Mexico's quickly growing online sales industry with $502.2 million in sales, nearly double that reported the previous year. Other retailers are also reporting an uptick in online shopping in the region. Argentinian payment processor MercadoLibre saw a 90 percent spike in online sales last year, taking in $489.2 million. Meanwhile, Walmart's Mexican brand, Walmex, reported $258.9 million in online sales of its own.

But with 90 percent of Mexico's population preferring to make payments using physical currency, it has become vital for these eCommerce players to adapt to consumer preferences or risk alienating a sizable share of the population.

Introducing cash payments in a largely digital business model can be challenging, but eCommerce players are increasingly stepping up to the plate. They're doing so by enabling customers to pay with cash and pick their goods up at various brick-and-mortar locations.

To gain more insight into Mexico's cash usage and how it influences the country's growing eCommerce market, PYMNTS recently spoke with Georgina Lara Sánchez, payments regional manager for Linio México, and Christian León, country manager for Mexico at MercadoPago, the payment processing division of Argentinian eCommerce platform MercadoLibre. Both noted the need to weave cash into consumers' purchasing experiences, even if the transaction is digital.

Helping the underbanked shop online

Bolstering Mexico's cash presence is its large under- and unbanked population. Roughly three-quarters of its adults

lack a bank account and, for eCommerce companies, this means cash must be an available payment option for online shoppers.

Recognizing that cash acceptance is vital to doing eCommerce business in Mexico, both Linio and MercadoPago have introduced solutions that allow customers to pay for online purchases using physical currency. Both have enabled cash as a payment option and allow consumers to pick up and pay for their orders at nearby partner locations — like banks, pharmacies and convenience store chains such as OXXO and 7-Eleven.

While it may be more convenient for eCommerce companies to conduct business using credit cards and digital payment methods that quickly deliver money, Sánchez noted that incorporating cash remains a necessity.

"With credit cards, it's very easy to complete a purchase that same minute," she said. "[But] cash payments is a strategy that we need, and we know we need it."

León agreed with the sentiment, emphasizing that accepting cash is crucial for eTailers to find their footing in Mexico's economy.

"Cash is an option that we offer to include people that do not have a physical card or a credit card," he said. "At the end of the day, what we are doing is [working] to include

"Cash is an option that we offer to include people that do not have a physical card or a credit card."

more [potential customers]."

The cash conundrum

But while the potential of growing the industry is obviously alluring, Sánchez noted that catering to a population that relies on cash can also carry risks.

When a consumer opts to pay for an online order using cash, she said, the merchant must set the product aside and wait for the payment to be delivered. If the customer changes his mind about the order and decides not to pay for it, or forgets that he ordered it, the merchant could miss the opportunity to sell the product to another shopper and may lose a potential sale.

"It's like window shopping where you don't have to commit your money," Sánchez said.

Both Linio and MercadoLibre offer prepaid options to ensure cash shoppers fulfill their payments. Buyers can make cash payments at nearby locations before having their packages shipped directly to their homes, meaning cash and products are not present at the same time and location. The prepaid arrangement works to validate the payment process and protects both the buyer and the seller.

Sánchez noted that Linio offers both prepaid and cash on demand (COD) options for home deliveries. It also provides frequent communication about the delivery to the customer, including an estimated arrival time to avoid
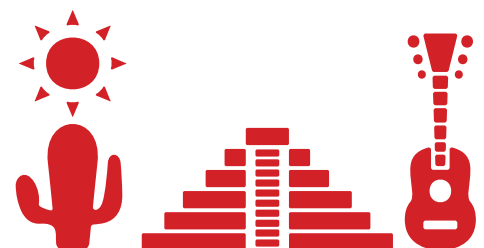
missed deliveries. This level of engagement encourages the customers to follow through on their purchases.

"For COD, the customer has to commit to be [home] and to pay with the exact amount," Sánchez said. "It's important to communicate to customers before they place the order that we'll be in your house and you need to have the money available and wait for us."

How cash factors into Mexico's eCommerce future

Sánchez acknowledged that offering a wide range of cash payment options has been helpful in extending Linio's eCommerce services and has encouraged new customers in the nation to take a chance on shopping online for the first time.

