

## Top Card Issuers in Asia-Pacific

See charts on pages 10 and 11 for the 50 largest issuers of UnionPay, Visa, Mastercard, JCB, American Express, Diners Club, and Maestro general purpose credit, debit, and prepaid consumer and commercial cards as well as domestic general

> see p. 9

## Real-Time Payments in the U.S.

The Clearing House Payments Company signed a contract in December 2015 for software from U.K.-based VocaLink needed to create a new interbank payment system that will give consumers and businesses the ability to send and receive payments

> see p. 9

## Personetics Adds Chatbot Commerce Services

Digital customer service technology from Personetics, first deployed three years ago, helps payment card issuers cut costs through predictive models that anticipate a cardholder's question or problem when they make initial contact in an online session.

> see p. 5

## Credit Card Portfolio Sales

Capital One, the 4th largest Visa/Mastercard credit card issuer in the United States, will buy the outstanding credit card receivables of Cabela's, the 14th largest U.S. issuer. The contract includes a 10-year deal for Capital One to issue co-branded credit cards

> see p. 8

## Apriori International ID Verification

Credit bureaus, financial institutions, marketers, and others can gain access to government-issued identification records on nearly 2 billion consumers through data aggregator Apriori. The company, which was formed two years ago, focuses on

> see p. 12

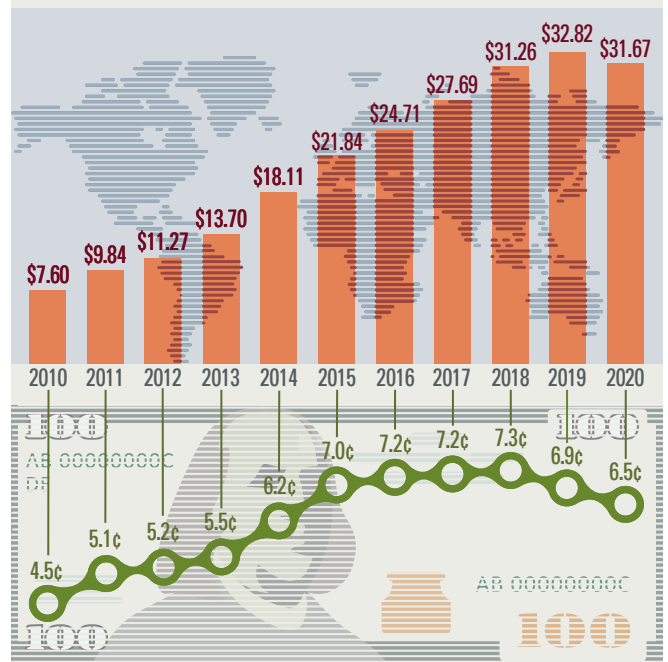
## Investments & Acquisitions — September 2016

Turn to page 4 to see a list of 39 acquisitions, funding, and other deals that occurred in September 2016 in 12 countries. This year we have identified 405 deals in 52 countries.

Prior issues: 1094, 1092, 1090, 1088, 1086, 1084, 1082, 1080, 1078

> see p. 4

## Card Fraud Worldwide Global Losses in \$Bil. 2010–2020 with Cents per \$100 of Total Volume



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## Card Fraud Losses Reach \$21.84 Billion

General purpose and private label global brand and domestic-market-only credit, debit, and prepaid cards worldwide generated \$31.310 trillion in total volume (purchases of goods and services combined with cash advances and withdrawals) in 2015, up 7.3% over 2014. Losses to fraud occur on every card type including when transactions are secured by PINs at the point of sale and at automated teller machines (ATMs).

Gross fraud losses are absorbed by card issuers and merchants as well as by acquirers of transactions from ATMs and merchants. Last year fraud reached \$21.84

> see p. 6

**INSIDE** 2–4 Fast Facts  
5 Cybernet POS Terminal

**CHARTS** 4 Investments & Acquisitions —  
September 2016  
7 Growth in Fraud vs. Total Card  
Volume Worldwide

7 Card Fraud in Basis Points  
10, 11 Top Credit, Debit, and General  
Purpose/Visa/Mastercard Issuers  
in Asia-Pacific

# FAST FACTS

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**GREEN DOT** Platinum Visa Secured Credit Card is designed for people with no prior credit history or those with poor credit scores. The card's credit line is backed by the customer's security deposit held at Green Dot Bank. Payment performance will be reported to the major credit bureaus. Cardholders can fund their security deposit and make monthly payments at any of Green Dot's nearly 100,000 retail locations. *Lew Goodwin is President at Green Dot Bank, (626) 765-2416, lgoodwin@greendotcorp.com, www.greendotcorp.com.*

**HARLEY FINANCIAL SERVICES**, an independent sales organization specializing in providing payment processing, private label prepaid cards, loyalty programs, POS technologies, and more to customers in 15 states, will use linked2pay's Bank Centric Payments platform for card, ACH, and check payments. *Kirk Nellis is President at Harley Financial Services, (918) 307-0165, kirk@harleyfinancial.com, www.harleyfinancial.com. Richard McShirley is CMO at linked2pay, (805) 604-4472, rmcshirley@linked2pay.com, www.linked2pay.com.*

**TMD SECURITY'S** patented Card Protection Plate protects against deep insert skimming devices, which are placed inside ATMs or SST card readers. *Tom Moore is Managing Director, (215) 431-4734, t.moore@tmdsecurity.com, www.tmdsecurity.com.*

**UNITED STATES DISTRICT COURT** Judge William Alsup denied motions on September 30, 2016, from Visa, Mastercard, Discover, and Amex to dismiss B & R Supermarket Inc., et al. v. Visa, Inc., et al., a case pending in the Northern District of California. The lawsuit, which seeks class action status, was filed in March by two Florida retailers. Judge Alsup wrote in a 22-page opinion that plaintiffs have sufficiently pled the basic evidentiary facts. Issuers Bank of America, Capital One, Chase, Citi, U.S. Bank, and Wells Fargo, as well as EMVCo, were dismissed from the suit. The lawsuit centers on the migration to EMV chip cards and terminals. Plaintiffs are represented by Robbins Geller Rudman & Dowd. *Patrick Coughlin is Of Counsel to the firm, (619) 231-1058, patc@rgrdlaw.com, www.rgrdlaw.com.*

**CITI** will join Early Warning's clearXchange network to enable its online and mobile banking customers to send and receive real-time, person-to-person payments to or from customers of participating network banks by using the recipient's mobile number or email address. Citi will enable the functionality in 2017. *Barry Rodrigues is Head of Global Digital Payments at Citi's Global Consumer Bank, (718) 248-1592, barry.rodrigues@citi.com, www.citi.com. Lou Anne Alexander is Group President for Payments at Early Warning, (480) 483-4610, louanne.alexander@earlywarning.com, www.earlywarning.com.*

**MMF POS**, a manufacturer and supplier of cash drawers, card payment terminal stands, tablet enclosures, and other accessories for the point of sale, offers a patent-pending Wheelchair Accessible Payment Terminal Mount. *Larry Greenberg is Director of Sales and Marketing, (847) 215-5945, lgreenberg@mmfpos.com, www.mmfpos.com.*

**MINERAL TREE'S** Accounts Payable and Payment Automation platform for middle market companies will be integrated with Visa Payables Solutions to support virtual commercial card products. *Adine Deford is CMO at MineralTree, (617) 299-3399, adine.deford@mineraltree.com, www.mineraltree.com. Taira Hall is Head of Partnerships & New Initiatives at Visa, (310) 729-7752, tahall@visa.com, www.visa.com.*

