



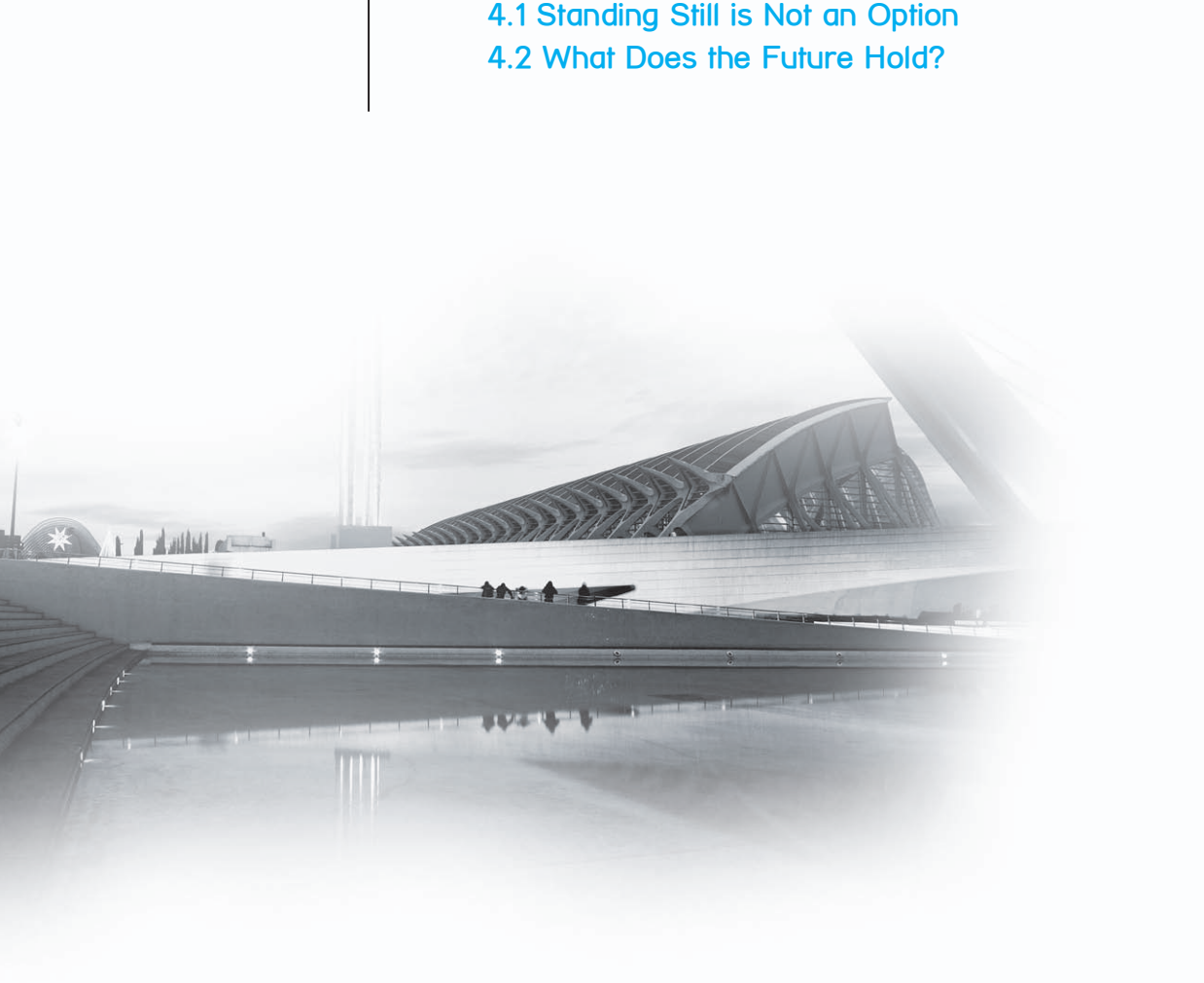
The Rising Tide of US Electronic Payments

In conjunction with



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1. The Rising Tide of US Electronic Payments

Change is sometimes imperceptible to the naked eye. And in the slow and steady world of payments it may seem to be pretty much the same as it was ten years ago. But over that ten year period, the market and its trading conditions have changed. Rather as sea levels have changed gradually, then the change effect upon the landmass they touch can be quite different - as a slowly rising tide creates an eventual sudden flood.

