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Published on July 29, 2024

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EMERGING TECH RESEARCH

# Currency Crossroads: A Cross-Border Payments Deep Dive

Exploring modern solutions to age-old challenges in global finance

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## Note snapshot

**Definition:** Cross-border payments are transactions that take place between two parties in different countries. They are categorized as wholesale or retail payments. Wholesale payments are high-value transactions between large entities, and retail payments are lower-value transactions among consumers and businesses. The bulk of cross-border transactions are wholesale.

**Market:** International payment flows totaled \$190 trillion in 2023 and are projected to reach \$290 trillion in 2030.<sup>1</sup> In this period, wholesale payments are expected to grow 54% and retail payments are expected to grow 47%. B2B e-commerce has the fastest projected growth rate in the retail markets at 120%, followed by B2C payments at 83%.<sup>2</sup>

**Shifting trends:** Market forces such as globalization, supply chain adjustments, evolving foreign investment flows, enhanced financial inclusion, improvements in payment infrastructure, and the rise of AI are transforming global payment processes.

**Revenue pool:** Revenues from cross-border payments totaled \$193.3 billion in 2023.<sup>3</sup> Wholesale and retail B2B payments made up 79.6% of this total. 27.8% of these revenues were from North America, and 25.8% were from Asia-Pacific (APAC).

**The problem:** Transacting across borders can be slow, expensive, and opaque because payment systems are not interoperable and not everyone can have an account at the same bank. Instead, we connect bank accounts in the same way we use connecting flights to reach destinations. This inefficient process is known as correspondent banking and is the backbone of cross-border payments.

**The solutions:** Cross-border payments are becoming streamlined as more financial networks link together. Some companies are making this possible with their own

1: "Cross-Border Payments Market Sizing Data," FXC Intelligence, n.d., accessed July 16, 2024.

2: "How Big Is the B2B Cross-Border Payments Market? 2030's \$56TN TAM," FXC Intelligence, Lucy Ingham and James McKee, April 27, 2023.

3: "Fintech 2025+," Convera, June 5, 2024.

infrastructures created from direct connections. Others are finding innovative ways to bypass correspondent banking by using blockchain. Payment systems are also becoming increasingly interoperable with the global migration to ISO 20022, a modern messaging standard.

**Who wins:** This is not a winner-takes-all market because cross-border payments involve multiple components. Companies providing infrastructure, modern bank cores, compliance expertise, card issuing, payment processing, remittances, digital wallets, and blockchain solutions all have significant roles. Central banks, regulators, legacy money transfer operators (MTOs), established fintech companies, and major card schemes also have a role to play.

**Deal environment:** In the first half of 2024, cross-border payment companies raised \$318.4 million in venture capital, representing 2.3% of overall fintech deal value. In 2023, VC deal value in cross-border payments totaled \$445.3 million. Deal activity in this space has been significantly weighted toward enterprise companies, which have captured 78.5% of YTD VC deal value. In this period, European companies secured 55.2% of total cross-border payments VC deal value, followed by 21.1% for Asian companies and 15.3% for North American companies.

## Introduction

The cross-border payments industry represents a massive market, with nearly \$200 trillion in payment flows.<sup>4</sup> Traditional methods of transferring money internationally have been plagued by inefficiencies, leading to high costs, slow speeds, and poor user experiences. These challenges stem from a historical lack of standardized data messaging and limited interoperability between payment systems. Over the past few decades, the fintech industry has been striving to address these issues. Although significant progress has been made, substantial opportunities remain to alleviate pain points in many regions around the world.

This note offers a comprehensive overview of the current state of cross-border payments and the innovations reshaping the industry. We begin by defining the cross-border payments market and its size. We then explore shifting dynamics and notable global trends affecting international money exchanges, with a focus on the adoption of the modern payment messaging standard ISO 20022. In the second half of the note, we delve into the root causes of cross-border payment challenges, the current landscape, the pivotal role of fintech companies, and the state of VC investment in this space.

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4: "Cross-Border Payments Market Sizing Data," FXC Intelligence, n.d., accessed July 16, 2024.

Cross-border payments are categorized as wholesale or retail payments. Wholesale payments make up the bulk of total payment flows and have a higher projected growth rate than retail payments. Revenues from facilitating cross-border transactions are derived mostly from B2B payments and generated mostly by North America and APAC.

## Defining the cross-border payments market

### Market size

Cross-border payments are divided into two primary categories: wholesale payments and retail payments.

