

2016 World Payments Report



Table of Contents

Preface	3
Section 1: Non-Cash Markets and Trends	5
Non-Cash Transactions Growth Highest in Emerging Asia	6
Global Non-Cash Transaction Volumes Grew at 8.9%	6
Developing Markets Continue to Gain Share of Non-Cash Transaction Volumes	7
Cards Leading Instruments with 11.8% Growth, Checks Decline 10.8%	9
Payment Cards Are the Leading Non-Cash Instrument	9
Global Non-Cash Volumes Estimated to Have Grown by 10.1% in 2015	10
Global Non-Cash Transaction Volumes Expected to Hit 426.3 Billion In 2015	10
Cash Use High Despite Increased Adoption of Digital Payments	11
Immediate Payments Have Potential to Replace Checks and Cash	12
Corporates Lag Retail in Adoption of Mobile Devices in Payments	14
Section 2: Key Regulatory and Industry Initiatives	17
Banks and other PSPs Operate in a Highly Regulated Environment	18
Current Regulatory Environment Remains Complex	18
Variations in KRILs Range from Prescriptive to transformational	20
Technology Enablement and Regulatory Facilitation Emerge as Themes	21
Many Banks Taking Initial Steps towards Developing Holistic Compliance	21
Despite Recognizing Need for Holistic Compliance, Banks Have Made Little Progress	22
Banks Must Find Ways to Accelerate Holistic Compliance Efforts	23
Key Regulatory and Industry Initiatives (KRILs) in Payments, 2016	24
Other Key Treasury Related Initiatives	28
Impact of Core KRILs on Banks and Corporates	29
Section 3: Challenges and Opportunities in Transaction Banking	33
Transaction Banks Face Increasingly Ambitious Corporate Demands for Digitization	34
Banks Need to Improve Digital Maturity to Meet Corporate Expectations	36
Collaboration a Key Strategy for Banks to Gain Advantage in Transaction Services	40
Collaboration Case Study–Silicon Valley Bank and Standard Treasury	42
Closing Thoughts	43
Methodology	45
About Us	46
Acknowledgements	47



Preface

This year, Capgemini has teamed with BNP Paribas, a global banking player and recognized leader in transaction banking and cash management, to co-develop this 12th edition of the *World Payments Report* (WPR).

The partnership with BNP Paribas means that in addition to bringing insightful analysis of the global non-cash transaction environment to banks and payment services suppliers ecosystem, we will also focus on providing in-depth research on payment-related topics particularly relevant for the corporate sector. This new collaboration is powered by a deep and integral understanding, from both firms, of the fast-changing global transaction banking and cash management industry. We will deliver this knowledge directly to the desks of corporate treasurers, making it as important a point of reference for them, as it has been for banks during the past decade.

Our 2016 Report shows that global non-cash transaction volumes grew by 8.9%, reaching 387.3 billion during 2014—a growth rate that has not been attained over the last decade. Developing markets drove this growth, recording a 16.7% increase in 2014 while mature markets grew by 6.0% (although they still account for 70.9% of total global volumes). For the first time, China surpassed the U.K. and South Korea to take fourth position among the top ten markets by global non-cash transaction volumes.

The higher global growth is predicted to have continued during 2015, with estimates of a growth rate of 10.1% yielding a total of 426.3 billion non-cash transactions globally. This would have been driven by high growth in Emerging Asia, Central Europe, Middle East and Africa, and Mature Asia-Pacific.

The regulatory environment is becoming as important for corporate treasurers as it has been for banks since the 2008 financial crisis. WPR 2016 examines key regulatory and industry initiatives (KRILs) that affect both banks and corporates. Complying with regulations is increasingly complex and banks also face competition from FinTechs, some of which are setting higher customer experience benchmarks. We believe the time has come for banks to adopt a holistic approach to regulatory compliance and, if necessary, partner with FinTechs to execute on such an approach.

Our core theme for this year's report is the challenges and opportunities that exist in transaction banking. While treasurers' fundamental expectations (control, visibility on cash, and risk management) have not changed over recent years, corporates increasingly expect more digitization from banks including support services such as account management, data analytics, compliance tracking, and fraud detection and prevention. This calls for banks to accelerate their shift towards digitization. In addition, they must foster a more collaborative inter-bank approach and partner with FinTechs to improve and enlarge their value proposition and accelerate their time to market. Banks have recognized the importance of 'thinking digital' and many have entered into digital transformation projects.



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Non-Cash Markets and Trends

Key Findings

- Global non-cash transaction volumes grew at 8.9% in 2014 to reach 387.3 billion, the highest growth rate since the Report was first published.**¹ This increase was mainly driven by accelerated growth in developing markets, which recorded a 16.7% increase in 2014 while mature markets grew by 6.0%. China surpassed the U.K. and South Korea to take fourth position among the top ten markets for global non-cash transaction volumes in 2014.
- Cards have been the fastest growing payments instrument since 2010, as check use has declined consistently for at least the past 13 years.** Debit cards accounted for the highest share (45.7%) of global non-cash transactions and were also the fastest growing (12.8%) payment instrument in 2014. Volumes increased by 6.6% as Europe and North America continued to hold a higher share of direct debit payments. Credit transfer volumes grew slowly during 2014 compared to 2013 across all the regions except Latin America and Europe.
- Global non-cash volumes are estimated to have grown by 10.1% to reach 426.3 billion in 2015² aided by high growth in Emerging Asia (31.9%), Central Europe, Middle East and Africa (CEMEA, 15.7%), and Mature Asia-Pacific (Mature APAC, 11.6%).** Improved U.S. economic growth, enhanced payments services with improved securities measures, industry initiatives, and the encouragement of digital payments by governments in developing markets are the key factors expected to have accelerated growth in 2015.
- Immediate payments³ are a potential alternative to checks and cash for retail and corporate customers.** By replacing less efficient cash and check instruments, immediate payments could drive the growth of non-cash transactions. To boost the adoption of immediate payments, efforts are required in a number of areas including value-added services development, education of the main stakeholders, and upgrading of merchant and corporate infrastructures.
- The adoption of mobile devices, such as smartphones and tablets, for corporate payments has been slow.** Mobile devices give corporate treasurers anytime and anywhere availability, increased control and reduced costs, and an additional payments channel, particularly in emerging markets. Use of mobile devices is, however, limited to approvals, alerts, and analytics. As value-added features are developed, the applicability of mobile devices to corporate payments may improve, but their relevance for corporate payments initiation and execution is expected to remain low in the near future.

¹ WPR was first published in 2005, while data have been available since 2000

² The estimated non-cash transaction volumes for 2015 are based on our forecast model. For further details, see Methodology, page 45

³ An immediate payment system is an irrevocable account-to-account payments transfer service that is available 24x7x365 and makes funds available to the beneficiary within seconds with an instant confirmation message to both the payer and the payee



Non-Cash Transactions Growth Highest in Emerging Asia

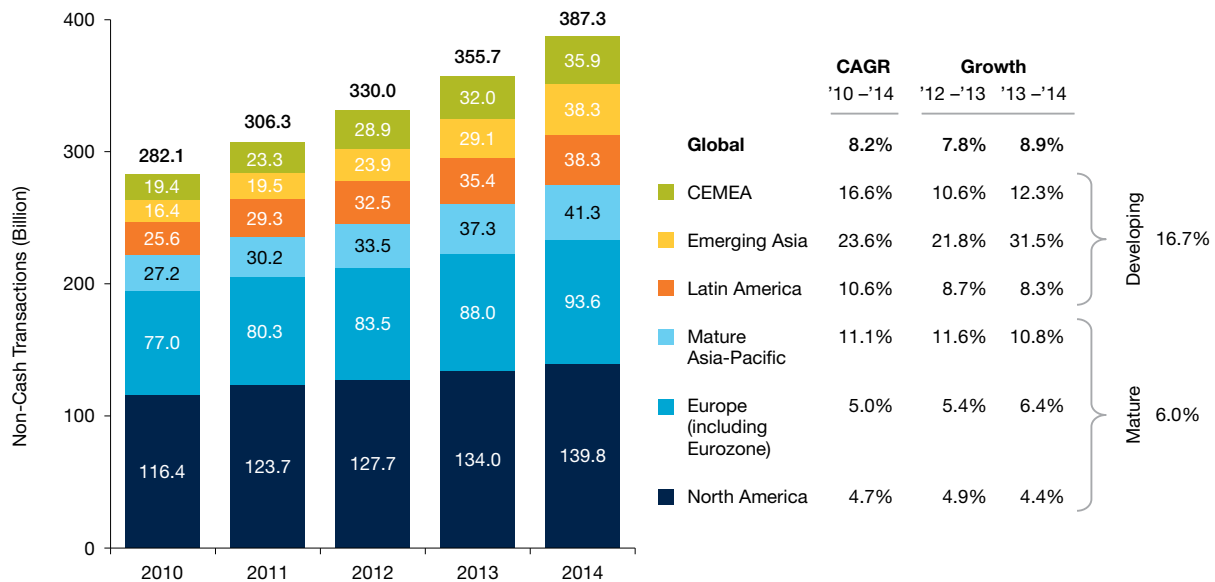
GLOBAL NON-CASH TRANSACTION VOLUMES GREW AT 8.9%

Global non-cash transaction volumes grew at 8.9% to reach 387.3 billion in 2014 (see Figure 1.1). The highest growth rate—31.5%—was recorded in Emerging Asia.⁴ This was a leap in growth of almost 10 percentage points over the previous year. China, with a 47.0% growth rate (the highest rate since 2000) and India (13.4%) were the main engines of growth in this region. China’s outstanding growth is likely due to several factors, including its underlying economic growth, rising living standards, and the related entry of millions of people into the banking system. The strong performance of Alipay and the entry of foreign payment card schemes is also a factor to consider. While growth in non-cash transactions in India is improving, it is still below full market potential. Despite

the National Payments Corporation of India’s (NPCI’s) efforts, not all banks promote digital payments as the card acceptance network is considered too narrow, despite card payments fuelling growth in all regions. The 11 payment bank licenses granted by the Indian government in August 2015 are an attempt to bring more dynamism to the market.

The next-fastest growing region, Central Europe, Middle East, and Africa (CEMEA),⁵ recorded a growth rate of 12.3%, a more modest increase on the 2012–13 growth rate of 10.6%. Europe⁶ witnessed accelerated growth of 6.4% in 2014 compared to 5.4% in 2013. This was led by healthy growth in the largest EU markets such as the U.K., Germany, and France, and also in Sweden and Denmark. Increasing adoption of contactless payments in the U.K., together with a dynamic supply side market, contributed to 7.9% growth in non-cash transactions in the country—the highest among large EU countries.

Figure 1.1 Number of Worldwide Non-Cash Transactions (Billion), by Region, 2010–2014



Note: Refer to Methodology, page 45 for details on countries included in each region; Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2015 due to previous year data updated at the source

Source: Capgemini Financial Services Analysis, 2016; ECB Statistical Data Warehouse, 2014 figures released October 2015; Bank for International Settlements Red Book, 2014 figures released December 2015; Country’s Central Bank Annual Reports, 2014

⁴ Emerging Asia includes China, Hong Kong, India, and other Asian markets

⁵ CEMEA includes Poland, Russia, Saudi Arabia, South Africa, Turkey, Ukraine, Hungary, Czech Republic, Romania, and other Central European and Middle Eastern markets

⁶ Europe includes the 19 Eurozone countries (see Methodology) and Denmark, Sweden, Switzerland, and the U.K.

Decelerated, but still positive, growth rates were recorded in all other regions. In North America⁷ this could be a result of increasing use of alternative payment methods such as closed loop mobile wallets. These payments often go unreported and an increasing share of the market is being taken by non-banks.⁸ Non-cash transaction volumes in North America grew at a slightly lower rate of 4.4% in 2014, compared with 4.9% in the previous year. Credit cards fueled U.S. non-cash transaction growth rates in 2014, recording an increase of 8.4%, followed by debit cards with growth of 6.3%. Despite recording stronger gross domestic product (GDP) growth than Europe (2.5% in 2014 versus Europe's 1.7%), North American non-cash transaction growth was lower. This could be one of the reasons (along with existing outdated infrastructure) that might have led the U.S. Federal Reserve to announce plans to upgrade payments infrastructure in the U.S. to be more interoperable and secure.

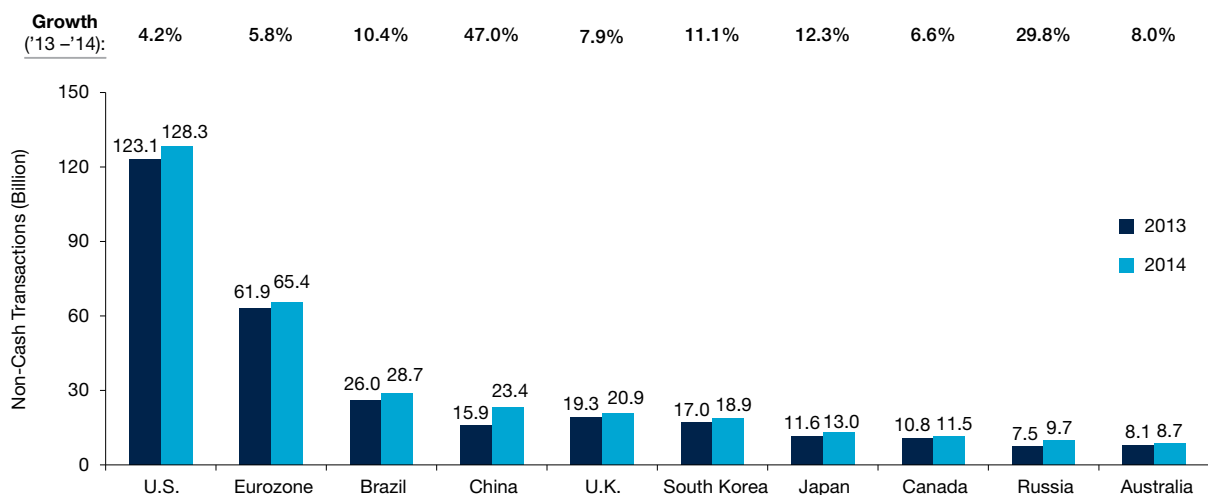
Non-cash transaction volume growth decelerated in Latin America from 8.7% in 2013 to 8.3% in 2014. This was due to decreased volumes in Brazil and Argentina and stagnant growth in Mexico, countries hit by slowing economies and declining GDP.

DEVELOPING MARKETS CONTINUE TO GAIN SHARE OF NON-CASH TRANSACTION VOLUMES

The total share of non-cash transaction volumes of developing economies increased by 2.0 percentage points in 2014, driven mainly by the growth in transaction volumes recorded by Emerging Asian countries India and China. At the same time, the share of non-cash transaction volumes in North America and Europe declined by 1.6 percentage points and 0.6 percentage points respectively. During the past 10 years, the percentage share of mature regions versus developing regions has dropped from 87% to 71%. Despite this decline, North America and Europe account for a majority share of global non-cash transaction volumes (36.1% and 24.2% respectively).