The decade that began in the year 2000 was one of significant change for the US payments industry. Early in the decade there was a movement towards consumer check conversion, where the paper check was still written but was subsequently used as a source document for an automated clearing house (ACH) debit entry. Billions of checks were and still are converted each year from paper to electronic debits.

Toward the middle of the decade, the payments industry spent significant resources implementing check truncation and image exchange after the passage of the Check 21 legislation, which provided the legal foundation for the substitute check.

Also, during the decade we began to see the beginning of the movement towards native electronic payments – direct deposit of payments continued its growth, consumers abandoned checks at the point-of-sale, consumers paid more of their bills using recurring debits, internet banking and web-based bill payment options. While there was much movement in the reduction of consumer checks written, many billions of payments still must be migrated to an electronic payments environment.

This decade is when the transition to “native electronic payments” will be completed. Consumers will continue down the road of abandoning check writing. This trend is clearly evident with a younger generation that has no use for writing paper checks and is completely in sync with a purely electronic payment environment. The research conducted over the last decade on the trends of business-to-business payments has clearly indicated that there is a tremendous momentum forming to eliminate the check as the payment instrument of choice for business activity. Businesses will automate the processes necessary to move to a native electronic payments environment and over the next decade the check will no longer be the preferred business payment method.

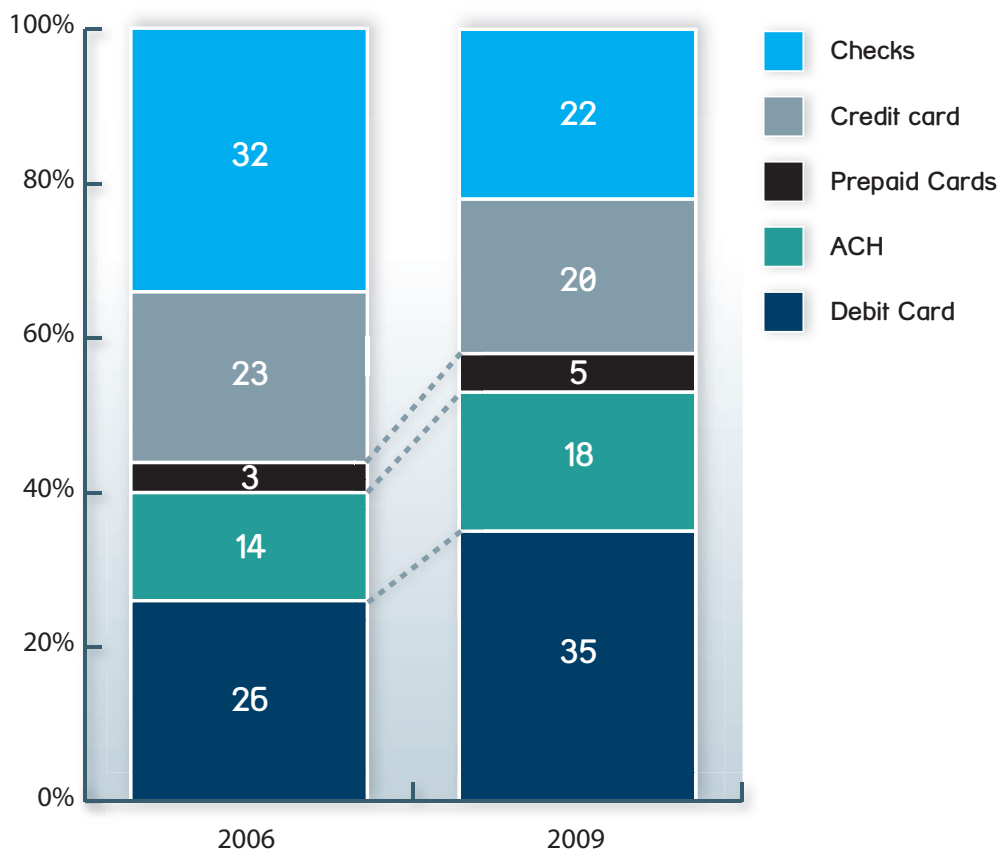
This combination of influences has caused, and will continue to cause stress on a bank’s payment systems and should give cause to a risk assessment. Are the architecture and performance of the bank’s payments systems sufficiently strong to take the changes which are happening within the market? The financial market events of 2008 should remind us that an attitude of “it can’t happen here” should not be repeated.