Many of these first-time online shoppers reside in Mexico's rural areas, communities in which cash usage is higher than in urban centers and smartphone technology is only just beginning to take off. Meanwhile, in more populated urban areas, Linio is beginning to see an uptick in use of payment options like PayPal and mobile wallet services, in addition to strong cash usage.

While eCommerce in Mexico is still young, Sánchez believes it may encourage Mexican citizens to overcome their hesitations with newer payment options like credit cards and debit cards as it continues to grow.

"As eCommerce gets more traction in Mexico and becomes more popular, consumers will gain better understanding of how to pay and not fear it as much," she said.

But a major paradigm shift toward payment options like credit cards will not happen overnight. In the meantime, MercadoLibre plans to expand its network of physical locations where cash payments for online purchases are accepted, according to León.

This type of investment will encourage more people to participate in Mexico's growing eCommerce market. If these new online shoppers want to make their payments using cash, though, eCommerce companies will be under pressure to continue to enable the payment method.

"In the end, what we are doing here is to include more people," León said. "We are trying to democratize eCommerce, and for that it's important to offer cash payments."
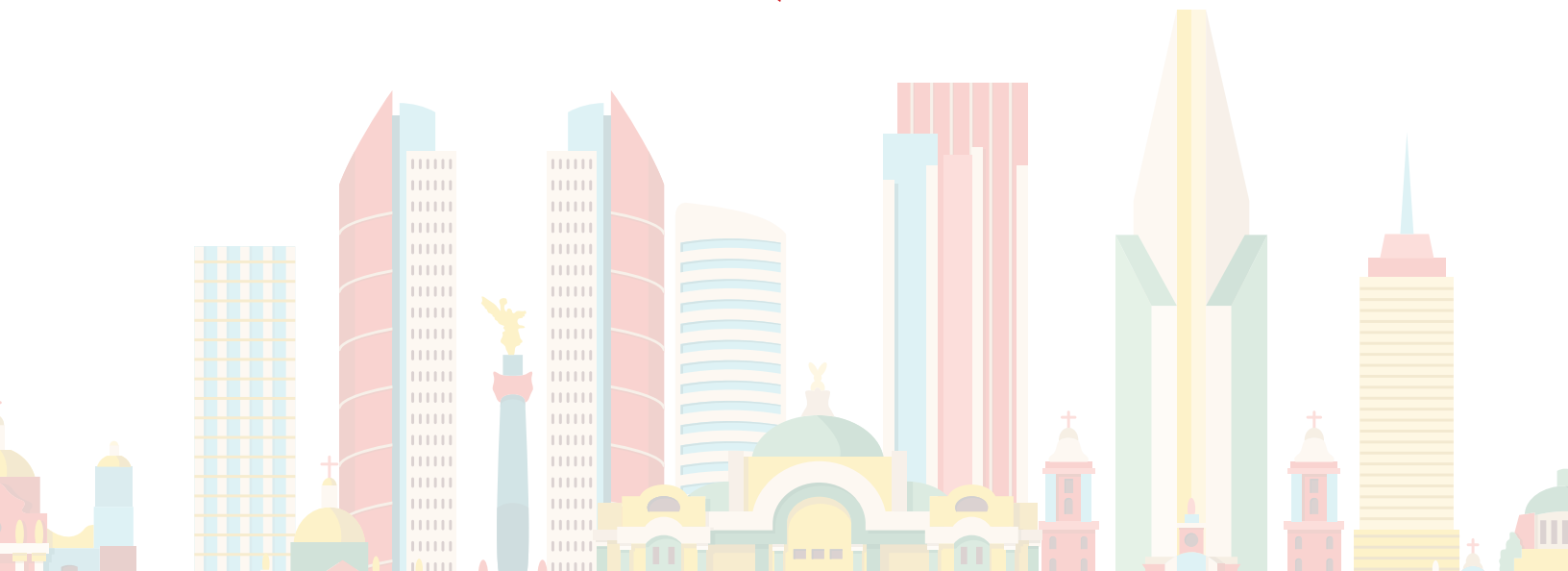
METHODOLOGY
AND DATA

The PYMNTS.com Global Cash IIndex, powered by Cardtronics, analyzes overall cash usage and projected trends over the next five years for 40 countries around the world that have provided sufficient data to make estimates on cash usage. These countries are divided into four regions — Western Europe, Eastern Europe, The Americas and Asia and Other — and we will publish reports reviewing cash share and usage focusing on one region each quarter.