**JHA PAYMENT SOLUTIONS**, a unit of Jack Henry & Associates, has partnered with Visa to deliver faster person-to-person (P2P) payments to a recipient's Visa debit card. JHA began offering P2P in 2005. *Greg Adelson is General Manager at JHA Payment Solutions, (270) 706-9200, gadelson@jackhenry.com, www.jackhenry.com.*

**SUPERCOM** will work with Verifone and Nofshonit (through its operating partner Knowledge4all), to provide its SuperWallet mobile wallet application to one of Israel's largest loyalty clubs with more than 1 million active clients. SuperWallet will be used to make mobile payments at the point of sale. *Ordan Trabelsi is President, Americas, (212) 675-4606, ordan@supercom.com, www.supercom.com.*

## Conferences & Seminars

**Cashless World 2016:** November 7-9, 2016. The Marivaux Hotel, Brussels, Belgium. Estimated attendance: 350. Cost for the three-day conference ranges from \$450 to \$1,175 (€400 to €1,050). **Subscribers to The Nilson Report will receive a 25% discount. (Use code MQ23W4SG4.)** Contact Lenick Perron at Strategies Telecoms, 33 (6) 7970-1798, lperron@strategiestm.com. Register at [www.cashless-world.com](http://www.cashless-world.com).

**CARDSESSION 2016:** December 8, 2016. The Ambassador Zlata Husa Hotel, Prague, Czech Republic. Estimated attendance: 300. Cost for the one-day conference is \$222 (€200). **Subscribers to The Nilson Report will receive a 30% discount. (Use code PragueSession.)** Contact Roman Kotlan, Executive Director, at Bank Card Association, 420 (604) 727-501, roman.kotlan@bankovnikarty.cz. Register at <http://cardsession.com/registration.html>.

**DEJARDINS GROUP**, the 4th largest credit card issuer in Canada, now offers its Visa credit and prepaid card as well as Interac debit card customer support for Apple Pay. Desjardins Cash Back Mastercard cards, Cashback World Mastercard cards, and World Elite Mastercard cards will be able to use Apple Pay in 2017. *Patrice Dagenais is VP, Payment Services and Business Partnerships, Card and Payment Services, (514) 397-4789 x5224674, patrice.dagenais@desjardins.com, www.desjardins.com.*

**ARGO SOLUTIONS**, Brazil's largest provider of online travel management, events, and corporate expense management to 3,000+ agencies and corporations, will offer its clients virtual card number (VCN) payment products from Wex. Use of a unique VCN for each online travel reservation provides greater security and efficiency in payment management. *Jose Roberto Kracochansky is CEO at Wex LATAM, 55 (11) 2106-1100, jr.kracochansky@wexinc.com.br, www.wexinc.com. Luigi Botto is CEO at Argo, 55 (11) 3526-6150, luigi.botto@useargo.com, www.useargo.com.*

**GALITT** Contactless Terminal Test Suite has received Mastercard qualification for contactless functional tests (level 2). *Francois Inglebert is Marketing Director, Testing Solutions at Galitt, 33 (1) 7770-2844, f.inglebert@galitt.com, www.galitt.com.*

**SWEDBANK** merchants in Sweden will be offered UnionPay card acceptance. The bank's merchants in Finland, Denmark, Latvia, Estonia, and Lithuania will be offered UnionPay acceptance next year. *Mikael Bjorknert is EVP at Swedbank, 46 (8) 5859-9504, mikael.bjorknert@swedbank.com, www.swedbank.com.*

**ICC SOLUTIONS'** PULSE Contact P-PAS Test Suite has been fully tested and qualified by Discover. Acquirers, VARs, ISVs, and merchants can use it to perform EMV level 3 contact chip terminal integration tests during development prior to deployment and formal accreditation by Discover. *Derek Ross is Head of Sales and Business Development at ICC Solutions, 44 (192) 562-9001, derek.ross@iccsolutions.com, www.iccsolutions.com.*

Figures include cards in circulation and spending  
**Credit & Debit Card Issuers in 115 Countries** from all World Regions



**Asia/Pacific, United States, Europe, Canada Latin America, Middle East/Africa**

**Merchant Acquirers in 76 Countries** from all World Regions

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## Management Changes

**Rainer Wilhelm** has been appointed Chief Information Officer at **Concardis**, 49 (69) 7922-4767, rainer.wilhelm@concardis.com. **Ann Camarillo**, formerly at MasterCard, has been appointed Group Chief Executive Officer at **MobiCash**, (914) 621-1124, ann@mobicashonline.com. **George Zirkel** has been appointed Senior Vice President and Head of Global Payments Strategy at **Transaction Network Services (TNS)**, (703) 453-8300, gzirkel@tnsi.com. **Bahadir Kocturk** has been appointed Executive Vice President, Global Alliances & Partnership Management at **Cardtek Group**, 90 (850) 277-6767, bahadir.koecturk@cardtek.com.

## Featured Conference

### PAYEXPO MENA 2016

Workshop and Two-Day Conference  
 December 5-7, 2016  
 Intercontinental Festival City, Dubai, UAE

Topics include: the evolution of commerce, enabling cashless payments, future of banking, global regulation and market evolution, harnessing peer-to-peer in a digitally connected world, payments and the IOT, payments for empowerment, pricing is the next paradigm: from bank fees to regulator introduced charges, revolutionizing mobile financial services, the second coming of P2P, smart payment on public transport in the Middle East, and security, authentication and biometrics. Speakers represent: Uber, Accenture, BlackBerry, The Bitcoin Foundation, The Lego Group, Etisalat, Emirates NBD, U.N. World Food Program, UAE's Road and Transport Authority, Oman Arab Bank, and more. Cost for the three-day conference is \$999 until November 4; \$1,299 after that. (Use code TNR20.) *Contact Andrew Earle at Clarion Events, 44 (207) 384-7893, andrew.earle@clarionevents.com. Register at [www.payexpo.com/mena/](http://www.payexpo.com/mena/).*

*Subscribers to The Nilson Report will receive a 20% discount.*

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**WEX AUSTRALIA** will process all Caltex fuel card payments for the next three years. The new contract also calls for Wex to continue to provide payment processing services to Caltex fleet card customers and more than 1,900 Caltex branded retail locations. *Greg Drumm is Managing Director at Wex Australia, 61 (3) 9274-9100, greg.drumm@wexaustralia.com, www.wexaustralia.com.*

**ATTRA**, a multinational IT firm focused on financial services, particularly cards and payments, will support Axslogic's Winnow and other analytics products. Winnow provides ready-to-use reporting and analysis at various stages of a lending product lifecycle. *Anil Gammampila is Chairman at Attra, 61 (8) 9895-0555, anil.gammampila@attra.com.au, www.attra.com. Hari Baskaran is CEO at Axslogic, (65) 3152-5201, hari@axslogic.com, www.axslogic.com.*

**NOFRAUD**, a provider of fraud prevention technology to small and medium sized business, has integrated with X-Payments, a payment integrator available on X-Cart and Magneto. X-Payments provides payment processing and PCI-compliant card storage. *Shoshanah Posner is Director of Business Development at NoFraud, (646) 880-9007, shoshanah@nofraud.com, www.nofraud.com. Alex Mulin is Product Manager at X-Payments, 7 (8422) 794-038, alex.mulin@x-payments.com, www.x-payments.com.*

