



# NILSON REPORT

## ARTICLES IN THIS ISSUE

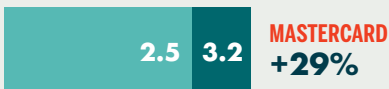
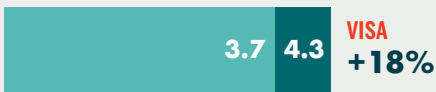
- p5** Cards Projected Worldwide
- p6** Affirm's Adaptive Checkout for Buy Now, Pay Later
- p7** Top 50 Issuers in Asia-Pacific
- p10** U.S. Commercial Cards-Part 3
- p11** Featurespace Fraud Fighting
- p12** Top 150 Merchant Acquirers Worldwide
- p14** Pentadata Open-Banking Partnerships
- p14** Biometric Cards from Fingerprints and Infineon
- p15** BBPOS Custom Terminals

PROJECTED THROUGH 2026 (BIL.)

## Payment Cards Projected Worldwide

Largest among the global brands appearing on cards issued worldwide are UnionPay, Visa and Mastercard. Other payment cards in circulation worldwide include private label cards and cards issued exclusively for use in domestic markets.

■ TOTAL IN 2021 ■ TOTAL IN 2026 → Read full article on page 5



## COVER STORY

### Payment Cards Projected

Global brand and domestic-market-only payment cards are expected to reach 31.44 billion by the end of 2026.

p5

### Affirm's Adaptive Checkout

The decision engine in Adaptive Checkout expands the options consumers have to finance purchases in installments.

p6

### Top 50 Issuers in Asia-Pacific

Collectively, the top 50 issuers of global brand payment cards reported purchase volume of \$11.254 trillion in 2020.

p7

### U.S. Commercial Cards-Part 3

Purchase volume on commercial cards of \$1.389 trillion in 2020 declined by 7.5% versus the prior year.

p10

Purchase volume tied to commercial cards accounted for

**20.6%**  
of all card spending

### Featurespace Fraud Fighting

Models using adaptive behavioral analytics are used by over 70 clients in 20 countries.

p11

### Top 150 Merchant Acquirers Worldwide

Total transactions of 354.83 billion were up 2.8% from 345.15 billion in 2019.

p12

Global brand cards are projected to account for 62.8% of all payment cards in circulation worldwide by the end of 2026

### Pentadata Adds Open-Banking Partnerships

Recent partnerships have expanded Pentadata's access to data as well as deepened its ability to share signals via APIs.

p14

### Biometric Cards from Fingerprints and Infineon

A technological breakthrough includes all software needed to manage Fingerprint Cards' T-Shape sensor within Infineon's 40nm SLC38 multi-interface secure element.

p14

### BBPOS Custom Terminals

More than 20 million BBPOS manufactured devices have been shipped to clients in 40 countries over the last decade.

p15

## REGULAR FEATURES

p16 Publicly Traded Companies

p17 Digital Currency Update

## FEATURED IN OUR UPCOMING ISSUE

### U.S. Payment Cards Projected

Credit, debit and prepaid purchase volume, purchase transactions, total volume, total transactions, outstandings, cards and cardholders are projected through 2025.

# First Look

News in brief on payment industry trends around the world.

**FREEDOMPAY** will offer Klarna's BNPL payment options to its U.S. merchants. Shoppers can check out by downloading the Klarna app and performing a one-time registration to generate a unique in-store QR code. Payment is made with a scan by the store associate.

Chris Kronenthal is President at FreedomPay, [chris.kronenthal@freedompay.com](mailto:chris.kronenthal@freedompay.com), [www.freedompay.com](http://www.freedompay.com). David Sykes is Head of North America at Klarna, [david.sykes@klarna.com](mailto:david.sykes@klarna.com), [www.klarna.com](http://www.klarna.com).

**NUVEI**, which provides local merchant acquiring operations in 45 countries and processing and related services in 200 markets, will offer Visa Direct, Visa's real-time push payments platform, in the U.S. The company already offers Visa Direct in Europe. Clients of Nuvei can provide their customers with fast-payout capabilities, with transactions routed and processed in near real time.

Philip Fayer is CEO at Nuvei, [pf@nuvei.com](mailto:pf@nuvei.com), [www.nuveipartner.com](http://www.nuveipartner.com). Ruben Salazar is SVP and Global Head of Visa Direct, [rubenge@visa.com](mailto:rubenge@visa.com), [www.visa.com](http://www.visa.com).

**QUALPAY** has added text-to-pay to its integrated omnichannel payment processing platform. Text-to-pay reduces the amount of time required to invoice customers and receive payments, provides customers with multiple payment options including ACH and eliminates mailing invoices.

Craig Gass is CEO, [craig@qualpay.com](mailto:craig@qualpay.com), [www.qualpay.com](http://www.qualpay.com).

**FACTOR4** private label prepaid and loyalty products have been integrated with Android-based POS terminals available from Dejavo Payment Software Solutions.

Dan Battista is CEO at Factor4, [dan@factor4gift.com](mailto:dan@factor4gift.com), [www.factor4gift.com](http://www.factor4gift.com). Joe Casella is President at Dejavo, [jcasella@dejavoosystems.com](mailto:jcasella@dejavoosystems.com), [www.dejavoosystems.com](http://www.dejavoosystems.com).

**SILA and ARCUS** have formed a partnership that will facilitate payments to more than 18,000 U.S. billers for their respective customer bases. Arcus lets its customers process bill payments through APIs to consumer and business accounts. Sila provides an API platform that lets clients verify identities, link bank accounts and originate ACH debit and credit transactions.

Edrizio De La Cruz is Co-CEO at Arcus, [edrizio@arcusfi.com](mailto:edrizio@arcusfi.com), [www.arcusfi.com](http://www.arcusfi.com). Shamir Karkal is CEO at Sila, [shamir.karkal@silamoney.com](mailto:shamir.karkal@silamoney.com), [www.silamoney.com](http://www.silamoney.com).

**INTERAC**, operator of a payment network and provider of digital ID services, has acquired exclusive rights to the digital ID and authentication services of SecureKey Technologies in Canada.

Debbie Gamble is Chief Officer, Innovation Labs and New Ventures at Interac, [dgamble@interac.ca](mailto:dgamble@interac.ca), [www.interac.ca](http://www.interac.ca). Greg Wolfond is CEO at SecureKey Technologies, [greg.wolfond@securekey.com](mailto:greg.wolfond@securekey.com), [www.securekey.com](http://www.securekey.com).

**WORLDPAY FROM FIS** will provide payment processing services to Brazil's largest domestic airline, Gol Linhas Aereas Inteligentes. The contract covers 38 countries in which the airline operates.

Juan Pablo D'Antiochia is Head of LatAm Merchant Solutions at FIS, [juan.pablo.dantiochia@fisglobal.com](mailto:juan.pablo.dantiochia@fisglobal.com), [www.fisglobal.com](http://www.fisglobal.com).

**MYCHARGEBACK** has launched a website called Pengeretur.dk to act as a one-stop shop for consumers in Scandinavia to determine if their disputes with merchants meet the criteria for a chargeback as established by the global card networks. The Pengeretur online tool is available in English.

Judith Dayan Persson is VP of European Operations and Business Development, [judith.p@mychargeback.com](mailto:judith.p@mychargeback.com), [www.mychargeback.com](http://www.mychargeback.com).

**QUIQ**, provider of an AI-powered conversational platform that lets businesses engage customers in digital messaging channels, offers Conversational Commerce and Customer Care, which lets brands converse with their customers and receive payments on text messaging channels including Apple Business Chat, Google Business Messaging, webchat, Instagram, Facebook Messenger, SMS and other channels in 170+ languages. Quiq can integrate with a brand's CRM and payment systems.

Mike Myer is CEO at Quiq, [mike.myer@goqui.com](mailto:mike.myer@goqui.com), [www.goqui.com](http://www.goqui.com).

**PARADIGM**, which supplies technologies to the building industry, has launched Paradigm Payments, a processing service designed to help contractors, distributors, dealers and manufacturers accept payment cards and process checks in the field or in-store. Paradigm Payments is made available through a partnership with Paya, which processes over \$40 billion in annual payment volume, including credit and debit cards, ACH transactions and checks.

Matt Davis is Product Director at Paradigm, [matt.davis@myparadigm.com](mailto:matt.davis@myparadigm.com), [www.myparadigm.com](http://www.myparadigm.com).

**SIGHTLINE PAYMENTS**, a company with 70+ partners in sports betting, lottery, racing and online and in-person casinos, has launched the Play+ Mastercard debit card with Resorts World Las Vegas. Cardholders can pay for their gaming and nongaming activities by syncing the card with their smartphones using digital wallets or the Resorts World Las Vegas mobile app.

Joe Pappano is Co-CEO at Sightline Payments, [jpappano@sightlinepayments.com](mailto:jpappano@sightlinepayments.com). Omer Sattar is Co-CEO at Sightline Payments, [osattar@sightlinepayments.com](mailto:osattar@sightlinepayments.com), [www.sightlinepayments.com](http://www.sightlinepayments.com).

---

**ZIP** will provide BNPL programs to merchants that use Adyen for payment processing. Merchants will have the option of adding Zip to their checkout pages. The agreement also calls for Adyen to become a payment processing partner of Zip and of its global affiliates when they use a credit or debit card.

Warren Hayashi is President of Asia-Pacific at Adyen, [warren.hayashi@adyen.com](mailto:warren.hayashi@adyen.com), [www.adyen.com](http://www.adyen.com). Larry Diamond is CEO at Zip, [larry@zip.co](mailto:larry@zip.co), [www.zip.co](http://www.zip.co).

---

**PAYROC WORLDACCESS**, a merchant acquirer and payment processor, will offer its clients BNPL consumer financing through a partnership with PayTomorrow. This platform will integrate with a Payroc merchant's website, as well as offer availability in-store and over the phone. The cost of BNPL installments is based on the credit profile of individual applicants.

Tony Amitrano is President at PayTomorrow, [tamitrano@paytomorrow.com](mailto:tamitrano@paytomorrow.com), [www.paytomorrow.com](http://www.paytomorrow.com). James Derby is SVP of Merchant Product at Payroc, [james.derby@payroc.com](mailto:james.derby@payroc.com), [www.payroc.com](http://www.payroc.com).

