



THE BANK OF NEW YORK MELLON



Treasury Services

April 30, 2008

Trends in Global Payments

State of Treasury Management & Payments Industry

Expo L.A. – Southern California AFP

Agenda

- I. Payment Consumer:
Issues and Trends in Treasury Management**
- II. Payment Manufacturing:
Issues and Trends in the Global Payments Industry**
- III. Payment Processing:
A Payments Primer**
- IV. Appendix**

Section I.

Payment Consumer:

Issues and Trends in Treasury Management

Issues and Trends in Treasury Management

Treasury Organization & Staffing

Treasury staff size correlates with company size.

- The very largest firms operate with a disproportionately large staff. This suggests that these larger firms may be operating at an entirely different scope than their smaller peers.

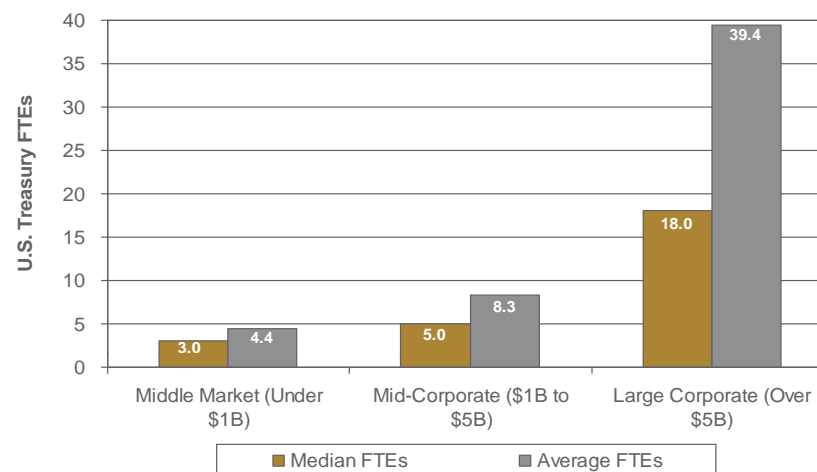
Treasury staffing levels have stabilized after several years of decreases.

- Staffing levels remained the same from last year to this year for 73% of companies. Last year 62% of companies reported no change in staffing levels.

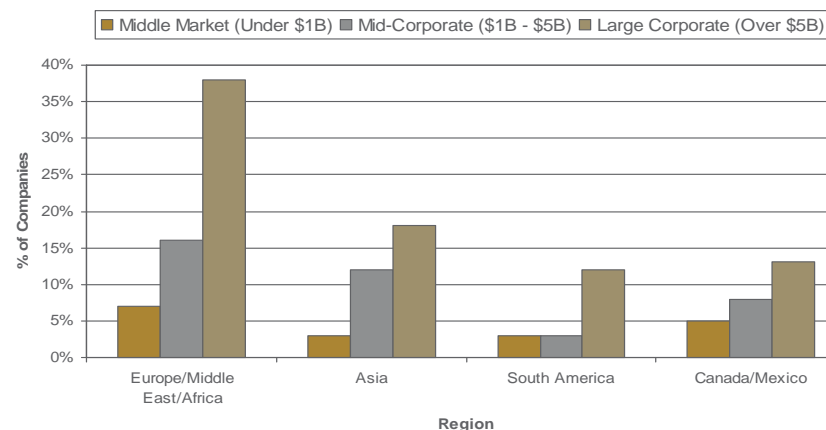
Overseas treasury staff is also a function of company size.

- More than one-third of the large corporate segment maintains a treasury presence in the Europe/Middle East/Africa (EMEA) region.
- Conversely, less than 10% of the middle market segment has staff outside the U.S.

Median and Average U.S. Treasury FTEs
By Company Size



% of Companies with Treasury Staff Outside of U.S.
By Company Size



Source: Treasury Strategies, Inc., Used by Permission

Issues and Trends in Treasury Management

Treasury Management Practice

U.S. corporations use multiple banks for cash management services. Company size also drives the number of banks used.

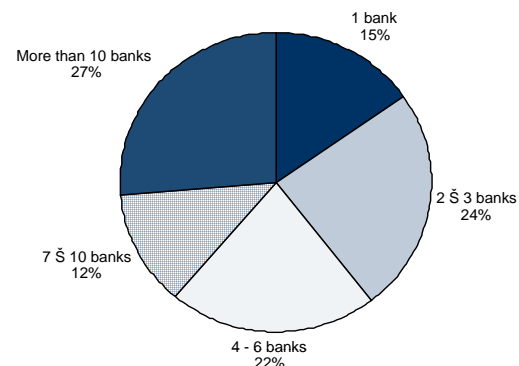
- 85% of research participants use more than one bank for cash management services.
- A significant percentage of large corporations use more than 10 banks.

Cash management services spending directly correlates to company size, with large corporations spending more than \$4.5 million annually.

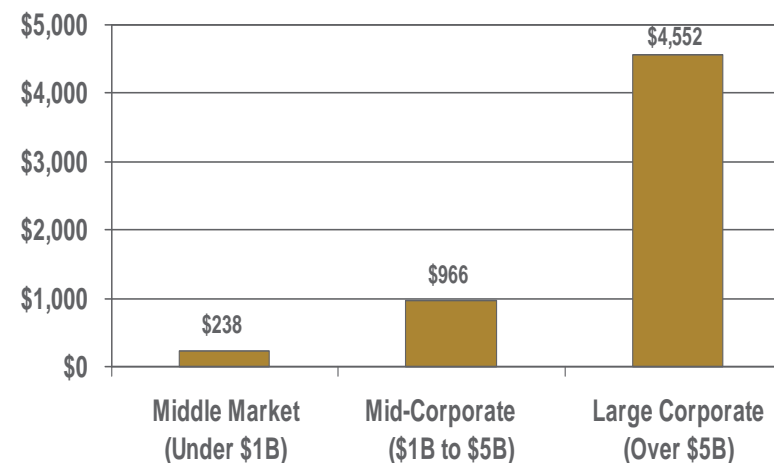
Industry also drives cash management spend.

- Financial services, consumer products and services, and business products and services segments have the highest spending on cash management services.

of Banks Used for Cash Management Services



Annual Expenditures on Cash Management Services by Company Size (\$000s)



Source: Treasury Strategies, Inc., Used by Permission

Issues and Trends in Treasury Management

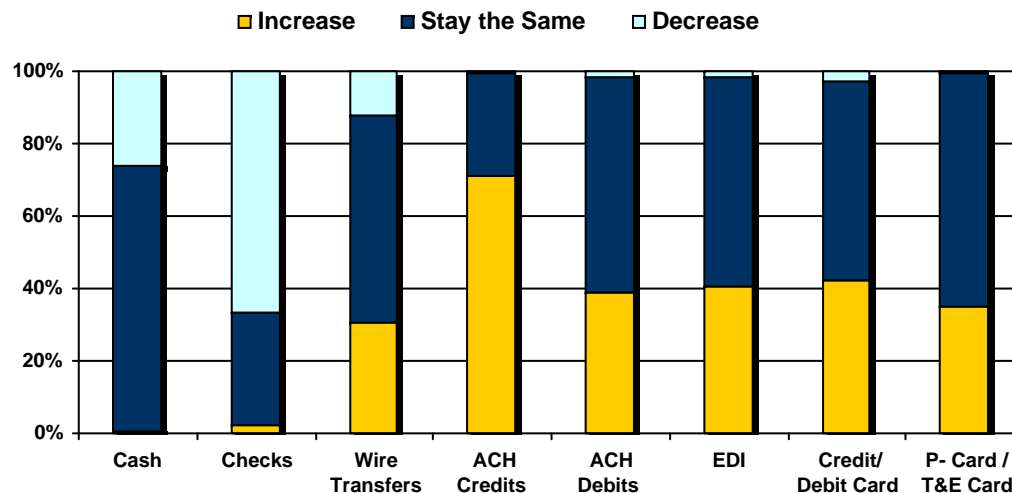
Treasury Management Practice

Companies are slowly shifting to electronic forms of payment. Checks remain the predominant form of payment received by U.S. corporations, however two-thirds of respondents expect check remittances to decrease in the next 12 months.