This paper explores the number of different developments that are impacting the electronic payments landscape and proposes that a number of different developments, all happening separately – may combine to create a set of conditions, with which the payments operations and systems of banks will find it difficult to journey through, at the same time as maintaining service levels, profitability and proper implementation of regulatory requirements.

2. The Market in Electronic Payments Continues to Grow

2.1 Low-Value Payment Market Trends

Business and consumers are moving away from cash and paper payments at a slow but steady rate, and are now migrating to electronic payment mechanisms. During the period from 2006-2009, checks paid dropped from 30.5 billion to 24.5 billion, debit card transactions, which are replacing checks and cash, increased from 25 billion to 37.9 billion. The estimated number of noncash payments in the US totaled 109 billion in 2009, with a value of \$72.2 trillion. The number of noncash payments has increased at a compounded annual rate of 4.6% since 2006, the final year of the last Federal Reserve study.



Generation “X” and “Y” consumers will be the driving force behind the migration to electronic payments. Gen “Y” consumers will be leading the charge because of their extensive use of digital channels. According to a recent consumer study¹, when asked about the most useful products for managing their finances, Gen Y respondents chose, in order: 1) Online Banking, 2) Debit Cards, 3) Bank-Based Bill Pay, 4) Biller Direct bill payments, 5) Cash, 6) Credit Cards, and lastly, 7) Checks.

Checks are the least preferred payment mechanism and surely this generation will contribute to its demise. There were 5.3 billion fewer checks written in 2009 than in 2006, a decline of 5.7% per year.

¹ 2010 Federal Reserve Payments Study

2.2 The Future is Mobile

When discussing mobile payment trends, a distinction needs to be made between mobile banking and mobile payments. The difference is important but often misunderstood.

- **Mobile banking is the provision of banking and financial services with the help of mobile telecommunication devices**
- **Mobile payment is a type of transaction in which the mobile handset plays a key role in the initiation, authorization and/or realization of the payment.**

Though mobile banking and mobile payments are now two distinct, discrete categories of mobile financial services, the future will see the gradual integration of these two categories into a single interface.

Mobile device proliferation is growing astronomically in the US. It is estimated that there are over 326 million cell phones, the vast majority are smart phones, and over 60 million tablets were sold in the last two years alone. These devices are key payment initiation instruments for satisfying the future demand for mobile payments.

The US mobile payment programs are not based on cash in the wallet but storing card information on the phone to be used in a mobile wallet or to use NFC (Near Field Communication) with the card information to make a proximity payment.

The PayPal Wallet includes a card that allows offline payments at stores. The wallet will permit consumers or businesses to swipe a card, use an app or tap their phone. The Google Wallet stores customer credit card information on smartphones to make purchases and can be used to tap the phone for purchases at physical locations, or it can be used online for virtual storefronts to buy goods and services.

While there is still a lot of work to do in the development of the winning mobile payments strategy there is a net positive effect in electronic payment volumes.