---

**PARK PLACE PAYMENTS**, a woman-founded and operated payment processing company, will pay customers \$500 if they are unhappy with their service after the first six months. The three-year-old company has account executives in all 50 states.

Samantha Ettus is CEO, [samantha@parkplacepayments.com](mailto:samantha@parkplacepayments.com), [www.parkplacepayments.com](http://www.parkplacepayments.com).

---

**NAVY FEDERAL CREDIT UNION** has signed a data access agreement with Envestnet/Yodlee, a top data aggregation and analytics platform. Under the agreement, Navy Federal members can securely connect to and send their financial information to the more than 1,400 third-party applications on the Envestnet/Yodlee platform.

Ryan Fairley is VP of Omnichannel Strategy & Innovation at NFCU, [ryan\\_fairley@navyfederal.org](mailto:ryan_fairley@navyfederal.org), [www.navyfederal.org](http://www.navyfederal.org). Brad Nightengale is Senior Director, Data Strategy Group at Envestnet/Yodlee, [bnightengale@yodlee.com](mailto:bnightengale@yodlee.com), [www.yodlee.com](http://www.yodlee.com).

---

**SENTILINK**, an identity verification specialist, has added a know your customer product to complement the synthetic fraud and ID theft scores used by top U.S. financial institutions. The KYC product, which lets users validate the true identity of an applicant when they apply to open an account, complies with customer identification program (CIP) rules.

Naftali Harris is CEO, [naftali@sentilink.com](mailto:naftali@sentilink.com), [www.sentilink.com](http://www.sentilink.com).

---

**SKEPS** is a modular suite of products that allow lenders to launch their own white-label BNPL or installment lending programs. Skeps's patented technology provides merchants a full suite of integration options to deploy multiple pay-over-time options on their website or in-store.

Tushar Srivastava is CEO, [tushar@skeps.com](mailto:tushar@skeps.com), [www.skeps.com](http://www.skeps.com).

---

**INCOMM PAYMENTS** has expanded its Serve suite of prepaid and debit products to include the Serve Pay As You Go Visa Prepaid Card. Previously, the Serve suite of products was only offered on the American Express network.

Adam Brault is SVP, Financial Services at InComm Payments, [abrault@incomm.com](mailto:abrault@incomm.com), [www.incommpayments.com](http://www.incommpayments.com).

---

**ANZ**, the 3rd largest credit card issuer in Australia, is the first bank in that country to participate in the Visa BNPL program.

Mike Shurlin is Head, Cards and Personal Lending at ANZ, [michael.shurlin@anz.com](mailto:michael.shurlin@anz.com), [www.anz.com](http://www.anz.com).

---

**NEXO**, a nonprofit association dedicated to specifications and messaging protocols that adhere to ISO 20022 standards, has integrated two additional contactless kernels into its nexo-Fast Specification. The new kernels are for Mir, Russia's national payment system, and Pure, the Thales white-label EMV technology.

Jacques Soussana is Secretary-General at nexo standards, [jacques.soussana@nexo-standards.org](mailto:jacques.soussana@nexo-standards.org), [www.nexo-standards.org](http://www.nexo-standards.org).

---

**WELLS FARGO**, the 8th largest U.S. credit card issuer, has launched the Wells Fargo Reflect Card. Reflect is a no-annual-fee product that rewards cardholders for making regular on-time payments. The introductory 0% APR is extended up to three additional months when payments are made on time.

Krista Phillips is Head of Branded Cards and Marketing for Wells Fargo Credit Cards, [krista.phillips2@wellsfargo.com](mailto:krista.phillips2@wellsfargo.com), [www.wellsfargo.com](http://www.wellsfargo.com).

---

**VISA** has launched community-based programs worldwide to help small businesses accept digital payments. The effort, which began at the start of the pandemic, has helped to digitally enable an estimated 16 million small and micro businesses. This amounts to over 30% of Visa's multiyear goal to digitize 50 million SMBs.

Mary Kay Bowman is Global Head of Buyer, Seller, Core and Platform Products, [mbowman@visa.com](mailto:mbowman@visa.com), [www.visa.com](http://www.visa.com).

---

**PADDLE**, a provider to SaaS companies worldwide of a platform that supports customer acquisition, renewals and expansion, has announced that beginning on December 7, 2021, it will offer an in-app purchasing system for iOS developers. It will be the first alternative to Apple's in-house service.

Christian Owens is CEO at Paddle, [c.owens@paddle.com](mailto:c.owens@paddle.com), [www.paddle.com](http://www.paddle.com).

---

**CITI**, the 3rd largest U.S. credit card issuer, has stopped promoting the Prestige Mastercard credit card it launched in 2013. Existing customers will be able to keep the upscale product, which was created to compete with the American Express Platinum card.

---

**GLENBROOK PARTNERS** has released "Global Payments and Fintech Innovations Changing the Industry." The ebook covers subjects including payment rails innovations, major products and services used around the world and "out-of-the-box" technology alternatives. Cost is \$34.95. The book is available at Amazon.



# Cards Projected Worldwide

Credit, debit and prepaid general purpose and private label payment cards in circulation worldwide are projected to reach 31.44 billion by December 31, 2026.

General purpose cards can be used at a variety of merchants. They can have global brands or domestic-market-only brands.

UnionPay, Visa, Mastercard, Maestro, JCB, American Express and Discover/Diners Club are the global brands. They are collectively expected to reach 19.74 billion cards by the end of 2026.

There are 89 domestic-market-only brands worldwide. Among the largest are RuPay (India); Star, Pulse, Nyce and Accel (U.S.); Elo (Brazil); J-Debit (Japan); Mir (Russia); BC Card (South Korea); Shaparak (Iran); Pagobancomat (Italy); Eftpos (Australia); Cartes Bancaires (France); Verve (Nigeria); and Interac (Canada).

Cards tied to domestic-market-only brands are growing faster than global brand cards and are projected to reach 2.58 billion worldwide by the end of 2026.

Private label credit, debit and prepaid products are usable only at particular retail stores, fueling stations, airlines and other outlets. The majority of private label cards are prepaid. Collectively, these cards are projected to reach 9.12 billion worldwide at year-end 2026.

Global brand cards are projected to account for 62.77% of all payment cards in circulation worldwide by 2026. The ranking of the brands based on all payment cards in circulation will not change from 2021. UnionPay cards are

expected to hold a 36.35% share, followed by Visa (13.78%), Mastercard (10.28%), Maestro (1.11%), JCB (0.59%), American Express (0.43%) and Discover/Diners Club (0.24%).

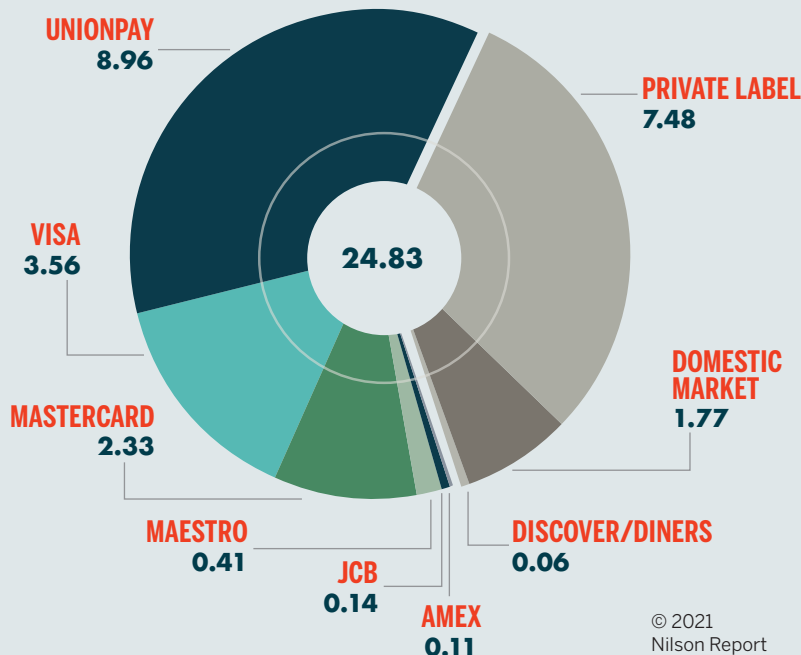
Domestic-market-only general purpose cards combined will hold an 8.22% share of the worldwide total by the end of 2026.

Private label cards will account for 29.01% of the worldwide total by the end of 2026.

Prior issues: 1184, 1162, 1140, 1117, 1094

## Payment Cards in Circulation

Billions in 2020



© 2021  
Nilson Report

**The company's Split Pay biweekly payment option has been its fastest growing service**

# Affirm's Adaptive Checkout for Buy Now, Pay Later

Among the eight publicly traded providers of buy now, pay later (BNPL) financing options for consumers is U.S.-based Affirm. The company's market capitalization of over \$40 billion exceeds all of its competitors.

Affirm recently launched Adaptive Checkout to expand the acceptance of BNPL among a wider number of consumers by providing more flexibility and choice. The decision engine in Adaptive Checkout allows for the presentation of biweekly installment payments for a purchase side by side with a monthly payment option. Consumers can choose four interest-free payments every two weeks or payments that range from 3 months to 36 months.

Adaptive Checkout personalizes the options based on the product being considered by the consumer. The company, which was initially known for pursuing merchant partners that sell high-ticket items, has been expanding its merchant base. Affirm's Split Pay biweekly payment option, aimed at gaining business from buyers who make more frequent purchases, has been the company's fastest growing service.

Tests showed that simply presenting the biweekly installment option along with monthly options significantly improved results for the Affirm merchants that tested Adaptive Checkout. Shopping cart conversions increased by 26%. Approvals of all kinds grew by 22%, and there was a 20% increase in sales.



INTERVIEWED FOR THIS ARTICLE  
**Geoff Kott** is Chief Revenue Officer at Affirm in New York, [geoff@affirm.com](mailto:geoff@affirm.com), [www.affirm.com](http://www.affirm.com).

**Prior issues:** 1196, 1168, 1123, 1120, 1095, 1078, 1075

## IN THIS ARTICLE



Where a BNPL option is positioned in the checkout process and how often it is presented impacts its acceptance by consumers. The more choices provided for paying with installments the better.

Most Affirm BNPL installment loans in the U.S. are opened by Cross River Bank and Celtic Bank. Affirm buys all BNPL receivables almost immediately. It manages them through a combination of securitization, sales and on-balance-sheet financing.