#### Wholesale

- **Definition:** High-value cross-border transactions that are typically conducted between financial institutions, corporations, governments, and other large entities.
- **Examples:** Imports and exports, trading of capital markets instruments, exchanges of US Treasuries, oil purchases, foreign exchange settlements, loans, and corporate funding.
- **Transaction volumes:** In 2023, wholesale cross-border payment flows totaled \$145.6 trillion.<sup>5</sup> 18.1% came from institutional investors, 17.7% from hedge funds and proprietary trading firms, 1.6% from governments and central banks, and 62.6% from other banks and investors.

#### Retail

- **Definition:** Cross-border payments among consumers or small businesses that involve smaller amounts of money.
- **Examples:** Online purchases from an international e-commerce website, remittances sent to and from individuals, and tourists paying for goods or services while abroad.
- **Transaction volumes:** In 2023, retail cross-border payment flows totaled \$44.2 trillion.<sup>6</sup> 38.9% came from large-enterprise B2B transactions, 23.5% from small-and-medium-size-enterprise (SME) B2B transactions, 22.6% from B2B e-commerce transactions, 7.0% from consumer-to-business (C2B) transactions, 4.1% from consumer-to-consumer (C2C) transactions, and 3.8% from B2C transactions.

Combined, cross-border wholesale and retail payment flows totaled \$189.8 trillion in 2023, with 76.7% coming from the wholesale market.<sup>7</sup> According to FXC Intelligence, total cross-border payment flows will surpass \$290 trillion by 2030, representing a CAGR of 6.3%.<sup>8</sup> The wholesale market is expected to contribute slightly more to this growth, with a projected growth rate of 54% compared with the retail market's 47%.

However, key segments in the retail market are expected to witness significant growth by 2030. B2B e-commerce is anticipated to grow the fastest at 120%,

5: "Cross-Border Payments Market Sizing Data," FXC Intelligence, n.d., accessed July 16, 2024.

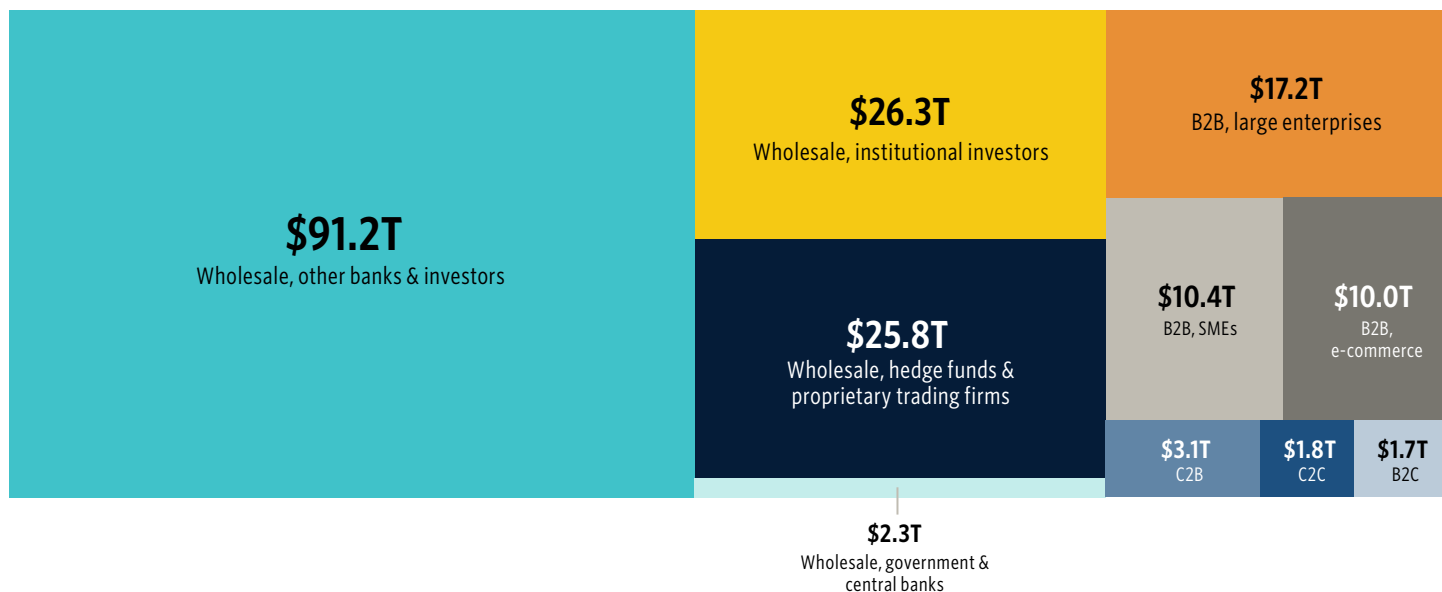
6: Ibid.