**JSC KAZKOMMERTSBANK** will be the exclusive acquirer in Kazakhstan for Diners Club and other cards issued on the Discover Global Network. The deal will enable acceptance at over 42,000 POS terminals and 2,266 ATM locations in Kazakhstan. Kazkommertsbank will also be the exclusive issuer of Diners Club cards in Kazakhstan. *Nurlan Zhagiparov is Managing Director at JSC Kazkommertsbank, 7 (727) 2585-145 x55107, nzhagiparov@kkb.kz, www.kkb.kz.*

**PC FINANCIAL** in Canada now offers Apply Pay to its PC Financial Mastercard customers. *Barry Columb is President, PC Bank, (416) 607-4080, barry.columb@pcbanc.ca, www.pcfincancial.ca.*

**ETHOCA** and **LEAN INDUSTRIES** have collaborated to help resolve fraud and customer disputes. Card-issuing banks using Lean's AdjustmentHub dispute processing platform will be able to automatically send dispute transaction data to Ethoca. Merchants linked to Ethoca will resolve the dispute and issue a refund. Updates will be sent back to AdjustmentHub, where the open dispute case will reflect the issuer-merchant collaboration. *Trevor Clarke is Co-Founder at Ethoca, (416) 849-6094, trevor@ethoca.com, www.ethoca.com. Bjorn Larsen is CEO at Lean Industries, (307) 275-6956, www.leanindustries.com.*

## Investments & Acquisitions September 2016

Company	Buyer/Investor	Amount (mil.)	Country	Company	Buyer/Investor	Amount (mil.)	Country
<b>BLOCKCHAIN</b>				<b>Remitly</b>			
<b>Ripple</b>	Series B <sup>1</sup>	\$55.0	U.S.	<b>TransferGalaxy</b>	equity & debt <sup>14</sup>	\$38.0	U.S.
<b>CRYPTOCURRENCY</b>				<b>P2P PAYMENTS</b>			
<b>Bitso</b>	Series A <sup>2</sup>	\$2.5	Mexico	<b>Lydia</b>	undisclosed venture round <sup>15</sup>	\$7.8	France
<b>Unocoin</b>	pre-Series A <sup>3</sup>	\$1.5	India	<b>Movo</b>	seed funding <sup>16</sup>	\$1.8	U.S.
<b>Uquid</b>	seed funding <sup>4</sup>	*	U.K.	<b>PAYMENT SERVICE PROVIDER</b>			
<b>Williams-Sonoma</b>	Alliance Data Sys. <sup>5</sup>	*	U.S.	<b>Citrus Pay</b>	Pay U <sup>6</sup>	\$130.0	India
<b>DEBT COLLECTION</b>				<b>PROCESSING</b>			
<b>Fraser Collections</b>	General Credit Service <sup>6</sup>	*	U.S.	<b>Boku</b>	venture funding <sup>17</sup>	\$13.8	U.S.
<b>ECOMMERCE</b>				<b>DirectPay</b>	undisclosed round <sup>18</sup>	*	Kenya
<b>Avanti Commerce</b>	Subway <sup>6</sup>	*	Canada	<b>iCheque</b>	CashFlows <sup>6</sup>	*	U.K.
<b>Paddle</b>	Series A <sup>7</sup>	\$3.2	U.K.	<b>Maas Global Solutions</b>	Intrix Tech. <sup>6</sup>	*	U.S.
<b>HARDWARE</b>				<b>Magellan SAS</b>	Keyware Technologies <sup>19</sup>	\$4.4	France
<b>Burroughs SmartSource</b>	Digital Check <sup>6</sup>	*	U.S.	<b>PayGate</b>	Direct Pay Online <sup>20</sup>	*	So. Africa
<b>Curve</b>	seed funding <sup>8</sup>	\$3.0	U.K.	<b>Payworks</b>	Series A <sup>21</sup>	\$4.5	Germany
<b>LOYALTY</b>				<b>Payzer</b>	Series B <sup>22</sup>	\$4.3	U.S.
<b>AnyPerk</b>	Series A <sup>9</sup>	\$11.5	U.S.	<b>Realtime Elec. Payments</b>	undisclosed buyer <sup>23</sup>	*	U.S.
<b>CheBuoni</b>	Local Web <sup>10</sup>	\$3.0	Italy	<b>Tipalti</b>	Series B <sup>24</sup>	\$14.0	U.S.
<b>Income Access</b>	Paysafe <sup>6</sup>	\$30.0	Canada	<b>TransCentra</b>	SourceHOV <sup>6</sup>	*	U.S.
<b>MERCHANT ACQUIRING</b>				<b>SECURITY</b>			
<b>BlueSquare</b>	Applied Merchant Sys. <sup>11</sup>	*	U.S.	<b>EyeVerify</b>	Ant Financial <sup>6</sup>	*	U.S.
<b>iTransact</b>	Payroc <sup>6</sup>	*	U.S.	<b>Signifyd</b>	venture funding <sup>25</sup>	\$19.0	U.S.
<b>Nets</b>	IPO <sup>12</sup>	\$2,357.3	Denmark	<b>Trunomi</b>	seed funding <sup>26</sup>	\$3.0	U.S.
<b>MONEY TRANSFER</b>				<b>SOFTWARE</b>			
<b>Afrimarket</b>	Series B <sup>13</sup>	\$11.2	France	<b>Intelligentpos</b>	iZettle <sup>6</sup>	*	U.K.
<b>Pay2Global</b>	TerraPay <sup>6</sup>	*	U.K.	<b>Pleo</b>	seed funding <sup>4</sup>	\$3.0	U.K.

\*Terms not disclosed. <sup>1</sup>Led by SBI Holdings. <sup>2</sup>Led by Digital Currency Group. <sup>3</sup>Including Bitcoin Capital. <sup>4</sup>Investors not disclosed. <sup>5</sup>Purchased private label card portfolio. <sup>6</sup>Acquisition. <sup>7</sup>Led by BGF Ventures. <sup>8</sup>From Connect Ventures and Samos Investments. <sup>9</sup>Including DCM Ventures. <sup>10</sup>Acquired 40% of the equity. <sup>11</sup>Merger. <sup>12</sup>On Nasdaq Copenhagen. <sup>13</sup>Led by Global Innovation Fund. <sup>14</sup>From Int'l Finance Corp. and Silicon Valley Bank. <sup>15</sup>From New Alpha AM and Oddo & Cie. <sup>16</sup>Led by Tech Coast Angels. <sup>17</sup>Existing investors. <sup>18</sup>From Apis Partners. <sup>19</sup>Purchased 40%. <sup>20</sup>Purchased a majority interest. <sup>21</sup>Including Rumford. <sup>22</sup>Including IDEA Fund. <sup>23</sup>Sold by New Capital Partners. <sup>24</sup>Led by SG Ventures. <sup>25</sup>Including American Express. <sup>26</sup>Including Fintonia Group.



## Cybernet POS Terminal

The handheld JadeFlex POS terminal from Cybernet is equipped with a high-speed ARM Cortex A7 528 MHz central



processing unit and uses Linux 3.14.52 software. The device measures 85 mm x 225 mm x 90 mm, and weighs 460 grams including the Li-ion battery.

JadeFlex is PCI PTS 4x compliant and has EMV Level 1 and Level 2 certification. The JadeFlex is NFC and

Mifare contactless payment compliant including for Visa payWave and Mastercard PayPass. Communication support includes GSM/GPRS, 3G, and Wi-Fi.