WESTERN EUROPE	EASTERN EUROPE	THE AMERICAS	ASIA AND OTHER
AUSTRIA	BULGARIA	UNITED STATES	AUSTRALIA
BELGIUM	CROATIA	MEXICO	CHINA
FINLAND	CZECH REPUBLIC	BRAZIL	INDIA
FRANCE	ESTONIA		JAPAN
GERMANY	GREECE		SOUTH KOREA
IRELAND	HUNGARY		SINGAPORE
ITALY	LATVIA		SAUDI ARABIA
LUXEMBOURG	LITHUANIA		SOUTH AFRICA
MALTA	POLAND		
NETHERLANDS	ROMANIA		
PORTUGAL	RUSSIA		
SPAIN	SLOVAKIA		
SWEDEN	SLOVENIA		
SWITZERLAND	TURKEY		
UNITED KINGDOM			

- The first factor is cash share, or the total amount of purchases made with cash. We measure cash share as the total amount of cash used by a country divided by the country's annual GDP. The total cash used by citizens of the country is assumed to be equal to the total amount of cash withdrawn at ATM machines plus the total amount of cash withdrawn OTC at bank branches in the country.

- The second factor is how the overall economy is growing. The total cash usage is estimated as the total cash share multiplied by the country's GDP. As a country's economy develops and grows, more overall spending occurs, which means more cash spending is occurring.

We have found that total cash share is decreasing in most countries. Because both population and GDP are growing, however, total cash usage is also still growing (albeit at rates lower than the GDP).

To calculate the results in this report, we performed the following for each country:

- Gathered historic and projected data.

- Estimateed OTC cash withdrawals for countries that do not report this data.

- Calculated historic cash share.

- Estimated cash share for 2015 and beyond.

- Estimated total cash usage for 2015 forward and beyond.

Gathered historic and projected data.

We collected historic data for each country from 2000 to 2014, including information regarding total population, GDP, cash withdrawals from ATM and OTC, total card spending and payments infrastructure, such as the number of ATM machines and bank branches.[17] We also gathered data to project cash usage, including projected GDP and projected population by age group.[18]

We gathered data from 2000 through 2014 and used as much as was available. We have data on population and GDP for all years, and data on cash withdrawals and payments infrastructure for many but not all years.

For each country, we collected projections for the GDP and for population by age group. This data comes from the International Monetary Fund (IMF) and World Bank, respectively, and is from the same source as the historic data. Population projections are available every five years, and we used a linear interpolation for the years that are not reported. GDP projections are by year, and if we needed time periods beyond the last projected data point, we assumed that final GDP growth rate will be consistent over time.

Estimated OTC cash withdrawals for countries that do not report this data.

As described, cash share is defined as the total cash withdrawals from ATM machines plus total OTC cash withdrawals. We have selected the 40 countries in our analysis based on the availability of sufficient cash withdrawal data. The 40 included countries produced at least some data on the level of ATM withdrawals each year. If ATM withdrawals are not available, the country is excluded from our analysis.

While all 40 countries provided ATM data, only 12 provided data on OTC cash withdrawals. This means that for the other 28 countries, we had to estimate the level of OTC withdrawals. We did this by looking at each of our 28 target countries (the ones for which we need to estimate OTC withdrawals) and selecting a comparable country from the 12 countries that did provide data (we refer to these as our potential comparable countries).

The estimation procedure is done in the following four steps:

- **ONE:** Calculate the OTC-to-ATM ratio for each of the 12 potential countries that do provide OTC data. These are all potentially comparable countries. This is a simple calculation of dividing the level of OTC withdrawals by the level of ATM withdrawals for each year where data is available.