In the fiscal year ended June 30, 2021, Affirm handled \$8.30 billion in sales tied to BNPL (net of refunds), an increase of 79%. Year-over-year growth in the fourth quarter was 109%.

The company had total revenue of \$870.5 million, up 71% for the year. However, its operating loss was \$379.2 million, up from \$160.9 million the prior year.

In addition to existing partnerships with Walmart, Target and Shopify, Affirm has just announced a nonexclusive partnership with Amazon to provide a BNPL option to consumers who spend at least \$50.

# Top 50 Card Issuers in Asia-Pacific

The Asia-Pacific region's 50 largest issuers of UnionPay, Visa, Mastercard, Maestro, JCB, Diners Club and American Express general purpose credit, debit and prepaid consumer and commercial cards as well as domestic-only general purpose cards in the Asia-Pacific region are included in charts on pages 8 and 9. Collectively, the top 50 issued 6.70 billion payment cards that generated purchase volume of \$11.254 trillion in 2020, down 9% from 2019.

There were 15 issuers from China on the list. That group had combined purchase volume of \$9.541 trillion from 5.78 billion cards. They accounted for 84.78% of purchase volume among the 50 largest issuers. The 9 issuers in South Korea had combined purchase volume of \$533.87 billion from 145.9 million cards. The 9 issuers in Japan had combined purchase volume of \$644.34 billion from 233.6 million cards. Australia's 5 issuers generated \$288.83 billion from 42.9 million cards. Australia led with average annual spending per card of \$6,737, followed by South Korea with \$3,660, Japan with \$2,759 and China with \$1,650.

Among the domestic and proprietary brands included within the general purpose card results are RuPay in India; J-Debit, MUFG, DC, Nicos and Aeon Bank Card in Japan; epal/eftpos in Australia; BC Card, KB Kookmin Card (credit and debit), Samsung Card (credit), Samsung Checkcard (debit) and Hyundai Card in South Korea; Taiwan Pay in Taiwan; MyDebit in Malaysia; e-Toll, Indomaret, BCA and Prima in Indonesia; Be1st Smart TPN, Rabbit Card and Aeon Member in Thailand; and E-Partner in Vietnam.

The 50 largest credit card issuers in the Asia-Pacific region generated \$6.102 trillion in purchase volume in 2020, a decrease of 5% versus 2019. Among the largest credit

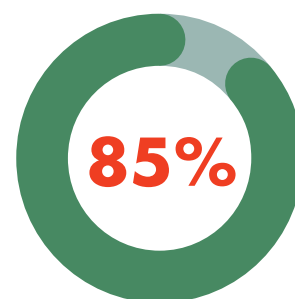
card issuers, those in China generated \$4.648 trillion in purchase volume from 1.17 billion credit cards. Issuers in Japan generated \$653.37 billion from 235.0 million cards, those in South Korea generated \$457.48 billion from 89.8 million cards and those in Australia generated \$153.01 billion from 12.7 million credit cards. New to the top 50 was Taipei Fubon (Taiwan).

The 50 largest debit card issuers generated \$5.225 trillion in purchase volume in 2020, a decrease of 13% versus 2019, from 5.45 billion debit cards. Issuers in China accounted for \$4.886 trillion from 4.61 billion cards, followed by Australia with \$146.79 billion from 32.8 million cards, India with \$71.00 billion from 659.7 million cards, South Korea with \$76.10 billion from 55.6 million cards and Indonesia with \$17.86 billion from 52.1 million cards. New to the top 50 were Hyundai Card (South Korea) and Heritage Bank (Australia).

When measuring only Mastercard and Visa purchase volume, issuers in China combined generated \$818.07 billion from 293.2 million cards. Japan's issuers generated \$491.09 billion from 177.6 million cards, South Korea's issuers generated \$301.91 billion from 82.9 million cards and Australia's accounted for \$263.65 billion from 36.2 million cards.

Prior issues: 1184, 1164, 1142, 1120, 1096, 1075, 1050

→ p8



**of purchase volume**  
was generated by  
15 banks in China

**6.7**  
**billion**  
**cards**

were issued by the 50  
largest issuers in 2020

# Top General Purpose Card Issuers in Asia–Pacific

UnionPay, Visa, Mastercard, JCB, Amex, Diners and Domestic-Only Credit and Debit Cards

ISSUER, COUNTRY	General Purpose Card Results						Visa and Mastercard Results					
	2020 RANK	PURCHASE VOLUME (BIL.)	2020 RANK	TOTAL VOLUME (BIL.)	2020 RANK	CARDS (000)	2020 RANK	PURCHASE VOLUME (BIL.)	2020 RANK	TOTAL VOLUME (BIL.)	2020 RANK	CARDS (000)
<b>China Construction</b> , China	1	\$1,934.26	1	\$2,363.18	1	1,352,000	1	\$144.78	1	\$149.84	2	58,018
<b>ICBC</b> , China	2	\$1,417.17	2	\$1,712.83	3	1,126,360	4	\$83.04	5	\$90.42	4	48,000
<b>Agricultural Bank</b> , China	3	\$1,319.94	3	\$1,440.84	2	1,228,000	25	\$37.46	28	\$44.68	14	23,400
<b>China Merchants</b> , China	4	\$932.06	5	\$1,130.23	7	214,147	22	\$41.05	20	\$53.49	54	4,977
<b>Bank of China</b> , China	5	\$734.00	4	\$1,433.70	4	837,562	18	\$50.17	19	\$54.56	7	32,936
<b>Bank of Communications</b> , China	6	\$512.06	6	\$698.64	6	231,899	5	\$82.60	6	\$87.13	8	32,697
<b>China Minsheng</b> , China	7	\$403.83	9	\$417.73	10	116,044	15	\$52.23	16	\$56.48	35	9,251
<b>China Industrial</b> , China	8	\$401.97	8	\$420.56	11	113,149	8	\$69.42	9	\$72.34	25	14,722
<b>China Everbright</b> , China	9	\$398.57	7	\$423.07	8	140,016	23	\$40.92	29	\$43.45	27	14,117
<b>China CITIC</b> , China	10	\$343.94	11	\$350.38	15	57,609	17	\$51.19	22	\$52.40	17	21,032
<b>Shanghai Pudong Development</b> , China	11	\$332.49	10	\$362.20	9	119,018	11	\$63.13	11	\$69.91	32	10,931
<b>Ping An</b> , China	12	\$327.29	12	\$336.79	13	64,250	16	\$52.09	18	\$55.05	38	8,995
<b>China Guangfa</b> , China	13	\$282.98	13	\$315.07	12	89,340	30	\$27.93	36	\$30.82	39	8,934
<b>Sumitomo Mitsui Card</b> , Japan <sup>1</sup>	14	\$171.09	16	\$172.76	18	50,943	2	\$143.37	2	\$144.77	5	43,884
<b>HuaXia</b> , China	15	\$163.92	15	\$180.79	16	57,364	34	\$20.42	41	\$21.23	55	4,665
<b>Mitsubishi UFJ Nicos</b> , Japan <sup>1</sup>	16	\$139.25	17	\$140.31	26	32,996	3	\$101.65	3	\$102.43	13	24,087
<b>Rakuten Card</b> , Japan	17	\$107.60	20	\$109.11	33	21,550	9	\$64.56	14	\$65.47	30	12,930
<b>KB Kookmin Card</b> , South Korea	18	\$105.68	19	\$112.71	27	32,427	10	\$63.67	12	\$67.36	18	20,788
<b>Shinhan Card</b> , South Korea	19	\$94.89	21	\$107.57	29	31,046	13	\$56.11	15	\$61.64	22	16,916
<b>Commonwealth</b> , Australia	20	\$91.16	18	\$132.01	41	13,592	7	\$70.09	7	\$84.89	37	9,040
<b>Samsung Card</b> , South Korea	21	\$88.46	22	\$95.44	36	15,659	27	\$32.31	32	\$35.88	40	8,843
<b>Westpac Banking</b> , Australia	22	\$75.37	23	\$88.83	45	11,828	6	\$72.92	8	\$84.32	34	9,865
<b>Hyundai Card</b> , South Korea	23	\$67.38	24	\$71.84	43	12,900	32	\$26.63	37	\$28.88	61	2,932
<b>Credit Saison</b> , Japan <sup>1</sup>	24	\$59.19	28	\$62.51	25	34,842	20	\$42.52	26	\$45.08	12	25,954
<b>ANZ Banking</b> , Australia	25	\$56.57	25	\$71.77	50	8,641	12	\$56.39	10	\$71.58	41	8,641
<b>National Australia</b> , Australia	26	\$52.99	30	\$53.37	57	7,014	14	\$52.99	21	\$53.37	48	7,014
<b>UC Card</b> , Japan <sup>1</sup>	27	\$45.24	34	\$45.42	40	14,156	19	\$45.24	25	\$45.42	26	14,156
<b>Aeon Financial Service</b> , Japan <sup>1</sup>	28	\$44.21	32	\$48.27	20	46,080	29	\$29.34	34	\$31.31	10	30,416
<b>Lotte Card</b> , South Korea	29	\$43.17	29	\$55.46	52	7,721	24	\$40.27	23	\$51.70	45	7,332
<b>Woori Card</b> , South Korea	30	\$41.12	35	\$44.72	49	9,216	21	\$41.10	27	\$44.69	36	9,211
<b>Toyota Finance</b> , Japan <sup>1</sup>	31	\$40.82	38	\$41.06	37	15,136	28	\$31.02	35	\$31.13	31	11,392
<b>SBI Card/SBI Bank</b> , India	32	\$40.52	14	\$184.00	5	306,019	31	\$27.91	4	\$99.68	1	158,754
<b>NongHyup Bank</b> , South Korea	33	\$40.16	36	\$43.04	35	17,422	59	\$4.25	68	\$4.45	69	1,758
<b>HDFC</b> , India	34	\$36.76	27	\$65.44	19	50,809	26	\$33.13	17	\$56.10	6	43,012
<b>Bank of Beijing</b> , China	35	\$36.05	37	\$41.14	28	31,993	69	\$1.63	71	\$1.68	73	499
<b>KEB Hana Card</b> , South Korea	36	\$32.64	41	\$34.27	44	12,041	39	\$17.49	44	\$18.56	42	8,088
<b>HSBC</b> , Hong Kong	37	\$26.61	43	\$28.83	62	4,288	33	\$26.61	38	\$28.82	57	4,275
<b>Industrial Bank</b> , South Korea	38	\$20.37	46	\$24.39	53	7,451	35	\$20.08	40	\$24.10	49	6,999
<b>Epos Card</b> , Japan	39	\$20.06	50	\$21.03	55	7,090	36	\$20.06	42	\$21.03	47	7,090
<b>ICICI</b> , India	40	\$18.89	39	\$40.92	17	55,291	37	\$18.89	30	\$40.92	3	55,291
<b>Hang Seng</b> , Hong Kong	41	\$17.76	53	\$18.07	67	2,695	40	\$17.41	46	\$17.69	64	2,405
<b>CTBC</b> , Taiwan	42	\$17.52	54	\$17.80	48	10,587	38	\$17.52	45	\$17.80	33	10,587
<b>Orient Corporation</b> , Japan <sup>1</sup>	43	\$16.89	55	\$17.65	47	10,777	44	\$13.33	49	\$13.96	44	7,680
<b>Cathay United</b> , Taiwan	44	\$16.70	56	\$16.78	54	7,115	41	\$16.70	47	\$16.78	46	7,115
<b>E. Sun Commercial</b> , Taiwan	45	\$15.96	57	\$16.07	58	6,346	42	\$15.96	48	\$16.07	50	6,346
<b>Kasikornbank</b> , Thailand	46	\$15.10	26	\$67.18	38	14,969	43	\$15.00	13	\$67.07	24	14,773
<b>Maybank</b> , Malaysia	47	\$14.90	58	\$15.14	51	8,358	48	\$11.55	52	\$11.74	43	7,847
<b>Axis Bank</b> , India	48	\$13.01	42	\$31.87	30	30,016	45	\$13.01	33	\$31.87	11	30,016
<b>Citi</b> , Australia	49	\$12.73	59	\$13.41	71	1,796	50	\$11.26	51	\$11.91	70	1,594
<b>DBS</b> , Singapore	50	\$12.61	44	\$27.99	60	5,624	46	\$11.92	39	\$27.29	52	5,300