Among the top ten non-cash markets, China surpassed the U.K. and South Korea for the first time to become the fourth largest non-cash transaction volume market, behind the U.S., Eurozone, and Brazil (see Figure 1.2). With volumes of 23.4 billion in 2013–2014, China's high growth rate was driven by strong e-commerce and mobile phone penetration. If the current growth trends continue, non-cash transaction volumes in China are expected to surpass those in the Eurozone by 2021, placing the country second to the U.S.⁹

Figure 1.2 Number of Non-Cash Transactions in the Top 10 Markets (Billion), 2013–2014



Note: China 2012, 2013, 2014 direct debit has been estimated (data not available); Japan 2013 and 2014 credit card data has been estimated; Japan direct debit data not available for all years; Some numbers may differ from data published in WPR 2015 due to previous year data updated at the source and re-categorization of some geographies

Source: Capgemini Financial Services Analysis, 2016; European Central Bank (ECB) Statistical Data Warehouse, 2014 figures released October 2015; Bank for International Settlements Red Book, 2014 figures released December 2015; Country's Central Bank Annual Reports, 2014

⁷ North America includes the U.S. and Canada

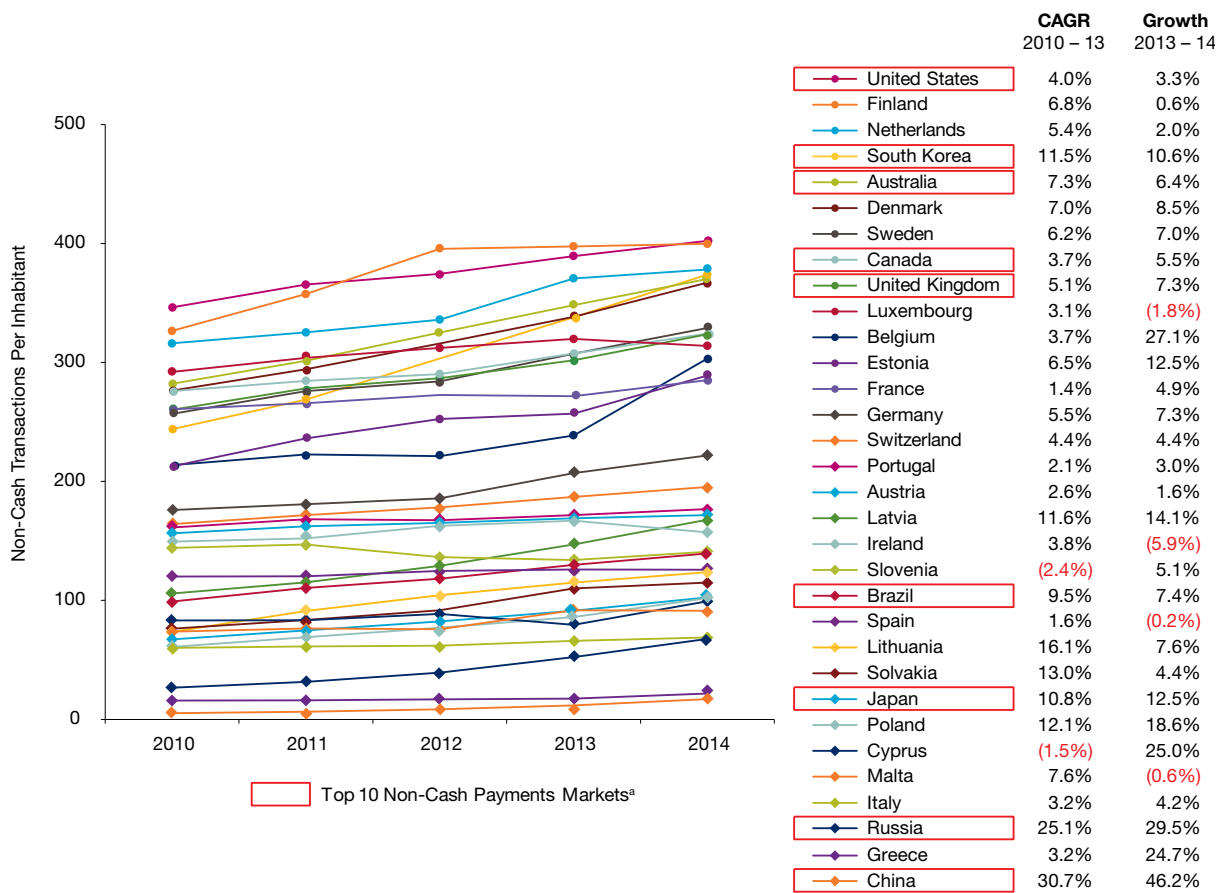
⁸ For more on hidden payments, see WPR 2015, page 16

⁹ Assumption is based on all regions growing at the respective 2004–2014 compound annual growth rates (CAGRs)

In terms of the number of non-cash transactions per inhabitant, the U.S., with 402 transactions, overtook Finland (with 400) in 2014 to re-emerge as the leading market (see Figure 1.3).¹⁰ Finland witnessed muted growth due to the cumulative effect of three consecutive years of GDP contraction and increased unemployment.

Although Europe has a common legal environment and high wealth levels, the region can be split into two blocks—one of countries with more than 280 transactions per inhabitant (some of which have declared their ambition to remove cash from society)—the other of countries with less than 220 transactions per inhabitant, where the cash culture is hindering the penetration of digital payments.

Figure 1.3 Number of Non-Cash Transactions per Inhabitant in the Top 10 Non-Cash Payments Markets, 2010–2014



a The Eurozone has not been highlighted as a leading key market as most of its individual members have been displayed on the chart

Note: Numbers for France have been restated for 2010–2013 as per refinements to our methodology; Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2015 due to previous year data updated at the source level

Source: Capgemini Financial Services Analysis, 2016; ECB Statistical Data Warehouse, 2014 figures released October 2015; Bank for International Settlements Red Book, 2014 figures released December 2015; Country's Central Bank Annual Reports, 2014

¹⁰ To provide more refined and accurate data, the ECB has changed the way it reports non-cash transaction volumes across countries. We have amended our model to reflect this change for previous years as well

Cards Leading Instruments with 11.8% Growth, Checks Decline 10.8%

PAYMENT CARDS ARE THE LEADING NON-CASH INSTRUMENT

Payment cards remain the leading non-cash instruments, growing by 11.8% in 2014, a faster rate than any other non-cash instrument. The most widely used instrument, cards continued to increase their percentage of the payment instrument mix in all regions except Latin America (see Figure 1.4). This signifies the greater convenience and security of cards over other payment instruments and their status as an easy payment infrastructure upon which newcomers can build innovative services.

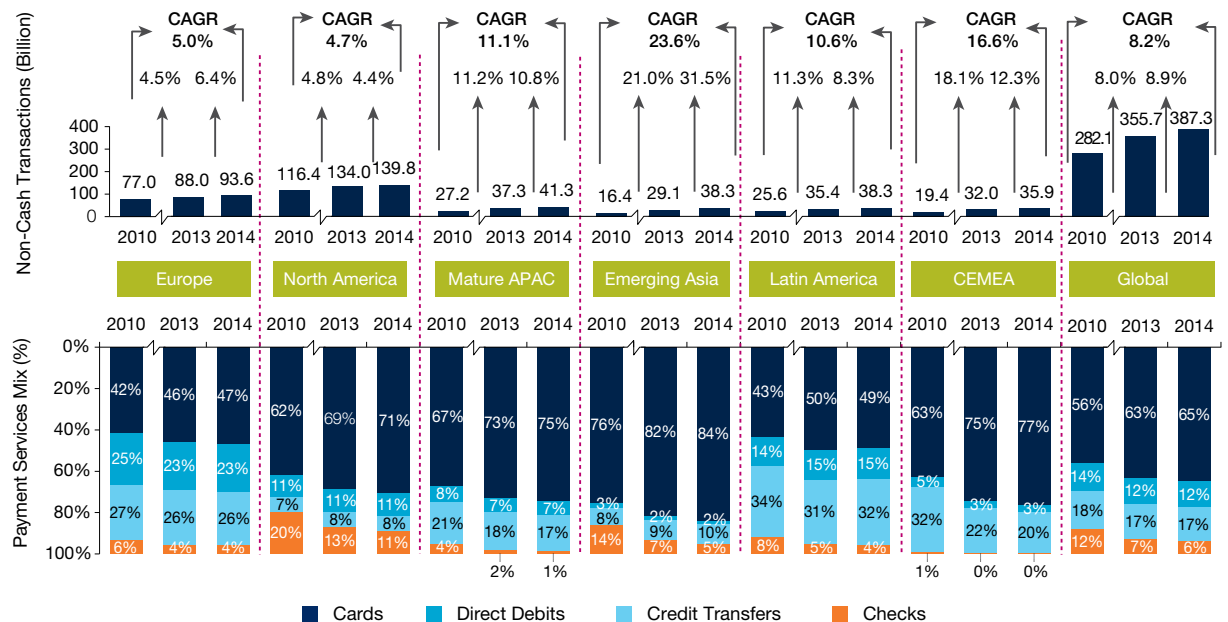
Debit cards form the highest share (45.7%) of global non-cash transactions and were also the fastest growing (12.8%) payment instrument in 2014. Factors contributing to this include increasing use of contactless cards in the U.K. and Mature APAC,¹¹ and the strong growth of e-commerce, which is built on a card infrastructure in China and India. Improved security measures for credit card transactions, including EMV in developed countries such as the U.S., and greater Point of Sales (POS) terminal penetration in developing markets are increasing card transaction

volumes. The growth in debit card volumes might be challenged in the near future as immediate payments are increasingly adopted.

Credit card transaction volumes grew by 9.7% globally in 2014, a slightly lower pace than that of debit cards—a trend observed since 2008. The more restrictive capital adequacy ratio norms of Basel III are likely to have affected transaction growth. However, credit card volumes grew strongly across all regions.

The growth of credit transfer volumes declined in 2014 compared with 2013 in all regions except Latin America and Europe. Brazil led the way in Latin America with 12.1% growth, helped by modernization of IT systems and the infrastructure of banks. There was also a push by governments in the region to encourage the use of electronic payment systems in order to improve transparency. Credit transfer growth stagnated in other regions; however, the implementation and increased use of immediate payments systems may provide an impetus for accelerated transaction growth going forward, as observed in the U.K.

Figure 1.4 Comparison of Non-Cash Transactions (Billion) and Change in Payments Mix (%), by Region, 2010, 2013–2014



Note: Singapore credit card transaction volume data for all years before 2013 not available; France, Ukraine, and South Africa credit card data not available for all years; Ukraine, Turkey, Japan, and Hong Kong direct debit data not available for all years; Ukraine, Hong Kong credit transfer and checks data not available for all years; Numbers for Austria, Finland, and Germany have been restated for 2010–2013 as per refinements to our methodology; Some numbers may differ from data published in WPR 2015 due to previous year data updated at the source and re-categorization of some geographies

Source: Capgemini Financial Services Analysis, 2016; ECB Statistical Data Warehouse, 2014 figures released October 2015; Bank for International Settlements Red Book, 2014 figures released December 2015; Country's Central Bank Annual Reports, 2014

¹¹ Mature APAC countries include Japan, Australia, South Korea, and Singapore

Payments made via direct debits witnessed accelerated growth of 6.6% in 2014, compared with a rate of 5.3% in 2013. Europe and North America continue to hold the larger share of direct debit transaction volumes globally, driven by their use in utilities, government, and corporate treasury sectors, although such transactions grew at a faster rate in Latin America and Emerging Asia. The high growth of direct debits in Latin America was due to the provision of direct debit payment facilities by many e-commerce websites and banks. Innovative solutions from non-banks for e-commerce are expected to accelerate the growth of direct debit transaction volumes, assuming they will not be replaced in some regions by requests for transfer.

The use of checks declined by 10.8% globally during 2014 and has been declining consistently during the past 13 years. Check volumes continued their decline across all regions and some countries, such as Australia, have announced plans to phase out the instrument in the coming years. Although also in decline, North America has the highest ratio of check usage among all regions (10.8% of total non-cash volumes), as they remain the preferred option for large value bill payments, small business-to-business (B2B) payments, some payroll transactions, and charity donations. Payment cards' share of total non-cash payments increased by 1.7 percentage points globally in 2014 while the share of checks declined by 1.3 percentage points.

Global Non-Cash Volumes Estimated to Have Grown by 10.1% in 2015

GLOBAL NON-CASH TRANSACTION VOLUMES EXPECTED TO HIT 426.3 BILLION IN 2015

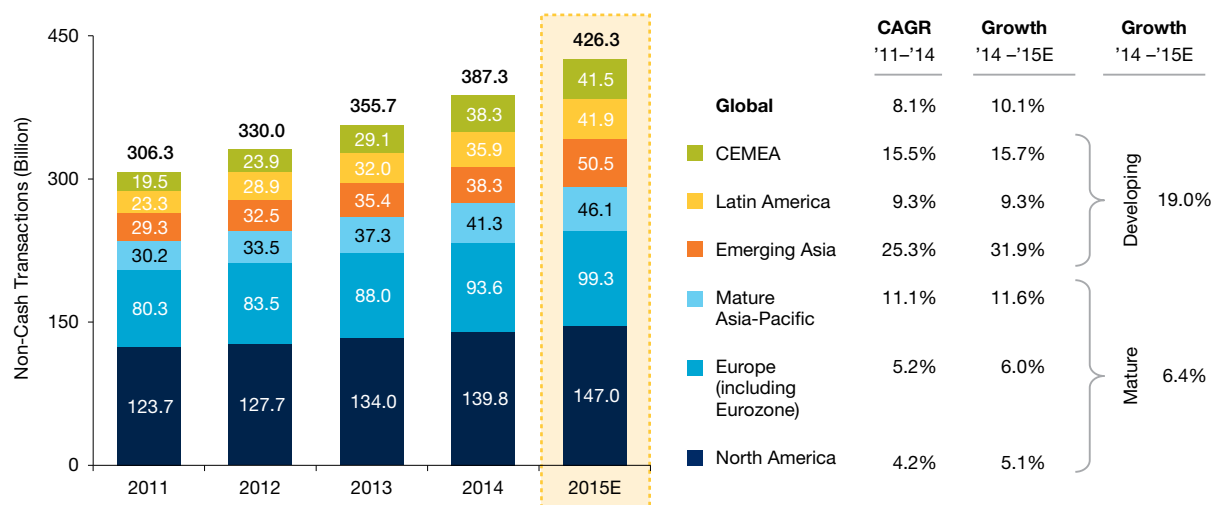
Global non-cash transaction volumes are estimated to have grown at a rate of 10.1% during 2015 to reach a total of 426.3 billion (see Figure 1.5). This growth will likely have been led by Emerging Asia (31.9%), CEMEA (15.7%), and Mature APAC (11.6%).

China and India will likely have continued to spur transaction growth in Emerging Asia, as regulatory intervention, increased card penetration, and increased

mobile payments contribute to non-cash transactions. The North American region is expected to witness growth of 5.1% in 2015, compared with a rate of 4.2% in 2014. Europe is expected to have grown by 6.0% in 2015, compared to growth of 5.2% in 2014.

The accelerated rate of growth in global non-cash transactions in 2015 will have been driven by a variety of factors, including improved U.S. economic growth, stronger security measures such as EMV, biometrics, and Host Card Emulation, increased penetration of smartphones and POS terminals, and moves by governments in developing markets to encourage digital payments.

Figure 1.5 Number of Worldwide Non-Cash Transactions (Billion), by Region, 2011–2015E



Note: Refer to Methodology, page 45 for details on countries included in each region; Chart numbers and quoted percentages may not add up due to rounding; Some numbers may differ from data published in WPR 2015 due to previous year data updated at the source

Source: Capgemini Financial Services Analysis, 2016; ECB Statistical Data Warehouse, 2014 figures released October 2015; Bank for International Settlements Red Book, 2014 figures released December 2015; Country's Central Bank Annual Reports, 2014

Cash Use High Despite Increased Adoption of Digital Payments

As the adoption of digital payments schemes and instruments increases, the share of cash payment volumes as a percentage of total payment volumes in the majority of countries is declining. However, cash in circulation has remained stable and in fact increased slightly across multiple markets during the past five years. Cash continues to be attractive because it provides multiple benefits to the payer, including anonymity and being free of charge. Cash is predominantly used for low-value transactions; however, cultural habits and outmoded payment infrastructures also contribute to the use of cash.

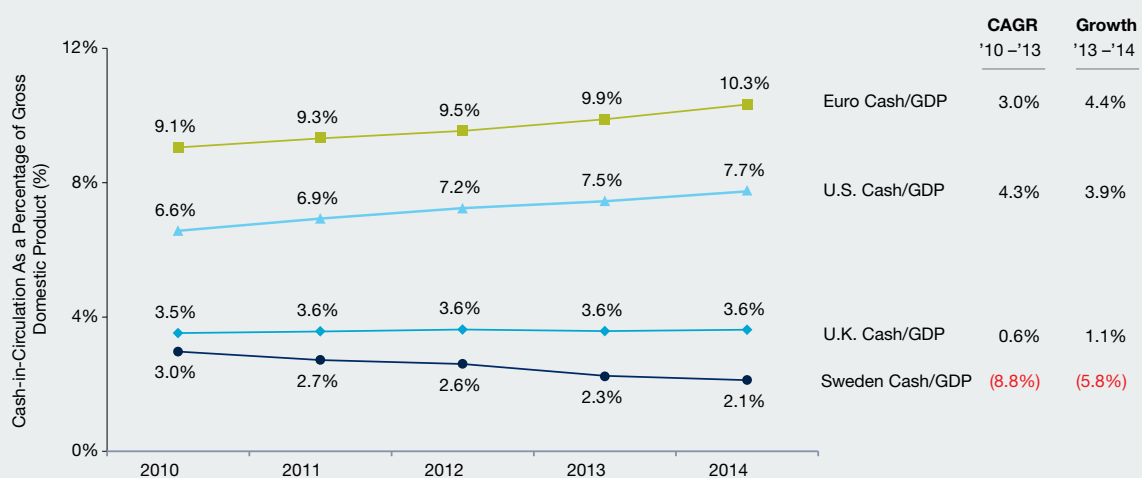
The ratio of cash in circulation to GDP increased across major markets, although there were some exceptions such as Nordic countries including Sweden, where cash use is declining due to multiple factors including cashless initiatives, modernized payment infrastructures, and a high penetration of cards. In Europe and the U.S., the cash-to-GDP ratio grew 4.4% and 3.9% respectively during 2013–14, while in Sweden the ratio contracted by 5.8% (see Figure 1.6).

Many countries are adopting measures to discourage the use of cash and some banks are supporting such moves. This is occurring in the wake of the continued increase in the use of cash and the costs associated with it. For example, since the introduction of the Euro in 2002, cash has dramatically increased in the Eurozone: between 2002 and 2016, the number of banknotes in circulation increased by 133%. The cost

of cash—which represents about half of total retail payment social costs—increased by 30% between 2002 and 2012.¹² The increase in online transactions and adoption of e-commerce, changing consumer preferences, the high cost associated with cash (the cost of cash usage, including the production of notes and coins, installation and maintenance of automated teller machines, and safeguarding of cash against counterfeiting), and the need to curb the shadow economy are driving factors in the move to go cashless. There are additional costs to corporate customers related to theft, damage, security, and reduced value of money due to inflation.