2.3 Person-to-Person (P2P) and Account-to-Account (A2A) Payments

For a number of years financial institutions have been offering A2A payments, where customers could transfer funds to and from their accounts at different institutions using the ACH network. The ACH network is the perfect vehicle for P2P payments because virtually every consumer can be reached through the network. A number of payment services already take advantage of the ACH network to make payments to others in the same network: Popmoney (CashEdge), ZashPay (Fiserv), Quickpay (J.P. Morgan) and Clearxchange (J.P. Morgan, Wells Fargo and Bank of America). However, adoption of this type of ACH service risks being limited until there is full reachability, where anyone can pay anyone.

Many industry analysts believe that the demand for P2P has not yet reached tipping point, but may do so over the next two to three years. This presents a clear and near-term opportunity for the US banking industry to leverage the ACH network to create an open P2P service that can be used safely and securely by all consumers. If they do not, piecemeal solutions will continue to proliferate, leaving the market vulnerable to non-bank players such as PayPal and Obopay.

2.4 The Opportunity for Business to Business Payments (B2B)

The vast majority of business payments in the US are made by check with the original invoice or the check remittance stub enclosed to allow for proper payment reconciliation. Companies in the US will continue to make payments by paper checks until an electronic business payment is as “easy as writing a check”. Within the payments industry there is a general consensus that businesses would prefer to receive remittance information electronically in the same stream as the payment. Having two streams requires a re-association process, causes confusion, increases the risk of loss, and is more time consuming. Industry surveys have cited that the number one barrier to receiving electronic payments was that companies do not receive the remittance information with the payment as they do with checks causing difficulties in reconciliation.

B2B payments are a major efficiency hurdle remaining in many countries. In Europe, there has been considerable recent progress in more real-time, more streamlined ACH payment flows with much richer associated information flows. The majority of B2B payments are now made electronically. But the reconciliation issue is not resolved (with a few national exceptions) and considerable manual effort is still required to match payments with the appropriate invoices. This is due to the inability of the domestic European payment system formats to carry enough payment related information with the payment. As SEPA (ISO20022) payment flows become more substantial in the next few years, this limitation will go and leave the market open to progress.

In the US, there are two primary standards for delivering B2B invoice remittance data. These are the ANSI X12 820 and the ANSI X12 EPN STP 820 (STP 820). The STP 820, designed by the Clearing House Payment Company for small and mid-sized enterprises (SME), is a simplified data remittance specification that addresses key barriers to electronic payments with remittance information. In financial electronic data interchange (EDI), the EDI transaction set 820 (Payment Order/ Remittance Advice) is used to provide payment-related remittance data from the buyer to the seller. The traditional 820 transaction set contains reams of pages of requirements, and is further complicated by the fact that many industry verticals have added their own unique requirements. The STP 820 calls upon all users, regardless of industry, to recognize the following fields as the minimum remittance information:

- a. Customer account number (mandatory);**
- b. Customer name (mandatory);**
- c. Invoice number;**
- d. Invoice date;**
- e. Invoice gross amount;**
- f. Amount paid;**
- g. Purchase order;**
- h. Adjustment amount;**
- i. Adjustment code or description (optional), and**
- j. Discount amount to be included in the payment order.**

With well over 4 billion business-to-business payments made by check today, this is a significant opportunity for the ACH network as well as for the two wire transfer networks, CHIPS and Fedwire.

3. Drivers for Change in Electronic Payments

3.1 Healthcare Payments

US Healthcare Reform will affect both payers and providers. The new healthcare reform legislation mandates the creation of new operating standards and rules to promote economies of scale for payments within a specific timeline. The goal of the reform with respect to payments calls for electronic payments that are secure and meet consistent standards, while creating a framework for automated reconciliation of electronic payments with remittance advices.