General purpose: UnionPay, Visa, Mastercard, JCB, American Express, Maestro, Diners Club and domestic-market-only consumer & commercial credit, debit and prepaid cards. V/MC results exclude Maestro and cards with only the Plus or Cirrus brands. <sup>1</sup> Visa/Mastercard estimated. © 2021 Nilson Report



## Top 50 Credit Card Issuers

Rank		Purchase Volume	Cards	Purchase Volume
'20	ISSUER, COUNTRY	(BIL.)	(000)	PER CARD
1	<b>China Merchants</b> , China	\$583.97	99,532	\$5,867
2	<b>ICBC</b> , China	\$442.89	159,360	\$2,779
3	<b>China Construction</b> , China	\$420.41	144,000	\$2,919
4	<b>Bank of Communications</b> , China	\$399.05	72,660	\$5,492
5	<b>China Minsheng</b> , China	\$363.73	61,671	\$5,898
6	<b>China CITIC</b> , China	\$343.94	57,609	\$5,970
7	<b>China Everbright</b> , China	\$331.24	72,314	\$4,581
8	<b>Ping An</b> , China	\$327.29	64,250	\$5,094
9	<b>China Industrial</b> , China	\$324.41	56,623	\$5,729
10	<b>Agricultural Bank</b> , China	\$289.51	130,000	\$2,227
11	<b>Shanghai Pudong Dev.</b> , China	\$288.13	43,722	\$6,590
12	<b>Bank of China</b> , China	\$225.64	131,744	\$1,713
13	<b>China Guangfa</b> , China	\$219.07	58,071	\$3,772
14	<b>Sumitomo Mitsui Card</b> , Japan	\$170.41	46,661	\$3,652
15	<b>Mitsubishi UFJ Nicos</b> , Japan	\$139.25	32,996	\$4,220
16	<b>Rakuten Card</b> , Japan	\$107.60	21,550	\$4,993
17	<b>HuaXia</b> , China	\$88.42	18,662	\$4,738
18	<b>Samsung Card</b> , South Korea	\$87.31	12,906	\$6,765
19	<b>Shinhan Card</b> , South Korea	\$81.64	20,056	\$4,070
20	<b>KB Kookmin Card</b> , South Korea	\$76.72	13,686	\$5,606
21	<b>Hyundai Card</b> , South Korea	\$66.11	12,385	\$5,338
22	<b>Credit Saison</b> , Japan	\$59.19	34,842	\$1,699
23	<b>UC Card</b> , Japan	\$45.24	14,156	\$3,196
24	<b>Aeon Financial Service</b> , Japan	\$44.10	44,730	\$986
25	<b>Commonwealth</b> , Australia	\$42.07	3,626	\$11,603
26	<b>Lotte Card</b> , South Korea	\$41.66	7,446	\$5,595
27	<b>Toyota Finance</b> , Japan	\$40.82	15,136	\$2,697
28	<b>Woori Card</b> , South Korea	\$37.71	8,275	\$4,556
29	<b>ANZ Banking</b> , Australia	\$37.20	2,906	\$12,800
30	<b>Westpac Banking</b> , Australia	\$32.46	2,748	\$11,811
31	<b>National Australia</b> , Australia	\$28.85	2,201	\$13,108
32	<b>HSBC</b> , Hong Kong	\$26.61	4,288	\$6,207
33	<b>HDFC</b> , India	\$25.62	15,309	\$1,674
34	<b>KEB Hana Card</b> , South Korea	\$23.93	4,105	\$5,829
35	<b>NongHyup Bank</b> , South Korea	\$22.33	3,991	\$5,596
36	<b>Industrial Bank</b> , South Korea	\$20.08	6,999	\$2,868
37	<b>Epos Card</b> , Japan	\$20.06	7,090	\$2,830
38	<b>Hang Seng</b> , Hong Kong	\$17.74	2,659	\$6,670
39	<b>Orient Corporation</b> , Japan	\$16.88	10,759	\$1,569
40	<b>Cathay United</b> , Taiwan	\$16.70	7,115	\$2,346
41	<b>E. Sun Commercial</b> , Taiwan	\$15.96	6,346	\$2,515
42	<b>CTBC</b> , Taiwan	\$15.33	7,282	\$2,105
43	<b>SBI Card</b> , India	\$15.30	11,490	\$1,332
44	<b>Kasikornbank</b> , Thailand	\$12.79	2,746	\$4,657
45	<b>Citi</b> , Australia	\$12.43	1,193	\$10,422
46	<b>Maybank</b> , Malaysia	\$12.23	1,986	\$6,157
47	<b>Taishin Intl</b> , Taiwan	\$11.62	5,731	\$2,027
48	<b>ICICI</b> , India	\$10.77	9,912	\$1,087
49	<b>JACCS</b> , Japan	\$9.83	7,035	\$1,397
50	<b>Taipei Fubon</b> , Taiwan	\$9.55	3,856	\$2,478

UnionPay, Visa, Mastercard, Amex, Diners, JCB and domestic-market-only consumer and commercial credit cards.

© 2021 Nilson Report

## Top 50 Debit Card Issuers

Rank		Purchase Volume	Cards	Purchase Volume
'20	ISSUER, COUNTRY	(BIL.)	(000)	PER CARD
1	<b>China Construction</b> , China	\$1,513.85	1,208,000	\$1,253
2	<b>Agricultural Bank</b> , China	\$1,030.44	1,098,000	\$938
3	<b>ICBC</b> , China	\$974.27	967,000	\$1,008
4	<b>Bank of China</b> , China	\$508.36	705,818	\$720
5	<b>China Merchants</b> , China	\$348.10	114,615	\$3,037
6	<b>Bank of Communications</b> , China	\$113.01	159,239	\$710
7	<b>China Industrial</b> , China	\$77.56	56,526	\$1,372
8	<b>HuaXia</b> , China	\$75.50	38,702	\$1,951
9	<b>China Everbright</b> , China	\$67.33	67,703	\$994
10	<b>China Guangfa</b> , China	\$63.91	31,269	\$2,044
11	<b>Commonwealth</b> , Australia	\$49.09	9,966	\$4,926
12	<b>Shanghai Pudong Dev.</b> , China	\$44.37	75,296	\$589
13	<b>Westpac Banking</b> , Australia	\$42.91	9,080	\$4,726
14	<b>China Minsheng</b> , China	\$40.10	54,373	\$737
15	<b>Bank of Beijing</b> , China	\$29.43	29,622	\$994
16	<b>KB Kookmin Card</b> , South Korea	\$28.97	18,742	\$1,546
17	<b>SBI Bank</b> , India	\$25.22	294,529	\$86
18	<b>National Australia</b> , Australia	\$24.15	4,813	\$5,016
19	<b>ANZ Banking</b> , Australia	\$19.37	5,735	\$3,378
20	<b>NongHyup Bank</b> , South Korea	\$17.83	13,431	\$1,327
21	<b>Shinhan Card</b> , South Korea	\$13.26	10,990	\$1,206
22	<b>HDFC</b> , India	\$11.14	35,500	\$314
23	<b>CU Settlement</b> , Australia	\$10.15	1,982	\$5,124
24	<b>KEB Hana Card</b> , South Korea	\$8.71	7,936	\$1,098
25	<b>Bank Central Asia</b> , Indonesia	\$8.47	19,411	\$436
26	<b>ICICI</b> , India	\$8.12	45,379	\$179
27	<b>Bank Mandiri</b> , Indonesia	\$8.03	20,529	\$391
28	<b>Axis Bank</b> , India	\$6.00	23,143	\$259
29	<b>Japan Post Bank</b> , Japan	\$5.90	2,800	\$2,109
30	<b>DBS</b> , Singapore	\$5.25	3,645	\$1,441
31	<b>ANZ Bank</b> , New Zealand	\$4.27	1,545	\$2,762
32	<b>Punjab National</b> , India	\$3.87	43,403	\$89
33	<b>Bank of Baroda</b> , India	\$3.65	63,292	\$58
34	<b>Union Bank</b> , India	\$3.64	43,608	\$84
35	<b>Woori Card</b> , South Korea	\$3.42	941	\$3,635
36	<b>Canara Bank</b> , India	\$3.41	38,814	\$88
37	<b>Maybank</b> , Malaysia	\$2.67	6,372	\$419
38	<b>United Overseas</b> , Singapore	\$2.34	1,778	\$1,318
39	<b>Kasikornbank</b> , Thailand	\$2.31	12,223	\$189
40	<b>CTBC</b> , Taiwan	\$2.19	3,305	\$664
41	<b>Kotak Mahindra</b> , India	\$2.18	16,786	\$130
42	<b>Bank of India</b> , India	\$1.85	40,493	\$46
43	<b>VietinBank</b> , Vietnam	\$1.72	10,070	\$171
44	<b>Lotte Card</b> , South Korea	\$1.51	275	\$5,510
45	<b>Bank Negara</b> , Indonesia	\$1.37	12,141	\$112
46	<b>Hyundai Card</b> , South Korea	\$1.26	515	\$2,451
47	<b>Samsung Card</b> , South Korea	\$1.15	2,753	\$417
48	<b>IDBI</b> , India	\$1.12	13,063	\$86
49	<b>Heritage Bank</b> , Australia	\$1.11	1,176	\$948
50	<b>Citi</b> , India	\$0.79	1,665	\$477

UnionPay, Visa, Mastercard, Maestro and domestic-market-only debit & prepaid cards.