Based on current usage patterns, cash is expected to remain a significant payment instrument in the near future, even in markets that offer advanced digital payments. Services based on immediate payments are expected to be more efficient than cash and are expected to accelerate the move to digital payments, in areas such as consumer to business (C2B) food and entertainment payments and peer to peer (P2P) payments to family and friends. As the amount of cash in circulation relative to GDP increased in most countries, Sweden's central bank, Sveriges Riksbank, has informed banks that they are forced by law to provide to their clients at least one free payment service (such as cash). As such, while there is a drive towards decreasing cash usage, the persistence of cash has prompted some countries to prioritize their efforts on reducing the cost of cash, rather than its elimination.

Figure 1.6 Cash in Circulation as a Percentage of GDP in the U.S., U.K., Sweden, and Eurozone, (%), 2010–2014



Source: Capgemini Financial Services Analysis, 2016; Bank for International Settlements Red Book, 2014 figures released December, 2015

¹² "Single Euro Cash Area (SECA) Framework, European Payments Council", May 2016 <http://www.europeanpaymentscouncil.eu/index.cfm/knowledge-bank/epc-documents/single-euro-cash-area-seca-framework/cash-021-05-v40-seca-framework-2016/>

Immediate Payments Have Potential to Replace Checks and Cash

With a strong value proposition, immediate payments¹³ have potential as an alternative to checks and cash for retail and corporate customers, and could drive further growth of non-cash transactions. The main benefits of immediate payments include instant credit availability (leading to better credit risk and treasury management), irrevocability of transactions, the ability to make urgent payments, ease of use, 24x7 availability, and increased transparency of the payments process (see Figure 1.7).

A senior executive of a leading clearing house said: "Immediate payment integration into core systems will allow for an explosion of new value-added services from the front end to corporates and consumers, which was not possible earlier. In essence, this could serve to bring about a collapse of all legacy payment types like checks and cash".

The U.S. Fed, SWIFT, and the Australian Payments Clearing Association also believe immediate payments have the potential to replace checks and cash to

a certain extent.¹⁴ Immediate payments could also potentially replace debit cards in some scenarios as they could lower banking fees at POS terminals.

In the U.K., check usage has declined and non-cash payment transactions have increased since the introduction of the Faster Payments Service (FPS). Transactions made via FPS grew at a CAGR of 27.2% during 2009–2015E (albeit on a smaller base), compared to 6.3% CAGR in total non-cash transaction volumes. Check payments declined by 12.9% during the same period. Payments made via FPS now account for more than 5% of total non-cash payment volumes in the U.K. Value-added services based on FPS, including insurance claims payouts and the Paym mobile P2P service, have helped to accelerate growth. Paym's volumes have almost doubled every six months since its 2014 launch.¹⁵

Encouraging the adoption of immediate payments requires more than just the creation and launch of a system. Numerous challenges to both retail and

Figure 1.7 Comparison among Cash, Checks, and Immediate Payments

Key Payment Attribute	Cash	Checks	Immediate Payments
Cancellation/Revocability	Not Favorable	Favorable	Not Favorable
Comprehensive Reach	Favorable	Favorable	Favorable
Control with Payer	Favorable	Moderately Favorable	Favorable
Convenience	Moderately Favorable	Moderately Favorable	Favorable
Cost of Use	Not Favorable	Moderately Favorable	Moderately Favorable
Ease of Use	Moderately Favorable	Moderately Favorable	Favorable
Information Attached with Payments	Not Favorable	Moderately Favorable	Favorable
Risk of Fraud	Moderately Favorable	Not Favorable	Moderately Favorable
Settlement Time	Favorable	Moderately Favorable	Favorable
Straight-Through Processing (STP)	Not Favorable	Moderately Favorable	Favorable
Time of Operations	Moderately Favorable	Not Favorable	Favorable
Tracking/Transparency	Not Favorable	Moderately Favorable	Favorable
Transaction Confirmation	Favorable	Not Favorable	Favorable

■ Favorable
 ■ Moderately Favorable
 ■ Not Favorable

Note: We have qualitatively analyzed the favorability of cash, checks, and immediate payments against all the payment attributes defined by the Euro Retail Payments Board and then depicted the outcome in above chart

Source: Capgemini Financial Services Analysis, 2016; <http://www.europeanpaymentscouncil.eu>; SME Input

¹³ In WPR 2015, we defined immediate payments as 24x7 account-to-account (A2A) payment transfer services that facilitate immediate availability of funds to the beneficiary and instant confirmation of such availability within seconds

¹⁴ For more information, see Faster Payments Assessment Summary, https://fedpaymentsimprovement.org/wp-content/uploads/faster_payments_assessment.pdf; and 'The Global Adoption of Real-Time Retail Payments Systems (RT-RPS)', SWIFT, April 2015

¹⁵ "Usage of Paym mobile payment service nearly doubling every six months", Faster Payments <http://www.fasterpayments.org.uk/press-release/usage-paym-mobile-payment-service-nearly-doubling-every-six-months>

corporate adoption exist. For example, some retailers are reluctant to replace existing POS and card infrastructures (in which they have invested heavily), there are alternatives that make funds available quickly using existing infrastructure, and merchants generally undertake bulk batch processing. Corporate challenges include the need to adapt liquidity management processes to the real-time world. Also, there is a lack of common standards for service offerings and communications among banks, which can be confusing for clients. The more participants in an immediate payments system, the more benefits that will be delivered to the system as a whole, therefore these obstacles need to be overcome.

The following are key steps to boost the adoption of immediate payments:

Value-added services: More than 80% of industry executives surveyed online for WPR 2016 believe that the availability of value-added services will increase corporate adoption of immediate payments in the future.¹⁶ Potential services include the integration of immediate payments with electronic invoice presentment and payment (EIPP), financial supply chain services, and unified payment interface. An immediate payments infrastructure is a key enabler for banks to develop value-added services and thereby to compete with FinTechs and other non-bank players.

Market education: Banks, industry organizations, and regulators will need to invest in educating key stakeholders including corporates, merchants, and end customers on the benefits of immediate payments. For example, banks could inform corporates and merchants of the required infrastructures, the ease of transaction, benefits including instantaneous funds and receipt, and how instantly available funds can be better managed (see Figure 1.8).

Infrastructure upgrade: Merchants and corporates will have to make investments to upgrade their existing payments infrastructures to support immediate payments transactions. Also, if immediate payments systems are built on existing infrastructures, participation will be easier and should keep upgrade costs down, thus ensuring higher adoption rates and success for immediate payments schemes.

Enabling transformation: According to the online survey conducted for WPR 2016, more than 60% of industry executives think that joint regulatory and industry efforts will help to drive sustainable growth in the adoption of immediate payments. These efforts should also help more general initiatives to modernize payments' infrastructures across markets.

Figure 1.8 Benefits to Corporates from Adopting Immediate Payments

<p>Accurate Liquidity Management</p>	<ul style="list-style-type: none"> ▪ Payments can be initiated at last moment before due date leading to: <ul style="list-style-type: none"> • Reduced settlement times and availability of funds for longer durations • Enhanced liquidity management • Cost savings as a result of fewer adjustments
<p>Improved Financial Control and Budgeting</p>	<ul style="list-style-type: none"> ▪ Implementation of immediate payments will lead to improved financial control and budgeting for corporates due to certainty of payment status (irrevocable) ▪ Real-time systems generate data, which will help treasurers map companies' cash flows and financing operations with their stakeholders' production lines in real time, which will make cash flow easier to manage and forecast
<p>Instant Payment Finality</p>	<ul style="list-style-type: none"> ▪ The instant payment finality of immediate payments reduces credit risk and the temporal risk created by time delay between payment and settlement ▪ This enables instantaneous updates and a constant real-time view of cash positions for corporate clients
<p>Enhanced Customer Proposition</p>	<ul style="list-style-type: none"> ▪ Immediate payments are expected to enhance the experience of corporates' customers by providing faster services, real-time notifications, and immediate availability of funds

Source: Capgemini Financial Services Analysis, 2016; "Roundtable: a world of real-time payments", David Bannister, Banking Technology, 22 September 2015, <http://www.bankingtech.com/373561/real-time-faster-instant-payments/>; "A Corporate View of Instant Payments", Massimo Battistella, European Payments Council, 28.07.15, http://www.europeanpaymentscouncil.eu/pdf/EPC_Article_375.pdf; SME Input

¹⁶ For details of the survey, see Methodology, page 45

Corporates Lag Retail in Adoption of Mobile Devices in Payments

While retail consumers have embraced mobile devices, such as smartphones and tablets, their adoption by corporates has been slow. One-third of retail banking customers globally say they use mobile devices for banking and payments at least once a week.¹⁷ However, more than 90% of payments industry executives surveyed online for WPR 2016 agree that corporate adoption of mobile devices in the payments sector is low. While mobile devices cannibalized retail online payments, this is unlikely to be the case in the corporate space, where mobile devices are expected to be mainly used to supplement online channels.

The main benefits of mobile devices for payments for corporates are anytime and anywhere availability, increased control and reduced costs, and the provision of an additional payments channel (particularly in emerging markets). The use of mobile devices will provide senior corporate treasurers, for example, with the flexibility to approve payments anytime and anywhere. The challenges to corporate adoption of mobile devices include a scarcity of value-add features, security risks, the limited size of display screens, and a lack of integration with enterprise systems, such as enterprise resource planning (ERP) and accounting systems. Our survey found that 69% of payments industry executives cited a lack of corporate use cases as an inhibitor to the use of mobile devices for payments. More than half of the respondents felt security was a key inhibiting factor. Other challenges include a preference among corporate treasurers for online channels (particularly when dealing with high-value transactions) and difficulties in achieving centralized management and control when mobile devices are deployed.

A senior payments executive from a leading FinTech said: "Mobile channels for corporate customers are viewed by payment experts as solutions looking for a problem, as no corporate wants to use mobiles as payment devices because of multiple challenges such as security risks".

At present, the use of mobile devices for corporate payments is limited to the 3As: Approving payments, receiving Alerts, and driving Analytics.

Approving: Efforts here are focused on providing payment approvals and second-line authorization. EMV Co and MasterCard, for example, have established accreditation standards for authorization payments from mobile devices.

A senior executive at a European payment processor said: "In the corporate space, usage of mobile devices mainly stops with payment authorization services, and no real mobile payments are made. An example would be a treasurer approving payments while at an airport".

Alerts: Mobile devices can be useful for sending alerts and notifications to treasurers in order to keep them informed of the status of any sensitive or urgent payments.

A senior executive at a leading U.K. bank said: "Corporates use mobile mostly for alerts and not for making payments".

Analytics: Mobile devices are being used to create dashboard views and reports. However, advanced analytics can be challenging due to multiple factors including the tendency of treasurers to rely on online solutions and the emergence of ultra-mobile notebooks that are better geared for analytics. Use cases for analytics include reports on pending transactions, cash balances and availability, open foreign exchange (FX) positions and value at risk (VAR), straight through processing (STP) rates, and risks including unpaid items.

A senior executive at a global bank said: "M-POS for retailers is becoming key, as it integrates acceptance and information in one solution, thus helping to drive analytics".

As value-added features are developed, the applicability of mobile devices across the corporate payments value chain will improve, but their relevance for payments initiation and execution is expected to remain low in the near future (although mobile devices at POS for some corporates, such as Walmart and Uber, are expected to be highly relevant). Corporate adoption will be boosted by the integration of mobile devices with immediate payments and development of features such as improved security, integration with ERP systems, and the addition of tools related to trade finance. Although the development of value-added services might increase the adoption of mobile devices by corporate treasurers, it is highly unlikely the adoption rates will equal those experienced in retail payments. It is likely that mobile devices will remain an extension of or complement to existing solutions and will not in themselves become stand-alone payments solutions for corporates.

¹⁷ World Retail Banking Report, Capgemini and Efma, 2016





Key Regulatory and Industry Initiatives

Key Findings

- **The regulatory landscape remains complex for banks, as they not only need to comply with existing regulations, but also adhere to new regulatory initiatives, some of which affect established operating or business models.** Since last year's Report, the number of regulations launched in emerging markets has increased, many of which are aimed at encouraging competition and innovation. As key regulatory and industry initiatives (KRILs) proliferate regionally and globally, an inability to anticipate the requirements of regulations poses a risk for banks. Overlapping KRIL objectives further complicate matters.
- **Regulations differ greatly—some are very detailed and prescriptive while others are transformational and subject to multiple interpretations.** While most of the rule-based regulations such as those related to anti-money laundering (AML) are detailed and prescriptive, regulations such as the Payment Services Directive II (PSD II) and those governing virtual currency are more open to multiple interpretations. Global banks face an additional compliance challenge as the regulatory approach varies to a great extent across jurisdictions, increasing the complexity of compliance and resulting in the need for a holistic and collaborative approach.
- **As banks adapt to the evolving regulatory landscape, two key themes are emerging: the increased use of technology to ensure compliance, and a new facilitation approach adopted by some regulators to provide a 'safe environment' in which financial services businesses can innovate.** Increased complexity in the regulatory landscape is creating a need for banks to leverage technology for compliance purposes. At the same time, regulators are also undertaking initiatives aimed at preventing too much regulation from hindering innovation.
- **Banks realize the importance of developing a holistic compliance vision and many have already taken initial steps to making it a reality, but have not made much progress in the past two years, as execution remains a challenge for many.** Most banks have established dedicated compliance programs; however, in reality these initiatives remain tactical in nature while compliance efforts are still deadline-driven and regulation-specific. The slower progress has in part been due to increased complexity driven by the pace and impact of individual regulations, lack of clarity, and harmonization of regulations.
- **To avoid lagging behind in complying with regulations, banks should find ways to accelerate their efforts in developing a proactive and collaborative compliance mindset.** A holistic approach will help banks to provide value-added services demanded by corporates. FinTechs focused on regulatory compliance are delivering tools that enable compliance, efficiency, and a positive customer experience. In response, banks can partner with FinTechs and accelerate the internal execution of holistic compliance strategies.



Banks and other PSPs Operate in a Highly Regulated Environment

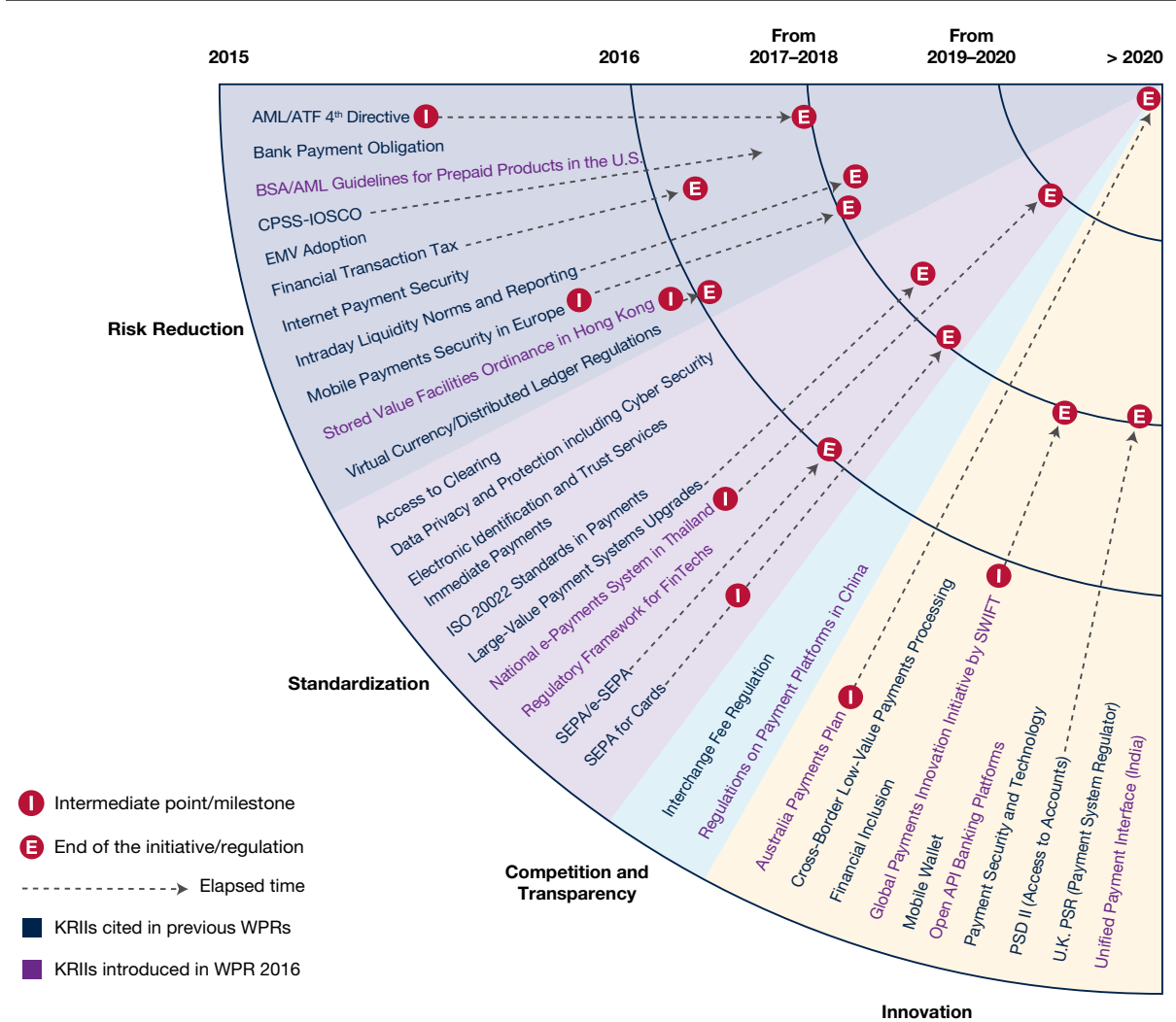
CURRENT REGULATORY ENVIRONMENT REMAINS COMPLEX

The current regulatory landscape for banks and other payment service providers (PSPs) is complex as they not only need to comply with existing regulations, but also adhere to new regulatory initiatives—some of which are affecting established operating and business models. The approach of regulators to the payments

markets is dominated by four primary objectives: risk reduction, standardization, competition and transparency, and innovation (see Figure 2.1).