- The use of checks as a form of payment will continue its rapid decline, from about 20% of all payments in 2004 to only 10% by 2009.

Although payment via ACH, wire, EDI, and credit card are all expected to increase by a significant percentage of respondents, the majority anticipate that those forms of payment will represent the same percentage of total receipts as last year.

39% of respondents have projects underway to implement or expand electronic invoicing and/or bill payment.



Source: Treasury Strategies, Inc., Used by Permission

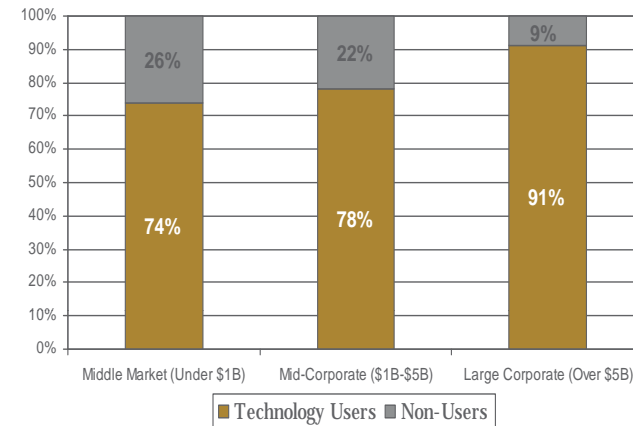
Issues and Trends in Treasury Management

Treasury Technology

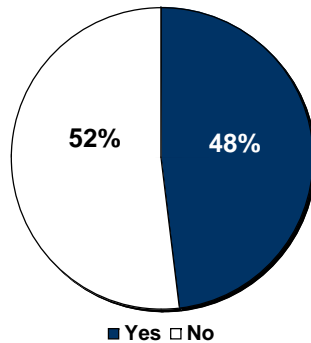
Adoption of treasury technology is driven by company size. Large corporations are most likely to deploy a comprehensive array of treasury technology tools, likely reflecting better access to resources and the need to integrate strategic information across the organization.

- Company size drives technology. The most comprehensive technology is in large corporations where the need for integrated information is high and access to financial resources make implementation possible.
- 20% of all respondents do not use any of these technologies.

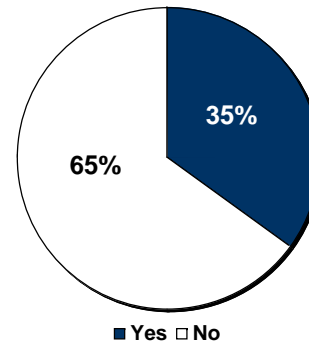
Technology Users vs. Non-Users



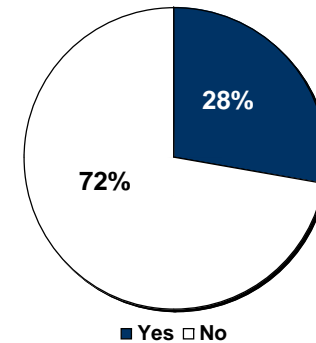
Does Your Company Use a Treasury Workstation?



Does Your Company Use a Bank Account Recon. System?



Does Your Company Use an F/X Execution System?



Source: Treasury Strategies, Inc., Used by Permission

Section II.

Payment Manufacturing

Issues and Trends in the Global Payments Industry

The Global Landscape

Rising Cross-Border Business Needs

Increasing liberal U.S. Trade Policies: Goods and services are more readily traded and sourced due to evolving world trade initiatives

For the 6th year in a row, worldwide growth is outpacing analysts' forecasts

- China and India are leading the charge

The increasing integration of people, companies and corporations in divergent locations around the world is driving the demand for more cost effective, homogenous payment services

- B2B – Accounts Payable
- B2C – Payroll, Pensions, Dividends

Technology has fostered the development of a dynamic and robust global economy

Global payments is a rapidly growing 'business'

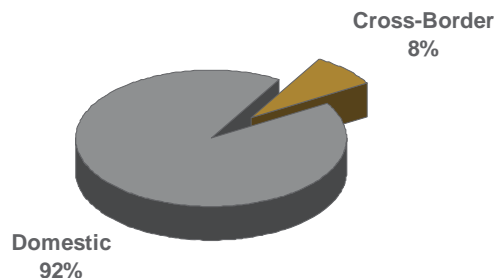
- In 2004, U.S payments revenues were estimated to have grown over 6% per year over the prior decade
- Direct correlation with world trade volumes growth

Cross-Border Payment Trends Market Study

In 2004, cross-border payments represented 8% of the total volume of commercial payments

- Expected global compound annual growth rate of 10.3% through 2010
- 7.8% for the North and South America and Canada

**Volume of Cross-Border Payments
versus Domestic Payments**



Source: Celent Communications, Cross-Border Business-to-Business Payments: The New Frontier

The annual number of global electronic payment transactions—approximately 210 billion in 2004—will more than double by the end of the decade

The Eastern Europe and the Asia-Pacific regions will lead the world in electronic payment transaction growth, at 21.6% and 19.2% respectively

NAFTA region, by 12.3%, confirming significant growth even within economies with well-established electronic payment infrastructures

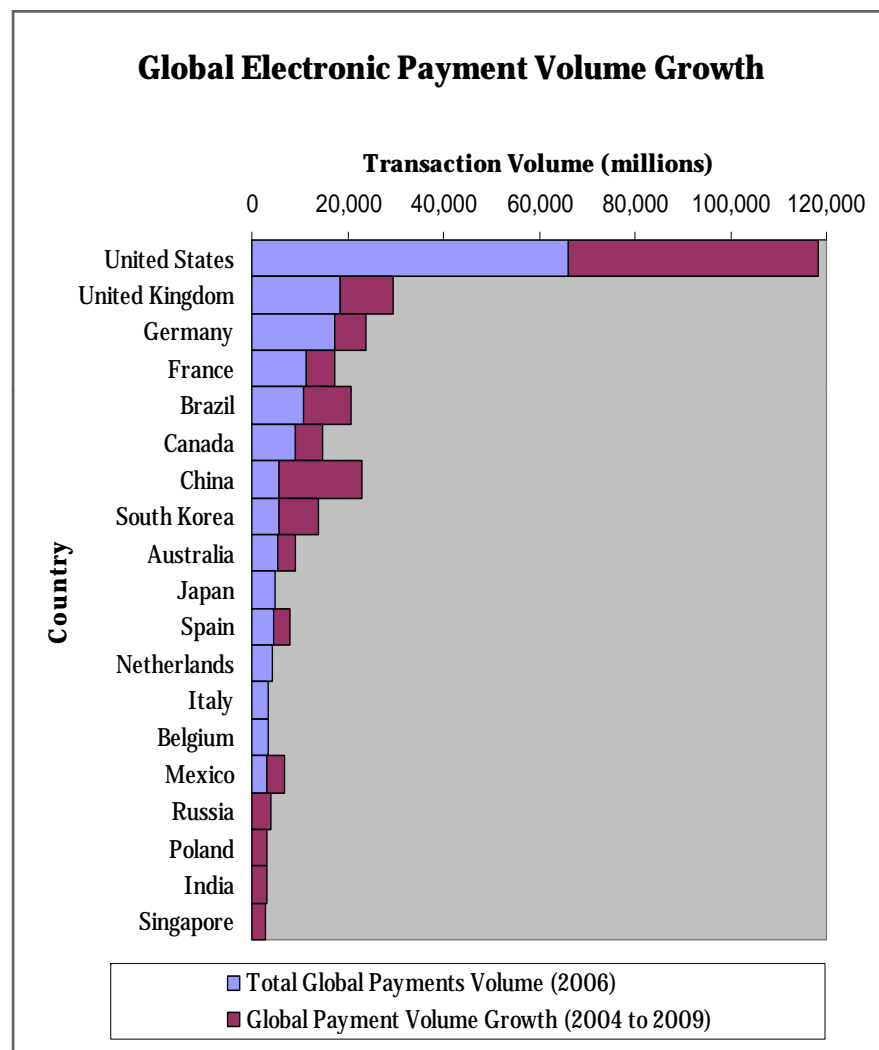
From 2004 to 2009, the worldwide forecasted volume for electronic payments is expected to double, with China and India doubling volume at an even faster, three- to four-year rate