© 2021 Nilson Report

# Commercial Cards in the United States—Part 3

Credit, debit and prepaid consumer and commercial cards issued in the United States with American Express, Visa, Mastercard and Discover brands generated \$6.749 trillion in purchase volume for goods and services in 2020, up 0.8% from the prior year. Commercial card purchase volume declined 7.5% to \$1.389 trillion. Consumer card purchase volume grew 3.1% to \$5.360 trillion.

Corporate, purchasing/fleet, small business credit, small business debit and prepaid commercial card products are provided to employees of private companies, government agencies and nonprofit organizations. Prepaid products are used for payroll, government benefits, insurance payouts, disaster relief and more. All debit card figures below include prepaid cards. Purchase volume tied to commercial cards accounted for 20.59% of combined consumer and commercial card purchase volume in 2020, down from 22.43% in 2019.

Visa commercial credit and debit cards generated purchase volume of \$631.87 billion, down 4.4%. This gave the brand a market share of 45.48% versus combined commercial card spending at American Express, Mastercard and Discover. This was up from 44.00% in 2019.

Credit and debit card purchase volume on consumer products for Visa was \$3.538 trillion in 2020, up 5.1%, giving the brand a market share of 66.01% versus combined consumer card purchase volume on Mastercard, American Express and Discover cards. This was up from 64.76% in 2019.

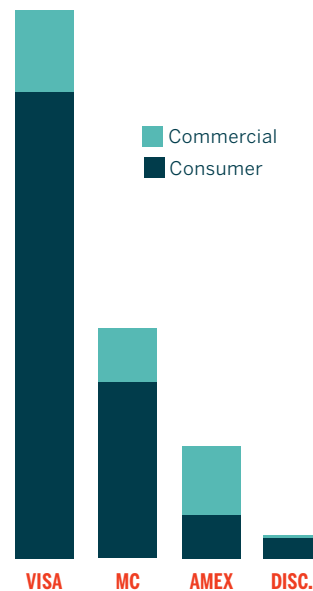
American Express commercial card purchase volume was \$354.52 billion in 2020, a decline of 17.8%. Amex's commercial card market

share of 25.51% dropped from 28.69% in 2019. There were no American Express commercial debit card products in the market in 2020.

Consumer card purchase volume at American Express of \$337.00 billion last year declined 14.5%. Its market share of 6.29% was down from 7.59% in 2019. Amex issues prepaid consumer card products.

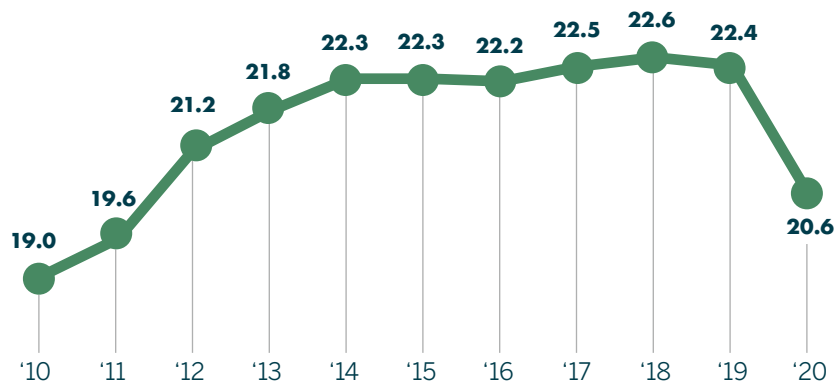
Mastercard commercial credit and debit card purchase volume dipped 1.7% to \$401.29 billion, giving it a market share of 28.88%. This was up from 27.19% in 2019. Consumer card purchase volume grew 3.9% to \$1.344 trillion in 2020. Mastercard's market share increased to 25.07% from 24.88%.

Discover consumer card purchase volume declined 2.3% to \$141.00 billion last year. Its market share of consumer card purchase volume was 2.63%, down from 2.78% in 2019. Discover offers one commercial card product,



**Spending on commercial cards totaled \$1.39 trillion in 2020 compared to \$5.36 trillion on consumer cards**

## Commercial Cards' Share of Purchase Volume (%)



© 2021 Nilson Report

a small business credit card. Purchase volume on that card was \$1.80 billion, down 2.0%. Discover's share of commercial card purchase volume was 0.13%, essentially unchanged from 0.12% in 2019.

Commercial cards accounted for 15.15% of combined Visa commercial and consumer purchase volume of \$4.170 trillion last year. At Mastercard, that figure was 23.00% of \$1.745 trillion and for Amex, it was 51.27% of \$691.52 billion.

Visa's market share grew to 58.51% when measuring only its \$1.480 trillion share of the \$2.530 trillion of consumer credit card purchase volume on all U.S. general purpose brands last year. In 2019, its share was 58.14%. Consumer purchase volume at Mastercard of \$571.63 billion gave it a 22.59%

market share, up from 22.15%. For American Express, its \$337.00 billion in consumer card spending gave it a market share of 13.32%, down from 14.43%. For Discover, consumer purchase volume of \$141.00 billion gave it a 5.57% share, up from 5.28%.

When measuring only commercial credit card purchase volume, Visa grew to a 42.45% market share in 2020 from 40.45%. Amex's share of 32.81% was down from 34.84%. Mastercard's share of 24.57% was essentially unchanged from 24.56%.

Prior issues: 1205, 1182, 1179, 1176, 1159, 1137, 1114, 1113, 1103, 1093, 1072, 1049, 1026, 1002

# Featurespace Fraud Fighting

Machine learning-based fraud fighting and anti-money laundering technology from Featurespace has been available in the U.K. since 2014. Beginning in 2017, the company started expanding to other countries. Today, there are over 70 clients in 20 countries that use its predictive models based on adaptive behavioral analytics and its ARIC Risk Hub. More than 75% of Featurespace's revenue comes from outside the U.K.

Most users of Featurespace fraud and financial crime fighting technology are card issuers and merchant acquirers. They can sign contracts directly with Featurespace or access the technology through a third-party processor. The company's technology can be the primary fraud fighting defense a company deploys or it can be added to existing systems. Tsys and Worldpay are customers.

The Featurespace technology excels at reducing false positives for fraud that result in denying payment transactions including credit and debit card authorization attempts. Increasingly, the company's fraud fighting

abilities are deployed to protect account-to-account (A2A) transactions. These push payments occur in near real time and are the fastest growing segment of payment fraud in countries where A2A payments are popular owing to scams that aim to trick consumers into providing bank account details.

Featurespace's technology was created in 2005 by the inventors of machine learning adaptive behavioral analytics. They were academics at Cambridge University. The Featurespace ARIC Hub is well suited for complex fraud fighting associated with card payments including the need to learn and deploy new defenses in near real time.

On an annualized basis, Featurespace reviews over 50 billion events. Most are card and payment authorizations but logins and account updates are also reviewed.

Featurespace is privately held. Investors include Insight Partners and TTV.

## IN THIS ARTICLE

## FEATURE SPACE

### INTERVIEWED FOR THIS ARTICLE

**Martina King** is Chief Executive Officer at Featurespace in Cambridge, U.K., [martina.king@featurespace.co.uk](mailto:martina.king@featurespace.co.uk), [www.featurespace.co.uk](http://www.featurespace.co.uk).

Prior issues: 1172, 1165, 1162, 1155, 1148, 1121, 1099, 1087, 1072, 1039

# Top 150 Merchant Acquirers Worldwide

The largest merchant acquirers worldwide of general purpose credit, debit and prepaid card transactions handled in calendar year 2020 are listed here. Figures include consolidated purchase transactions of all global and domestic card brands.

Of those listed, 58 handled more than 1 billion purchase transactions. New to the top 150 were Tyro (Australia), Credorax (Malta), and JCC Payment Systems (Cyprus).

Total transactions of 354.83 billion processed by the top 150 in 2020 were up 2.8% from 2019. JPMorgan Chase's market share among the top 150 went up to 10.0% from 9.4%. Russia-based Sberbank's share went up to 8.6% from 6.0% and Fiserv (First Data) went up to 6.3% from 5.9%.

The top 10 companies, which collectively processed 183.48 billion transactions, accounted for 51.7% of all transactions handled by all acquirers listed here. JPMorgan Chase overtook the Worldpay unit of FIS to become the largest merchant acquirer worldwide. China UMS moved from 7th largest to 6th. Citi Merchant Services moved from 11th to 9th. Worldline Group moved to 10th place from 19th due to its acquisitions of Six Payment Services, Paysquare, Bambora and Ingenico. Figures listed here include Worldline's joint venture with Payone. Worldline owns 60% of Payone.