Bluetooth is an option, as is an integrated GPS module. It can perform multiple tasks simultaneously using 512 MB NAND flash memory, micro SD card with up to 32 GB fiscal memory, and 512 SDRAM.

It includes a 3.5-inch, 240 x 350 pixel TFT color LCD touch screen. A 1D barcode scanner is

incorporated and a 2D barcode scanner is an option. The 2-inch thermal printer delivers 25 lines per second. An optical fingerprint scanner is standard.

Last year Cybernet shipped 594,950 POS terminals to customers in Asia-Pacific, Middle East-Africa, Latin America, and Europe. It was the 16th largest POS terminal manufacturer in the world.

**Cybernet ranked 16th last year in terminals shipped worldwide.**

Jonghoo Lee is CEO at Cybernet Inc. in Seoul, Korea, 82 (10) 2300-0281, ceolee@cybernet.co.kr, www.cybernetww.com.

Prior issue: 1095

## Personetics Adds Chatbot Commerce Services

from page 1

Predicting accurately requires a considerable amount of data about the cardholder, which Personetics receives from issuers and supplements with third-party data. All issuer data remains on the issuer's site. Data from Personetics and third parties is stored offsite.

Personetics' model predicts more than 200 customer problems or questions based on prior customer service experiences and an analysis of card transactions. The homogeneity of payment card products, regardless of issuer or their geography, allows for standardization in response to digital customer service.

Currently, more than 90% of customer service sessions at Personetics' card-issuing customers in the U.S. are handled without relying on a live operator. Another 5% of customers want to speak with a merchant, not their issuer, and the Personetics system provides contact details for that merchant. Less than 5% of sessions are referred to a live operator, and

when that interaction begins, the operator's screen contains all of the information already gathered by the Personetics system.

Personetics has started to offer its technology to move beyond customer service to ongoing full engagement. Features issuers can offer cardholders include real-time alerts about account activity, information about spending levels in

any particular category or merchant, instructions on how to make automated payments or receive other services, delivery of offers from merchants and other third-party providers, and financial advice.

Personetics provides these and other features through a "conversational" application programming interface. This kind of technology, called a "chatbot," is important to card issuers who recognize that in some markets transactions on message platforms and chat apps such as Facebook Messenger, WeChat,

> see p. 6

The logo for Personetics, featuring the word 'personetics' in a lowercase, rounded, sans-serif font. The letters are black and set against a bright yellow rectangular background.

## Personetics Adds Chatbot Commerce Services

from page 5...

Talk, Snapchat, and WhatsApp are about to surpass email. In addition, voice command interfaces such as Amazon's Echo, Apple's Siri, and Google's Home can also support customer self-service. In the U.S., Capital One customers can talk to their Echo device to check recent transactions, make a payment, or check an account balance. American Express deployed a chatbot on Facebook Messenger to communicate with cardholders about rewards, benefits, and transaction notifications. They do not need to leave the app.

Chatbots and voice command interfaces are still in early phases of development. Currently, over 80% of all interactions between cardholders and chatbots deployed by card issuers are forwarded to a live operator. What's more, that interaction can involve more than a 60-minute delay between the cardholder's request for service and the operator's delivery of assistance. However, the opportunity is great. Automated chatbot conversations can be started and stopped by cardholders at their convenience. That process, combined with the fact that bots can learn about cardholders from their interaction, leads to

effectiveness. However, the bot channel also needs to be promoted by card issuers, many of whom do not have another account relationship with a cardholder.

Personetics says its chatbot can answer questions within seconds because it has real-time access to issuer and other data. Tests have occurred at two top

**Access to issuer and other data allows answers within seconds.**

U.S. issuers. It suggests that ongoing engagement with cardholders requires at least two contacts a week, and that once bots deliver more features, that service level can be attained.

Personetics has received \$18 million in venture funding from Sequoia Capital, Lightspeed Venture Partners, and Carmel Ventures.

David Sosna is CEO at Personetics in New York, (844) 400-4200, [david.sosna@personetics.com](mailto:david.sosna@personetics.com), [www.personetics.com](http://www.personetics.com).

## Card Fraud Losses Reach \$21.84 Billion

from page 1...

billion, up 20.6% over 2014. That figure includes ATM withdrawals outside the global networks. It does not include costs incurred by issuers, merchants, and acquirers for their operations, call centers, and chargeback management.

**Losses worldwide equaled 6.97¢ per every \$100 of total volume.**

Fraud losses occur from counterfeit cards (at the point of sale and ATMs), card-not-present (CNP) transactions (made online or via mail, telephone, a social network, or mobile app), fraudulent applications (including "first party" type in which a consumer opens an account with no intention of paying the charges), lost & stolen cards, and categories including "friendly fraud" in which an

EMV cardholder denies making a transaction at a merchant that hasn't yet installed EMV terminals — knowing they can keep the goods while the payment is charged back to the merchant.

Gross fraud losses for all card-based payment systems worldwide equaled 6.97¢ per every \$100 of total volume last year, up from 6.21¢ per \$100 in 2014. As a percentage of total volume, fraud losses were at their all-time low at 4.46¢ in 2010. They have increased every year since.

The global general purpose cards — American Express, Diners Club, Discover, JCB, Maestro, Mastercard, Visa, and UnionPay — accounted for \$26.959 trillion or 86.1% of total worldwide card volume of \$31.310 trillion in

2015, including ATM withdrawals outside of the global networks, domestic-market-only payment cards, and private label cards. Fraud tied to global general purpose brands totaled \$19.58 billion last year, an increase of 21.4% over 2014. Global brand cards accounted for 89.7% of gross fraud losses worldwide in 2015. Card fraud equaled 7.26¢ of every \$100 in global general purpose volume, up from 6.43¢ in 2014.

There are more than 60 domestic-market-only general purpose card brands worldwide. They can be debit or credit or both. Brands include Interac, Star, Pulse, Nyce, Accel, BC Card, Elo, Hipercard, Banricompras, Redcompa, eftpos, KB Kookmin, Samsung Card, J-debit, RuPay, Shetab, Mada, Girocard, Pagobancontact, Multibanco, Carte Bancaire, Bancontact, and

PostFinance. Total volume on domestic-market-only credit and debit cards was \$1.694 trillion in 2015. Fraud tied to domestic-market-only cards totaled \$343.6 million, an increase of 16.5% over 2014 and equal to 1.6% of gross fraud worldwide. Not counted here are branded noncard payment systems such as Alipay, Klarna, SafetyPay, and iDeal, as well as nonbranded interbank settlement systems leveraged by payment facilitators including PayPal.

Private label cards used at stores, fuel locations, and elsewhere generated \$466.1 million in fraud on \$758.05 billion in total volume. ATM transactions handled outside of the global general purpose card networks generated \$1.45 billion in fraud from \$1.899 trillion in volume.

Losses to card issuers worldwide reached \$15.72 billion or 72% of gross fraud losses worldwide.

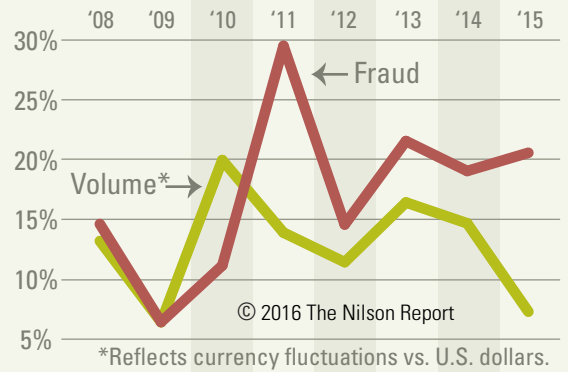
Merchants (\$5.90 billion) and ATM acquirers (\$217.4 million) lost the remaining \$6.12 billion or 28% of the total.