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[17] Data on Population is from the World Bank [http://data.worldbank.org/indicator/SP.POP.TOTL], Data on GDP is from the IMF [http://www.imf.org/external/ns/cs.aspx?id=28], and data on cash with drawals, card spending and the payments infrastructure is from the Bank of International Settlements [http://www.bis.org/cpmi/publ/d142.pdf] or from the European Central Bank [https://www.ecb.europa.eu/pub/pdf/other/art2_mb201104en_pp79-90en.pdf]
[18] Data on projected population is from the World Bank, and projected GDP is from the IMF. If these are the same, combine these footnotes into a single footnote.

- **TWO:** Estimate the logarithmic trend of the OTC to ATM ratio from 2000 through 2014 for each of the potentially

$$\overline{\left(\frac{OTC}{ATM}\right)}_{Year} = \propto + \beta \times LN(Year) + \varepsilon$$

comparable countries.[19]

We do this to remove any data jumps or movements that are due to factors specific to the country. This trend gives us a complete trend of the OTC to ATM ratio for each year from 2000 through 2014.

- **THREE:** Select the potential comparable country. For each country that does not have OTC data (target

country), we select the most comparable country from the list of countries that do provide OTC data. This country is selected by comparing the trends and levels in five different variables:

- ATM withdrawals as a percentage of GDP
- Card spending as a percentage of GDP
- Bank branches per 1,000 people
- ATM terminals per 1,000 people
- POS terminals per 1,000 people

For each potential comparable country, we calculate a difference in levels and a difference in changes over an eight-year period from 2006 to 2014. These are calculated as follows:

$$Difference\ in\ levels = \sqrt{\sum_{i=2006}^{2014} (Variable_{Comparable/i} - Variable_{Target/i})^2}$$

$$Difference\ in\ changes = \sqrt{\sum_{i=2006}^{2014} \left(\frac{Variable_{Comparable/i}}{Variable_{Comparable/i-1}} - \frac{Variable_{Target/i}}{Variable_{Target/i-1}}\right)^2}$$

In the formula above, i is the year and "Variable" refers to each of the five variables listed above. We perform this calculation for each of the 28 target countries against each of the 12 potential comparable countries. This provides a difference in levels and a difference in changes for each of the five variables for each combination of a target country and comparable comparison country. We then assign a weight of two-thirds to the difference in levels and one-third difference in changes, and for each target and comparable country, we calculate a weighted average difference:

$$Weighted\ Average\ Difference_{ij} = 0.667 * Avg\ difference\ in\ levels + 0.333 * Avg\ difference\ in\ changes$$

In this equation, i is the target country and j is the comparable country.

For each target country, we then have a weighted average difference for each of the 12 potential comparable countries. The comparable country for each target is selected as the potential comparable country with the smallest difference for each target

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[19] For three countries, the reduction in OTC-to-ATM ratio was so strong that we used a polinomial trend. These three countries were Latvia, Romania and Slovakia.

country. The following table shows the comparable country selected for each of the 28 target countries.

NUMBER	TARGET	COMPARABLE
1	AUSTRALIA	UNITED KINGDOM
2	AUSTRIA	ITALY
3	BELGIUM	NETHERLANDS
4	BRAZIL	MALTA
5	BULGARIA	HUNGARY
6	CHINA	SLOVAKIA
7	CROATIA	MALTA
8	ESTONIA	NETHERLANDS
9	FINLAND	NETHERLANDS
10	FRANCE	ITALY
11	GREECE	HUNGARY
12	INDIA	SLOVAKIA
13	IRELAND	LATVIA
14	JAPAN	GERMANY
15	KOREA	UNITED KINGDOM
16	LUXEMBOURG	ITALY
17	MEXICO	CZECH REPUBLIC
18	POLAND	HUNGARY
19	PORTUGAL	UNITED KINGDOM
20	RUSSIA	ROMANIA
21	SAUDI ARABIA	SLOVAKIA
22	SINGAPORE	NETHERLANDS
23	SLOVENIA	HUNGARY
24	SOUTH AFRICA	SLOVAKIA
25	SWEDEN	NETHERLANDS
26	SWITZERLAND	NETHERLANDS
27	TURKEY	MALTA
28	UNITED STATES	UNITED KINGDOM

- **FOUR:** Calculate the estimated level of OTC withdrawals for the target country. We have 28 target countries for which we are estimating the level of OTC withdrawals. For nine of these countries, we do have data on the OTC-to-ATM ratio for a single year but have no other data that can allow us to understand how it's trending.