The intent of the legislation is to drive down administrative costs for all market participants. The reform requires a systemic solution for all market participants and mandates straight-through processing of electronic transactions. The main issue is the paper intensive process and the technology gaps between health plans and hospitals that make payment and remittance information difficult to transmit.

The EFT standards were agreed upon and are effective as of January 12, 2014. The EFT payments can be initiated using a NACHA formatted payment using either the CCD payment with a reference number linking the payment to the remittance information or the CTX format can be used carrying the remittance information with the payment. Receipt of the information can be arranged between the receiving bank and the receiver but there is no obligation to proactively send the information. The information must be requested.

Healthcare payments create a new opportunity for significant volume increases through the ACH network.

3.2 Faster Payments

The growing trend for low-value payments, especially among the younger generation, is for payments to be made “near-time, real-time, any time”. Unfortunately, most of the low-value payment systems in the world are based on batch file systems and are not engineered for real-time or even near real-time transaction processing and posting.

One exception to the batch model is UK Faster Payments implemented recently to speed up low-value transactions. The UK BACS low-value payments system took three days to clear a payment – one of the slowest low value batch systems. The government put tremendous pressure on the banking system to speed up the process.

As a result of this pressure, the UK Banking industry developed the Faster Payments service that allows participating financial institutions to provide same day processing of electronic payments such as funds transfers, bill payments and standing orders. There are 13 direct participants in the Faster Payments Network and indirect participants can access the service through direct participants. Under the scheme, payments are cleared in seconds and settled into the receiver’s account within two hours.

Faster clearing of payments has been a discussion item among the US financial institutions and low-value payment operators (FedACH, operated by the Federal Reserve, and EPN, operated by the Clearing House Payments Company) for the last eight years. In 2008, FedACH presented a proposal for a same-day ACH service. This was motivated by a number of factors - primary that the FedACH, as part of its mandate, was trying to increase the use of electronic payments and decrease the use of checks. The introduction of image exchange in 2004 made check collection settlement faster than ACH settlement, putting ACH at a disadvantage. With the goal of moving to electronic payments, the ACH debit settlement time needed to be as good as or better than the check collection settlement. Another factor was that the ACH network’s settlement

schedule had not changed since its inception and was not flexible to meet customer needs. Financial institutions want to settle debit items same-day for credit cards to get faster returns, therefore reducing risk exposure and getting earlier availability of funds. Some customers began clearing and settling transactions bilaterally because of this lack of functionality. Finally, for the ACH network to be considered as a payments channel for mobile, P2P and B2B, it needed to settle faster. The FedACH service was launched in May 2008 but its adoption has been slow because it is optional.

In September 2011, NACHA announced a proposed rule modification for Expedite Processing and Settlement (EPS). This proposal would amend the NACHA Operating Rules to enable ACH entries to be processed and settled on the same day that they are originated. Currently, the Rules provide that the effective date of an ACH entry – the date on which the Originator intends settlement to take place – must be one banking day in the future for a debit, and one or two banking days in the future for a credit. This amendment would preserve these existing features of ACH processing and settlement, while adding a new Expedited Processing and Settlement window as an ACH network-wide capability. Originating Depository Financial Institutions (ODFIs) would then be able to use this capability in offering products and services to ACH network users. EPS is still under discussion.

The demand for faster low-value payments is inevitable and will have to be faced within the next three to five years.

3.3 Risk Management

Cybercrime is a major threat to the US payments systems. Over the past few years, there have been several highly publicized cases of corporate and government bank account takeovers. Thieves use the automated clearing house (ACH) network or wire transfer networks to initiate fraudulent credit transfers and then use the wire transfer system to send the money from money mule bank accounts to the perpetrators offshore. The recent failures were not due to security vulnerability in ACH or wire transfer networks, but the result of either bank or corporate weakness.