7: Ibid.

8: Ibid.

reaching payment flows of \$21.9 trillion.<sup>9</sup> B2C, C2B, and C2C payments, while the smallest markets, are projected to have the next-highest growth rates of 83%, 82%, and 80%, respectively, reaching market sizes of \$3.2 trillion, \$5.6 trillion, and \$3.3 trillion, respectively.<sup>10</sup> By contrast, B2B cross-border payments by large enterprises and SMBs are expected to see the lowest growth rates of 15% and 10%, respectively, reaching market sizes of \$1.9 trillion and \$19.7 trillion, respectively.<sup>11</sup> Despite their slower growth rates, these two markets are expected to constitute the bulk of retail cross-border payment flows in 2030.

## Cross-border payment values in 2023\*



Source: [FXC Intelligence](#) • Geography: Global • \*As of April 23, 2024

## Revenue pool

Revenues from cross-border payments, generated from transaction fees, totaled \$193.3 billion in 2023.<sup>12</sup> B2B payments, spanning both wholesale and retail markets, accounted for 79.6% of this total, or \$153.8 billion. The remainder was divided among C2B payments at 10.5% (\$20.3 billion), B2C payments at 5.3% (\$10.3 billion), and C2C payments at 4.6% (\$8.9 billion).

2023's cross-border payment revenues were derived primarily from North America and APAC, which accounted for 27.8% and 25.8% of them, respectively, or \$53.7 billion and \$49.9 billion, respectively.<sup>13</sup> Europe, the next-largest contributor, generated 20.4%, or \$39.4 billion, of the revenue pool. Together, these three regions produced 74.0% of the cross-border payments revenue pool due to their strong payment infrastructures, usage of faster payment systems, and digital adoption. The remaining regions, Latin America (LATAM) and the Middle East & Africa (MEA),

9: "How Big Is the B2B Cross-Border Payments Market? 2030's \$56TN TAM," FXC Intelligence, Lucy Ingham and James McKee, April 27, 2023.

10: Ibid.

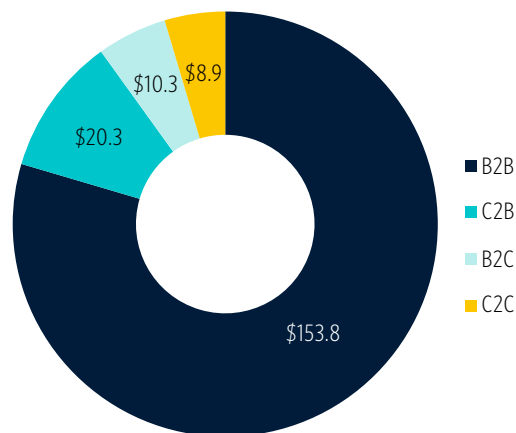
11: Ibid.

12: "Fintech 2025+," Convera, June 5, 2024.

13: Ibid.

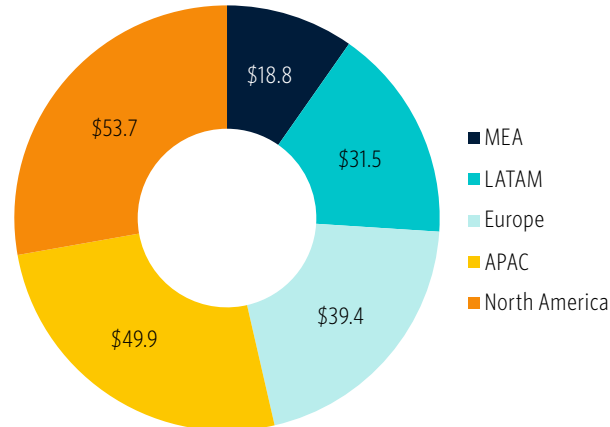
generated 16.3% and 9.7% of the revenue pool, respectively, or \$31.5 billion and \$18.8 billion, respectively.<sup>14</sup> While payment infrastructures are not as developed in these regions, increasing digital adoption and access to financial services are driving growth.