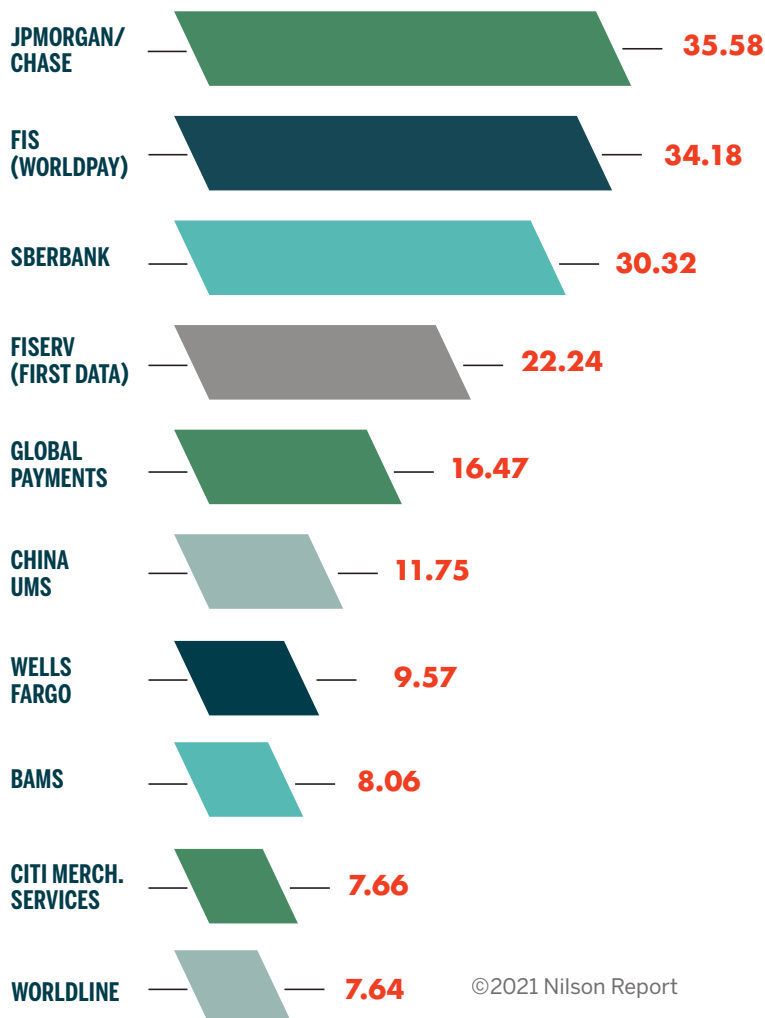
The table includes Bank of America Merchant Services (BAMS), a joint venture between the bank and First Data, which owned 51%. That JV ended June 30, 2020. BAMS business for the first six months of 2020 ranked at 8th place in the top 10. Bank of America's group figures shown in 12th place include its portion of the former BAMS for the second half of 2020 combined with the European business of BofA Merrill Lynch Merchant Services.

Desjardins (Monetico) Canada is now included with Global Payments Group after selling its portfolio at the end of 2019. Elavon divested its Mexico operations to Santander, and both Elavon and Santander divested businesses based in Puerto Rico.

Prior issues: 1183, 1161, 1139, 1117, 1095

## 10 Largest Acquirers

Ranked by Transactions in Billions



©2021 Nilson Report



# Largest 150 Merchant Acquirers Worldwide

## Ranked by Total Purchase Transactions in 2020

RANK	ACQUIRER, COUNTRY	(MIL.)	RANK	ACQUIRER, COUNTRY	(MIL.)	RANK	ACQUIRER, COUNTRY	(MIL.)
1	JPMorgan Chase, Group	35,581.4	51	Payway (Pris. Md. de Pago), Argentina	1,307.3	101	HDFC, India	245.8
2	FIS (Worldpay), Group	34,184.3	52	Garanti Bank, Turkey	1,231.9	102	Alpha Bank, Greece	241.4
3	Sberbank, Russia	30,320.8	53	Aeon Financial Service, Japan	1,153.3	103	Axis Bank, India	235.1
4	Fiserv (First Data), Group	22,235.9	54	UniCredit Group, Italy	1,146.9	104	SEB Group, Estonia	229.0
5	Global Payments, Group <sup>1</sup>	16,474.6	55	Raiffeisen Group, Austria	1,127.7	105	Valitor, Iceland	227.9
6	China UMS, China	11,746.0	56	Yapi Kredi Bank, Turkey	1,068.8	106	Credorax, Malta	220.9
7	Wells Fargo, U.S.	9,573.1	57	T. Isbank, Turkey	1,002.1	107	National Bank, Greece	216.6
8	BAMS, U.S. <sup>2</sup>	8,063.1	58	Absa Bank, South Africa	1,000.6	108	Payroc WorldAccess, U.S.	209.9
9	Citi Merchant Services, U.S.	7,658.8	59	Lloyds Bank Cardnet MS, U.K.	968.6	109	QNB Finansbank, Turkey	209.9
10	Worldline, Group <sup>3</sup>	7,637.6	60	Pasargad Elec. Payment, Iran	959.6	110	T.C Ziraat Bankasi, Turkey	207.0
11	Behpardakht Mellat, Iran	6,948.3	61	Gazprombank, Russia	952.1	111	Piraeus Bank, Greece	206.5
12	Bank of America, Group <sup>4</sup>	6,457.5	62	Paysafe Group, U.S.	891.5	112	Clearent, U.S.	201.9
13	Cielo, Group	6,279.7	63	Banco de Sabadell, Spain	873.2	113	Card Complete, Austria	201.6
14	Barclays, U.K.	6,196.3	64	Credit Saison, Japan	763.8	114	Denizbank, Turkey	200.6
15	Saman e-Pay, Iran	5,977.3	65	Banorte, Mexico	724.3	115	Riyad Bank, Saudi Arabia	197.7
16	Elavon, Group	5,378.2	66	Akbank, Turkey	685.2	116	Axepta, Italy	197.0
17	Parsian e-Commerce, Iran	5,257.5	67	Nedbank, South Africa	674.7	117	Kasikornbank, Thailand	192.2
18	BC Card, South Korea	5,245.0	68	First Natl Bank, South Africa	663.4	118	Nuvei Technologies, U.S.	191.2
19	Nets, Denmark	4,672.9	69	SBI Payment Services, India	647.6	119	Bancolumbia, Colombia	188.6
20	Rede, Brazil	4,620.6	70	CSOB, Czech Republic	605.6	120	Redwood Merch. Serv., U.S.	183.3
21	Santander, Group	4,260.5	71	Handelsbanken, Sweden	553.2	121	Borgun, Iceland	182.7
22	Adyen, Netherlands <sup>3</sup>	4,059.6	72	Bankia, Spain	548.6	122	NCCC, Taiwan	181.5
23	Credit Agricole, France	3,968.8	73	Truist Financial, U.S.	542.0	123	First Abu Dhabi Bank, U.A.E.	178.1
24	Moneris, Canada	3,810.0	74	No. American Bancard, U.S.	534.5	124	Titanium Payments, U.S.	173.3
25	Credit Mutuel, France	3,787.3	75	Priority Technology Holdings, U.S.	532.7	125	Turk Ekonomi Bankasi, Turkey	172.1
26	Asan Pardakht Persian, Iran	3,740.4	76	Merrick Bank, U.S.	531.1	126	Orient Corp., Japan	167.7
27	EVO, Group	3,522.9	77	La Banque Postale, France	519.2	127	Sicredi, Brazil	164.6
28	KB Kookmin, South Korea	3,413.2	78	Market Pay, France	508.1	128	Izipay (Procesos Med. de Pago), Peru	157.9
29	Swedbank, Sweden	3,166.5	79	Unicre, Portugal	481.5	129	Bank Mandiri, Indonesia	152.6
30	Iran Kish Credit Card, Iran	2,955.0	80	BAC Credomatic Network, Group	463.5	130	Natl Commercial Bank, Saudi Arabia	151.2
31	JCB, Japan	2,900.3	81	Shift4 Payments, U.S.	441.5	131	KeyBank, U.S.	142.4
32	Nexi Payments, Italy	2,779.4	82	PNC Merchant Services, U.S.	410.3	132	Alfa Bank, Russia	140.6
33	BBVA, Group	2,743.4	83	CTBC, Taiwan	393.8	133	Intuit, U.S.	140.3
34	ANZ, Group	2,668.6	84	Tinkoff Bank, Russia	391.0	134	Gravity Payments, U.S.	134.3
35	BPCE, France	2,208.8	85	Evertac Group, Puerto Rico	386.5	135	i3 Verticals, U.S.	132.6
36	BNP Paribas, France	2,194.0	86	Russian Standard Bank, Russia	368.5	136	Hang Seng, Hong Kong	132.1
37	Westpac, Australia	2,162.4	87	Vakifbank, Turkey	366.7	137	Banco Davivienda, Colombia	126.1
38	Commonwealth, Australia	1,992.6	88	Standard Bank, South Africa	363.9	138	Epicor Software, U.S.	125.1
39	Transbank, Chile	1,866.5	89	Niubiz, Peru	320.5	139	CardNet, Dominican Republic	113.5
40	PagSeguro, Brazil	1,864.0	90	Network International, U.A.E. <sup>1</sup>	314.4	140	Paya, U.S.	113.5
41	VTB Bank, Russia	1,835.8	91	T. Halk Bankasi, Turkey	306.9	141	Millennium BCP, Portugal	113.3
42	StoneCo, Brazil	1,813.0	92	Vero, Brazil	306.3	142	VisaNet, Guatemala	107.7
43	Samsung Card, South Korea	1,789.8	93	SABB, Saudi Arabia	301.6	143	TabaPay, U.S.	107.6
44	Societe Generale, France	1,677.0	94	PostFinance, Switzerland	301.0	144	Scotiabank, Group	99.8
45	PrivatBank, Ukraine	1,600.0	95	Tyro, Australia	297.2	145	Aurora Payments, U.S.	95.0
46	Hyundai Card, South Korea	1,584.7	96	Promsvyazbank, Russia	276.6	146	Privredna Banka, Croatia	92.6
47	Mitsubishi UFJ Nicos, Japan	1,434.8	97	First American Payment Sys., Group	262.4	147	BankCard Services, U.S.	84.6
48	TD Merchant Solutions, Group	1,429.3	98	Electronic Payments, U.S.	257.6	148	CMI, Morocco	84.4
49	National Australia Bank, Australia	1,418.1	99	Al Rajhi Bank, Saudi Arabia	253.6	149	JCC Payment Systems, Cyprus	82.8
50	Sadad Informatics, Iran	1,308.8	100	Mashreq Bank, U.A.E.	248.9	150	United Merchant Serv., U.S.	81.6

Ranked by all purchase transactions (Visa, Mastercard, UnionPay, Amex, Discover, JCB, Diners Club and domestic-market-only by country. Group includes transactions from all countries in which the company is an acquirer. <sup>1</sup> Estimate. <sup>2</sup> Estimate for Bank of America Merchant Services JV prior to its closing. <sup>3</sup> Includes business in Europe only. <sup>4</sup> Europe business plus the U.S. portion 100% owned by Bank of America after July 1, 2020 (estimate). ©2021 Nilson Report

# Pentadata Open-Banking Partnerships

Pentadata uses machine learning to create signals (physical support of information) and value-added concepts that extract actionable information from raw consumer payment and financial data. Raw data is received from issuers, processors, card networks and credit bureaus by way of consumers who have agreed to make it available to third parties. Signals are shared via APIs and can be used for building apps, creating rewards, offering cash-back cards and providing card-linked rewards programs.