During 2015, there was a rise in the number of new regulations in emerging markets, many of which fall into the objectives of competition or innovation. For example, the NPCI launched the Unified Payments Interface (UPI) in April 2016, which enables users to make payments across payments instruments, bank

Figure 2.1 KRILs Clustered by Regulators' Primary Objectives, 2016



Note: Timelines have been provided for regulations where they are specified, no timelines are specified for industry-trend KRILs; CPSS-IOSCO – Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO); SEPA – Single Euro Payments Area; Payment Security and Technology includes Contactless, Near Field Communication (NFC), Tokenization, Biometric Authentication, and Mobile Point of Sale (mPOS)

Source: Capgemini Financial Services Analysis, 2016; WPR 2015, 2014, 2013, 2012, and 2011; SME Input

accounts, and payments channels. In Thailand and Australia, a long-term payments restructuring and modernization initiative, based on phased introductions of multiple initiatives, is under way. The Hong Kong Monetary Authority (HKMA) is standardizing and harmonizing the rules for stored value facilities (SVF) and retail payments systems (RPS) via the Stored Value Facilities Ordinance (SVFO). This provides the legal basis for the powers of the Authority in relation to the regulation of SVFs and RPS. Other new KRILs include open application programming interfaces (APIs), which enable banks to open their code to third parties in order to develop innovative services for the benefit of the end customer.

Further complexity exists in a lack of common understanding among industry stakeholders of regulatory objectives, which opens up the possibility of multiple interpretations of regulations. Financial institutions that operate across different countries need a common understanding of how to comply with particular KRILs. In Europe, for example, this lack of understanding had an impact on the implementation of Basel III's intraday liquidity regulations. Also, the lack of a business case and overlap with immediate payments' initiatives led to delays in the migration to TARGET2 XML.

Further, global banks face an additional challenge of adherence to variations in local regulations across regions, depending on the regulatory approach in each country (see Figure 2.2).

A head of transaction banking services at a leading European bank said: "Regulations such as PSD II, Basel III (interest compensation), and Know Your Customer (KYC) are forcing banks to rethink their multi-country approach as the cost of regulatory compliance is increasing".

The impact of regulations depends on the maturity of payment systems and other local factors such as technology adoption, payment habits, and existing payment infrastructure. For example, due to different implementation timelines and local market factors, certain global KRILs such as ISO 20022, immediate payments, and Interchange Fee Regulations are subject to different adoption rates across each region. This in turn means the level of impact of the KRIL will also vary across regions.

A senior transaction banking executive at a leading European bank said: "Approach to regulatory compliance needs to be aligned with a clear bank business strategy given the impact of the regulation on the industry, both globally and regionally".

Figure 2.2 Regional Heat Map of KRILs, 2016



Note: Payment Security and Technology includes Contactless, Near Field Communication (NFC), Tokenization, Biometric Authentication, and Mobile Point of Sale (mPOS)
 Source: Capgemini Financial Services Analysis, 2016; WPR 2015, 2014, 2013, 2012, and 2011; SME Input

VARIATIONS IN KRILs RANGE FROM PRESCRIPTIVE TO TRANSFORMATIONAL

The scope of payments industry regulations ranges from very detailed and prescriptive to those we define as transformational and subject to multiple interpretations (see Figure 2.3). This adds to the complexity banks face in complying with regulations and highlights the need to develop and implement a holistic compliance approach. While most of the rules-based regulations, such as those related to AML, are detailed in nature and prescriptive, regulations such as PSD II and those governing virtual currency are more open to multiple interpretations.

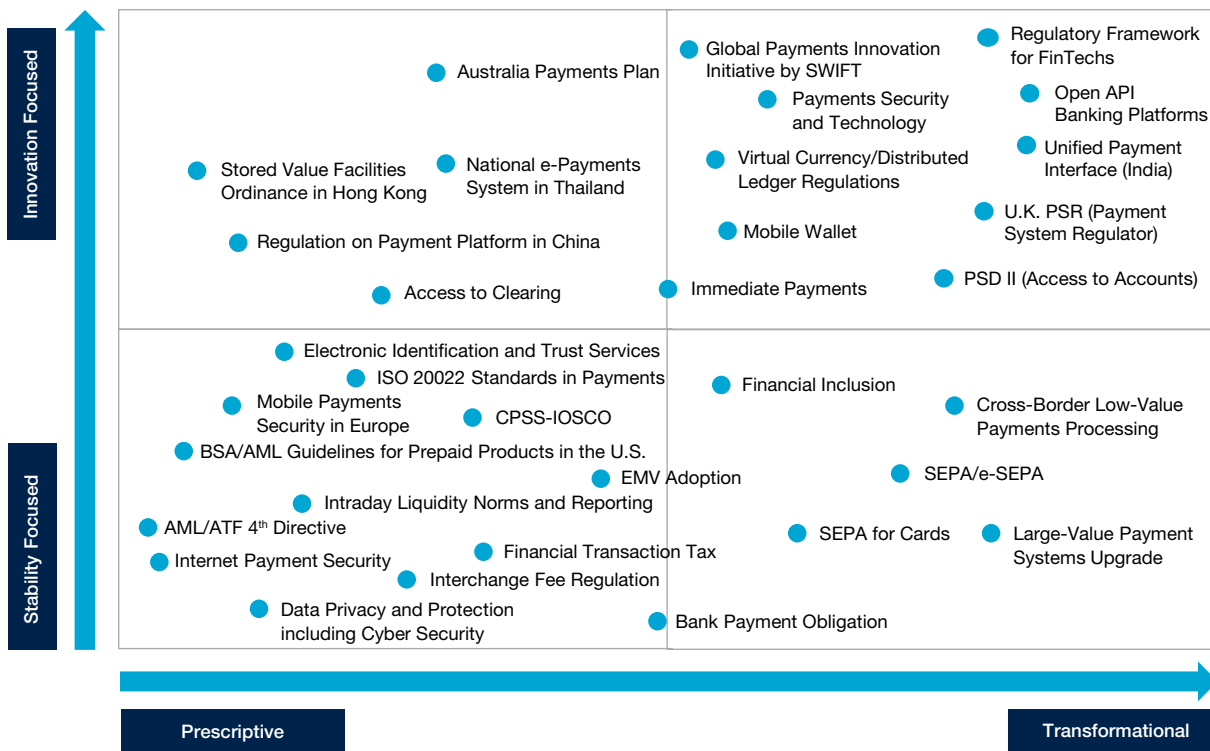
Prescriptive regulations reflect the traditional rules-based approach of regulators that ensured compliance to a checklist of rules. Some banks sometimes adopted a box ticking approach to elements of compliance. Such KRILs were incrementally updated to reflect developments in the market, technology, and industry players. Moreover, these KRILs aimed to reduce banks' exposure to risk and therefore ensure system stability.

Transformational KRILs, on the other hand, have emerged as regulators increasingly formulate policies and regulations that are reflective of the disruption and innovation in the payments industry. However, these

KRILs are subject to multiple interpretations because they are not prescriptive. The ambiguity in some regulations, which results in multiple interpretations, means that timelines vary across countries and banks, often resulting in the extension of KRIL deadlines to enable banks to achieve compliance.

Regulators' approaches to KRILs varies across regions, with some regulators adopting a more protective approach while others are keen to open up local markets to competition. In the U.S. for example, regulators have focused on prescribing security and risk-related KRILs (many of which have cascaded to a global level) while leaving innovation to market forces. In APAC, the tendency is towards prescriptive KRILs when the core objectives are risk management, security, and innovation. In Europe, regulators are prescriptive regarding security and data protection while they are more open-ended when it comes to innovation KRILs. EU authorities believe that innovation will emerge from competition. They argue that competition is achieved through transparency that enables the comparison of services and costs and standardization, which keeps down the cost of change. This varying approach has to be taken into account by banks as they implement global strategies. The number of local factors they need to consider for each region is increasing, once again highlighting the need for banks to develop a holistic compliance vision.

Figure 2.3 Varying Scope of KRILs across Regulatory Landscape



Source: Capgemini Financial Services Analysis, 2016; SME Input

TECHNOLOGY ENABLEMENT AND REGULATORY FACILITATION EMERGE AS THEMES

As banks seek to adapt to the evolving regulatory environment, two key themes are emerging in the compliance landscape: the increased use of technology to ensure compliance and regulatory facilitation frameworks that provide a safe environment in which businesses can innovate.

As the complexity of the regulatory landscape has increased, opportunities to leverage technology in order to ease the compliance process and increase transparency have arisen. Some FinTech firms have focused upon leveraging technology to provide third-party compliance solutions to banks and businesses. Such technology solutions help firms to automate the compliance tasks and reduce operational risks. As regulations become more complex and expand their scope, increased use of technology for compliance is expected. Within the FinTech environment, a niche set of firms, RegTechs, have emerged that are making advanced use of technology to target regulatory compliance. Areas of focus include prudential regulation stemming from Basel III/CRD IV, risk analytics, KYC utilities for storing due diligence information, and cloud-based plug-and-play software that can be integrated with APIs. RegTech firms enable banks to automate the more tactical compliance tasks and reduce operational risks associated with compliance and reporting obligations.

At the same time, regulators are conscious that too much regulation could hinder innovation and are taking a more strategic view when developing new regulations. In WPR 2015, we identified the evolving role of regulators in ensuring that KRILs achieve their objectives.¹⁸

Among the new roles that regulators play is that of providing a safe environment in which businesses can innovate without putting their customers or their institution at risk. In the U.K., for example, the Financial Conduct Authority (FCA) has developed a Regulatory Sandbox—a safe environment in which businesses can test innovative products, services, business models, and delivery mechanisms in real-world scenarios without being subject to the usual regulatory consequences.¹⁹ The Australian Securities and Investment Commission (ASIC) has issued a public consultation paper on a proposed regulatory sandbox licensing exemption and other measures. The sandbox will allow financial

services businesses to get to market faster by testing their innovations in real-world scenarios. Also, compliance with regulatory obligations will be required only upon product launch.²⁰ A similar move has been made in the Netherlands, where the Authority for the Financial Markets and the Dutch Central Bank are jointly promoting start-ups and innovation. The initiative includes an InnovationHub, arrangements to run pilot projects under a temporary license, and the involvement of industry stakeholders and new entrants in discussions about how regulation could be altered to stimulate innovation. With several countries studying the model, it is highly likely that the KRIL might be cascaded from a regional level to a global level.

MANY BANKS TAKING INITIAL STEPS TOWARDS DEVELOPING HOLISTIC COMPLIANCE

The complexity of regulatory compliance is driving banks towards a holistic compliance strategy.²¹ In 2014, we observed that the majority of firms were at the 'create' stage of developing a data management framework to achieve regulatory compliance and derive a holistic view of the customer. Many banks have now taken initial steps to make holistic compliance a reality. The factors driving this approach vary across banks.

A senior executive at a leading European bank said: "The approach to compliance is holistic within our bank, incorporating business, technology, legal, and also our customers". A head of payments at a regional European bank said: "A holistic compliance vision requires a resource-driven approach and an organization has to define first what an overarching understanding of compliance means".

Banks have rated highly internal factors such as adapting to changes in the technological landscape and the need for quick alignment with regulatory objectives. However, at the industry level the ability to adapt to best practices and the need to mitigate the threat of regulatory sanctions emerge as the top drivers (see Figure 2.4). As such, holistic compliance can potentially provide banks with more benefits than they are currently perceiving.

The nature of holistic compliance programs at banks is evolving. Most banks have acknowledged the widening scope of compliance programs and are setting up dedicated units to manage these. At a board room

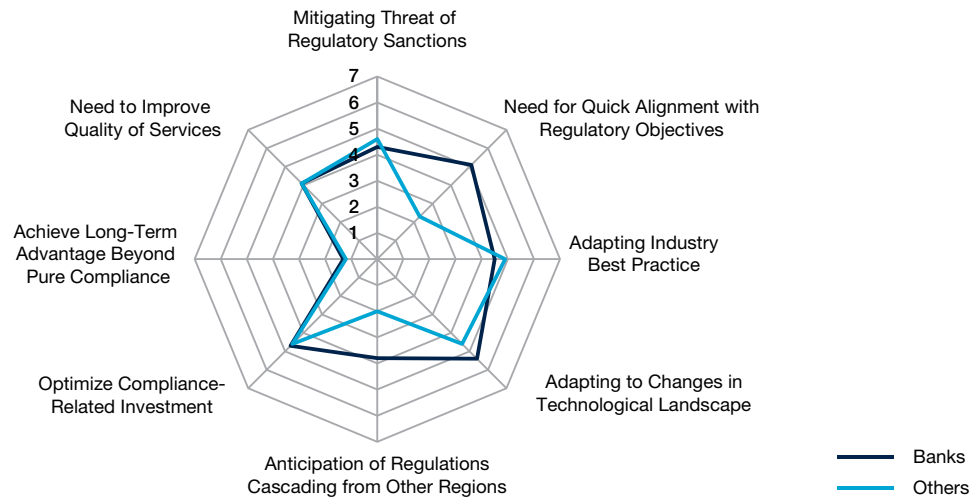
¹⁸ WPR 2015, page 49

¹⁹ "Regulatory sandbox", Financial Conduct Authority, November 2015 <https://www.fca.org.uk/your-fca/documents/regulatory-sandbox>

²⁰ "16-129MR Innovation Hub: Regulatory sandbox proposal", Australian Securities & Investments Commission, May, 2016 <http://asic.gov.au/about-asic/media-centre/find-a-media-release/2016-releases/16-129mr-innovation-hub-regulatory-sandbox-proposal/>

²¹ Long-term holistic compliance vision and strategy is defined as a bank's ability to have a holistic view of the entire regulatory landscape along with a set of actions identified to achieve this. Such a strategy would have multiple components including integrated risk management and data governance that will apply to the entire bank and not just specific business lines or functions. Also refer to our 5C model introduced in WPR 2014 (page 32) on how banks can achieve this.

Figure 2.4 Drivers of Holistic Compliance Strategy for Banks, Q2 2016



Note: Question asked; "Please rank the below drivers of holistic compliance vision in their order of importance (on a scale of 1–7, 1 being least important and 7 being most important)"

Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 100 responses received.

level, banks are aiming to embed compliance into the organizational culture in the form of an integrated risk and compliance framework. The majority of compliance programs now report directly to the board or the chief executive officer.

A senior executive at a leading bank in Asia-Pacific said: "We have set up a global compliance governance organization in each region in order to have a consolidated view of regulations and associated compliance processes".

Banks are also leveraging technology to combat cost inefficiencies and streamline regulatory compliance. Efforts are under way at several banks to ensure compliance and transparency through dashboards and real-time feeds into databases.

An executive at a leading U.S.-based retail bank said: "Investment in technology to enable a centralized regulatory and risk function is necessary".

DESPITE RECOGNIZING NEED FOR HOLISTIC COMPLIANCE, BANKS HAVE MADE LITTLE PROGRESS

While dedicated compliance programs are now established across most banks, in reality their initiatives are still tactical in nature while compliance efforts are still deadline-driven and regulation-specific. A number of obstacles exist for banks as they try to implement holistic compliance programs.

These barriers include operation of compliance programs within silos, separate execution of each regulatory compliance initiative, and a lack of relevant

metrics to track progress and measure the levels of compliance adherence. There are also deficiencies when it comes to governance frameworks and the number of dedicated compliance staff.

A senior payments executive at a leading European bank said: "We have started to look more holistically at regulations and organized our activities as such. However, when reality kicks in, ensuring compliance is the key goal and so execution is mainly project-specific". A lead payments architect at a U.K.-based retail bank added: "Although compliance is driven from a single compliance unit, we are trying to achieve synergies in cross-regulation execution projects to ensure holistic management of compliance".

The slower progress towards holistic compliance has in part been due to increased complexity driven by the pace and impact of individual regulations and the lack of clarity, harmonization, and an immediate ROI. Additionally, perceived risks related to embarking on an ambitious compliance program while ensuring that existing compliance tasks are not compromised prove to be a problem.

However, this slow progress not only affects banks but corporates as well. The KRILs particularly affecting corporates include the Organization for Economic Co-operation and Development's (OECD's) Base Erosion and Profit Shifting (BEPS) plan, Liquidity Coverage Ratio (LCR) under Basel III, and electronic bank account management (eBAM), and immediate payments (see page 28 for more detail). While SEPA and eBAM are expected to be positive for corporate treasurers, BEPS and LCR may have an adverse impact. eBAM will help corporate treasurers to change and modify account structures as they manage

changes in their business and regulatory environments due to the impact of Basel III. SEPA will result in rationalization opportunities across the Eurozone such as building payment and collection factories. Basel III and LCR norms are restricting banks' usage of capital for providing financial intermediation services. Developing a holistic view of compliance can help bank address some of these challenges for corporates and develop value-added services for them.