### Cross-border payment revenues (\$B) by segment in 2023\*



Sources: PitchBook; Convera; BCC Research - IFT267A Cross-border Payments: Global Market Trends and Forecast (2022-2027) • Geography: Global  
\*As of June 5, 2024

### Cross-border payment revenues (\$B) by region in 2023\*



Sources: PitchBook; Convera; BCC Research - IFT267A Cross-border Payments: Global Market Trends and Forecast (2022-2027) • Geography: Global  
\*As of June 5, 2024

14: "Fintech 2025+," Convera, June 5, 2024.

The cross-border payments landscape involves many participants, such as banks, fintech companies, MTOs, payment schemes, and regulators.

## The cross-border payments landscape

Facilitating a cross-border payment is complex and often involves many different players. Below is a high-level overview of the main participants in the landscape:

- **Banks:** Banks play a central role in cross-border payments and act as a primary interface between customers and the payments system. They facilitate cross-border payments by maintaining nostro/vostro accounts (explained in greater detail later in this note), communicating payment details, integrating with payment rails, and ensuring compliance with regulatory requirements. Banks can also serve as correspondent banks for other financial institutions, supporting the correspondent banking system that underpins cross-border transactions. Banks that process cross-border payments include JPMorgan Chase, HSBC, Citibank, Royal Bank of Canada, and Crown Agents Bank. Banks can also be innovators of cross-border payment applications. For example, in January 2024, HSBC launched its cross-border remittance app Zing.
- **Central banks:** Central banks, such as the US Federal Reserve, the European Central Bank (ECB), and the Monetary Authority of Singapore, play a crucial regulatory and operational role by overseeing national payment systems, managing foreign exchange reserves, and establishing payment standards and initiatives. Central banks drive payment innovation within their jurisdictions; for example, the Bank of England (BoE) mandated the adoption of ISO 20022 for Clearing House Automated Payment System (CHAPS) payments. Moreover, central banks are increasingly exploring central bank digital currencies (CBDCs) for cross-border transactions. For instance, the Bank of Thailand, Hong Kong Monetary Authority, People's Bank of China, and the Central Bank of the United Arab Emirates have been testing a multi-CBDC platform for seamless cross-border transactions among their respective countries, known as Project mBridge.
- **MTOs:** MTOs specialize in international money transfers, providing customers with an alternative to directly interfacing with banks. Traditionally, MTOs were widely used for services such as wire transfers and cash pickups. To enable this, MTOs acted as an intermediary between senders and receivers and coordinate the movement of funds on the back end via their network of banks and agents. With the arrival of the digital age, MTOs have adapted by allowing users to send and receive funds through a variety of modern payment methods, such as cards, digital wallets, cryptocurrency, and super apps. Well-known MTOs include Western Union, MoneyGram, and Ria Money Transfer. Although MTOs are facing fierce competition from new fintech companies, they still process a considerable volume of payments. As of Q1 2024, Western Union processed 283.1 million transactions for consumers on a trailing 12-month (TTM) basis (a 5.0% increase YoY), yielding the company \$4.0 billion in revenues (a 2.4% increase YoY).<sup>15, 16</sup>

15: "First Quarter 2024 Financial Results," Western Union, April 24, 2024.

16: "Quarterly Results," Western Union, n.d., accessed July 16, 2024.