Approximately 80% of cross-border payments are processed by banks through correspondent banking relationships

Cross-Border Payment Trends Market Study

Electronic Payments - 2004		
Top 15 Countries	Total Transactions (millions)	% of World Transactions
1 United States	66,014	31.5%
2 United Kingdom	18,446	8.8%
3 Germany	17,301	8.2%
4 France	11,488	5.5%
5 Brazil	10,856	5.2%
6 Canada	9,189	4.4%
7 China	5,794	2.8%
8 South Korea	5,591	2.7%
9 Australia	5,529	2.6%
10 Japan	4,771	2.3%
11 Spain	4,571	2.2%
12 Netherlands	4,269	2.0%
13 Italy	3,517	1.7%
14 Belgium	3,395	1.6%
15 Mexico	3,129	1.5%
Total Top 15	173,860	82.9%
World	209,762	--

Electronic Payments - Growth 2004 to 2009		
Top 15 Countries	Change in Transactions (millions)	Compound Annual Growth Transactions
1 United States	52,273	12.4%
2 China	17,080	31.6%
3 United Kingdom	10,994	9.8%
4 Brazil	9,978	13.9%
5 South Korea	8,317	20.0%
6 Germany	6,433	6.5%
7 France	5,780	8.5%
8 Canada	5,638	10.0%
9 Russia	4,084	18.9%
10 Mexico	3,763	17.1%
11 Australia	3,544	10.4%
12 Spain	3,261	11.4%
13 Poland	3,243	20.3%
14 India	3,180	26.1%
15 Singapore	2,856	17.4%
Total Top 15	140,423	13.0%
World	174,414	12.9%



Source: Global Insight Study to Size Electronic Payments Market

Cross-Border Payment Trends

Several key developments are driving growth of cross-border payments:

- Industry initiatives dissolve geographic boundaries
 - Cross-border payments systems are growing
 - > TARGET
 - > FedACH
 - > STEP2
- Government led initiatives ultimately result in cost reductions to the end-user
- Bank mergers, acquisitions and consolidations give rise to global ‘mega’ banks
- Plethora of outsourcing solutions offered by both bank and non-bank entities
 - Operational efficiencies through internal consolidations
 - Emphasis concentrated on core services

Cross-Border Payment Challenges

Cross-border payments can be slow, inefficient and costly for banks and business

Domestic infrastructures are not designed to handle cross-border payments

- Many countries establish their own high and low-value payment systems; lack of commonality requires manual intervention to collect and repair data

Lack of common standards

- Rules & Regulations
- Timeframes & Deadlines – settlement, returns, recalls
- Messaging
 - Formats
 - Transmission Methods

Impact of regulatory requirements

Global Regulatory and Industry Initiatives

FATF SR VII

FATF SR VII - Financial Action Task Force Special Recommendation VII

The Financial Action Task Force (FATF) is an inter-governmental body:

- 31 countries and territories
- 2 regional organizations (European Commission and Gulf Co-operation Council)

Develop and promote national and international policies to combat money laundering and terrorist financing

SR VII: The goal is to prevent terrorists and other criminal elements from using payment systems to transfer their ill-gotten funds and to avoid detection

- The goal is to enable receivers to quickly and accurately identify, trace, review and report all suspicious transactions

States that complete, accurate and meaningful details about the remitter must be included on the incoming payment instructions

- Remitter's name, Remitter's Address, and Remitter's Account number

Important Dates:

- Effective as of January 1, 2007
- SWIFT resolution incorporated in October 2007
- Receiving/Beneficiary banks may return payments that do not include sufficient ordering customer information (*potentially by December 15, 2007*)

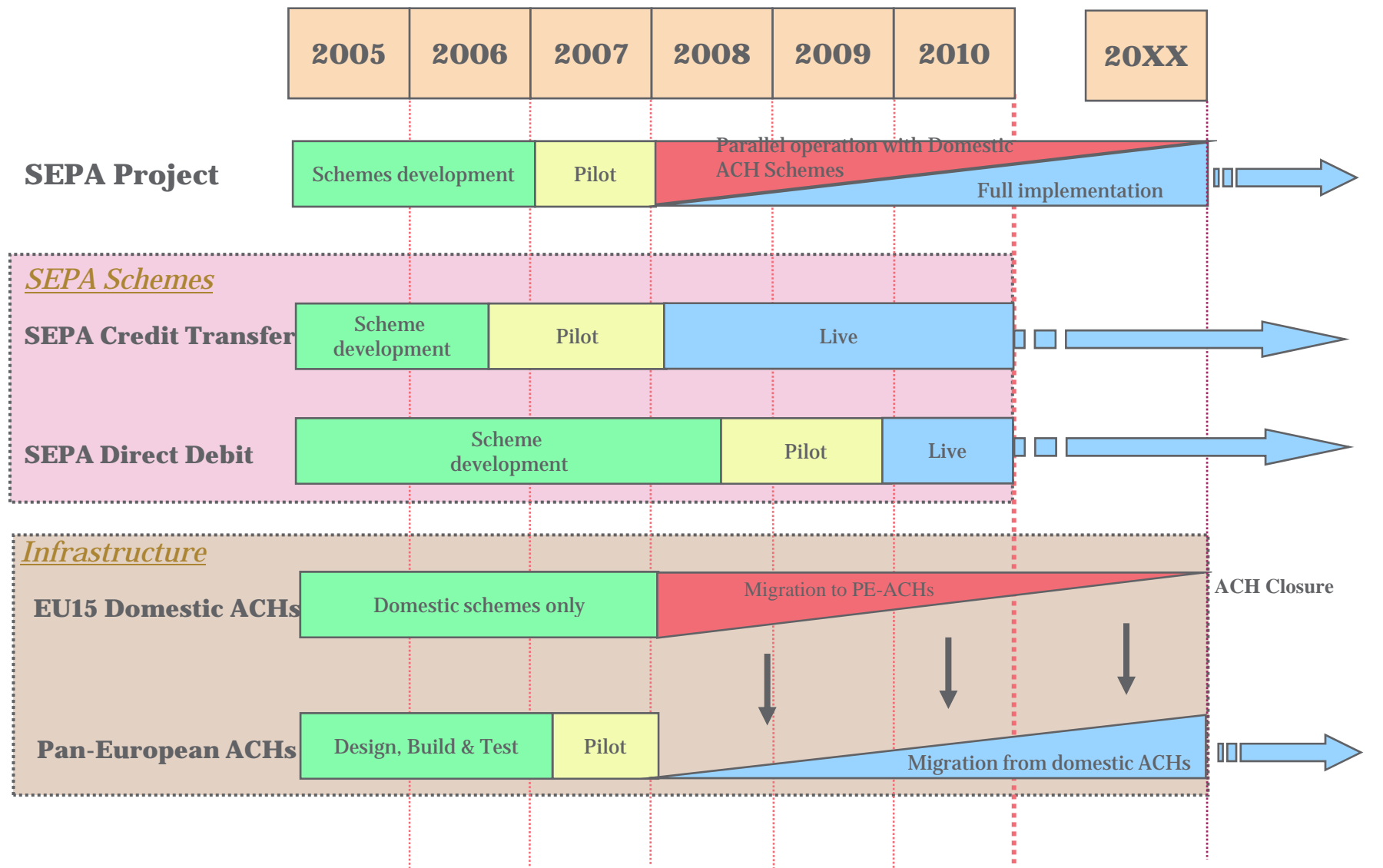
Global Regulatory and Industry Initiatives