By taking a holistic approach, banks can leverage their expertise in local regulations across the globe and offer appropriate and relevant services to corporates in areas including legal, taxation, and accounting standards. Banks can also help corporates to adapt to new regulatory environments in areas such as KYC, AML and sanctions, and BEPS. In KYC for example, banks can help to explain the requirements, enable digital documentation, and share documents across all legal entities of the bank dealing with the client. Banks can provide enhanced risk management services to corporates and also offer enhanced decision-support systems for assessing counterparty and operational risks. With a unified onboarding process across business lines, banks can offer differentiated corporate banking services in the initial six months of establishing a relationship.

BANKS MUST FIND WAYS TO ACCELERATE HOLISTIC COMPLIANCE EFFORTS

To avoid lagging behind in complying with the evolving regulatory landscape and to be able to provide value-added services demanded by corporates, banks

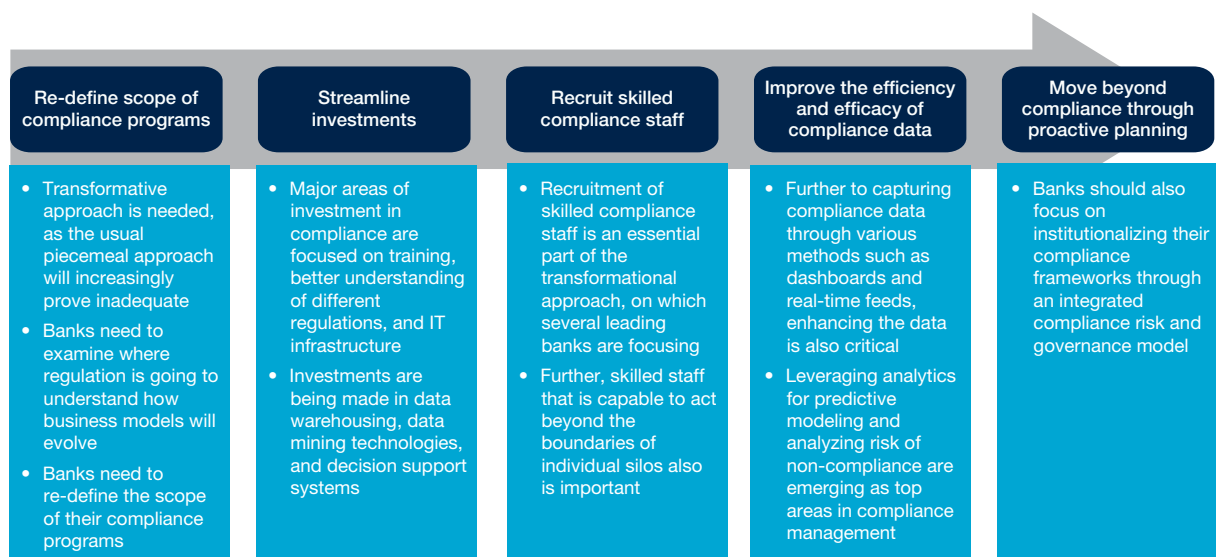
should find ways to accelerate their efforts and adopt a transformative approach to compliance. In order to do this they need to re-define the scope of compliance programs, develop a clear view to ensure efficient IT changes, streamline investments, recruit skilled compliance staff, improve the efficacy of compliance data, and the efficiency of its collection; and move towards integrated compliance risk and governance models (see Figure 2.5).

By focusing on specific technology areas, banks can accelerate their holistic compliance efforts. These technologies include data warehousing/big data, analytics, compliance testing, and lean methodology/change management.

A senior executive at a leading European bank said: "We need to look at the total IT architecture for mapping compliance processes in order to be compliant for the long term".

Leveraging the agility of RegTech firms will help banks to develop easier and quicker to market compliance solutions. For example, RegTechs can help banks to leverage the data and existing systems in a cost-effective and timely manner, leading to better responsiveness to regulatory developments. RegTechs also offer innovative services in areas such as risk modeling, behavior analysis, and holistic regulation as a service platform. RegTechs are setting a higher benchmark in terms of agility than banks. Therefore, to accelerate the execution of their holistic compliance plans, banks may have to partner with and leverage the solutions of RegTechs.

Figure 2.5 Transformative Approach Needed to Adapt to New Regulatory Landscape Realities



Source: Capgemini Financial Services Analysis, 2016; SME Input

Key Regulatory and Industry Initiatives (KRIs) in Payments, 2016

Key #	Key Regulatory and Industry Initiatives (KRIs)	Brief Description/Update
KRIs added to WPR 2016 are in purple text in the table below		
1	Anti-Money Laundering (AML)/ Anti-Terrorism Financing (ATF) 4 th Directive	<p>The fourth EU AML Directive takes effect from June 2017. It applies to a range of businesses including financial institutions and those that make or receive cash payments for goods worth at least €10,000, regardless of whether payment is made in a single, or series of transactions.</p> <p>The EU Funds Transfer Regulation will replace the existing Wire Transfer Regulation and extend its scope. New requirements are the inclusion of beneficiary name and account number, and procedures at intermediary banks to detect and deal with missing or incomplete payer/payee information. Compliance may require enhancements to payment systems and associated AML processes.</p> <p>In the U.S., a FinCEN proposal requires financial institutions subject to the BSA to conduct KYC due diligence on beneficial owners with 25% or greater ownership interest in and on an individual in control of the customer/client.</p> <p>Australia's regime has undergone two concurrent reviews, one of which includes AUSTRAC's statutory review of the AML/Counter Terrorism Financing (CTF Act), Rules and Regulations. This review was tabled in Parliament on 29 April, 2016. The second review, undertaken by FATF, evaluated the effectiveness of Australia's AML/CTF regime and compliance with the FATF 40 Recommendations.</p>
2	Bank Payment Obligation (BPO)	<p>SWIFT and the International Chamber of Commerce (ICC) Banking Commission have jointly produced a set of rules on the BPO (an irrevocable conditional undertaking to pay from one bank to another). Currently, the focus is on market adoption of BPO and the related ISO 20022 messaging standards.</p>
3	Bank Secrecy Act/AML Guidelines for Prepaid Products in the U.S.	<p>U.S. federal regulators have published guidance on when a bank should apply customer identification program (CIP) procedures to prepaid cardholders. Five Federal agencies—the Federal Reserve, Federal Deposit Insurance Corporation (FDIC), OCC, National Credit Union Administration (NCUA), and FinCEN—issued the guidance. The guidance also elaborates how the CIP rules apply to payroll, government benefit, and health benefit cards.</p>
4	CPSS-IOSCO	<p>The Committee on Payments and Market Infrastructures (CPMI) and International Organization of Securities Commissions (IOSCO) began the first 'level three' assessment of the implementation of the clearing and settlement mechanism principles (CSM) in July 2015 and is expected to publish the results in 2016.</p>
5	EMV Adoption	<p>Several banks and retailers missed the U.S. federal government deadline for EMV adoption of 1 October, 2015. Adoption was slower than expected, even after the deadline had passed. However, adoption is on the rise and the Payments Security Task Force projects that 60% of all cards will be chip-enabled by the end of 2016 and 98% by the end of 2017.</p>
6	Financial Transaction Tax (FTT)	<p>The FTT is intended to curb speculative trading, harmonize bank levies across the EU, and recover some of the public funds used to support banks during the economic crisis. In the EU, 11 of the 28 countries have accepted the introduction of the FTT. To date, FTT has been implemented in France (equities only) and in Italy. Estonia left the group of countries willing to introduce the tax.</p> <p>Implementation for the member states involved was initially scheduled for 1 January, 2016, but was extended to November 2016.</p>
7	Internet Payment Security	<p>The Reserve Bank of India (RBI) has mandated two-factor authentication for all online credit card payments.</p> <p>The deadline to implement the EBA's Guidelines on the Security of Internet Payments (which places particular emphasis on strong customer authentication) was 1 August, 2015. However, the U.K, Slovakia, and Estonia chose not to comply with this date, while Sweden and Cyprus cited specific reasons they did not. The U.K. regulator will seek compliance following implementation of PSD II, however U.K.-based PSPs that serve customers in the EU should adhere to the guidelines.</p>

Key #	Key Regulatory and Industry Initiatives (KRIs)	Brief Description/Update
8	Intraday Liquidity Norms and Reporting	<p>Measures on intraday liquidity usage proposed by the Basel Committee on Banking Supervision (BCBS) will bolster the framework for immediate settlement of funds by ensuring that the funds can be accessed the same business day. In order to make the European banks compliant with BCBS specifications for the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR), the European Banking Authority (EBA) has introduced the norms as part of the Capital Requirements Directive IV. Further, some jurisdictions have added requirements to existing guidelines, such as the internal liquidity adequacy assessment process (ILAAP) in the Netherlands.</p> <p>The EBA's intraday liquidity guidelines are set to be effective from 30 June, 2016. These guidelines must be applied for Internal Capital Adequacy Assessment Process (ICAAP) and Internal Liquidity Adequacy Assessment Process (ILAAP).</p>
9	Mobile Payments Security in Europe	<p>The European Payments Council (EPC) has welcomed the SecuRe Pay Forum's initiative for security in mobile payments and third-party access to payment accounts. The European Central Bank has formulated some security guidelines for retail payments that are applicable from August 2015. Jointly developed with EBA, the guidelines will be in force until September 2018 when PSD II requirements will come into force.</p>
10	Stored Value Facilities Ordinance in Hong Kong	<p>In order to regulate the non-device based or virtual stored value facilities (SVFs), the Hong Kong Monetary Authority (HKMA) has announced that issuers of SVFs must obtain a license by 13 November, 2016. From this date, if a license has not been obtained, the issuers must exit the Hong Kong market or pursue a different business model.</p>
11	Virtual Currency/ Distributed Ledger Regulations	<p>New York's Department of Financial Services (DFS) has proposed a virtual currency regulatory framework, commonly known as the BitLicense, and other U.S. states are considering similar moves.</p> <p>The EC is proposing tighter regulations and data gathering requirements for digital currency exchanges. It is planning to bring virtual currency exchange platforms under the scope of the Fourth AML Directive in order to help identify those who trade in virtual currencies. In addition, it will apply the licensing and supervision rules of the PSD to virtual currency exchange platforms and virtual wallet providers.</p> <p>A Commonwealth of Nations working group is formulating regulations governing virtual currencies.</p> <p>Japan, the U.S., and China have pushed for an initiative in the 31-member Financial Action Task Force (FATF), to approve the guidelines for regulating virtual currency. The guidelines will create the first international regulatory framework for decentralized virtual currency.</p> <p>On 21 March, 2016, the Australian Government announced that it would address the double taxation of digital currencies under the goods and services tax (GST).</p>
12	Access to Clearing	<p>The Chinese Government allowed foreign companies to set up their own payment card clearing businesses, effective from 1 June, 2015. It is expected to intensify competition in the Chinese payment cards market and end China UnionPay's status as the country's only authorized card clearing organization.</p> <p>Faster Payments, the U.K. immediate payment clearing system, has expanded access to additional PSPs to meet increased demand from the client base of smaller PSPs for immediate, real-time payment services. Some clearing systems are opening up to non-domestic banks. The U.K.'s Clearing House Automated Payment System (CHAPS), for example, recently went live with France's BNP Paribas and more banks are expected to be on-boarded by the end of 2016.</p>
13	Data Privacy and Protection including Cybersecurity	<p>The EU Cybersecurity law requires member countries to establish national frameworks and effective cooperation. A cooperation group is composed of representatives from the member states, the EC and the European Network and Information Security Agency (ENISA). The General Data Protection Regulation (GDPR) will apply to the processing of personal data by controllers and processors that are established in the EU, regardless of whether the processing takes place in the EU. It is likely to come into effect in early 2018 and will replace the Data Protection Directive.</p> <p>The New York State Department of Financial Services has proposed cybersecurity regulations under which all entities are required to develop, implement, and maintain a cybersecurity program to address 12 aspects of cybersecurity planning and readiness. These include information security, data governance and classification, access controls and identity management, and business continuity and disaster recovery planning.</p>
14	Electronic Identification and Trust Services (eIDAS)	<p>Dutch banks have created the iDIN scheme, which provides authentication services to e-government agencies and e-commerce service providers. The scheme uniquely authenticates users of services.</p> <p>The Legal Entity Identifier (LEI) was created by the Financial Stability Board (as requested by the G20) to uniquely identify legal entities in financial transactions. In July, 2016 the Committee on Payments and Market Infrastructures recommended all correspondent banks use LEIs and provide them to KYC utilities. It also recommended LEIs be included as additional information in payment messages.</p>

Key #	Key Regulatory and Industry Initiatives (KRIs)	Brief Description/Update
15	Immediate Payments	The Federal Reserve Bank in the U.S. has planned to modernize its automated clearing services amid the push for immediate payments. Several countries, including the U.K. and Singapore, have implemented immediate payments systems. Australia plans to launch a system in mid-2017, while the pan-European instant payments system is scheduled for November 2017. Dutch banks have set an ambitious target of building an entirely new immediate payments infrastructure within the next four years. Several other countries, including Spain, are considering implementation of immediate payment systems. A European Payments Council (EPC) rulebook is expected to be finalized in November 2016 and issued in 2017.
16	ISO 20022 Standards in Payments	At a global level, immediate payments infrastructures are being developed to comply to ISO 20022 standards, thus facilitating cross-border interoperability in the future. Payments UK is coordinating the ISO Real-Time Payments Group (RTPG), made up of over 40 financial institutions from around the world, to develop the ISO 20022 messages required.
17	Large-Value Payment Systems Upgrade	Target2-Securities (T2S), the integrated securities settlement platform for Europe, went live on 22 June, 2015 at Bank of Greece's depository for government bonds, the depository of the Malta Stock Exchange, Romania's Depozitarul Central, and SIX-SIS in Switzerland. The ECB has extended the deadline for migration to T2S to November 2016. Twenty-three CSDs have committed to the migration within a period of 18 months from the initial June 2015 go-live date. The proposed TARGET2 migration to ISO 20022 of early 2017 also has been postponed.
18	National e-Payments System in Thailand	Thailand's national e-payment system will be fully operational in 2017 and aims to increase transparency and efficiency while helping the government collect more taxes. The first 'Any ID' service is scheduled for September 2016. Any ID enables users without a bank account to transfer money and make payments using a mobile phone and ID. Other modules planned for the e-payment system include expansion of electronic data capture machines to service e-payment and an e-tax system. All companies in Thailand are compelled to enter into the national e-payment system by 2019.
19	Regulatory Framework for FinTechs	The Bank of Japan has set out plans to support the country's burgeoning FinTech industry, setting up a FinTech center as part of its payments department. U.S. federal authorities are preparing a new regulatory framework to supervise innovation by banks, FinTechs, and payment firms. The Office of the Comptroller of the Currency (OCC), an independent bureau of the U.S. Treasury has published a discussion paper outlining a series of potential policy changes. The Monetary Authority of Singapore (MAS) has formed a FinTech and Innovation Group (FTIG) that comprises a payments and technology office, a technology infrastructure office, and a technology innovation lab.
20	SEPA/e-SEPA	Since 1 August, 2014 all credit transfers and direct debits in the Eurozone are made in the form of SEPA Credit Transfer (SCT) and SEPA Direct Debit (SDD) and all legacy instruments were decommissioned. Non-Euro countries such as the U.K., Sweden, and Poland will be required to comply with SEPA for their Euro payments by October 2016.
21	SEPA for Cards	SEPA for cards sets the conditions to offer European cardholders general purpose cards to make Euro payments and withdraw Euro cash throughout SEPA. In December 2015, the EPC published the latest version of the SEPA Cards Standardization Volume. The volume has been updated to include functional and security requirements applicable to card-not-present transactions, and a card processing framework. Services and products in line with the requirements may be rolled out by December 2018.
22	Interchange Fee Regulation	The Interchange Fee Regulation came into force in Europe on 8 June, 2015. The caps on interchange fees were applicable from December 2015. Instead of a cap of 0.2% on individual debit card payments, it suggests that the 0.2% could represent a weighted average of all payments made during the year.
23	Regulations on Payment Platforms in China	The People's Bank of China (PBOC) has introduced rules on non-banking online payment platforms to curb risks including financial fraud and money laundering. Users of such platforms will be required to open online payment accounts in their real names. A cap on maximum yearly payments will be set at CNY 200,000 (USD 30,910). Under the regulation, non-bank online payment platforms cannot directly provide financial services such as lending, securities investment, and insurance.
24	Australia Payments Plan	The Australian Payments Council has devised a 10-year strategy to ensure that the Australian payments system continues to meet the needs of the economy in the future. The Council has identified three areas of the payments system that require collaborative action: security and trust, managing Australia's payments mix, and enabling the future. While some of the initiatives such as the New Payments Platform (NPP) are under way, others including cybersecurity strategies, a reduction in the amount of cash payments, technology innovation, digital identity, and data management will start later in 2016.