Recent partnerships have expanded Pentadata's access to data as well as deepened its ability to share signals via APIs.

The company has integrated with the Akoya Data Access Network. Akoya is backed by 12 large financial institutions in North America including JPMorgan Chase, Capital One, Bank of America, Citi and Wells Fargo. Pentadata, which already had access to most of Akoya's clients, says that redundancies inherent in adding the Akoya link will improve signals.

## IN THIS ARTICLE



### INTERVIEWED FOR THIS ARTICLE

**Pietro Grandinetti** is President and Chief Technology Officer at Pentadata Inc. in Burlingame, California, [pietro@pentadatainc.com](mailto:pietro@pentadatainc.com), [www.pentadatainc.com](http://www.pentadatainc.com).

Prior issues: 1192, 1170

Secure API agreements with FIS and Mastercard-owned Finicity enable developers and fintechs to offer payments within apps as well as provide loyalty programs and card-linked offers to consumers. The integrations also support giving consumers the option to pay with points.

Pentadata operates entirely on permission-based access to a consumer's bank or credit card account. Some companies that provide data to fintechs and app developers obtain information via screen scraping, which many consumers consider to be intrusive and a violation of privacy. Pentadata says it already had access to substantially all bank accounts and credit card numbers in North America through its permission-based model and that using Akoya will provide consistently high-quality and fully current data directly from financial institutions.

Pentadata is compliant with European Union and State of California consumer privacy laws.

# Biometric Cards from Fingerprints and Infineon

The cost of biometric payment cards has precluded their mass market adoption. However, a technological breakthrough might have solved a major cost factor in producing biometric cards.

One year after finalizing a product development deal, Infineon and Fingerprint Cards announced they have figured out a way to include all software needed to manage Fingerprint Cards' T-Shape sensor within Infineon's 40nm SLC38 multi-interface secure element. Until now, the biometric authentication

## IN THIS ARTICLE



FINGERPRINTS



function and storage of a template of a registered fingerprint occurred on a stand-alone secure element with the sensor managed by an additional microcontroller.

Infineon says that over 47% of all newly manufactured payment cards worldwide use its secure element and microcontrollers. This makes it the largest provider in an industry that includes NXP and STMicroelectronics. Fingerprint Cards' sensor modules have been used in over 25 biometric payment card tests and product launches since 2018.

The technological breakthrough occurred when engineers at Fingerprint Cards successfully reduced the memory footprint, flash and RAM requirements of its software until it fit into the Infineon SLC38.

By doing so, the price of a biometric payment card gets closer to the price of a standard dual-interface (contact/contactless)

card by reducing the complexity in the manufacturing process to enable the issuance of cards at scale.

Fingerprint Cards' sensor software is available to card manufacturers worldwide for contact and contactless products that use Infineon's SLC38 secure element.

#### INTERVIEWED FOR THIS ARTICLE

**Michel Roig** is Senior VP, Head of Business Line Payments & Access at Fingerprint Cards in Malmo, Sweden, [michel.roig@fingerprints.com](mailto:michel.roig@fingerprints.com), [www.fingerprints.com](http://www.fingerprints.com).

**Tolgahan Yildiz** is VP and Head of Product Line Payment & Ticketing at Infineon in Neubiberg, Germany, [tolgahan.yildiz@infineon.com](mailto:tolgahan.yildiz@infineon.com), [www.infineon.com](http://www.infineon.com).

**Prior issues:** 1193, 1192, 1191, 1182, 1165, 1162, 1161, 1156, 1153, 1149

## BBPOS Custom Terminals

Hardware from BBPOS is used by merchants to accept card payments in 40 countries. The company's product line includes devices inserted into smartphones that read contact and contactless chips and magnetic stripes, pocket-sized PCI-compliant handheld mobile terminals that handle chip & PIN and connect

via Bluetooth to phones and tablets and smart tablets.

More than 20 million BBPOS manufactured devices have been shipped over the last decade.

BBPOS differs from competitors in the degree to which it is willing to create custom products for end users. Customization can occur with handheld card readers, mPOS terminals and tablets. The willingness to customize helps BBPOS win contracts to provide products to multinational corporations. Those clients also benefit from the company's integrated global approach to customer service support, rather than the regional approach used by other manufacturers.

In recent years, BBPOS has seen an uptick in business from outside typical merchant card acquiring channels. The company's smart tablet was created to support nonpayment applications and includes scanning capability. Payment processing is a secondary feature provided by a self-contained module BBPOS inserts into the device. End users include transit companies in North America and Western Europe.

Also available from BBPOS is a device management platform that handles all types of devices.

#### IN THIS ARTICLE



#### INTERVIEWED FOR THIS ARTICLE

**Stuart Taylor** is Chief Product Officer at BBPOS in Roseville, California, [stuart.taylor@bbpos.com](mailto:stuart.taylor@bbpos.com), [www.bbpos.com](http://www.bbpos.com).

**Prior issues:** 1202, 1177, 1171



# Publicly Traded Companies in Payments

Market Data as of Oct. 14, 2021

Company	Market Cap.	Stock Exch.	Stock Price	52 Week Low/High
HEADQUARTERS	USD (MIL.)		USD	USD
<b>PAYMENT PROCESSORS</b>				
PayPal, U.S.	313,285	Nasdaq	261.50	174.81 – 310.16
Shopify, Canada	176,508	NYSE	1,413.15	875.00 – 1,650.00
Square, U.S.	114,462	NYSE	248.12	151.10 – 289.23
Adyen, Netherlands	92,310	Euronext	2,929.00	1,658.80 – 3,257.30
FIS Global, U.S.	74,836	NYSE	117.99	114.34 – 155.96
Fiserv, U.S.	71,300	Nasdaq	105.50	92.81 – 127.34
Global Payments, U.S.	45,622	NYSE	154.21	148.69 – 220.81
Worldline	22,210	Euronext	78.88	71.50 – 99.00
Nexi, Italy	20,330	Euronext	19.17	14.56 – 22.52
Nuvei, Canada	18,166	Nasdaq	127.12	36.96 – 140.23
dLocal, Uruguay	17,373	Nasdaq	56.50	29.57 – 73.43
Marqeta, U.S.	12,565	Nasdaq	22.88	19.78 – 32.75
Jack Henry, U.S.	12,373	Nasdaq	165.71	141.65 – 179.98
PagSeguro, Brazil	11,718	NYSE	35.28	31.10 – 62.83
Stone, Brazil	10,241	Nasdaq	32.52	30.71 – 95.12
GMO Pymt. Gateway, Japan	9,363	Tokyo	121.73	99.67 – 144.22
Euronet, U.S.	6,973	Nasdaq	131.27	86.42 – 167.71
Shift4 Payments, U.S.	6,015	NYSE	70.07	47.05 – 104.11
Paysafe, Isle of Man	5,739	NYSE	7.50	6.90 – 19.57
BigCommerce, U.S.	4,005	Nasdaq	53.39	42.17 – 108.45
ACI, U.S.	3,654	Nasdaq	30.38	28.57 – 43.23
Evertec, Puerto Rico	3,376	NYSE	46.64	32.79 – 48.58
Payoneer, U.S.	2,909	Nasdaq	8.50	8.02 – 14.50
Network Intl., U.K.	2,480	London	436.07	265.92 – 630.06
Repay, U.S.	2,056	Nasdaq	22.83	20.18 – 28.42
Bottomline Tech., U.S.	1,801	Nasdaq	38.92	36.05 – 55.09
Deluxe, U.S.	1,617	NYSE	37.72	20.89 – 48.38
Pushpay, New Zealand	1,500	NZX	1.29	1.08 – 1.70
Tyro Payments, Australia	1,470	ASX	2.85	1.71 – 3.26
Global Blue, Switzerland	1,371	NYSE	7.10	5.74 – 15.90
Paya, U.S.	1,280	Nasdaq	9.85	8.99 – 15.00
Cielo, Brazil	1,210	São Paulo	0.46	0.40 – 0.80
EVO Payments, U.S.	1,073	Nasdaq	21.95	20.45 – 31.99
i3 Verticals, U.S.	797	Nasdaq	24.72	20.25 – 35.99
Boku, U.S.	745	London	250.71	153.21 – 291.13
Qiwí, Cyprus	565	Nasdaq	8.91	7.96 – 17.00
GHL Systems, Malaysia	542	BM	0.48	0.34 – 0.52
GreenBox POS, U.S.	311	Nasdaq	7.35	1.68 – 20.78
Net 1 UEPS, So. Africa	295	Nasdaq	4.95	2.87 – 6.62
Bango, U.K.	183	London	241.19	160.98 – 421.96