Card issuer losses occur mainly from counterfeit credit and debit cards used at the point of sale and ATMs. The industry's best defense against counterfeit fraud are EMV cards and the terminals needed to read their chips. These

have been steadily penetrating dozens of countries, and by year-end 2015 they handled nearly 36% of Visa, Mastercard, UnionPay, Discover/Diners, JCB, and Amex card transactions worldwide. In the U.S., compliant transactions accounted for less than 2% of the total in 2015. At those U.S. merchants that had deployed EMV terminals through the first quarter of 2016, losses to counterfeit cards were down more than one-third versus the same quarter the prior year.

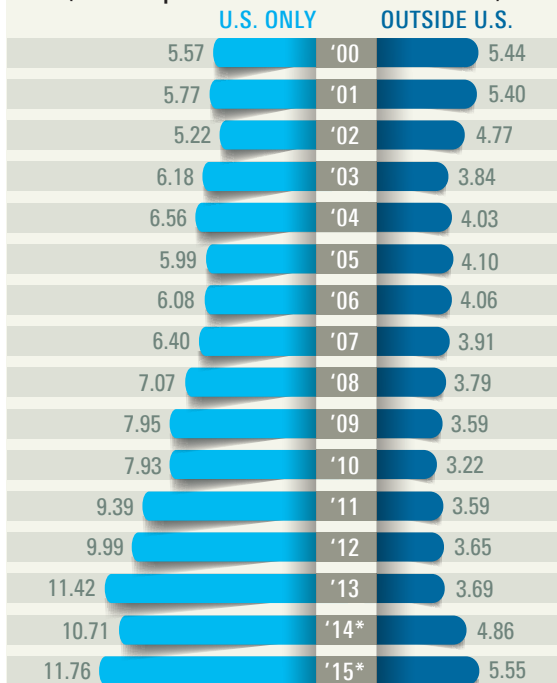
However, counterfeit losses increased by double-digits last year, led by growth in Canada and the U.S. where issuers poured EMV cards into the market but merchants lagged in deploying terminals. This was a problem for issuers outside the U.S. too, as data from their cards, often stolen from skimming or data breaches outside the U.S., made it to the U.S. to be used on counterfeit cards. Issuer losses to counterfeit cards soared

## Growth in Fraud vs. Total Card Volume Worldwide



Figures for calendar year 2014 have been restated. Fraud losses for the U.S. were lower than figures that appeared in issue #1068, largely due to further research into losses on cash withdrawals at ATMs. Fraud losses outside the U.S. were higher than reported, due to reports of higher losses at ATMs and more comprehensive figures from domestic-market-only debit cards and credit cards.

## Card Fraud in Basis Points (Cents per \$100 in Total Volume)



\*Figures for 2014 & 2015 reflect expanded global coverage.  
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last year at ATMs as criminals installed skimming devices to capture PINs and card account numbers. Another source of captured cardholder data, hacked servers, also rose in 2015 over 2014. Acquiring banks themselves were part of the problem for slowness in upgrading their ATMs to EMV.

Many of the data breaches that impacted U.S. issuer losses to counterfeiting came from the hospitality industry (Hilton, Starwood, and Mandarin Oriental). More than 70% of all breaches in 2015 occurred in the U.S. Breaches fueled CNP fraud.

Fraud losses to merchants occurred overwhelmingly from CNP transactions, and the problem is aggressively worsening. Losses to CNP fraud on general purpose card brands were \$5.65 billion. This included 41.2% of all fraud among general purpose card brands in the U.S. and

> see p. 8

## Card Fraud Losses Reach \$21.84 Billion

from page 7...

24.0% outside the U.S. Merchants in the U.S. saw a significant increase in losses from transactions in which customers buy online and pick up in store.

CNP fraud worldwide was also fueled by the rise in cross-border sales. By the first quarter of 2016, CNP fraud had already overtaken all other fraud among general purpose cards in the U.S.

One factor to consider with merchant losses to fraud is that goods do not cost what they sell for. A \$100 pair of jeans lost to fraud does not cost the seller \$100. The actual value of the goods lost is equivalent to a loss from shoplifting. Airlines might "lose" \$1,000 to fraud on a seat they sell for half that price on another day. A merchant's true loss on fraudulent digital sales are negligible. A \$100 loss to fraud for merchants, therefore, isn't the same as a \$100 loss to a card issuer.

U.S. gross card fraud losses were \$8.45 billion last year and accounted for 38.7% of the worldwide total.

The U.S. generated 22.9% of total global purchase and cash volume. U.S. fraud reached 11.76¢ per \$100 last year. Fraud in all other regions combined was 5.55¢. However, several countries including Brazil, Canada, Russia, and Mexico have greater fraud problems than the U.S. when measuring basis points of total volume.

By 2020, card fraud worldwide is expected to total \$31.67 billion. Upgrading ATMs to handle EMV cards and improving methods of reducing fraud on card-not-present transactions are critical to keeping losses in check. Even though fraud has worsened every year this decade, it was still lower than the peak years in the 1970s when measured as basis points of total volume. What is true today is that fraud has become a criminal racket that is a source of revenue for organized crime gangs and terrorists. Payment card fraud is only 5% of the revenue of the illegal drug trade, but almost twice as large as illegal arms trafficking.

## Credit Card Portfolio Sales

from page 1...

for Cabela's. Capital One had outstandings of \$82.54 billion at midyear 2016 when Cabela's WFB had outstandings of \$5.17 billion. Capital One will purchase Cabela's portfolio after Bass Pro Shops' acquisition of Cabela's, which is expected in the first half of 2017. Bass Pro Shops offers a co-branded Mastercard product issued by Bank of America.

Capital One owned a portfolio of \$5.91 billion in U.S. private label store card outstandings at year-end 2015. It has private label store card partnerships with



Kohl's, Saks Fifth Avenue, Neiman Marcus, and others. Co-brand card partners include General Motors and Sony.



## AllianceData

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Alliance Data Card Services, the credit card issuing subsidiary of Alliance Data, will acquire the Visa co-brand and private label card portfolio of Williams-Sonoma before year-end. The co-brand portfolio is currently owned by Barclaycard U.S. Alliance Data is already issuing private label and co-branded Visa cards for Williams-Sonoma.

Alliance Data owned more than \$10 billion in private label card outstandings at year-end 2015. Earlier this year Alliance Data purchased the private label credit

card business of The Children's Place from Citi and Boscov's from Capital One.

Alliance Data ranks 3rd among owners of U.S. private label store credit card outstandings. It also owns a portfolio of more than \$3.90 billion in Visa and

**Cabela's WFB had outstandings of \$5.17 billion at midyear 2016.**

Mastercard outstandings, which are co-branded with its retail store card customers. That business is the 16th largest Visa/Mastercard credit card portfolio in the U.S.

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Prior issues: 1093, 1091, 1088



## Real-Time Payments in the U.S.

from page 1...

instantaneously. IBM Power8-based hardware running Linux and AIX operating systems will host that system. VocaLink, soon to be a subsidiary of Mastercard, previously created real-time payment



# The Clearing House

systems in the U.K. and Singapore. In addition to instantaneous settlement, real time means 24 hours a day, 7 days a week, 365 days a year availability.