Key #	Key Regulatory and Industry Initiatives (KRIs)	Brief Description/Update
25	Cross-Border Low-Value Payments Processing	Significant effort is being devoted to identifying alternatives to correspondent banking for cross-border low-value payments. Initiatives such as pan-European instant payments are driving efforts in streamlining cross-border payments. In Asia, there is an increased focus on cross-border transaction banking in the Association of Southeast Asian Nations.
26	Financial Inclusion	Latin American countries including Brazil, Chile, Colombia, Mexico, and Peru, as well as India and Kenya have undertaken financial inclusion measures. Several financial services initiatives have been planned across these countries that have affected the payments segment as well.
27	Global Payments Innovation Initiative by SWIFT	The Global Payments Innovation Initiative (GPII) is designed to enhance cross-border payments transactions by leveraging SWIFT's proven messaging platform and global reach. Together with the industry, SWIFT has created a new service level agreement (SLA) rulebook, providing an opportunity for smart collaboration between banks. In its first phase planned for early 2017, the service will focus on B2B payments. Key benefits for corporates of GPII will include same-day use of funds, transparency and predictability of fees, end-to-end payments tracking, and transfer of rich payment information.
28	Mobile Wallet	The mobile wallets market is growing steadily with mobile proximity payments expected to top USD 53 billion by 2019 from USD 3 billion in 2013. In countries such as India, mobile payments are seen as a prime way to bring the unbanked into the formal financial system. Many African markets have also experienced strong adoption of mobile payments and wallet solutions.
29	Open API Banking Platforms	U.K.-based Open Banking Working Group (OBWG) has recommended the creation of an Open Banking Standard API to improve the sharing of banking data. The objective of OBWG is a 'minimum viable' product for an open banking API based on open data, to be launched towards the end of 2016, with personal customer transaction data included on a read-only basis starting early 2017. The full scope of open banking standards including business, customer and transactional data, is expected to be released by 2019. In the U.S., several banks are opening access to their code to payment processors and technology companies via open APIs. They are also working with the Open Financial Exchange (OFX) standard.
30	Payment Security and Technology (Contactless, NFC, Tokenization, Biometrics, and mPOS)	Apple and Samsung have implemented biometric authentication measures. Apple's TouchID is being incorporated into banking mobile apps. Banks in countries such as Poland are implementing biometrics including fingerprints and voice recognition for authentication. U.S. bank Wells Fargo is piloting a fusion of voice and face biometrics to authenticate customers. Contactless payments are expected to grow from USD 4.3 billion in 2013 to USD 9.9 billion in 2018, at a CAGR of 18%. It is expected that in 2015, 5% of 600 to 650 million NFC-enabled smartphones were used to make a contactless transaction at least once a month. Increased adoption of tokenization and EMV demonstrates a focus on payments security. The mPOS market is expected to reach 245.2 million units by 2022, fueled by the proliferation of mobile phones and cloud-based solutions.
31	PSD II (Access to Accounts)	PSD II addresses a number of issues that have emerged since PSD I came into effect in 2009. The most prominent of these is the regulation of third-party payments providers (TPPs), which fall into two main groups: payment initiation service providers (PISPs) and account information service providers (AISPs). Other areas of change include the extension of some existing requirements to 'one-leg-in, one-leg-out' payments where the payment is to or from a country outside the European Economic Area (EEA), and payments within the EEA in non-EEA currencies. The EBA is developing the technical standards for implementation. The Directive must be transposed into national legislation and the implementation will differ in content and timing across countries. The initial countries expected to adopt PSD II will be the U.K., Bulgaria, Denmark, Germany, Austria, and France. It is expected that Poland and Iceland will be among the last. Further, the Regulatory Technical Standards (RTS) under PSD II on strong customer authentication and secure communication will apply at a later date, which is likely to be no earlier than the middle of 2018.
32	U.K. PSR (Payment System Regulator)	Launched in April 2015, the U.K. Payment System Regulator (PSR) has three objectives: to promote competition, to promote innovation, and to ensure that payment systems are developed and operated in the interests of service users. PSR regulates important payment systems, operators, and the infrastructure providers in the U.K. payments industry. It has undertaken two market reviews, one assessing the supply of indirect access, and the other on the supply of and competition in the provision of payment systems infrastructure.
33	Unified Payment Interface (India)	The NPCI's UPI is expected to significantly change the way mobile banking transactions are conducted. UPI will enable payments to be made via a mobile phone as the primary device, without the need to download an app to send or receive money. It will also enable interoperability with multiple e-wallets. While 29 banks have agreed to provide UPI, 21 have already joined as PSPs.

Other Key Treasury Related Initiatives

Some other initiatives impacting corporate treasurers are listed below.

OECD's Base Erosion and Profit Shifting (BEPS) plan

- The OECD has agreed to a framework that will enable countries and jurisdictions to implement measures against BEPS.
- The objective is to formulate international BEPS standards and to review and monitor the implementation of the BEPS package.
- The framework includes a requirement that multinational companies report their business activities using a template on a country-by-country basis.
- There are 15 BEPS actions that are being considered by the OECD, factors to consider include timing and potential impact on policy and users.

Liquidity Coverage Ratio (LCR) under Basel III

- The LCR provisions under Basel III norms were phased-in from January 2015 and redefine the way banks look at their deposits as either operational or non-operational.
- As defined by the Bank for International Settlements (BIS), banks must hold a requisite stock of highly liquid assets to cater for a 30-day period of market stress.
- Hence, it is important that corporates understand these new constraints and how banks will manage their deposits going forward.

Electronic Bank Account Management (eBAM)

- Standardization and digitization driven by initiatives such as SEPA, ISO 20022 XML format, and introduction of SWIFT FileAct, have resulted in adoption of eBAM, which involves the integration of internal data with all banking partners.
- This will deliver seamless bank account management and reduce paper-based processing, ease compliance with regulatory requirements, minimize fraud, and centralize monitoring of bank accounts for corporates.



Impact of Core KRIs on Banks and Corporates

A number of KRIs affect both banks and corporate treasurers. Among these, the following have had a strong impact on organizations and have caught the attention of industry players.

Liquidity Management

- **Description:**

- Regulations include those relating to intraday management, and aim to ensure that banks can manage their liquidity positions and risks to meet payment and settlement obligations on a timely basis.
- European regulations come under the Capital Requirements Directive IV (CRD IV). U.S. implementation of regulations is scheduled to be completed by January 2017.

- **Impact on Banks:**

- Regulations may result in increased balance sheet costs as perpetually overdrawn accounts may occur more frequently.
- Notional pooling services might be offered only to top-tier corporate customers, and the pricing of operating deposits might increase.
- Extensive data-driven system and infrastructure changes may be required.

- **Impact on Corporate Treasurers:**

- Need to reassess funding and banking relationship strategies, with a shift towards direct funding from capital markets and diversified banking relationships.
- May opt for alternatives such as physical cash concentration or payments and receipt on behalf of programs and also leverage virtual accounts to optimize cash management.

Payment Service Directive (PSD) II

- **Description:**

- PSD II proposes a new set of technical and business practices in three areas; consumer protection, payment security, and XS2A.
- The main drivers of the regulation are encouragement of competition and innovation through the opening of access under XS2A.

- **Impact on Banks:**

- Required to accept mandates given by their clients to third parties to access their accounts for reporting or payment initiation.
- Will not be permitted to prioritize their own transactions over those of TPPs, but will still bear liability for payment fraud.
- Removes the advantages of the account managing institutions and increases competition.

- **Impact on Corporate Treasurers:**

- Other than XS2A, PSD II's provisions on one-leg-out cross-border payment transactions will give greater predictability of costs and performance.
- This will directly or indirectly promote new service offerings to the benefit of users, including corporate treasurers.

Immediate Payments Systems

- **Description:**

- Multiple countries are in different phases of implementing immediate payments systems and these have been well-received in markets such as the U.K.
- The instant execution of payment transaction, confirmation, and availability of funds made possible by these systems are expected to transform the payments market while also having an impact on the business models at banks and corporates.

• Impact on Banks:

- Reduced processing costs associated with cash, checks, and some card transactions.
- Removal of concept of cut-off time enabling new operating models.
- Acceleration of the convergence of payment processing across multiple instruments and lower costs and risks associated with it.
- Need to make significant investments to fully leverage the benefits of immediate payments.
- Systems will have to manage liquidity in real time and amount of prefunding requirements will increase.

• Impact on Corporate Treasurers:

- Removal of concept of cut-off time enabling new operating models.
- Alternative to checks.
- Instant confirmation of payment finality.
- Improved risk profiles.
- Immediate availability could also entail liquidity management challenges for treasurers, e.g., large amounts received outside business hours.

Blockchain**• Description:**

- Blockchain relies on a distributed ledger and consensus of the network of processors.
- Initially used for virtual currencies, the technology has found further applicability across financial services.

• Impact on Banks:

- Can be applied to complex and inefficient operations.
- Not expected to bring benefit to large-scale and automated domestic transactions.
- Early adopter banks are leveraging the technology to gain competitive edge by strengthening their hold on key payments routes.
- Simplified architecture and security but may require investment in greater computing power.
- Greater efficiency in cross-border payments, supply chain, and trade finance.
- A possible solution for digital customer identity and related transaction verification.

• Impact on Corporate Treasurers:

- Could benefit from enhancement of the solutions provided by their banking partners, especially in areas such as cross-border payments and trade finance.
- Increased transparency and FX market.

The Potential Impact of the U.K. Exit from the EU

On 23 June, 2016 the U.K. voted to leave the European Union. In order for the process to begin, the U.K.'s Prime Minister must invoke Article 50 of the Lisbon Treaty, which will then set in motion the formal legal process of withdrawing from the EU. Once this happens, the U.K. will have two years in which to negotiate this withdrawal.

For payments industry stakeholders in the U.K. and Europe, there will be no immediate impact as the existing regulatory environment and payments processing will continue as before. In the medium to long term, the impact will be determined by the results of the negotiations. A possibility is that the U.K. becomes an associate member of the EU like Switzerland and Norway. But as the U.K. is not a Eurozone country, the impact on payments products is expected to be minimal, as the country has different product sets and schemes from the rest of the EU. If the EU's financial services passporting²² rule is discontinued, the ability of banks in the U.K. to serve EU clients might suffer due to issues including different legal systems, local reporting requirements, and the need for data to remain in the EU.

The U.K. is subject to a number of EU regulations and legal frameworks such as the PSD I, but implementation of PSD II (which is targeted for 2019) is now uncertain. The regulatory framework within the U.K. is already advanced with initiatives such as the PSR, open banking, and the Regulatory Sandbox. The cascading of KRILs that are global in scope, such as ISO 20022, will continue. If the U.K. does not remain as a member of the EPC it will not be able to participate in guiding the evolution of rule books, but as an associate member of the EU it would implement them. The country will have to set up its own governing bodies to govern issues such as cybersecurity and data privacy. The future regulatory landscape in the U.K. might also need to consider how the future EU regulations (and updates to existing regulations) can be adapted for the U.K.

At the time the Report went to press, uncertainty regarding the negotiations remained the main cause for concern. Investments in payments businesses and systems could halt until there is greater clarity. Investment in FinTech companies might also slow down as venture capitalists and other investors wait for clarity. This wait-and-see approach of financial services firms might have a short-term impact on existing innovation initiatives in the otherwise rapidly evolving payments industry. It is too early for corporate treasurers, European or British, to take action. However, some are considering relocating European treasury centers to the continent as a way to secure their regulatory environment and to access Euro liquidity.

²² EU passporting rules enable a range of authorized businesses, such as banks, insurance companies, and asset managers, to operate across the EU as long as they have a base in the U.K. or other EU member state



Challenges and Opportunities in Transaction Banking

Key Findings

- **While fundamental corporate expectations from banks (control, visibility on cash, risk management) in the field of treasury management have not changed significantly over time, corporate treasurers expect more digitized support services such as account management, data analytics, compliance tracking, and fraud detection and prevention.** Corporates in the retail and B2B sectors already benefit from a range of digital payment solutions but banks must now better respond to the whole range of corporate expectations.
- **Banks have recognized this and multiple levers exist for them to close the digital gap but meeting and exceeding corporates' expectations will require significant improvement in digital maturity levels.** Cash management solutions and treasury operations are not being heavily disrupted by FinTech offerings but banks are aware that they must innovate more today to keep a leading edge tomorrow. While banks rate their digital maturity highly as it relates to operational efficiency and customer experience, corporates' perception of banks' digital abilities is much lower. Banks will need to increase their investments in digital and better market their abilities.
- **A more open approach will help banks stay ahead of competition and grow their transaction banking business.** Banks must further open up their ecosystem in order to integrate the innovative capacities of FinTechs.²³ FinTechs will benefit from an enhanced partnership with banks as they face challenges based on credibility and business continuity. In addition, banks must continue to foster a more collaborative approach for inter-bank innovation as witnessed for SWIFT's GPII.



²³ By FinTechs, we mean firms that make advanced use of technology to provide transaction banking services to corporate customers. Here we have considered only firms that directly serve the end customers, thus competing directly with banks. We do not include firms that act just as vendors for financial institutions.

Transaction Banks Face Increasingly Ambitious Corporate Demands for Digitization

Transaction banking is now facing more headwinds than before with pressure of external challenges on fee income, interest income, and FX services. Banks will need to address these challenges while ensuring that they are also meeting corporate expectations. Our survey reveals that banks are largely aligned with corporates on what constitutes key corporate expectations of their transaction banks, although some differences remain (see Figure 3.1).

Centralization of account management services ranks as the top corporate expectation according to banks, and this is echoed by corporate respondents who participated in the survey. Centralization is attractive to corporates because they can improve return on cash positions and gain more control of their cash flows. Corporates' centralization efforts include special structures such as in-house banks and shared service centers. Banks' most recent solutions include virtual accounts for accounting and reconciliation, coupled with sweeping services for liquidity management.

Corporates are also demanding optimization of transaction banking operations, possibly because streamlined operations will allow corporate treasurers to optimize group cash flows and funding at lowest cost and risk.

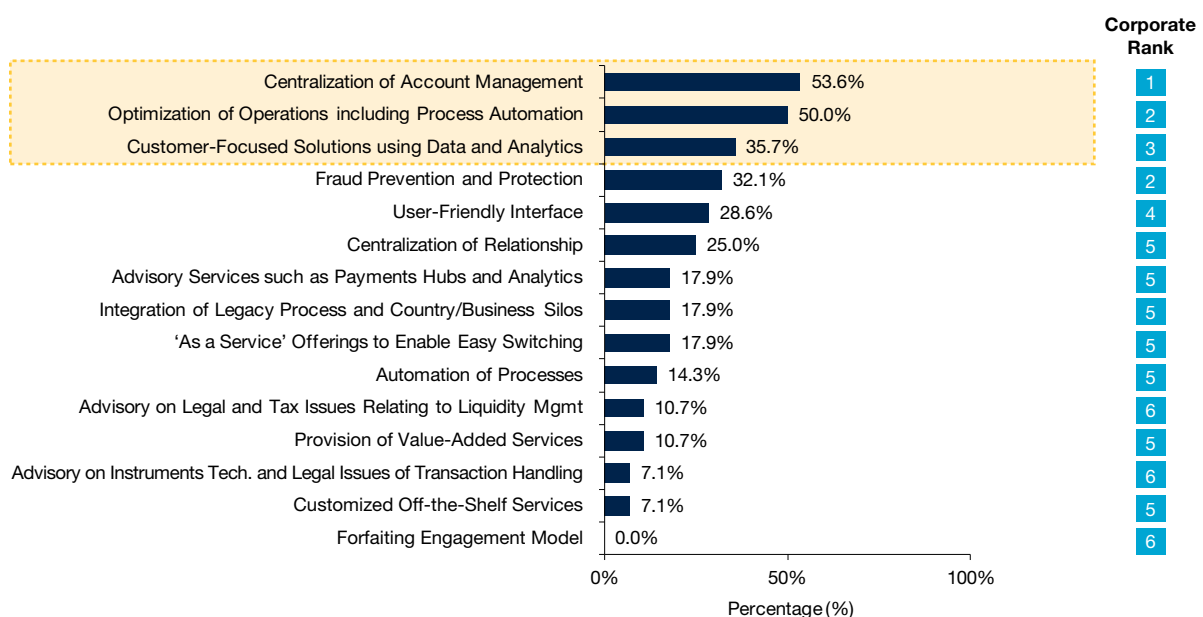
The implication for banks is that revenue from transaction banking increasingly will be linked to the value-added offerings provided to corporates while profitability will be linked to internal efficiency of operations. Transaction banking revenues are a mix of volume and value. Volume is the basic condition of offering transaction banking services but differentiation will come from value based on customer intimacy. Profitability will depend on an industrial strategy for plain vanilla offerings and flexibility to deliver added value.

While corporates gave a high ranking to fraud prevention and protection services, this was not reflected in the ranking by banks.

A senior executive of a leading European payments processor said: "When it comes to cybercrime and fraud this is a big challenge that is not necessarily receiving the attention it should get from the market. Recent SWIFT hacks show that the risks are imminent and authorities will need to determine their responses to these threats".