- **Society for Worldwide Interbank Financial Telecommunication (Swift):** Developed in 1973, Swift is a messaging system used for international payments. The network itself does not move money. Instead, it provides a standardized system of codes for banks to securely communicate payment instructions and details. Swift currently connects over 11,000 banks, financial institutions, and corporations across 200 countries,<sup>17</sup> averaging 44.8 million messages per day.<sup>18</sup> In recent years, Swift has launched additional initiatives to help improve cross-border payments facilitated via its network. In 2017, Swift launched Swift Global Payments Interface (GPI), an enhanced system for cross-border payments that improves settlement times and transparency. In 2021, Swift launched Swift Go, an upgraded system like Swift GPI that is designed to support low-value payments.
- **Payment rails:** Payment rails are the infrastructure that securely facilitates the actual transfer and settlement of money between financial institutions. At a high level, two types of settlement rails exist: deferred net settlement (DNS) and real-time gross settlement (RTGS) rails. DNS rails are typically used for low-value, high-volume payments and utilize a batch processing method to promote more efficient liquidity management. Examples of DNS rails include Automated Clearing House (ACH) in the US, Bacs in the UK, and Fast and Secure Transfers (FAST) in Singapore. RTGS rails process transactions in real time and are generally leveraged for urgent and high-value payments. However, because they provide immediate and final settlement, they require more liquidity. Examples of RTGS rails include FedNow in the US, Pix in Brazil, and T2 in Europe.
- **Card networks:** Global card schemes such as Visa and Mastercard provide their own dedicated infrastructure to facilitate cross-border payments. They process credit and debit card transactions by communicating within a closed network of banks, as well as within their respective processors. These payment messages typically use the ISO 8583 standard, although major card networks have developed support for ISO 20022. Beyond consumer payments, these card schemes also facilitate cross-border B2B transactions. Visa's B2B Connect service, launched in 2019, uses blockchain technology and a multilateral network of banks to bypass correspondent banking, thus enhancing security, transparency, and speed. Similarly, Mastercard Track, launched in 2018, leverages Mastercard's global network and integrates with instant payment rails to streamline compliance and reduce payment processing times. Card networks process a substantial volume of cross-border payments. As of Q1 2024, Visa processed \$8.3 trillion in international payments on a TTM basis (a 7.7% increase YoY) and recognized \$12.1 billion in international payment net revenues (a 10.2% increase YoY).<sup>19</sup>
- **Regulatory bodies:** These organizations establish rules and standards governing cross-border payments to ensure security, prevent financial crimes, and safeguard consumers. Examples include the Financial Action Task Force and the Financial Crimes Enforcement Network, which set global standards for combating money laundering and terrorist financing in cross-border

17: "Swift History," Swift, n.d., accessed July 16, 2024.

18: "Swift FIN Traffic & Figures," Swift, n.d., accessed July 16, 2024.

19: "Quarterly Results," Visa, n.d., accessed July 16, 2024.

transactions. Another significant entity is the Bank for International Settlements, owned by 63 central banks worldwide, which plays a pivotal role in enhancing cross-border payments. Through its Committee on Payments and Market Infrastructures, the Bank for International Settlements drives the implementation of key initiatives under the G20's cross-border payments agenda.

- **Fintech companies:** Fintech companies have developed innovative solutions to make cross-border payments faster, cheaper, and more transparent. Solutions from fintech companies can come in many forms, which we discuss in detail later in this note. At a high level, fintech companies can help provide better payments infrastructure (as seen with Airwallex and Rapyd), banking cores and payment rail integrations (10x and Finzly), peer-to-peer (P2P) payment applications (Wise and Remitly), multicurrency banking services (Revolut and N26), B2B global payout and collections (Payoneer and PayQuicker), and issuing and acquiring services (Stripe and Marqeta).
- **Blockchain companies:** Many firms utilize blockchain and distributed ledger technology to facilitate faster and cheaper cross-border payments. Key advantages of using cryptocurrencies and blockchain solutions include faster speeds, enhanced transparency and traceability through decentralized ledgers, elimination of operating-hour limitations, and protection against currency fluctuations. A prominent example is Ripple, which connects banks and payment providers on its decentralized global network RippleNet and uses its XRP cryptocurrency as a bridge currency for quicker transactions. Another example is Stellar, a blockchain platform that offers fast and low-cost cross-border payments for individuals and small businesses. MTOs are also finding value in blockchain, as demonstrated by MoneyGram's partnership with Stellar, which enables users to seamlessly convert between cash and USDC, a widely used digital dollar stablecoin. In addition, banks are beginning to innovate with blockchain, as seen with J.P. Morgan's development of its stablecoin JPM Coin and Santander's launch of One Pay FX, a blockchain-based mobile payment service that leverages Ripple's RippleNet.



Market dynamics such as globalization, supply chain reshuffling, shifting foreign investment flows, increased financial inclusion, payment infrastructure advancements, and AI are transforming global payment processes.