EPN, a business unit of the Clearing House Payments Company, is one of the two automated clearing house (ACH) operators in the U.S. FedACH is the other operator. EPN and FedACH were part of the recent phase 1 upgrade of the ACH network to same-day settlement (Nilson Report issue #1095).

The real-time payment network being created by the Clearing House Payments Company will differ from ACH payments

in that each individual transaction will clear and settle immediately. In comparison, ACH operators settle transactions in batches. This will remain the case even after completing the final phase of a three-stage migration to same-day payments by March 2018 — the ACH will settle payments in batches three times daily, down from the current one- to two-day time frame.

Another difference between the ACH and the upcoming real-time system from the Clearing House is that transactions in the new interbank system, which will deploy in 2017, will only be credits. ACH transactions can be credits or debits. Credits, which are transfers of funds from an originator's account to a recipient's account, include government benefits, business-to-business (B2B) payments, and direct

deposits of payroll. Most credit transactions currently handled by the ACH do not require real-time settlement. Transactions better suited for real-time payments include emergency payments to victims of natural disasters, payments to “gig economy” workers such as Uber drivers, and payments of invoices to support immediate delivery of goods. Also expected to be a

market for the new system are last-minute consumer bill payments. (Consumers will receive immediate confirmation that their payment has been received.) Person-to-person payments through services such as Venmo, which currently use the ACH, could also migrate to real time.

The Clearing House's real-time system will support bill presentment — a request for payment. Recipients could respond by sending a full or partial payment. It will also include the ability to securely send thousands of characters of data about a payment along with the funds.

EPN and FedACH are interoperable. Payments or requests for payment initiated by one operator can be settled by the other operator. That will not be true in the new interbank system. Payments will be initiated and settled within the system. Its customer base will include all financial institutions in the United States. The Clearing House will achieve that goal through contracts with processors such as Jack Henry, FIS, and D+H, as well as EFT networks such as Nyce. [Steve Ledford is Senior VP, Product and Strategy at The Clearing House Payments Company in Winston Salem, North Carolina, \(336\) 769-5308, \[steve.ledford@theclearinghouse.org\]\(mailto:steve.ledford@theclearinghouse.org\), \[www.theclearinghouse.org\]\(http://www.theclearinghouse.org\).](#)

...transfers from an originator's account to a recipient's account.

Prior issue: 1095

## Top Card Issuers in Asia-Pacific

from page 1...

purpose payment cards in the Asia-Pacific region. Issuers from Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, and Thailand generated purchase volume of \$7.082 trillion in 2015 from 4.22

billion cards. New to the top 50 were SBI in India and SMBC Trust Bank in Japan, which bought the Citibank Japan portfolio.

China issuers dominated the ranking — 10 of the top 10, and 15 of the top 50 positions. Purchase volume of \$5.857 trillion

came from 3.57 billion cards. Average annual spending per card was \$1,640.

Nine issuers from South Korea made the ranking. Their combined purchase volume was

> see p. 12

## Credit Card Issuers Asia-Pacific

2015		Purchase Volume	Cards	Purch. Vol. per Card
Rank	Issuer, Country	(bil. U.S.)	(mil.)	
1	Industrial & Comm'l Bank China	\$358.88	108.9	\$3,295
2	China Construction Bank China	\$335.37	80.7	\$4,154
3	China Merchants Bank China	\$281.40	61.8	\$4,553
4	Bank of Communications China	\$241.59	43.2	\$5,599
5	Bank of China China	\$221.47	53.3	\$4,157
6	Agricultural Bank of China China	\$178.03	58.4	\$3,050
7	China Minsheng Bank China	\$175.22	23.4	\$7,480
8	Ping An Bank China	\$126.65	20.0	\$6,339
9	China CITIC Bank China	\$126.63	30.4	\$4,169
10	China Guangfa Bank China	\$99.91	38.2	\$2,616
11	Mitsubishi UFJ Nicos Japan	\$95.55	30.7	\$3,110
12	China Everbright Bank China	\$93.98	20.0	\$4,700
13	Sumitomo Mitsui Card Japan	\$93.18	24.2	\$3,844
14	Shinhan Card South Korea	\$77.07	21.9	\$3,519
15	China Industrial Bank China	\$71.02	15.5	\$4,583
16	Samsung Card South Korea	\$70.66	13.4	\$5,264
17	Shanghai Pudong Develop. China	\$61.46	11.6	\$5,316
18	Hyundai Card South Korea	\$56.85	10.0	\$5,660
19	Credit Saison Japan	\$53.84	35.0	\$1,539
20	Commonwealth Bank Australia	\$51.56	4.6	\$11,092
21	KB Kookmin Card South Korea	\$49.78	12.4	\$4,019
22	Westpac Banking Corp. Australia	\$49.48	6.9	\$7,205
23	ANZ Banking Group Australia	\$39.64	4.4	\$9,022
24	UC Card Japan	\$37.05	14.6	\$2,536
25	Nat'l Australia Bank Australia	\$33.55	3.0	\$11,097
26	Lotte Card South Korea	\$32.58	7.0	\$4,648
27	Aeon Financial Serv. Japan	\$30.85	23.4	\$1,318
28	Woori Card South Korea	\$30.77	6.6	\$4,646
29	Hua Xia Bank China	\$22.06	7.8	\$2,825
30	Toyota Finance Japan	\$20.57	12.7	\$1,617
31	HSBC Hong Kong	\$18.94	3.8	\$4,951
32	NongHyup Bank South Korea	\$18.25	3.6	\$5,077
33	Cedyna Financial Japan	\$18.05	17.0	\$1,061
34	KEB Hana Card South Korea	\$17.89	4.7	\$3,784
35	Industrial Bank South Korea	\$16.28	6.7	\$2,429
36	Hang Seng Hong Kong	\$14.07	2.6	\$5,499
37	Citi Australia	\$13.74	1.3	\$10,463
38	Orient Corporation Japan	\$11.79	9.7	\$1,211
39	HDFC India	\$10.75	6.3	\$1,711
40	Cathay United Taiwan	\$10.73	5.2	\$2,083
41	CTBC Bank Taiwan	\$10.56	5.9	\$1,802
42	Kasikornbank Thailand	\$8.68	3.6	\$2,433
43	SMBC Trust Japan	\$8.51	1.0	\$8,177
44	Maybank Malaysia	\$8.11	1.7	\$4,839
45	E. Sun Commercial Bank Taiwan	\$7.91	4.0	\$2,001
46	Citibank Taiwan	\$7.51	2.9	\$2,576
47	JACCS Japan	\$7.45	6.7	\$1,117
48	ANZ Bank New Zealand	\$7.14	0.9	\$7,892
49	Bank of New Zealand New Zealand	\$7.01	0.7	\$9,755
50	United Overseas Bank Singapore	\$5.94	1.9	\$3,116

Visa, Mastercard, UnionPay, American Express, JCB, Diners Club, and general purpose domestic consumer & commercial credit and charge cards.