SEPA

SEPA - Single Euro Payments Area

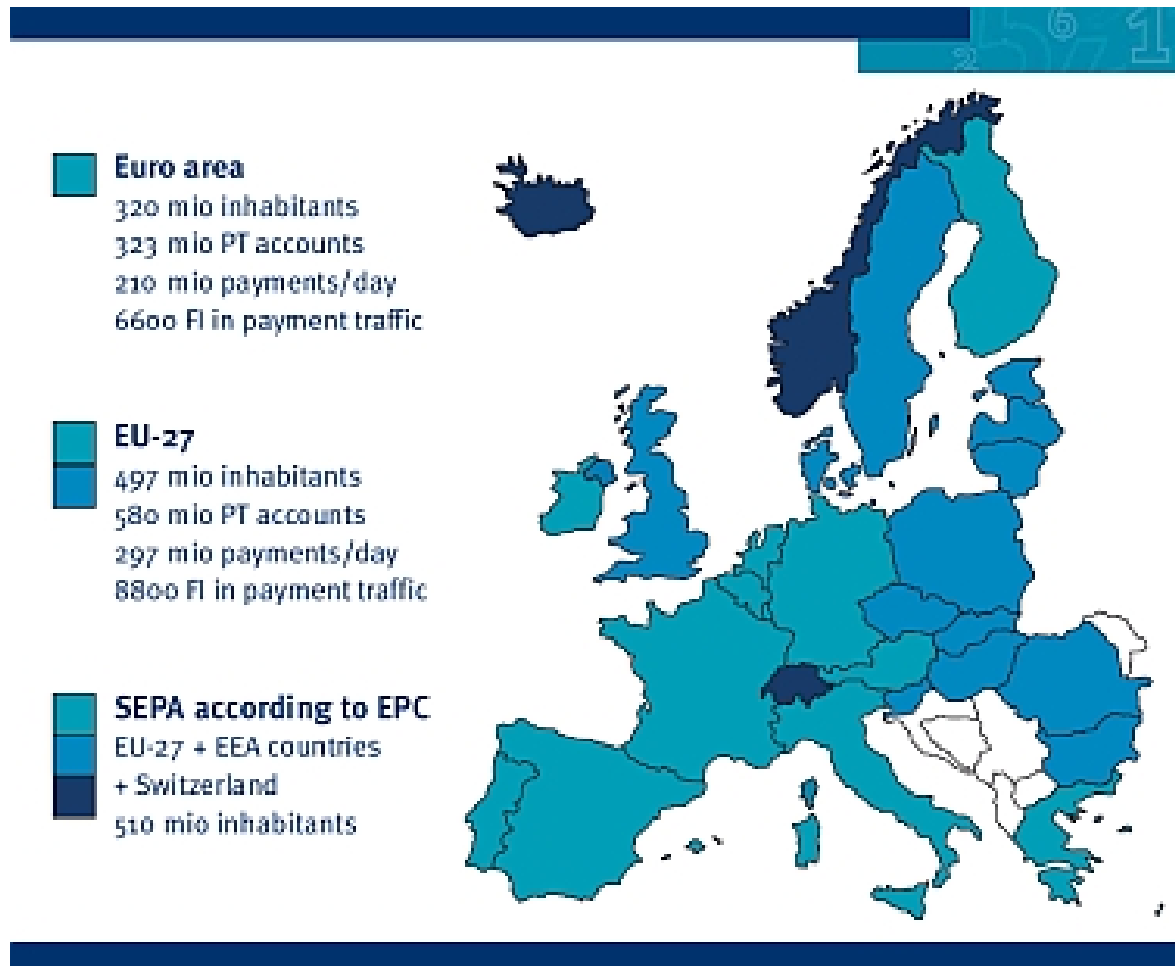
- **An area in which consumers, companies and other economic actors will be able to make and receive payments under the same conditions, rights, and obligations**
- **SEPA will turn the fragmented national markets for euro payments into a single domestic one**
- **Currently defined to consist of the 27 EU-member states plus Norway, Iceland, Switzerland and Liechtenstein**
- **Applies to three payment instruments: credit transfers, direct debits and card payments**
 - In Euro
 - Within Europe
 - Between or within national borders
- **SEPA Timeline:**
 - Design Phase (1/2004 – 6/2006): Standards & specifications of security requirements
 - Implementation Phase (Mid-2006 – 12/2007): Roll-out of SEPA instruments, standards and infrastructures; testing
 - Migration Phase (1/2008 – 2010): National payment schemes co-exist with SEPA schemes

SEPA Timeline



Global Regulatory and Industry Initiatives

SEPA (cont.)



The Impact of Global Trends on Treasury

Increased push to invest in, and develop, a globally integrated and centralized treasury:

- Take advantage of initiatives to standardize payment systems. This may occur regionally or within the boundaries of a country where payables and receivables are managed.
- Technology advancements, such as web-based treasury systems, allow users around the globe to access systems on a real-time basis.
- True global banking and consolidation of banking partners is attainable as banks consolidate and invest in their global branch networks and/or correspondent banking
 - Studies indicate that most U.S. corporations currently maintain 10 or more global banking partners

Decentralized Regulations = Centralized Treasury

- Standardization and enhancements to payments systems often results in relaxed or reformed controls and restrictions
 - Relaxed netting and pooling programs
 - Relaxed currency controls and branch banking

Implementing a Global Treasury Considerations

- Solicit management approval and support
- Place or retain key personnel in positions/locations that optimize knowledge base and support
- Select service provider(s) that allow you to focus on your core business objectives
- Integrate ERP solutions or treasury management systems that best compliment your business needs
- Select software packages and communication technology that will ease a transition
- Continually monitor the growing capabilities of global banks and other third party service providers

Continue to build worldwide client base; focus on and evolve systems, marketing, and infrastructure to take full advantage of the payment industry's expected growth

Section III.