For these countries, we adjust the value of $\overline{\left(\dfrac{OTC}{ATM}\right)}_{Year}$ such that it matches the known OTC-to-ATM ratio. This has the result of shifting the OTC-to-ATM ratio for every year up or down such that our estimated trend line passes through the known point. For the other 19 countries, we assume that this adjustment is equal to zero or that the OTC-to-ATM ratio for the selected comparable country is the same as the OTC-to-ATM ratio for the target country.

For each target country, we then take this adjusted value of $\overline{\left(\dfrac{OTC}{ATM}\right)}_{Year}$ for the selected comparable country and use it to calculate the level of OTC withdrawals for each from 2000 through 2014.

$$OTC\ Withdrawals_{Year} = \overline{\left(\frac{OTC}{ATM}\right)}_{Year} \times ATM\ Withdrawals_{Year}$$

The following table identifies the 12 countries for which OTC data is reported, the nine countries for which we have to estimate the trend based on a comparable country but for which we do have a single known data point to set the level of OTC withdrawals, and the 19 countries for which the trend and OTC-to-ATM ratio are derived from the comparable country.

ASIA AND OTHER

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	AUSTRALIA		✔	
2	CHINA			✔
3	INDIA			✔
4	JAPAN			✔
5	SOUTH KOREA			✔
6	SINGAPORE			✔
7	SAUDI ARABIA			✔
8	SOUTH AFRICA			✔

WESTERN EUROPE

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	AUSTRIA			✔
2	BELGIUM			✔
3	FINLAND		✔	
4	FRANCE		✔	
5	GERMANY	✔		
6	IRELAND		✔	
7	ITALY	✔		
8	LUXEMBOURG			✔
9	MALTA	✔		
10	NETHERLANDS	✔		
11	PORTUGAL		✔	
12	SPAIN	✔		
13	SWEDEN		✔	
14	SWITZERLAND			✔
15	UNITED KINGDOM	✔		

EASTERN EUROPE

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	BULGARIA			✔
2	CROATIA		✔	
3	CZECH REPUBLIC	✔		
4	ESTONIA			✔
5	GREECE			✔
6	HUNGARY	✔		
7	LATVIA	✔		
8	LITHUANIA	✔		
9	POLAND			✔
10	ROMANIA	✔		
11	RUSSIA			✔
12	SLOVAKIA	✔		
13	SLOVENIA		✔	
14	TURKEY			✔

AMERICAS

NO	COUNTRY	SOURCE OF OTC DATA		
		OTC DATA AVAILABLE	KNOWN DATA POINT	VALUE IS DERIVED
1	UNITED STATES		✔	
2	MEXICO			✔
3	BRAZIL			✔

Calculated historic cash share.

The cash share is defined as the total cash spending divided by the GDP. In this sense, cash usage is relative to the overall size of the economy. Total cash spending is defined as ATM withdrawals plus OTC withdrawals. Total cash share is calculated as follows:

$$Cash\ Share_{Year} = \frac{ATM\ Withdrawals_{Year} + OTC\ Withdrawals_{Year}}{GDP_{Year}}$$

Estimated cash share for 2015 forward.

The cash share is estimated as a logarithmic trend of the historic data. We then estimate the log trend and adjust the line such that it lines up with the historic data for 2014. This creates a naïve historic cash share trend starting at the historic cash share for 2014, rolling forward for five or 10 years.

We then adjust this naïve cash share based on the demographic trends in the country and the likelihood that younger demographics will be more prone to shift away from cash to new payment methods such as mobile wallets or other new technologies that are becoming available. This adjustment analyzes the proportion of the population that is younger and accounts for the relative amount of spending (because younger people generally earn and spend less than older people). This analysis suggests that the actual cash share is likely to be lower than the naïve cash share estimated above once we take these factors into account.

This analysis results in a projected cash share that is less than the cash share projected using the naïve analysis described above.

Estimated total cash usage for 2015 forward.