Corporate treasurers are experimenting with digital and analytics-based solutions to improve their financial operations. Initiatives can be found in many areas including customer analytics such as 360

Figure 3.1 Bank and Corporate Perspective on Corporate Expectations from Transaction Banking, (%), Q2 2016



Note: Question asked: "Please select the top three corporate expectations of their transaction banks, from the below list"; Percentage represents the number of times the option has been ranked as being among top three expectations

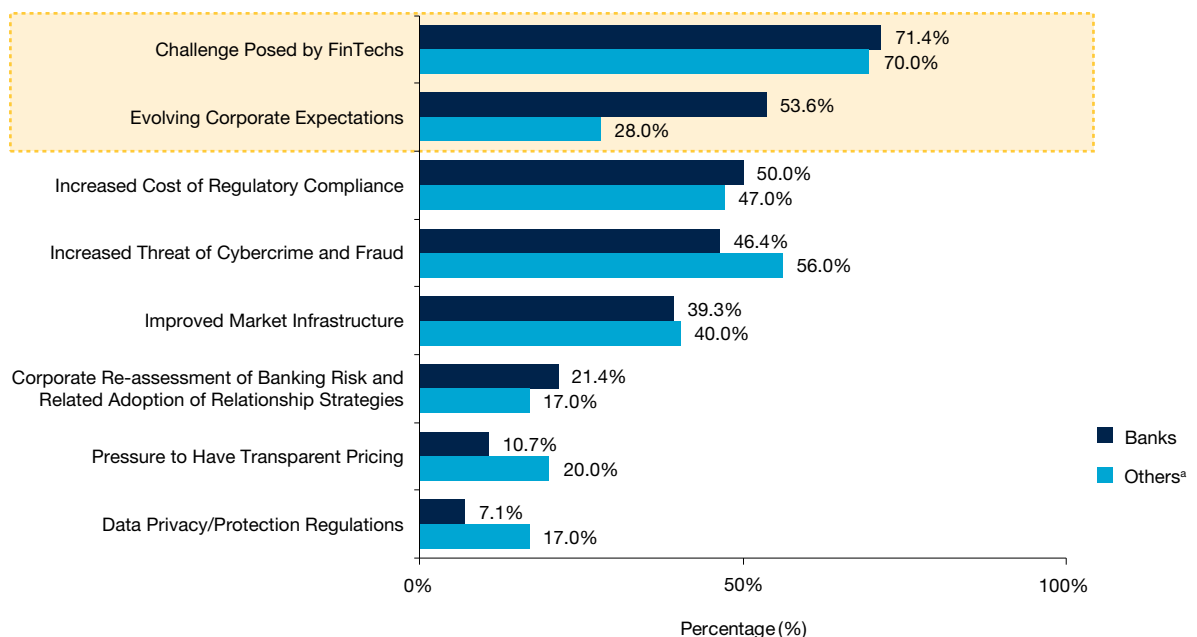
Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 117 responses received

degree counterparty analysis, fraud management (blocking suspect or unusual transactions), operational optimization (automatic repair, bots), and compliance tracking. For example, corporates are using analytical techniques to improve their customer relationship management (CRM) systems and to enable product or services refinement. By using customer engagement data, corporates are developing customized operating models for internal or external non-financial transactions. In risk tracking, analytics have helped corporates to manage their liquidity risk through faster credit decision making on their existing exposure to counterparties. Analytics are also helping corporate treasurers to identify and mitigate risks that arise in procurement and inventory management. In operational optimization, corporates are implementing enterprise systems that provide unified and standardized transaction reporting across multiple departments and geographies. Compliance tracking processes are required to be more agile and responsive rather than depending on AML protocols and fraud monitoring standards. Therefore, corporates are using data from compliance tracking to build governance models that measure exceptions and system tolerances. The successful adoption of analytics by corporates has increased the appetite for such solutions. This can be a catalyst for banks to improve their digital capabilities and provide complementary offerings.

Corporate demand for digital products and services are not the only challenge facing transaction banks. There are other external challenges, such as changing corporate expectations and the emergence of FinTechs that are also putting pressure on transaction banking operations. Almost 70% of payments industry executives surveyed online or interviewed in person for WPR 2016 believe that FinTechs pose a key challenge for banks (see Figure 3.2). Interestingly, both banks and non-bank payments industry participants viewed FinTechs as the main challenge (71.4% and 69.7%, respectively). FinTechs challenge banks because they are able to innovate more quickly (due to their nimble structure) and provide a better customer experience by making use of the most advanced technologies. Additionally, banks are challenged by FinTechs due to their ability to shape and drive customer expectations at a rate with which banks cannot keep up on their own. While the above industry views might be more reflective of the retail banking business, transaction banks will need to ask how long it will be before such trends apply to them.

When it comes to changing corporate expectations, opinions diverge somewhat, with 53.6% of banks surveyed identifying it as a challenge while only 28.1% of non-banks deem it so. Banks better understand their efforts to meet corporate requirements than do their

Figure 3.2 Bank and Industry Perspective on External Challenges in Transaction Banking, (%), Q2 2016



a: Others include non-bank payments industry executives and corporates

Note: Question asked: "Please select the top three external challenges listed below in terms of their disruptive impact on corporate transaction banking services"; Percentage represents the number of times the option has been ranked as one of the top three choices

Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 117 responses received

clients. There is also an acceptance by banks (46.4%) and non-banks (56.2%) regarding the challenge posed by cybercrime and fraud in transaction banking.

A CEO of a leading technology firm in Germany said: "The fundamentals have not changed but new channels create additional risks and corporates ask banks for support in managing them".

These external challenges and changing market conditions imply that banks cannot take their existing transaction banking market share for granted.

Transaction banking operations also face multiple internal challenges, of which the services silos created by legacy technology emerge as a clear leader (see Figure 3.3). More than 85% of banks and non-bank executives believe that the silo legacy infrastructure is a key internal challenge for transaction banking. However, their reasons for thinking this may be different. While corporate treasurers believe they are not asking for services that are new and therefore should not be an issue for banks, banks know that their silo and legacy operations make change requests difficult to address. About 61% of bank executives believe that managing and executing multiple requests for change and investments in the transaction banking domain is also a significant internal challenge. Multiple strategic industry and regulatory initiatives within a bank have varying levels of priority and timelines. This makes it difficult to control and manage initiatives at a group level. Only 38.2% of non-bank payments industry executives cited this as a challenge, possibly because they are unaware of the execution challenges banks face in managing multiple initiatives.

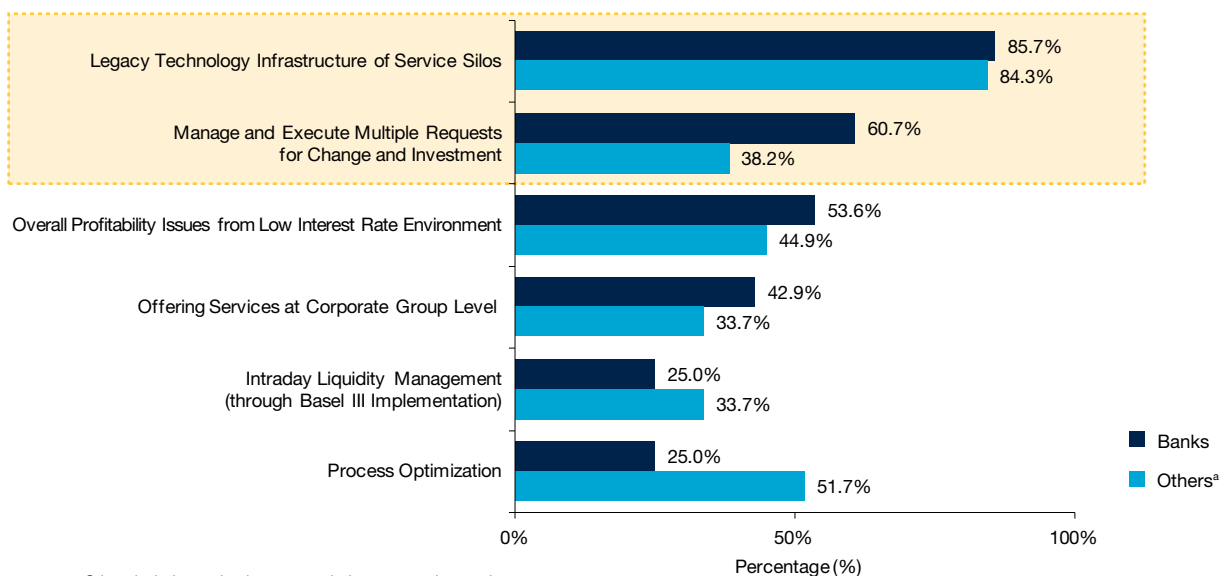
There is significant divergence between banks and non-bank executives when it comes to how much of a challenge they believe process optimization to be. More than half of non-bank executives rate it as a challenge, whereas only a quarter of bank executives do. A reason could be that non-banks possibly over-estimate the complexity of process optimization but under-estimate the majority of other challenges.

These internal and external challenges faced by banks are influencing their existing business strategies for transaction banking. Banks need to adopt agile practices and the latest technologies to improve their internal processes and meet challenges posed by the external disrupters. As a consequence, a digital agenda should be a top priority for banks.

BANKS NEED TO IMPROVE DIGITAL MATURITY TO MEET CORPORATE EXPECTATIONS

Transaction banks recognize the shift in expectations among corporate treasurers and have begun to digitize beyond core payments. However, meeting and exceeding corporates' expectations will require significant improvement in digital maturity and in particular in digitizing the support processes such as account management and compliance tracking. Some transaction banks are increasing their efforts in digital innovation, with particular activity in corporate banking, B2B mobile, e-invoicing, immediate payments, and biometrics in B2B fraud prevention.

Figure 3.3 Bank and Industry Perspective on Internal Challenges in Transaction Banking, (%), Q2 2016



a: Others include non-bank payments industry executives and corporates

Note: Question asked: "Please select the top three internal challenges listed below in terms of their disruptive impact on corporate transaction banking services"; Percentage represents the number of times the option has been ranked as one of the top three choices.

Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 117 responses received

In corporate banking, banks are upgrading transaction processing and reporting capabilities and offering user-controlled customization and self-service capabilities. The digitization of transaction banking beyond payments processing has gained momentum with the development of new services such as digital advisory and decision support. Digital advisory solutions that leverage the underlying core banking platform include credit assessment, supply chain financing, and liquidity management structures. Decision support digitization efforts are focused on providing information and tools that can help the corporate in optimizing its source-to-settle cycle.

In the B2B mobile, e-invoicing, and immediate payments areas, new services based on mobile devices have been developed such as B2B transaction authentication and reporting. Banks and PSPs are also adopting e-invoicing mechanisms to reduce overall transaction processing time. Also, some U.K. banks are developing corporate access services based on immediate payments systems.

Transaction monitoring fraud detection systems are now commonplace at financial institutions in the retail banking sphere and there are opportunities to transpose some of them to the corporate treasury. Biometric techniques being deployed include voice recognition, face scanning, iris recognition, social biometrics, and fingerprint scanning. By integrating voice biometric data into the fraud detection process, for example, transaction banks can help improve detection rates. By combining moderate or low-risk transaction scores with moderate or higher scoring voice print analysis, the combined assessment can indicate high-risk transactions.

A head of product management cash services at a leading European bank added: "Digital initiatives are being pursued by the bank in multiple areas of customer value analytics, fraud management, and cybercrime prevention. The goal is to enhance the digital customer interface beyond transactions to new areas such as electronic bank account management".

While progress is being made by banks to pursue digital initiatives for corporates, they have also missed some opportunities. During the e-commerce boom they ceded much of the space to PSPs, such as PayPal, WorldPay, and Global Payments, and in the B2C space they have lost market share to FinTechs.

FinTechs are more geared to adopting a 'design for digital' mindset, which has helped them to gain B2C market share. FinTechs are active across a wide range of activities in B2C, including sign-up and underwrite, acceptance, authentication and authorization, transaction capture, and reporting. FinTech success

in the B2C domain, particularly in e-commerce, has been fueled by the proliferation of mobile devices and their ease of use for retail customers. FinTechs have also developed customized solutions such as P2P and cross-border payments, which have further increased end user adoption. FinTechs have leveraged their agility and technology capabilities to make successful forays into the B2C domain, a trend that might also be replicated in the corporate domain.

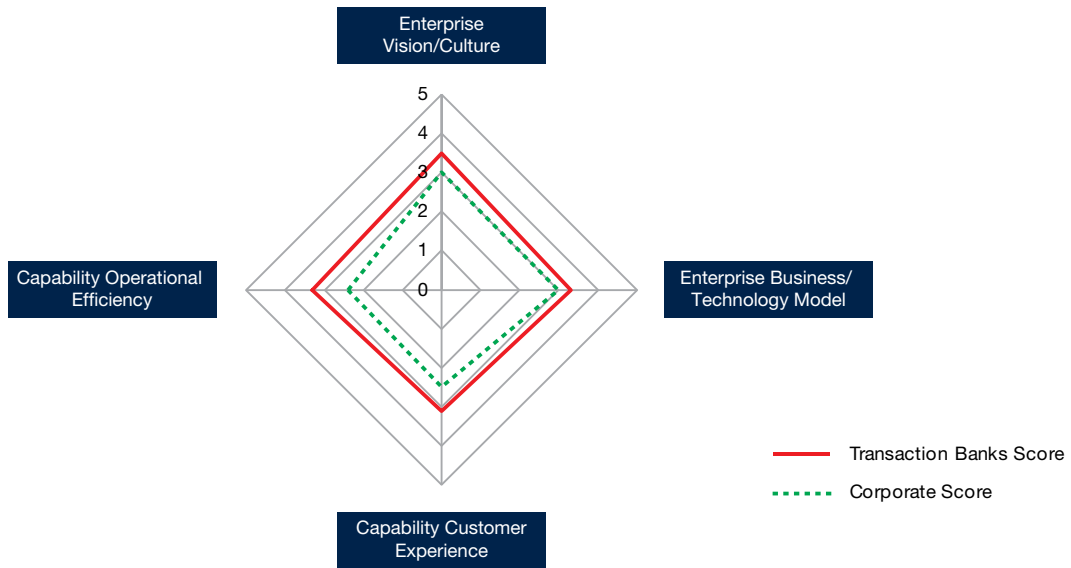
The FinTechs offering transaction banking services are setting a higher benchmark on digital capabilities. These companies are offering services in niches such as liquidity reporting, account aggregation, and FX. For example, in trade finance, FinTechs are offering solutions to help corporates manage market and counterparty risks, including supply chain financing, invoice handling, e-procurement, and inventory management. The progress made by FinTechs poses a challenge for banks' existing transaction banking business

One way to address the challenge posed by FinTechs, is for banks to assess their digital maturity across the enterprise. According to our online survey, corporates have a lower perception of banks' digital capabilities than do banks themselves. So while banks have made progress in digitizing services, they will need to increase their investments and focus on better branding and communication to showcase their digital capabilities.

The assessment of the digital maturity of transaction banks is based on four pillars:

- **Enterprise vision/Culture:** Evaluates the digital vision of the bank based on parameters of executive buy-in, initiative execution approach, available funding, measurement of the digital initiatives, and collaboration between multiple streams.
- **Enterprise business/Technology model:** Evaluates the business and technology model of the bank for digital initiatives along the lines of presence of legacy infrastructure silos, dedicated roles to oversee digital initiatives, inculcation of the individual skills to develop digital initiatives, and management of innovation initiatives.
- **Capability—operational efficiency:** Evaluates the capability of the bank to manage operational efficiency on the parameters of an organizational decision making process, internal audit process, initiatives to centralize operations, and the capability to convert capital expenditure to operational expenditure.
- **Capability—customer experience:** Evaluates banks' capability to offer streamlined customer experience through availability of 24x7 operations, ability to handle fraudulent activities, self-service capabilities across multiple use cases, and consistent user experience across multiple channels.

Figure 3.4 Transaction Banking Digital Maturity Assessment of Banks by Corporates and Industry Executives, Q2 2016



Note: Questions asked: "Please assess digital maturity of transaction banks (based on your/your firm's experience) in the following areas (on a scale of 1–5, 1 being low and 5 being high)"; Transaction bank score is the digital maturity score provided by banking executives; Corporate score is the digital maturity score provided by corporate executives

Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 124 responses received

As cited above, there is a noticeable gap between corporates and banks in their assessment of digital maturity across all key levers (see Figure 3.4). The perception of banks' digital maturity is low, particularly in the capability categories.

In order to be viewed as digital leaders, banks will need to invest and establish partnerships with organizations that can help them to execute their strategies for developing digital offerings. Our survey data points towards a significant difference in the approach of a digital leader and a constrained firm in the development of digital capabilities.

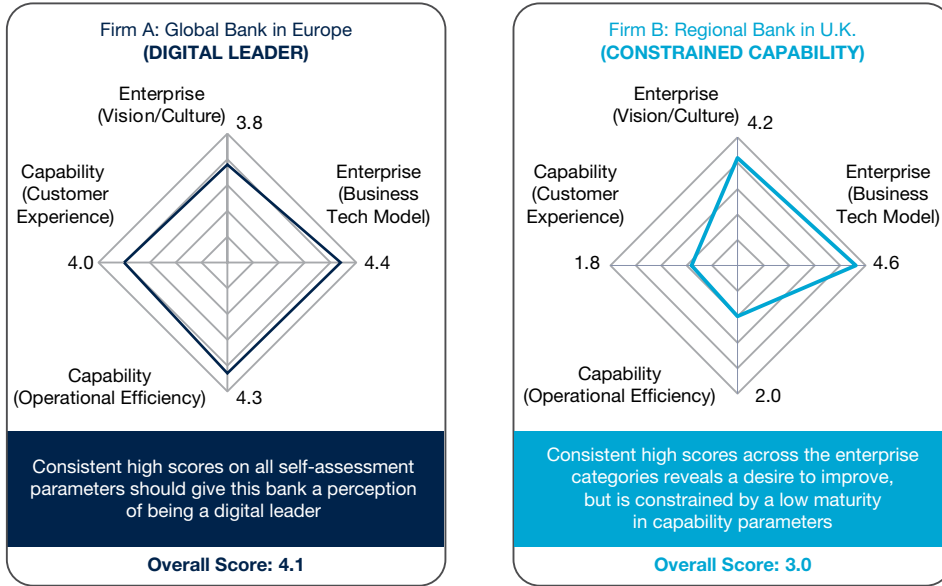
For example, a global bank that is considered a digital leader (with an overall digital maturity score of 4.1) has achieved this status by investing in digital solutions, adopting a collaborative approach, investing in and partnering with FinTechs, embracing open APIs, and joining industry initiatives that help to further develop its digital credentials (see Figure 3.5). The bank has invested considerably in European FinTechs that focus on digitizing financial products and services, joined an initiative that is developing distributed ledger technology for the financial services industry, and upgraded its data warehouse to improve analytic capabilities. The

bank has announced further plans to develop open API architecture so that it can collaborate with third-party developers on digital products.