Payment Processing

Payments Primer

Issues and Trends in Treasury Management 2007 Observations / 2008 Expectations

Efficiency

- **Staffing pressures** will continue to affect Treasury. To address this challenge, the most effective Treasury organizations will use best practices wherever possible as they leverage technology, bank products, and enhanced processes.
- Both technology vendors and banks are offering powerful, web-hosted ASP products that provide ever more **cost-effective access to Treasury automation** without having to involve their heavily-taxed IT resources.
- Further ways to boost efficiency exist in the **payments arena**. As payment electrification and paper reduction trends continue, it is important for Treasury to do everything it can to encourage these activities.
 - A variety of electronic payment opportunities are available in the form of ARC and back-office check conversion of **incoming payments**, remote deposit capture at the point of sale, and RCK for the collection of NSF activity.
 - On the **outbound payments** side, an important initiative for Treasury will be to develop effective strategies for paying vendors and trading partners electronically through multiple channels.

Issues and Trends in Treasury Management

2007 Observations / 2008 Expectations

Organization

- The most effective Treasury groups are those that maintain effective, stable staffing and a clear definition of responsibilities. Further, effective Treasury groups must **proactively adjust to maximize their value** to the organization.
 - Staffing is a significant organizational concern. In North America and Europe, the aging workforce (“brain drain”) should be an immediate concern.
 - There are presently 17% fewer COOs in S&P 500 firms than in 1999.¹ As more COO positions disappear, CFOs are assuming a broader range of responsibilities – and many are focusing more time on operations.
 - Early indications are that the new U.S. Congress may relax the control requirements of Sarbanes-Oxley. As a result, CFOs will find significant time and resources, previously dedicated to regulatory compliance, freed to focus on other priorities.
 - Interest rates are rising in Europe and Asia, while U.S. rates are stabilizing. Consequently, Treasury groups will need to ensure they possess the skills, knowledge and tools necessary to address **increasingly complex risk management and trade related issues**.

¹ Crist Associates

Issues and Trends in Treasury Management 2007 Observations / 2008 Expectations

Globalization

- **Geographic boundaries must not impact** the performance of treasury management activities. Whether managing cash deposits across the street or across the ocean, Treasury must perform equally well.
- Firms positioned today with the right staffing, tools and technology to support global activities must **keep those processes finely tuned**.
- Treasurers need to examine what is necessary in their processes, systems, and staffing to **enable the proficiency demanded** by today's global business environment.
- Treasurers should **conduct an internal assessment** of their department's skills, technology and processes. The essential question is, "How prepared are we to operate in the global arena?"

Payments Primer

Corporate organizational considerations

Payment and remittance data catalog

Payment generation overview

Payments Primer

Corporate Organizational Considerations

Cash Management

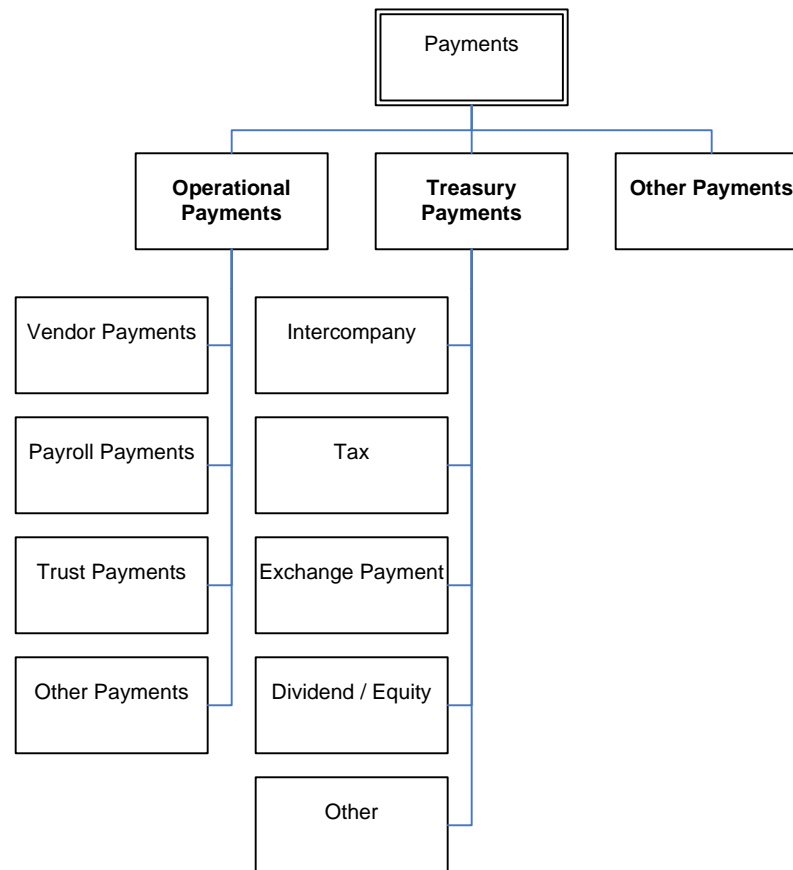
- Centralized
- Regionalized, by LOB, or currency, or (?)
- Decentralized, by LOB, or currency, or (?)

Currency management

- Centralized
- Regionalized, by LOB, or currency, or (?)
- Decentralized, by LOB, or currency, or (?)

Transaction processing

- Centralized
- Regionalized, by LOB, or currency, or (?)
- Decentralized, by LOB, or currency, or (?)



Payments Primer

Payment and Remittance Data Catalog

Automated Clearing House

- Retail payment system
- Batch, gross, periodic settlement

Wire transfer system(s)

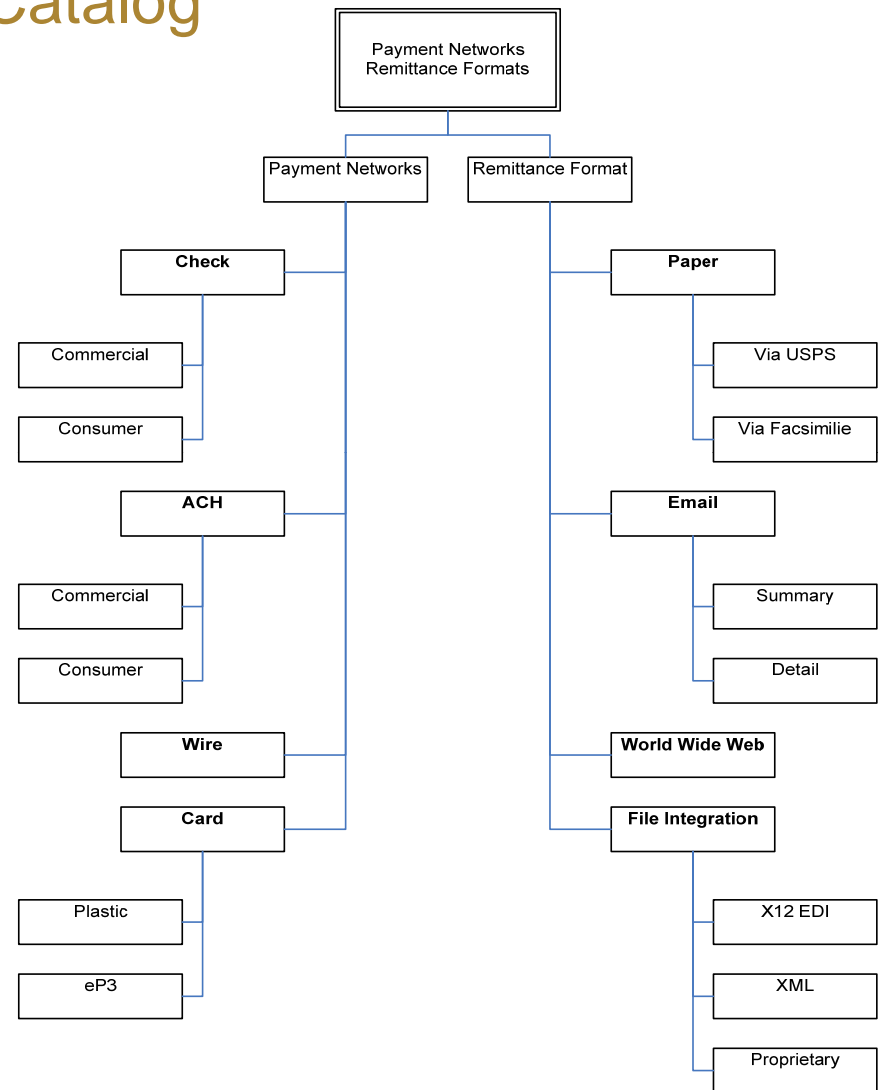
- Large value payments
- Real time gross settlement (some bilateral or multilateral netting)

Checks or drafts

- Retail payment system
- Involves movement of paper, subject to most uncontrollable risk of all payment instruments

Cards

- Retail payment system
- Up-and-coming accounts payable payment instrument but with unique risks and variable cost fully borne by supplier



Five-year projection of US B2B distribution of payment value across payment instruments: Card: 18%↑; ACH 35%↑; Check 47%↓

Section IV.