In some cases, banks had inadequate security controls for accessing the bank's cash management system, allowing customer accounts to be compromised. In other situations, business customers did not take advantage of the advanced access controls offered by their banks. However it is clear that as electronic payments continue to grow and so does the number of initiation channels, banking institutions simply cannot adopt separate fraud detection solutions for each silo. A joined-up approach is required and there is a clear need for central, channel agnostic services to combat fraud.

4. The Effect on Bank Payment Systems

4.1 Standing Still is Not an Option

Most of the ACH processing software on the market was developed many years ago. As the ACH has changed over the years, vendors of legacy systems have created separate modules to handle new features and product enhancement resulting in a fragmented approach for processing ACH transactions. This approach requires significant costs for integrating these modules into the core banking applications and impedes a quick time to market strategy. With the changes evolving for the next generation, the market is ripe for new ACH processing software for large financial institutions.

An ideal new ACH processing solution would provide real-time, item level processing of all payments with key components integrated into the product as well as interfaces to enterprise wide-services, such as cross channel fraud detection, AML/CTF software, OFAC screening and other compliance modules.

The ACH processing solution would need to have:

- **Robust mechanism(s) for housing relevant customer information, contacts (operational, security, management), risk management controls, processing options, etc.;**
- **Origination processing capabilities to take payment files and manage items individually with real-time validation and reporting including, item and file editing, risk management, compliance, warehousing, client maintenance, ACH reversals, file release, client inquiry and accounting;**
- **Receipt processing capabilities to handle all incoming ACH transactions and return item processing, return item reporting, debit blocking and filtering, ACH and check positive pay, stop payment processing, NOC processing, exception processing, automatic detection of NACHA rules violations, fraud detection and compliance;**
- **Support capabilities including an ACH Operations dashboard, a client dashboard, billing and statistics, auditing, case management, workflow, communication alerts, management reports and database repository;**
- **Ability to dynamically route to multiple clearing networks or make changes to method of payment if deadlines are not achievable**
- **SOA architecture to address performance and scalability, and ongoing maintainability**

The solution should provide automation at all steps through the processing cycle which would be a tremendous improvement over today's processing which is manually intensive.

Banks which try to move forward using yesterday's siloed payment system architectures will have to regard their payment services as loss-leaders and will gradually fall behind in their ability to provide modern electronic payment services in today's digital world. They will be drowning in the rising tide as the more agile payment service providers pass them by.

4.2 What Does the Future Hold?

There are still over 25 billion checks written in the US today. The electronic payments tide has turned. The younger generation already shows disdain for writing checks which bodes well for the future of electronic payments. However, the greatest opportunity for moving away from checks is in business-to-business payments; companies can reduce cost and accelerate cash flow if the accounts payable and accounts receivable functions are automated for electronic payment initiation and receipt with automated reconciliation. Other large opportunities exist for consumer bill payment, direct deposit, and person-to-person payments. Low-value electronic payments can benefit all stakeholders in the near future. It is up to the banking industry to develop the right tools and ensure that these payments are easy to use, reliable and secure.

Consumer payments will continue to rapidly move from check to electronic channels. This is evident in the recent statistics provided by NACHA, The Electronics Payment Association, which show check conversion volumes are dropping precipitously while native electronic payment applications have been showing consistent growth. Account-to-Account (e.g. person-to-person) payments will move from check to electronic payments and become a new growth opportunity for the banking industry.

There are 4 billion to 5 billion business check payments that can be moved to electronic payment mechanisms such as purchasing cards, ACH, or wire transfer. The payment industry should be focused now and over the next decade on providing the right tools for businesses to initiate and receive payments in an automated environment. Companies are beginning to change their payment processes to gain the benefits and efficiencies that an electronic payments environment offers. Over the last couple of years, we have seen corporate trade payments growing at double digit rates. As companies begin their migration to electronic payments, these growth rates should increase exponentially.

The change will be slow and painful, but our prediction is that by the end of the decade, consumers and businesses will no longer be issuing paper checks. The electronic payments tide is rising. Will your institution sink or swim?

Precision Engineering in Payments

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