By comparison, a constrained bank (with an overall digital maturity score of 3.0) has an established strategy to increase its digital maturity, but struggles to efficiently manage the execution of this strategy. The bank has developed enhanced online, telephony, and mobile capabilities, however it has not yet devised relevant metrics for efficiently measuring the progress of multiple digital initiatives. While the bank plans to undertake IT transformation initiatives and leverage new technologies, most of the initiatives are constrained by existing legacy platforms and low-level integration of the core banking systems across the organization. In middle and back offices this has resulted in lower digital capabilities, thus limiting the bank's ability to improve corporate customer experience.

A senior executive of a leading European bank said: "Key enablers for the implementation of digital initiatives are strategies for enterprise culture and vision driven by senior leadership. Managing the implementation cost along with the regulatory compliance are the key barriers that hinder the overall implementation of such initiatives".

Figure 3.5 Digital Maturity Score for a Digital Leader and Digitally Constrained Firm



Note: Scale is 1–5 with 1 being the lowest and 5 being the highest
 Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016



Collaboration a Key Strategy for Banks to Gain Advantage in Transaction Services

Multiple levers exist for banks to close the digital gap and grow their transaction banking business. A critical foundation to these efforts will be a collaborative mindset. Initiatives have already taken place, including a leading global bank launching a FinTech innovation lab in Singapore to work collaboratively with corporates in developing the next generation of digital and mobile banking services. In Europe, a global bank is collaborating with startups to develop cognitive computing solutions for transaction banking services. Partnering with FinTechs can help banks to innovate at a faster rate in order to provide digital offerings to corporates.

Corporates, banks, and industry participants all feel that FinTechs can be considered as partners in the payments ecosystem (see Figure 3.6). Nearly 79% of bank executives believe that banks are looking to collaborate with FinTechs. A reason for this could be in order to improve market reach and adoption of digital services, which is in line with the perception of other non-bank respondents.

Banks' focus on FinTechs is validated by our executive interviews where a CEO of a FinTech said: "In the past two years we have seen faster change and bigger budgets as leading banks are focused on expansion

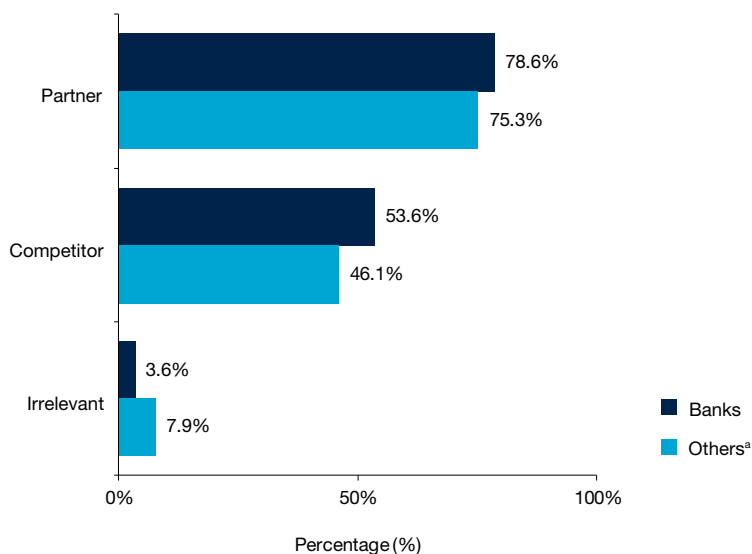
and consolidation and have refocused on FinTechs". A head of payments and liquidity risk management of a global bank in the U.S. said: "The bank is trying to engage with FinTech firms through a start-up innovation center. An example of the collaboration is a biometrics application for authentication over the mobile".

About 50% of total respondents, however, viewed FinTechs as competitors. This could be due to earlier loss of market share to FinTechs in P2P and e-commerce. Very few banks viewed FinTechs as irrelevant, possibly as the respondents felt banks held an advantage in terms of scale of operations, global presence, and long-standing trust from customers.

A senior executive of a leading European bank said: "FinTechs prompt evolutionary improvements but are unlikely to fundamentally change the bank's business model, as they tend to operate in niche segments".

Collaborating with FinTechs, however, is not without challenges and banks need to examine these carefully before embarking on any partnership to offer solutions to corporates. The same applies to corporates that want to work directly with FinTechs. Some key challenges that they face include:

Figure 3.6 Banks and Industry Perspective of FinTech Firms, (%), Q2 2016



a: Others include non-bank payments industry executives and corporates

Note: Questions asked: "How do you view FinTech firms from a bank's perspective – as a competitor, a partner, or irrelevant?"; Percentage represents the number of times the option has been selected by the respondent

Source: Capgemini Financial Services Analysis, 2016; Executive Interviews for WPR 2016; Online Survey for WPR 2016; Total 117 responses received

- **Financial Stability:** Many Fintech startups rely on venture capital firms to fund their growth as cash flows are generally insufficient in ramp-up periods. This has almost become business as usual for many. As such, liquidity can be a challenge for FinTechs, even the successful ones, as they can be affected by sudden non-availability of funding due to changes in their partners' investment policies.
- **Business Continuity:** Corporates and banks need the assurance of long-term stability of products. Many FinTechs are not in business for long and unlike banks, they have not yet proven their ability to withstand multiple business cycles. Since the path to maturity for many FinTechs generally involves mergers and acquisitions (being acquired by a larger or legacy player), their relationship and SLAs with banks and corporates may be affected.
- **Scalability and Adaptability:** Some FinTech solutions available in the market can still be in proof of concept mode and may either not be scalable to a wider customer base or across geographies, while some might not complement existing offerings from banks.
- **Regulatory Challenges:** FinTech solutions do not face as much regulatory scrutiny as do those of banks. As such, there is either a risk of FinTech solutions not being fully compliant with the regulations with which banks must comply, or their offerings might be less attractive when adapted to be compliant with banking regulations.

Given the above challenges, engaging with FinTechs implies the need for careful selection and having a backup plan ready—the case for any other supplier, but potentially carrying a higher risk when a FinTech is involved.

Another aspect of collaboration for banks is inter-bank collaboration, which helps drive several industry initiatives such as SWIFT's GPII and eBAM. Banks must continue to improve their ecosystem by further engaging with each other to help drive more standardization in the industry.

Providing open API access to their internal systems is another way for banks to increase collaboration with other industry players and accelerate innovation. Open APIs can act as enablers for banks to create a digital ecosystem via a bridge with third parties. Open APIs offer advantages to transaction banks in four areas: new products and services, customer experience, customer insights, and regulatory compliance.

In the Netherlands, Delta Lloyd Bank (DLB) teamed up with the FinTech firm M2C Payments (M2C) to offer instant payment services to its clients. DLB's savings product was competitive, but access to funds was slow. Initially the bank offered higher interest rates on its savings product to offset that, but that proved costly for the bank and customers were still providing feedback that the access to funds was below expectation. Volumes did not justify building a new payments infrastructure, so DLB decided to implement M2C's Instant Payments service. Now clients have instant access to their funds, as they can instantly transfer savings money to current accounts at other banks. The service has attracted new customers, increased the funds at the bank, and improved customer satisfaction.

In new products and services, third-party collaboration through open APIs can open the door for banks to develop customized new products and services, such as foreign funds transfer and instant customer refunds. Open API architecture accelerates delivery of new services, as apps can be developed only once and deployed on multiple types of hardware across online and mobile channels, providing consistent customer experience. By partnering with third-party vendors to improve customer insights with applications that access limited transaction and account information, banks can provide value-added services such as notifications, alerts, and transaction authentication. Open API structures significantly reduce payment card industry (PCI) compliance concerns (especially for cards) and enable merchants to easily comply with semi-annual card brand enhancements. The need for collaboration is also reinforced with increasing popularity of contactless card transactions and the expectation that plastic cards might be completely displaced by mobile payments in the long term. Hence, there is a need in the industry for the greater adoption of immediate payments, co-development through open APIs, and collaboration with FinTechs.

A head of payments services at an emerging bank in the U.S. said: "Speed is a challenge for many corporate clients, as they keep running out of cash all the time. Also these clients are looking to get ultra-simple APIs to access services and obtain data".

Developing a collaborative mindset will help banks stay a step ahead of the competition, and they can leverage industry initiatives such as PSD II to develop mutually beneficial business models that will help them to achieve a range of benefits including stability in treasury operations, reduced financial risk, and efficient adoption of regulatory practices (see Figure 3.7).

Figure 3.7 Advantages to Banks from Increased Payments Industry Collaboration

Processes	Assess	Improve	Benefits
Strategic	<ul style="list-style-type: none"> Verify the need for transforming or adding transaction banking offerings Evaluate the need to develop the offering in-house or via external collaboration such as API banking 	<ul style="list-style-type: none"> Collaborate with third-party industry players to leverage their experience with latest technology to develop a transaction banking offering 	<ul style="list-style-type: none"> Achieve stability in treasury operations and reachability with a reduced time to market
Financial	<ul style="list-style-type: none"> Evaluate investment requirements to develop niche offerings to a corporate segment or geography 	<ul style="list-style-type: none"> Augment existing corporate product portfolio by collaborating with a FinTech firm 	<ul style="list-style-type: none"> Reduce financial risk and exposure to develop a market relevant transaction banking service
Compliance	<ul style="list-style-type: none"> Estimate level of standardization and streamlining required for new regulatory requirements 	<ul style="list-style-type: none"> Automate documentation intensive activities such as operations center level data reporting by leveraging solutions from a RegTech firm 	<ul style="list-style-type: none"> Achieve efficient adoption of regulatory practices requirements into day-to-day operations

Source: Capgemini Financial Services Analysis, 2016

COLLABORATION CASE STUDY— SILICON VALLEY BANK AND STANDARD TREASURY

In August 2015, U.S.-based Silicon Valley Bank²⁴ (SVB) acquired Standard Treasury, a developer of banking APIs, and a graduate of YCombinator and of the SVB and MasterCard accelerator, Commerce.Innovated. SVB’s strategy was to transform into an open platform for payments and banking services. Rather than build such a capability in-house, SVB opted to accelerate the process by acquiring Standard Treasury, which had the talent, expertise, and entrepreneurs experienced in developing such APIs.

One of the key benefits for SVB was access to new APIs and developer tools for virtual cards and other payments products. Clients can integrate these capabilities into their apps and websites. SVB has been able to reduce on-boarding time to as little as two days. The partnership has benefited both parties: SVB has engaged with a leading-edge technology partner that will help it more rapidly build a richer, more fully featured set of API-based services for its clients and the Standard Treasury team has benefited from leveraging the bank’s infrastructure, assets, and innovative client portfolio to deliver their products to market. SVB believes that others can also benefit from these types of FinTech partnerships, rather than building solutions internally and that banks can create a win-win situation by incentivizing and rewarding partners to accelerate their core vision.

²⁴ www.svb.com



Closing Thoughts

Multiple factors drive the growth of global non-cash transactions: improved economic growth in some countries, stronger security measures such as EMV in cards or biometrics, and moves by governments in developing markets to encourage digital payments. Non-cash transactions continue to be a growth story and banks face a number of challenges in ensuring they make the most of this opportunity.

In tapping growth, banks must navigate the evolving and increasingly complex regulatory environment. This complexity resides in the differing interpretations of regulations globally, of particular concern to banks that operate across markets and regions. Also, regulations themselves differ in scope; some are very prescriptive while others are transformational and open to interpretation. An inability to comply with regulations or oversights can result in serious financial penalties and damage to banks' reputations.

At the same time, opportunities are opening up for banks as RegTechs bring digital customer experience into the regulatory compliance field. By adopting a holistic approach to compliance and partnering with RegTechs, banks can adapt to changes in the technological landscape and the need for quick alignment with regulatory objectives.

Most banks have acknowledged the widening scope of compliance programs and are setting up dedicated units to manage these. Many compliance programs

now report directly to the board or the chief executive officer, however executing on a holistic compliance strategy remains a challenge for banks. A holistic approach, anticipation of regulatory actions, industry collaboration, and dialog are probably the best way for industry stakeholders to maximize ROI on compliance investments.

Despite the challenges that the complexity of the payments environment pose, opportunities exist. While banks in the past have lost market share in e-commerce to FinTechs they continue to command a dominant share of the transaction banking business. However, banks could be challenged by FinTechs if they are slow to innovate, particularly in offering digital solutions to corporates. Our research found that banks consider their levels of digital maturity to be higher than do their corporate clients. Closing this gap will be vital in taking up the opportunities in this area. This will require increased investment in digital solutions and a focus on better branding and communication to showcase digital capabilities.

As in many other areas of financial services, cooperation and collaboration could be the answer. Partnering with FinTechs could help banks to provide digital offerings that their corporate clients are increasingly demanding. Such partnerships could witness even more rapid innovation in the transaction banking business, providing banks with access to new customer segments.



Methodology

NON-CASH PAYMENTS

This year's *World Payments Report* offers insights on the payments markets in the following regions grouped by geographic, economic, and non-cash payment market maturity criteria:

- North America: Canada and the U.S.
- Europe:
 - Nineteen Eurozone countries: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Portugal, Netherlands, Slovenia, Slovakia, and Spain
 - Four non-Eurozone countries: Denmark, Sweden, Switzerland, and the U.K.
- Mature Asia-Pacific: Australia, Japan, Singapore, and South Korea.
- Emerging Asia: China, Hong Kong, India, and other Asian markets.
- Latin America: Brazil, Mexico, and other Latin American markets.
- CEMEA: Poland, Russia, Saudi Arabia, South Africa, Turkey, Ukraine, Hungary, Czech Republic, Romania, and other Central European and Middle Eastern markets.

Data for Australia, Brazil, Canada, China, Hong Kong, India, Japan, Mexico, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Turkey, and the U.S. were taken from the latest Bank for International Settlements (BIS) payment statistics Red Book (2014 data released December 2015). Data for Europe, Romania, Czech Republic, Hungary, and Poland were taken from the ECB Statistical Data Warehouse (2014 data released September 2015). For the remaining countries, data were taken from central bank publications and websites. Macroeconomic indicators (gross domestic product and population) were collected from the World Bank. Because of a lack of reliable historical data trends, data for some countries have been estimated and grouped under the appropriate regional heading: other Asian countries, other Latin American countries, or other CEMEA countries.

Total non-cash circulation is the sum of check, debit card, credit card, credit transfer, and direct debit transactions. Due to the numerous revisions in official data made by the sources, along with changes in reporting methodology by various countries, data for previous years may diverge from data initially reported in WPR 2015. Wherever official data was available, we used

the latest data published, even if restated for previous years. Wherever data was unavailable or substantially different, data were estimated on a linear basis.

Refinements to the Model: Five countries, including Estonia, Cyprus, Latvia, Lithuania, and Malta, were moved from CEMEA to Europe to reflect correct categorization. Numbers for Germany, Finland, and Austria have been restated for 2010–2013 as per refinements to ECB methodology. The changes made by ECB include the removal of mere book-entry items (but not actual transactions) from the total transaction volume. We have fine-tuned our model to make our estimates more robust; however, there were no major changes to the methodology.

2015 NON-CASH TRANSACTIONS ESTIMATIONS

The non-cash transactions estimations for 2015 were calculated using our forecast model, which has been further enhanced since WPR 2015 as part of our ongoing improvements to size up-to-date trends for our readers, despite the delays in publication of official data. The model is bottom-up, and takes into account factors such as historical growth rates of non-cash instruments at a country-level, the local regulatory environment, and certain macroeconomic factors that can affect the growth of non-cash payments in a region. Also, while most markets have not published actual 2015 numbers till now, we have carried out 'sense-checks' with available 2015 numbers that were released in Q2 2016 in order to further validate our estimates.

WPR 2016 ONLINE SURVEY

Our primary research for WPR 2016 included an online survey (sample size 107) that was distributed to industry participants across banks, non-bank FSIs, and corporates in June 2016. Executive interviews were also conducted. Findings from the survey and interviews have been incorporated in our analysis throughout the Report.

CAPGEMINI DIGITAL MATURITY MODEL FOR GLOBAL TRANSACTION BANKING

Capgemini's digital maturity model is a comprehensive diagnostic tool that aims to understand the level of digital maturity of transaction banking services of a bank. Through this model, we measure the digital maturity on various parameters across enterprise and capabilities. The detailed information on the model parameters is provided on page 37.

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