Appendix

Appendix

Appendix I — Selected payments industry trend data

Appendix II — Multicurrency support and local market ACH access

Appendix I

Use of payment instruments by non-banks: Transactions per instrument

Use of payment instruments by non-banks: number of transactions per payment instrument
(millions, total for the year)

	Credit transfers					Direct debits				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Belgium	807.5	730.6	788.0	817.1	841.0	188.8	192.4	211.4	219.0	231.3
Canada	655.6	725.8	796.3	857.3	939.8	520.4	560.6	590.1	626.1	662.0
France	2,584.2	2,587.5	2,599.2	2,408.4	2,617.1	2,183.8	2,353.2	2,542.7	2,512.8	2,736.8
Germany	5,552.5	5,787.6	6,170.9	6,713.1	7,262.2	4,554.3	5,458.8	6,056.0	6,662.1	7,363.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	989.1	1,018.4	1,048.8	1,048.3	1,066.0	401.5	414.4	453.2	463.2	480.0
Japan	1,285.3	1,302.8	1,330.5	1,354.2	1,361.6	nap	nap	nap	nap	nap
Netherlands	1,260.5	1,271.4	1,264.2	1,266.8	1,370.0	947.0	1,000.8	1,051.3	1,059.3	1,139.1
Singapore	15.7	17.7	19.6	21.5	24.1	30.3	44.7	47.5	51.0	53.7
Sweden	436.0	425.0	462.0	511.0	572.0	119.0	130.0	143.0	160.0	197.0
Switzerland	537.7	564.2	585.9	613.2	646.4	50.0	51.2	51.5	52.2	40.8
United Kingdom	2,009.4	2,210.8	2,598.4	2,983.7	3,059.0	2,288.6	2,429.9	2,589.9	2,722.2	2,857.8
United States	4,450.9	4,738.7	5,150.4	5,639.7	6,145.0	3,461.0	4,207.3	5,757.5	7,188.0	8,663.9
CPSS	20,564.5	21,380.5	22,814.3	24,234.3	25,904.2	14,724.8	16,843.2	19,494.2	21,716.0	24,425.7

	Cheques					E-money payment transactions				
	2002	2003	2004	2005	2006	2002	2003	2004	2005	2006
Belgium	28.9	23.7	19.1	15.7	13.4	120.8	107.1	106.9	102.0	96.0
Canada	1,515.0	1,450.2	1,392.1	1,353.4	1,325.4	nav	nav	nav	nav	nav
France	4,349.5	4,261.5	4,133.8	3,916.3	3,827.0	18.4	18.1	16.0	17.0	20.1
Germany	149.7	131.8	110.9	107.5	108.9	35.9	37.4	38.3	37.8	42.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	538.2	505.8	487.2	465.6	453.8	1.0	2.7	9.3	20.4	33.9
Japan	187.1	172.0	159.2	146.5	134.2	nap	nap	nap	nap	nap
Netherlands	0.1	nap	nap	nap	nap	87.0	109.2	127.3	146.9	164.6
Singapore	90.7	87.6	86.8	85.7	84.3	702.1	1,535.9	1,598.2	1,621.6	1,691.0
Sweden	2.0	1.0	1.0	1.0	1.0	0.7	0.2	nap	nap	nap
Switzerland	4.5	3.5	2.7	1.8	1.5	20.0	19.3	19.0	19.2	18.8
United Kingdom	2,393.0	2,251.0	2,089.0	1,931.0	1,778.0	nav	nav	nav	nav	nav
United States	38,821.2	37,281.9	35,040.4	32,798.9	30,557.4	nav	nav	nav	nav	nav
CPSS	48,079.9	46,169.9	43,522.1	40,823.3	38,284.7	985.9	1,829.8	1,915.0	1,964.9	2,066.7

Source: Bank for International Settlements, CPSS Red Book, Mar-2008

Appendix I

United States—Volume & Value of Transactions

Indicators of the use of payment instruments and terminals by non-banks: volume of transactions (millions, total for the year)

	2002	2003	2004	2005	2006
Transactions per type of payment instrument					
Credit transfers	4,450.9	4,738.7	5,150.4	5,639.7	6,145.0
<i>paper-based</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>
<i>non-paper-based (ACH)</i>	4,450.9	4,738.7	5,150.4	5,639.7	6,145.0
Direct debits (ACH)	3,461.0	4,207.3	5,757.5	7,188.0	8,663.9
Card payments	30,921.2	34,217.1	38,805.8	42,948.7	48,394.3
<i>payments by cards with a debit function</i>	13,390.4	16,197.8	19,680.0	22,203.3	26,037.6
<i>payments by cards with a credit function</i>	17,530.8	18,019.3	19,125.8	20,745.4	22,356.7
<i>of which: payments by retailer cards with a credit function</i>	3,598.2	3,210.3	2,940.0	3,049.7	3,181.9
E-money payment transactions	nav	nav	nav	nav	nav
Cheques	38,821.2	37,281.9	35,040.4	32,798.9	30,557.4
<i>Memo:</i>					
ATM transactions	10,598.4	10,827.6	11,030.4	10,524.0	10,104.0

Indicators of the use of payment instruments and terminals by non-banks: value of transactions (USD billions, total for the year)

	2002	2003	2004	2005	2006
Transactions per type of payment instrument¹					
Credit transfers	11,155.6	12,510.6	14,126.0	15,986.8	18,111.8
<i>paper-based</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>
<i>non-paper-based (ACH)²</i>	11,155.6	12,510.6	14,126.0	15,986.8	18,111.8
Direct debits (ACH) ³	10,621.6	12,106.4	11,813.8	12,748.6	13,499.7
Card payments ⁴	1,820.3	2,053.2	2,335.8	2,645.5	2,968.7
<i>payments by cards with a debit function⁵</i>	480.0	588.1	728.9	868.3	1,023.7
<i>payments by cards with a credit function⁶</i>	1,340.4	1,465.2	1,606.9	1,777.2	1,944.9
<i>of which: payments by retailer cards with a credit function</i>	170.7	175.3	174.6	193.9	196.1
E-money payment transactions ⁷	nav	nav	nav	nav	nav
Cheques ⁸	40,868.8	41,144.9	41,731.5	41,926.6	41,730.1

Source: Bank for International Settlements, CPSS Red Book, Mar-2008

Appendix I

Euro Zone—Value & Volume of Transactions

Payments processed by selected interbank funds transfer systems: volume of transactions (millions, total for the year)