Company	Market Cap.	Stock Exch.	Stock Price	52 Week Low/High
HEADQUARTERS	USD (MIL.)		USD	USD
<b>BUY NOW, PAY LATER COMPANIES</b>				
Affirm, U.S.	38,300	Nasdaq	151.10	46.50 – 153.49
Afterpay, Australia	26,030	ASX	87.84	69.32 – 118.44
Zip, Australia	2,890	ASX	4.97	3.67 – 10.75
Sezzle, U.S.	940	ASX	4.51	3.65 – 8.87
Humm Group, Australia	319	ASX	0.66	0.58 – 1.01
Splitit, U.S.	153	ASX	0.30	0.24 – 1.14
Openpay, Australia	141	ASX	1.07	0.82 – 2.64
Zebit, U.S.	40	ASX	0.42	0.42 – 1.12
<b>PAYMENT CARD NETWORKS</b>				
Visa, U.S.	492,202	NYSE	223.13	179.23 – 252.67
Mastercard, U.S.	337,743	NYSE	343.84	281.20 – 401.50
American Express, U.S.	135,808	NYSE	171.00	89.11 – 179.67
Discover, U.S.	37,582	NYSE	124.87	60.42 – 135.69
<b>BILL PAYMENT COMPANIES</b>				
Bill.com, U.S.	30,940	NYSE	299.47	89.19 – 308.65
EngageSmart, U.S.	5,196	Nasdaq	31.57	30.00 – 38.83
AvidXchange, U.S.	4,602	Nasdaq	24.69	23.35 – 25.00
Paymentus, U.S.	2,862	NYSE	24.58	22.53 – 39.23
Fawry, Egypt	1,680	EGX	1.06	0.71 – 1.66
Billtrust, U.S.	1,604	Nasdaq	10.21	9.30 – 19.76
PayPoint, U.K.	674	London	908.26	661.71 – 1,006.96
<b>CREDIT, DEBIT AND PREPAID CARD ISSUERS</b>				
Synchrony Financial, U.S.	28,038	NYSE	49.28	24.47 – 52.20
FleetCor, U.S.	21,477	NYSE	260.29	214.88 – 295.36
SoFi Technologies, U.S.	15,509	Nasdaq	19.80	11.80 – 28.26
SBI Card & Pay. Serv., India	14,242	NSE	14.74	10.20 – 15.51
Edenred, France	13,660	Euronext	55.00	45.08 – 60.02
Wex, U.S.	8,478	NYSE	186.45	122.64 – 234.64
Alliance Data Sys., U.S.	4,902	NYSE	98.44	42.80 – 128.16
Green Dot, U.S.	2,488	NYSE	45.16	38.95 – 62.65
Meta Financial, U.S.	1,961	Nasdaq	60.00	21.69 – 60.45
The Bancorp, U.S.	1,655	Nasdaq	29.05	8.41 – 31.30
Eurowag, Czech Republic	1,328	LSE	193.69	157.55 – 205.50
EML Payments, Australia	851	ASX	2.28	1.83 – 4.36
PaySign, U.S.	134	Nasdaq	2.59	2.34 – 6.14
<b>CARD MANUFACTURERS</b>				
Thales, France	20,650	Euronext	95.82	63.82 – 107.18
Wuhan Tianyu, China	838	Shenzhen	1.97	1.16 – 2.83
Eastcompeace, China	694	Shenzhen	1.58	1.36 – 2.14
CPI Card, U.S.	298	Nasdaq	25.03	2.34 – 38.92



## Market Data as of Oct. 14, 2021

Company	Market Cap.	Stock Exch.	Stock Price	52 Week Low/High
HEADQUARTERS	USD (MIL.)		USD	USD
<b>CARD MANUFACTURERS (Cont.)</b>				
CompuSecure, U.S.	294	Nasdaq	10.14	9.45 – 10.75
Goldpac, Hong Kong	183	HKSE	0.22	0.18 – 0.35
Valid, Brazil	121	São Paulo	1.53	1.24 – 2.03
<b>HARDWARE/SOFTWARE COMPANIES</b>				
Toast, U.S.	28,140	Nasdaq	54.68	49.00 – 65.99
Lightspeed POS, Canada	14,262	NYSE	95.48	30.95 – 130.02
NCR, U.S.	5,594	NYSE	42.23	19.40 – 50.00
GRG Banking, China	3,950	Shenzhen	1.60	1.34 – 2.24
Zuora, U.S.	2,415	NYSE	19.25	9.27 – 19.80
Everi, U.S.	2,208	NYSE	25.31	8.15 – 26.61
Par Technology, U.S.	1,823	NYSE	65.96	36.00 – 90.35
Pax Global, China	1,380	HKSE	1.29	0.57 – 1.43
Nayax, Israel	1,310	Tel Aviv	400.80	275.90 – 417.90
Diebold Nixdorf, U.S.	827	NYSE	10.37	5.97 – 17.30
Cantaloupe, U.S.	746	Nasdaq	10.60	7.75 – 12.99

Company	Market Cap.	Stock Exch.	Stock Price	52 Week Low/High
HEADQUARTERS	USD (MIL.)		USD	USD
<b>HARDWARE/SOFTWARE COMPANIES (Cont.)</b>				
ClearSale, Brazil	731	São Paulo	4.07	3.86 – 5.49
Eckoh, U.K.	190	London	75.35	71.24 – 117.00
<b>MONEY TRANSFER COMPANIES</b>				
Wise, U.K.	12,820	London	1,278.00	1,088.70 – 1,611.80
Western Union, U.S.	8,464	NYSE	20.50	19.07 – 26.61
Remitly, U.S.	6,110	Nasdaq	36.29	35.55 – 53.65
Flywire, U.S.	5,767	Nasdaq	54.00	27.63 – 57.41
MoneyGram Intl., U.S.	714	Nasdaq	7.96	3.86 – 12.36
Intl. Money Express, U.S.	653	Nasdaq	16.98	13.14 – 18.96
<b>LOYALTY/REWARDS</b>				
Cardlytics, U.S.	2,799	Nasdaq	84.17	70.70 – 161.47
Groupon, U.S.	702	Nasdaq	23.12	18.54 – 64.69
Quotient Technology, U.S.	582	NYSE	6.15	5.46 – 17.93
Aimia, Canada	378	Toronto	4.08	2.71 – 4.52
Points Intl., Canada	263	Nasdaq	17.75	9.24 – 18.90

All figures shown in U.S. dollars with exchange rates as of October 14, 2021. **ASX** is Australia Securities Exchange based in Sydney. **BM** is Bursa Malaysia, the stock exchange of Malaysia. **EGX** is the stock exchange of Egypt. **HKSE** is the Hong Kong Stock Exchange. **Nasdaq** and **NYSE** (New York Stock Exchange) are based in New York. **NSE** is the National Stock Exchange of India based in Mumbai. **NZX** is the New Zealand Stock Exchange based in Wellington. **São Paulo** is the B3 Exchange based in São Paulo.

© 2021 Nilson Report

## Digital Currency Update

### Payments

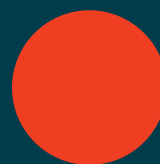
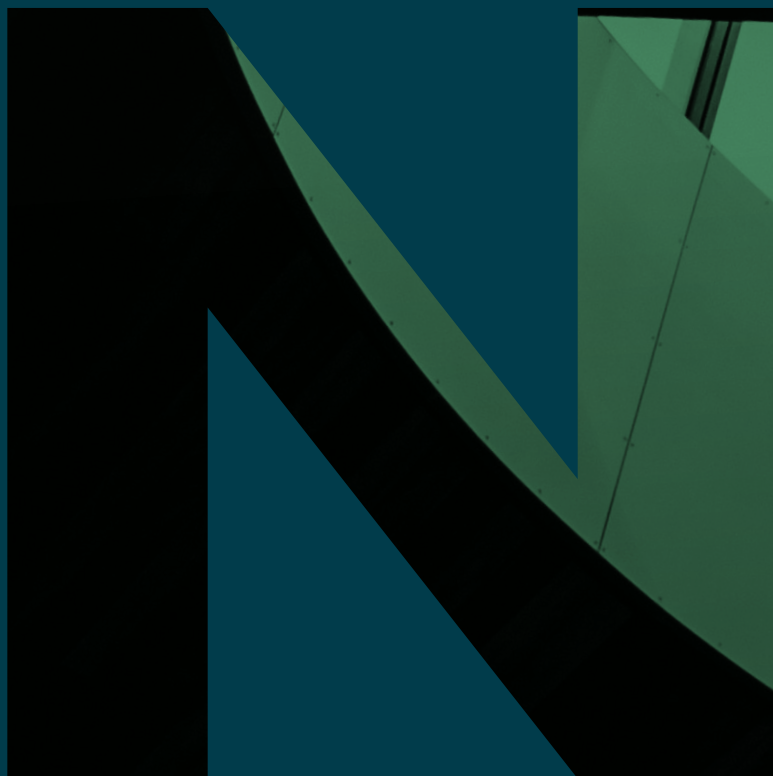
**Verifone** will partner with BitPay to enable cryptocurrency payments on Verifone's in-store and online platforms in the U.S. Consumers will not need to have a BitPay account. In-store transactions will use QR codes and approved crypto wallets. **BitPay** also announced a partnership with **Wix**, an ecommerce platform provider. **Bakkt**, a digital-asset marketplace, has partnered with **Google Pay** to allow users of Bakkt Visa virtual debit cards to convert and spend digital assets where Google Pay is accepted. **Coti**, a cryptopayment platform, has partnered with Nuvei-owned payment processor **Simplex** to offer crypto-friendly bank accounts and Visa-branded debit cards. Simplex is a

principal member of Visa. **Monneo**, a virtual IBAN provider, has partnered with **Coinbase**, a cryptocurrency exchange platform, to settle B2B invoices using digital assets. **Stripe**, a payment processor, is hiring a crypto-engineering team years after withdrawing support for Bitcoin.

### Policy

A group of businesses and individuals have formed the **Digital Pound Foundation** to press for CBDC and digital-asset development in the U.K. Members include Accenture, Avalanche, Billon Group, CGI Group, Electroneum, Quant and Ripple. The **Central Bank of Nigeria** announced guidelines for a Nigerian CBDC called the eNaira.

The **Central Bank of New Zealand** is seeking comment on CBDCs after releasing an issues paper. The **Hong Kong Monetary Authority** authored a white paper exploring the use of a CBDC. Finance leaders of the **Group of Seven** countries released a statement framing goals for CBDCs. The **U.S. Department of Justice** will form a cryptocurrency enforcement team focused on addressing crime committed by virtual currency exchanges, mixing and tumbling services, and money-laundering. It will help recover assets lost to fraud, including payments to ransomware groups. **Compound**, a decentralized finance platform, mistakenly credited users with \$89 million in cryptocurrency.



## OUR PROMISE

No paid advertising.  
No sponsored content of any kind.  
No pay-to-play interviews.

---

We do not promote white papers,  
podcasts, seminars or webinars in  
return for financial compensation.

---

No company can pay to be featured  
in our newsletter.

## Message from the Publisher,

Last year, we redesigned the Nilson Report and soon after were honored to receive an Eddie Award from *Folio* for excellence in design and content in the category B2B–Banking, Finance and Business. Since then, we have continued to develop our design and expand both the feature content and proprietary statistics we provide to our subscribers. We are delighted to announce that we have received an Eddie Award for the second year in a row.

David Robertson, Publisher  
October 19, 2021