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## Debit Card Issuers Asia-Pacific

2015		Purchase Volume	Cards	Purch. Vol. per Card
Rank	Issuer, Country	(bil. U.S.)	(mil.)	
1	Agricultural Bank China	\$967.25	812.8	\$1,190
2	Industrial & Comm'l Bank China	\$924.07	636.8	\$1,451
3	China Construction Bank China	\$753.08	651.0	\$1,157
4	Bank of China China	\$389.80	493.4	\$790
5	Bank of Communications China	\$125.89	108.2	\$1,164
6	China Merchants Bank China	\$95.83	88.3	\$1,085
7	Commonwealth Bank Australia	\$54.50	10.0	\$5,476
8	Hua Xia Bank China	\$50.52	28.8	\$1,752
9	China Everbright Bank China	\$41.72	52.7	\$792
10	China Minsheng Bank China	\$34.00	43.1	\$790
11	China Guangfa Bank China	\$31.17	27.8	\$1,122
12	Shanghai Pudong Develop. China	\$28.55	30.7	\$929
13	KB Kookmin Card South Korea	\$22.03	19.1	\$1,155
14	Bank of Beijing China	\$18.14	23.5	\$771
15	Westpac Banking Corp. Australia	\$16.07	6.1	\$2,644
16	Shinhan Card South Korea	\$14.64	11.8	\$1,238
17	Credit Union Settlement Australia	\$13.70	2.2	\$6,290
18	NongHyup Bank South Korea	\$13.06	13.2	\$993
19	Bank Central Asia Indonesia	\$9.20	20.3	\$453
20	Nat'l Australia Bank Australia	\$9.02	2.8	\$3,256
21	ANZ Banking Group Australia	\$8.20	2.7	\$3,083
22	KEB Hana Card South Korea	\$6.15	9.4	\$656
23	Bank Mandiri Indonesia	\$5.55	19.9	\$279
24	State Bank of India India	\$4.92	181.5	\$27
25	Woori Card South Korea	\$4.88	5.8	\$839
26	ANZ Bank New Zealand	\$4.52	1.5	\$3,078
27	ICICI India	\$3.88	31.4	\$123
28	HDFC India	\$3.66	26.7	\$137
29	DBS (Development Bank) Singapore	\$2.99	3.0	\$1,009
30	Axis Bank India	\$1.94	15.4	\$126
31	Maybank Malaysia	\$1.80	5.3	\$343
32	United Overseas Bank Singapore	\$1.42	1.5	\$958
33	Kasikornbank Thailand	\$1.29	9.8	\$132
34	Samsung Card South Korea	\$1.19	2.4	\$502
35	Heritage Bank Australia	\$0.99	1.1	\$881
36	Citibank India	\$0.97	1.5	\$627
37	Lotte Card South Korea	\$0.91	0.3	\$2,755
38	Hyundai Card South Korea	\$0.87	0.3	\$2,621
39	Bangkok Bank Thailand	\$0.76	15.6	\$49
40	SC Korea Bank South Korea	\$0.71	1.9	\$367
41	CTBC Bank Taiwan	\$0.62	2.1	\$291
42	Canara Bank India	\$0.56	30.4	\$18
43	Punjab National Bank India	\$0.56	41.2	\$14
44	Hong Leong Bank Malaysia	\$0.50	1.6	\$315
45	ING Direct Australia	\$0.50	0.2	\$2,293
46	Bank Negara Indonesia Indonesia	\$0.47	11.9	\$39
47	Bank of Baroda India	\$0.46	31.1	\$15
48	Bank of India India	\$0.45	33.3	\$14
49	Siam Commercial Bank Thailand	\$0.44	8.8	\$50
50	Kotak Mahindra Bank India	\$0.44	1.7	\$260

Visa, Visa Electron, Mastercard, Maestro, UnionPay, and general purpose domestic consumer and commercial debit and prepaid cards.

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# Top General Purpose/Visa/Mastercard Card Issuers in Asia-Pacific