The total cash usage is calculated by multiplying the adjusted cash share by the projected GDP for each year, 2015 through 2020.

ATM AND BANK BRANCH
AVAILABILITY INDEXES

We have created two indexes based on the availability of ATMs and bank branches per 100,000 people in the following countries. To do this, we used economy data and population data from 40 nations, delineated below:

AUSTRALIA	INDIA	SAUDI ARABIA
AUSTRIA	IRELAND	SINGAPORE
BELGIUM	ITALY	SLOVAKIA
BRAZIL	JAPAN	SLOVENIA
BULGARIA	LATVIA	SOUTH AFRICA
CHINA	LITHUANIA	SOUTH KOREA
CROATIA	LUXEMBOURG	SPAIN
CZECH REPUBLIC	MALTA	SWEDEN
ESTONIA	MEXICO	SWITZERLAND
FINLAND	NETHERLANDS	TURKEY
FRANCE	POLAND	UNITED KINGDOM
GERMANY	PORTUGAL	UNITED STATES
GREECE	ROMANIA	
HUNGARY	RUSSIA	

The indexes consider the availability of ATM and bank branches per 100,000 inhabitants in each country. The maximum value an index can achieve is 100 points and zero is the minimum. Each country has been assigned its own score.

We show how we calculated both indexes for each country in the following table. We first obtained the number of ATM and bank branches present per 100,000 people, then took the lowest and the highest number for each index and labeled them 0 and 100, respectively. The rest of the numbers were calculated according to the following equation:

$$Index_i = \frac{x_i - x_{Min}}{x_{Max} - x_{Min}}$$

In this formula, x represents the number of ATM and bank branches per 100,000 people and i represents each country that was neither a minimum nor a maximum score.

COUNTRY	ATM PER 100,000	BANK BRANCHES PER 100,00	INDEX ATM	INDEX BANK BRANCHES
AUSTRALIA	132.3	22.89	51.9	27.3
AUSTRIA	156.1	47.49	62.6	67.8
BELGIUM	139.7	31.33	55.2	41.2
BRAZIL	81.4	—	29.1	—
BULGARIA	79.2	51.61	28.1	74.6
CHINA	63.1	—	20.9	—
CROATIA	—	27.84	—	35.4
CZECH REPUBLIC	43.6	19.68	12.2	22.0
ESTONIA	61.0	8.15	20.0	3.0
FINLAND	37.3	19.21	9.3	21.2
FRANCE	96.1	58.45	35.7	85.9
GERMANY	104.5	41.43	39.5	57.8
GREECE	62.8	23.42	20.8	28.2
HUNGARY	48.9	29.38	14.5	38.0
INDIA	16.4	11.15	0.0	7.9
IRELAND	56.9	22.20	18.1	26.1
ITALY	81.6	50.13	29.2	72.2
JAPAN	107.7	—	40.9	—
LATVIA	53.3	13.90	16.5	12.5
LITHUANIA	41.9	19.21	11.4	21.2
LUXEMBOURG	92.0	39.61	33.9	54.8
MALTA	49.9	25.53	15.0	31.6
MEXICO	37.9	10.61	9.6	7.0
NETHERLANDS	41.4	10.42	11.2	6.7
POLAND	56.3	37.64	17.9	51.6
PORTUGAL	149.5	53.81	59.6	78.2
ROMANIA	57.9	24.91	18.6	30.6
RUSSIA	89.5	26.24	32.7	32.8
SAUDI ARABIA	54.9	6.34	17.2	0.0
SINGAPORE	50.8	8.51	15.4	3.6
SLOVAKIA	50.4	23.80	15.2	28.8
SLOVENIA	81.9	28.55	29.3	36.6
SOUTH AFRICA	52.7	7.37	16.2	1.7
SOUTH KOREA	239.7	14.84	100.0	14.0
SPAIN	107.5	67.01	40.8	100.0
SWEDEN	31.9	—	6.9	—
SWITZERLAND	84.6	29.76	30.5	38.6
TURKEY	62.1	15.79	20.5	15.6
UNITED KINGDOM	108.2	30.00	41.1	39.0
UNITED STATES	—	34.83	—	47.0

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