	2002	2003	2004	2005	2006
Large-value payment systems					
TARGET					
Total transactions sent ¹	64.45	66.75	69.37	76.30	83.33
Intra-member state	50.93	51.62	52.61	58.71	64.36
Inter-member state	13.40	15.03	16.76	17.59	18.97
Concentration ratio in terms of volume (%)	26.4	25.9	25.5	22.6	23.83
EURO1 / STEP1					
Total transactions sent	37.06	43.07	44.32	46.41	47.73
Credit transfers	36.94	42.94	44.20	46.30	47.63
Direct debits	nap	0.00	0.00	0.00	0
Other payment instruments	0.12	0.13	0.12	0.11	0.10
Concentration ratio in terms of volume (%)	23.5	22.8	25.5	26.2	28.72
STEP2²					
Total transactions sent	nap	3.93	26.24	45.55	65.98
Credit transfers	nap	3.93	26.24	45.55	65.98

Payments processed by selected interbank funds transfer systems: value of transactions (EUR billions, total for the year)

	2002	2003	2004	2005	2006
Large-value payment systems					
TARGET					
Total transactions sent ¹	396,192.7	423,811.7	449,182.8	494,027.5	539,365.3
Intra-member state	276,202.8	289,782.0	305,713.4	332,214.8	357,246.2
Inter-member state	118,068.9	130,821.8	143,469.4	161,812.7	182,119.2
Concentration ratio in terms of value (%)	22.3	21.8	21.7	19.9	18.8
EURO1 / STEP1					
Total transactions sent	48,032.8	44,800.0	44,170.2	42,939.0	48,241.3
Credit transfers	48,030.7	44,796.9	44,165.5	42,932.2	47,464.6
Direct debits	nap	0.6	2.0	4.5	771.9
Other payment instruments	2.1	2.5	2.7	2.3	4.8
Concentration ratio in terms of value (%)	44.0	44.5	45.4	45.0	45.7
STEP2²					
Total transactions sent	nap	10.0	60.4	104.4	267.6
Credit transfers	nap	10.0	60.4	104.4	267.6

Source: Bank for International Settlements, CPSS Red Book, Mar-2008

Appendix I

Selected features of selected inter bank funds transfer systems

Features of selected interbank funds transfer systems

System	Pricing	Closing time for same day transactions	Settlement finality	Cut-off third-party orders	Standard money market hours	
					opening	closing
Belgium						
ELLIPS	F	18:00	real time	17:00	07:00	18:00
Clearing house	F	15:15	nav	nav	nap	nap
CEC	F	15:00	nav	nav	nap	nap
Canada						
LVTS	F	18:30	intraday ¹	18:00	nap ²	nap
France						
TBF	F	18:00	real time	17:00	07:00	18:00
PNS	F	16:00	real time	16:00	nap	nap
SIT	F	13:30	15:15	nav	nap	nap
Germany						
RTGS ^{plus}	F	18:00	real time	17:00	07:00	18:00
RPS	F	20:00/21:00 07:00/09:00 ¹	intraday ¹	nap	nap	nap
Hong Kong SAR						
HKD CHATS	F	17:30	real time	nav	09:00	17:30
USD CHATS	F	17:30	real time	nav	09:00	17:30
EUR CHATS	F	17:30	real time	nav	09:00	17:30
Italy						
BI-REL	F	18:00	real time	17:00	07:00	18:00
BI-COMP	F	12:00	¹	12:00	nap	nap
Japan						
BOJ-NET	V ¹	19:00 ²	real time	14:00 ⁴	08:30	19:00 ⁵
FXYCS	F	13:45/19:00 ²	14:30/ real time	13:45/19:00 ²	08:30	19:00 ⁵
Zengin System	F	15:30	16:15	15:30	nap	nap
Tokyo Clearing House	F	08:00 ³	12:30	08:00 ³	nap	nap
Netherlands						
TOP	F	18.00	real time	17.00	07.00	18.00
Equens	F	17.00	every 30 min	15.30	nap	nap
Singapore¹						
MEPS	V	18:30 (14:45)	real time (14:45)	18:30 (14:45) ²	09:00	18:30
SGDCCS	F	17:00 (13:30)	T+1: 15:45 (14:30)	17:00	nap	nap
USDCCS	F	15:30 (nap)	T+1: 17:00	15:30	nap	nap
IBG	F	12:00 (10:00)	T+1:18:15 (14:30)	12:00	nap	nap
EFTPOS	F	22:00	T+1:20:00 ³	nap	nap	nap

Appendix I

Selected features of selected inter bank funds transfer systems

Features of selected interbank funds transfer systems (cont.)

System	Pricing	Closing time for same day transactions	Settlement finality	Cut-off third-party orders	Standard money market hours	
					opening	closing
Sweden						
E-RIX	F	18:00	real time	17:00	09:00	16:15
K-RIX	F	17:00	real time	17:00	09:00	16:15
Bankgirot	F	nap ¹	intraday ²	16:20 ³	nap	nap
Dataclearing	F	nap ¹	intraday ²	15:20 ⁴	nap	nap
Switzerland						
SIC	F	16:15 ²	real time	15:00	09:00	16:00
LSV	F	15:00	real time	15:00	nap	nap
United Kingdom						
CHAPS Euro	F	17:00	real time	16:00	07:00	16:00
CHAPS Sterling	F	16:20	real time	16:00	07:00	16:00
Cheque/credit	F	nap	¹	nap	nap	nap
BACS	F	nap	²	nap	nap	nap
United States¹						
CHIPS ²	F	17:00	intraday ⁴	17:00	08:30 ⁵	18:30
Fedwire	F	18:30	real time	18:00	08:30 ⁵	18:30
European Union¹						
TARGET	F	18:00	real-time	17:00	07:00	18:00
EURO1 / STEP1	F	16:00	about 16:30	16:00	07:00	18:00
STEP2	F	nap	about 07:30 ²	22:00 on T-1	07:00	18:00

Key: Type: L-Large value; R-Retail; FX-Foreign exchange

Key: Settlement: RTGS-Real time gross settlement; MN-Multilateral netting;

BN-Bilateral netting; N-Net; G-Gross; BA-Batch, gross

Key: Processing: RTT: Realtime transmission; ACH-Offline, automated; M-Manual

Key: Pricing: F-Full cost; V-Variable cost

Source: Bank for International Settlements, CPSS Red Book, Mar-2008

Appendix II

Sample Regional Treasury Capability Matrix

Regional Treasury: United States

Physical location: Address 1, Address 2, Address 3, City State Zip
 Executive Director: [name], [officer title], [functional title]
 Operating Currencies: USD, CAD, ARS, KYD

Vendor Country	Country Currency	Vendor Currency	Instrument Check	Instrument ACH	Instrument Wire	Exchange Payment	Same Currency Possible?
USA	USD	USD	Y	Y	Y	No	Y
CAN	CAD	CAD	Y	Y	Y	No	Y
MEX	MXN	USD	Y	Y	Y	Yes	Y
BLZ	BZD	USD	N	N	Y	Yes	N
GTM	GTQ	USD	N	N	Y	Yes	N
HND	HNL	USD	N	N	Y	Yes	Y
SLV	SVC	USD	N	N	Y	Yes	N
NIC	NIO	USD	N	N	Y	Yes	N
CRI	CRC	USD	N	N	Y	Yes	Y
PAN	PAB	USD	Y	Y	Y	Yes	N
GUY	GYD	ARS	N	N	Y	Yes	N
VEN	VEB	ARS	Y	Y	Y	Yes	N
COL	COP	ARS	N	N	Y	Yes	Y
BRA	BRL	USD	Y	Y	Y	Yes	N
PER	PEN	ARS	Y	N	Y	Yes	Y
BOL	BOB	ARS	Y	N	Y	Yes	Y
PRY	PYG	ARS	Y	N	Y	Yes	N
CHL	CLP	ARS	Y	N	Y	Yes	N
URY	UYU	ARS	Y	N	Y	Yes	N
ARG	ARS	ARS	Y	Y	Y	No	N
FLK	FKP	ARS	N	N	Y	Yes	N

Column Heading	Content Description
Vendor Country:	Domicile of vendor headquarters
Country Currency:	National currency of country
Vendor Currency:	Payment currency into company (by policy)
Instrument Check:	Check instruments available?
Instrument ACH:	ACH instrument available?
Instrument Wire:	Wire instrument available?
Exchange Payment:	Is payment an exchange payment for the vendor?
Same Currency Possible?:	Is same currency possible with current banking partners?