2015 Issuer, Country	GENERAL PURPOSE CARD RESULTS						VISA AND MASTERCARD RESULTS					
	'15 Rank	Purch. Vol. (bil. \$U.S.)	'15 Rank	Total Vol. (bil. \$U.S.)	'15 Rank	Cards (mil.)	'15 Rank	Purch. Vol. (bil. \$U.S.)	'15 Rank	Total Vol. (bil. \$U.S.)	'15 Rank	Cards (mil.)
<b>Industrial &amp; Commercial Bank</b> China	1	\$1,282.95	1	\$1,417.71	2	745.8	4	\$74.22	6	\$81.90	5	34.9
<b>Agricultural Bank</b> China	2	\$1,145.28	2	\$1,259.75	1	871.1	22	\$23.04	28	\$27.48	37	10.5
<b>China Construction Bank</b> China	3	\$1,088.44	3	\$1,219.27	3	731.7	1	\$209.39	1	\$224.76	2	41.6
<b>Bank of China</b> China	4	\$611.27	4	\$677.94	4	546.7	10	\$52.89	12	\$57.77	28	12.8
<b>China Merchants Bank</b> China	5	\$377.23	5	\$398.00	7	150.1	23	\$21.94	32	\$23.78	85	2.9
<b>Bank of Communications</b> China	6	\$367.48	6	\$393.42	6	151.3	2	\$136.16	2	\$141.22	12	23.3
<b>China Minsheng Bank</b> China	7	\$209.23	7	\$217.74	9	66.5	21	\$25.16	29	\$27.21	68	4.5
<b>China Everbright Bank</b> China	8	\$135.70	9	\$143.24	8	72.7	36	\$11.61	48	\$12.27	70	4.0
<b>China Guangfa Bank</b> China	9	\$131.09	10	\$136.89	10	66.0	37	\$11.09	47	\$12.34	67	4.6
<b>Ping An Bank</b> China	10	\$126.65	12	\$129.40	29	20.0	29	\$14.85	41	\$15.73	87	2.8
<b>China CITIC Bank</b> China	11	\$126.63	11	\$129.56	23	30.4	6	\$71.45	7	\$72.82	25	13.6
<b>Commonwealth Bank</b> Australia	12	\$106.06	8	\$160.50	42	14.6	5	\$73.16	5	\$89.12	42	9.0
<b>Mitsubishi UFJ Nicos</b> Japan <sup>1</sup>	13	\$95.55	16	\$97.54	21	30.7	7	\$70.71	8	\$72.18	13	22.7
<b>Sumitomo Mitsui Card Co.</b> Japan	14	\$93.18	17	\$93.89	25	24.2	3	\$93.18	4	\$93.89	11	24.2
<b>Shinhan Card Co.</b> South Korea	15	\$91.70	14	\$119.22	16	33.7	9	\$58.40	9	\$71.19	16	18.0
<b>Shanghai Pudong Develop.</b> China	16	\$90.00	15	\$98.05	11	42.3	18	\$26.79	26	\$29.56	79	3.4
<b>Hua Xia Bank</b> China	17	\$72.57	20	\$77.64	13	36.6	55	\$5.60	72	\$5.82	104	1.8
<b>Samsung Card</b> South Korea	18	\$71.85	18	\$82.35	38	15.8	20	\$26.40	24	\$31.66	47	7.5
<b>KB Kookmin Card</b> South Korea	19	\$71.81	19	\$79.01	19	31.5	15	\$36.77	19	\$40.52	31	12.0
<b>China Industrial Bank</b> China	20	\$71.02	22	\$72.47	39	15.5	28	\$15.20	40	\$15.84	69	4.3
<b>Westpac Banking Corp.</b> Australia	21	\$65.54	21	\$73.73	46	12.9	8	\$59.51	11	\$62.54	41	9.1
<b>Hyundai Card</b> South Korea	22	\$57.72	24	\$62.96	54	10.4	19	\$26.46	27	\$29.20	78	3.4
<b>Credit Saison</b> Japan <sup>1</sup>	23	\$53.84	26	\$56.87	14	35.0	13	\$39.88	17	\$42.22	10	26.1
<b>ANZ Banking Group</b> Australia	24	\$47.84	27	\$53.26	64	7.1	11	\$44.17	14	\$49.60	55	6.4
<b>National Australia Bank</b> Australia	25	\$42.57	30	\$44.48	74	5.8	12	\$40.18	18	\$42.07	62	5.3
<b>UC Card</b> Japan	26	\$37.05	34	\$37.34	41	14.6	14	\$37.05	22	\$37.34	24	14.6
<b>Woori Card</b> South Korea	27	\$35.65	32	\$39.52	48	12.4	16	\$35.62	20	\$39.50	30	12.4
<b>Lotte Card</b> South Korea	28	\$33.50	29	\$45.76	62	7.3	17	\$31.38	16	\$43.19	51	6.9
<b>NongHyup Bank</b> South Korea	29	\$31.31	36	\$36.51	35	16.7	68	\$3.84	90	\$4.09	112	1.6
<b>Aeon Financial Service</b> Japan	30	\$30.85	38	\$32.36	27	23.4	24	\$21.88	33	\$22.93	22	16.1
<b>KEB Hana Card</b> South Korea	31	\$24.04	40	\$26.14	44	14.1	31	\$14.13	43	\$15.54	44	8.1
<b>Bank of Beijing</b> China	32	\$21.94	41	\$24.38	24	25.6	100	\$1.03	140	\$1.06	157	0.5
<b>Toyota Finance Corp.</b> Japan <sup>1</sup>	33	\$20.57	46	\$20.76	47	12.7	27	\$15.63	42	\$15.72	38	9.7
<b>HSBC</b> Hong Kong	34	\$18.94	47	\$20.75	84	3.8	25	\$18.94	35	\$20.74	73	3.8
<b>Cedyna Financial Corp.</b> Japan <sup>1</sup>	35	\$18.05	43	\$22.13	34	17.0	34	\$13.45	39	\$16.44	29	12.7
<b>Industrial Bank of Korea</b> South Korea	36	\$16.28	45	\$21.02	67	6.7	26	\$16.28	34	\$21.02	52	6.7
<b>Credit Union Settlement Serv.</b> Australia	37	\$14.85	44	\$21.57	100	2.3	33	\$13.52	37	\$18.84	103	1.9
<b>HDFC</b> India	38	\$14.40	31	\$44.38	18	33.0	30	\$14.40	15	\$44.38	7	33.0
<b>Hang Seng</b> Hong Kong	39	\$14.08	51	\$14.40	96	2.6	32	\$13.88	44	\$14.18	91	2.3
<b>Citi</b> Australia	40	\$14.06	50	\$14.85	112	1.9	35	\$12.44	45	\$13.19	108	1.7
<b>Bank Central Asia</b> Indonesia	41	\$12.74	25	\$58.18	28	23.0	79	\$2.28	112	\$2.30	117	1.4
<b>Orient Corporation</b> Japan	42	\$11.79	54	\$12.77	55	9.7	41	\$8.87	55	\$9.66	53	6.7
<b>ANZ Bank</b> New Zealand	43	\$11.66	52	\$13.96	99	2.4	42	\$8.38	56	\$9.00	105	1.8
<b>CTBC Bank</b> Taiwan	44	\$11.18	58	\$11.35	61	8.0	39	\$10.64	52	\$10.78	48	7.5
<b>Cathay United Bank</b> Taiwan	45	\$10.95	59	\$11.04	73	5.9	38	\$10.95	51	\$11.04	60	5.9
<b>Kasikornbank</b> Thailand	46	\$9.97	23	\$66.62	45	13.3	40	\$9.96	10	\$66.61	26	13.2
<b>Maybank</b> Malaysia	47	\$9.91	61	\$10.09	66	6.9	46	\$7.68	61	\$7.82	54	6.5
<b>State Bank of India (SBI)</b> India	48	\$8.95	13	\$128.75	5	185.0	44	\$7.96	3	\$103.82	1	148.7
<b>SMBC Trust</b> Japan	49	\$8.51	63	\$8.67	130	1.0	82	\$1.92	118	\$2.00	167	0.4
<b>DBS</b> Singapore	50	\$8.19	48	\$18.96	79	4.7	43	\$8.19	36	\$18.96	66	4.7

General purpose: Visa, Mastercard, UnionPay, Maestro, American Express, JCB, Diners Club, and domestic general purpose consumer and commercial credit, debit, and prepaid cards. Visa/Mastercard results exclude Maestro and cards that carry only the Plus or Cirrus brands or domestic-only brands.

<sup>1</sup>Visa/Mastercard estimated.

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## Top Card Issuers in Asia-Pacific

from page 9...

\$433.87 billion from 148.7 million cards. Average annual spending per card was \$2,918.

Purchase volume from the nine Japan-based issuers totaled \$369.39 billion from 168.5 million cards. Average annual spending per card was \$2,192.

Six issuers from Australia accounted for \$290.92 billion in purchase volume from 44.7 million cards. Average annual spending per card was \$6,511, the highest in the region.

When measuring Mastercard and Visa purchase volume only, the 50 largest issuers collectively accounted for \$1.609 trillion from 637.5 million cards.

China-based issuers accounted for \$700.40 billion of that purchase volume from 165.5 million cards, followed by issuers from Japan with \$302.57 billion from 133.1 million cards, issuers from South Korea with \$249.30 billion from 76.7 million cards, and issuers from Australia with \$242.98 billion from 33.5 million cards.

When measuring only credit card purchase volume, the 50 largest issuers generated \$3.446 trillion from 894.2 million cards.

China issuers accounted for \$2.394 trillion in credit card purchase volume from 573.1 million cards, followed by Japan with \$376.85 billion from 175.2

million cards, South Korea with \$370.14 billion from 86.4 million cards, and Australia with \$188.0 billion from 20.2 million credit cards. New to the top 50

**The 50 largest accounted for \$1.609 tril. from 637.5 mil. cards.**

were SMBC Trust Bank in Japan, E. Sun Commercial Bank and Citibank in Taiwan, Bank of New Zealand, and United Overseas Bank in Singapore.

When measuring only debit card purchase volume, the 50 largest issuers accounted for \$3.675 trillion from 3.58 billion cards.

Issuers from China accounted for \$3.460 trillion from 3.00 billion cards, followed by Australia with \$102.99 billion from 25.0 million debit cards, and South Korea with \$64.43 billion from 64.2 million cards. New to the top 50 were Lotte Card in South Korea and Kotak Mahindra Bank in India.

Prior issues: 1075, 1050, 1027, 1003, 979, 956, 932, 909, 893

## Apriori International ID Verification

from page 1...

obtaining and processing data from emerging markets. It has obtained all records available on

# A PRIORI

every registered voter 18 years and older in India. Nearly 900 million records are available. All data, which comes directly from the India Electoral Authority in each state and territory, has been

parsed and cleansed. Apriori uses machine transliteration algorithms to convert non-Roman characters in 14 local languages in India, as well as the Cyrillic languages of Eastern Europe including Russian and Ukrainian. It also uses in-country language specialists to help understand the language rules behind the data.

For markets outside India, data comes from voter files, motor vehicle records, citizenship rolls, and other government sources.

Apriori offers data in bulk for in-house use for age and identity verification where legally permitted. Clients can also use the data in their own application programming interfaces, and can resell it on a per-transaction basis. Licensees receive immediate notice when databases are updated.

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