TREASURY-US	TREASURY-EMEA	TREASURY-PAC
USD	USD	USD
ARS	--	--
CAN	--	--
KYD	--	--
--	EUR	--
--	GBP	--
--	PZN	--
--	--	YEN
--	--	RMB
--	--	AUD

Appendix II

Multicurrency Clearing

Currency	Code	Account	Wire	Draft
United Arab Emirates, Dirhams	AED	N	Y	N
Albania, Leke	ALL	N	Y	N
Netherlands Antilles, Guilders (also called Florins)	ANG	Y	Y	N
Argentina, Pesos	ARS	Y	Y	Y
Australia, Dollars	AUD	N	Y	N
Barbados, Dollars	BBD	Y	Y	Y
Bangladesh, Taka	BDT	Y	Y	Y
Bulgaria, Leva	BGN	N	Y	N
Bahrain, Dinars	BHD	N	Y	N
Bermuda, Dollars	BMD	N	Y	N
Bolivia, Bolivianos	BOB	N	Y	N
Bahamas, Dollars	BSD	N	Y	N
Bhutan, Ngultrum	BTN	N	Y	N
Botswana, Pulas	BWP	Y	Y	N
Belarus, Rubles	BYR	Y	Y	Y
Belize, Dollars	BZD	Y	Y	Y
Canada, Dollars	CAD	N	Y	N
Switzerland, Francs	CHF	N	Y	N
Chile, Pesos	CLP	Y	Y	Y
Colombia, Pesos	COP	N	Y	N
Costa Rica, Colones	CRC	N	Y	N
Cyprus, Pounds	CYP	N	Y	N
Czech Republic, Koruny	CZK	Y	Y	Y
Djibouti, Francs	DJF	Y	Y	Y
Denmark, Kroner	DKK	Y	Y	Y
Dominican Republic, Pesos	DOP	Y	Y	Y
Algeria, Algeria Dinars	DZD	N	Y	N
Estonia, Krooni	EEK	Y	Y	Y

Currency	Code	Account	Wire	Draft
Egypt, Pounds	EGP	N	Y	N
Ethiopia, Birr	ETB	Y	Y	N
Euro Member Countries, Euro	EUR	N	Y	N
Fiji, Dollars	FJD	Y	Y	Y
United Kingdom, Pounds	GBP	N	Y	N
Ghana, Cedis	GHC	Y	Y	Y
Gambia, Dalasi	GMD	Y	Y	Y
Guinea, Francs	GNF	N	Y	N
Guyana, Dollars	GYD	Y	Y	N
Hong Kong, Dollars	HKD	N	Y	N
Honduras, Lempiras	HNL	N	Y	N
Croatia, Kuna	HRK	N	Y	N
Hungary, Forint	HUF	Y	Y	Y
Israel, New Shekels	ILS	Y	Y	N
India, Rupees	INR	Y	Y	N
Iceland, Kronur	ISK	Y	Y	Y
Jamaica, Dollars	JMD	Y	Y	Y
Jordan, Dinars	JOD	N	Y	N
Japan, Yen	JPY	Y	Y	Y
Kenya, Shillings	KES	Y	Y	Y
Korea (South), Won	KRW	N	Y	N
Kuwait, Dinars	KWD	Y	Y	N
Cayman Islands, Dollars	KYD	Y	Y	Y
Kazakhstan, Tenge	KZT	Y	Y	Y
Lebanon, Pounds	LBP	N	Y	N
Sri Lanka, Rupees	LKR	N	Y	N
Lesotho, Maloti	LSL	Y	Y	Y
Lithuania, Litai	LTL	N	Y	N

Appendix II

Multicurrency Clearing

Currency	Code	Account	Wire	Draft
Latvia, Lati	LVL	N	Y	N
Morocco, Dirhams	MAD	N	Y	N
Macau, Patacas	MOP	Y	Y	Y
Malta, Liri	MTL	Y	Y	Y
Mauritius, Rupees	MUR	Y	Y	Y
Malawi, Kwachas	MWK	Y	Y	N
Mexico, Pesos	MXN	N	Y	N
Namibia, Dollars	NAD	N	Y	N
Nigeria, Nairas	NGN	N	Y	N
Norway, Krone	NOK	Y	Y	Y
Nepal, Nepal Rupees	NPR	Y	Y	N
New Zealand, Dollars	NZD	Y	Y	Y
Oman, Rials	OMR	N	Y	Y
Panama, Balboa	PAB	Y	Y	N
Peru, Nuevos Soles	PEN	N	Y	N
Papua New Guinea, Kina	PGK	N	Y	N
Philippines, Pesos	PHP	N	Y	N
Pakistan, Rupees	PKR	Y	Y	Y
Poland, Zlotych	PLN	Y	Y	Y
Qatar, Rials	QAR	Y	Y	Y
Romania, Lei [obsolete]	ROL	Y	Y	Y
Russia, Rubles	RUB	Y	Y	N
Rwanda, Rwanda Francs	RWF	Y	Y	N
Saudi Arabia, Riyals	SAR	N	Y	N
Solomon Islands, Dollars	SBD	Y	Y	Y
Seychelles, Rupees	SCR	N	Y	N
Sweden, Kronor	SEK	Y	Y	Y
Singapore, Dollars	SGD	Y	Y	Y

Currency	Code	Account	Wire	Draft
Slovakia, Koruny	SKK	N	Y	N
El Salvador, Colones	SVC	Y	Y	Y
Swaziland, Emalangeni	SZL	N	Y	N
Thailand, Baht	THB	N	Y	N
Tunisia, Dinars	TND	Y	Y	N
Turkey, New Lira	TRY	Y	Y	N
Trinidad and Tobago, Dollars	TTD	Y	Y	Y
Taiwan, New Dollars	TWD	Y	Y	Y
Tanzania, Shillings	TZS	N	Y	N
Ukraine, Hryvnia	UAH	N	Y	N
Uganda, Shillings	UGX	Y	Y	N
United States of America, Dollars	USD	N	Y	N
Uruguay, Pesos	UYU	Y	Y	Y
Venezuela, Bolivares	VEB	Y	Y	N
East Caribbean Dollars	XCD	N	Y	N
International Monetary Fund (IMF) Special Drawing	XDR	N	Y	N
Communauté Financière Africaine BCEAO, Francs	XOF	Y	Y	Y
Comptoirs Français du Pacifique Francs	XPF	Y	Y	N
South Africa, Rand	ZAR	Y	Y	Y
Zambia, Kwacha	ZMK	Y	Y	N
Zimbabwe, Zimbabwe Dollars	ZWD	Y	Y	N
Counts		59	105	41



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