## Market dynamics and shifting trends

### *Understanding drivers of cross-border payments*

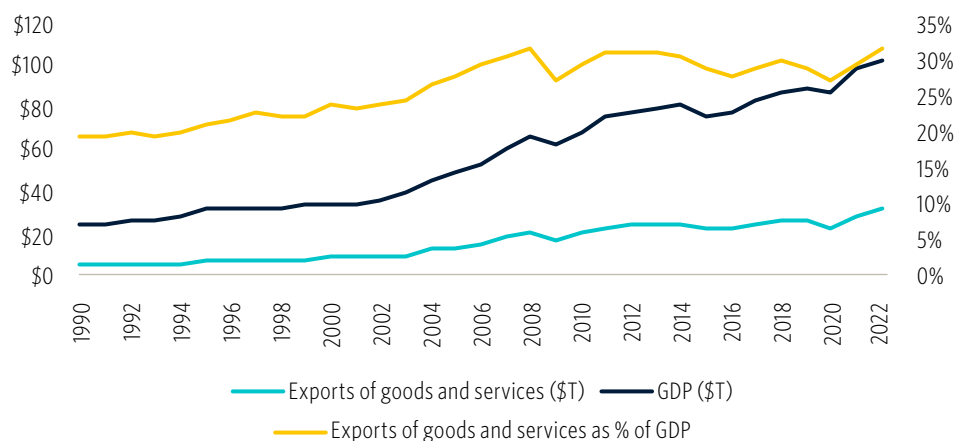
Much of the growth in cross-border payments has been driven by B2B transactions and fueled by increased global trade, international business expansion, advancements in payments infrastructure, and greater digital adoption. On the consumer side, cross-border transactions are growing due to greater financial inclusion, e-commerce expansion, and improved tools for international remittances. However, cross-border payment flows are also highly affected by global challenges, including geoeconomic fragmentation, supply chain restructurings, and currency fluctuations. We expand on some of these market dynamics in the following sections.

### *Globalization in the digital age*

The globalization of businesses is accelerating, with more companies expanding internationally each year. The trend is evident in the global exports of goods and services, which reached a record high of \$31.3 trillion in 2022, accounting for 31.1% of global GDP.<sup>20, 21</sup> This represents a 275-basis-point increase from the pre-pandemic level of \$24.9 trillion in 2019. Looking further back, the proportion of global exports to GDP has significantly increased from 23.2% two decades ago.<sup>22</sup> Observing annual growth rates also shows that global exports have outpaced global GDP in recent years. Following the COVID-19 pandemic, global exports grew annually by 25.1% in 2021 and 11.1% in 2022, whereas global GDP increased by 13.9% in 2021 and 3.8% in 2022.<sup>23</sup>

Historically, two major waves of globalization have taken place. The first wave occurred from the mid-19th century until the onset of World War I and was driven by increased interindustry trade (exchanging distinct sets of goods) and

### GDP and exports of goods and services\*



Sources: The World Bank, PitchBook • Geography: Global • \*As of June 25, 2024

20: "Exports of Goods and Services (Current US\$)," The World Bank, n.d., accessed July 16, 2024.

21: "GDP," The World Bank, n.d. accessed July 16, 2024.

22: Ibid.

23: Ibid.

technological advancements such as steamships and telephones. The second wave followed the end of World War II and continued until the late 20th century. This period was characterized by higher levels of intraindustry trade (exchanging similar sets of goods) and was facilitated by innovations in planes, televisions, and shipping containers. During this time, the costs of ocean freight, passenger air transportation, and international calls significantly declined, boosting global trade.

Today's globalization is marked by advancements in computers, the internet, and mobile phones. These technologies, along with innovations in payment infrastructures, have greatly facilitated international trade in goods and services. Additionally, the COVID-19 pandemic accelerated digital trade, leading to substantial growth in the e-commerce industry. While growth in e-commerce has normalized since the pandemic, the market remains a massive driver of cross-border payment flows. In 2023, global e-commerce sales in retail alone were estimated to reach \$5.8 trillion.<sup>24</sup> To highlight the industry's scale another way, failed cross-border payments can result in \$3.8 billion in lost online sales annually for US merchants.<sup>25</sup>

The surge in e-commerce platforms has empowered businesses of all sizes to access a global customer pool. This trend, combined with the increase in remote work facilitated by the COVID-19 pandemic, has prompted businesses to expand their head counts on a global scale.<sup>26</sup> The need to facilitate global payrolls, driven by greater workforce distribution and the rise of new sectors such as the gig economy, is also increasing demand for seamless cross-border payments. We believe the payroll sector will be a meaningful driver of cross-border payments volume. The sector is massive on a global scale and has allowed multiple decacorns and unicorns to emerge in the space, including Deel (valued at \$12.1 billion), Rippling (valued at \$11.8 billion), Gusto (valued at \$9.6 billion), and Remote (valued at \$2.8 billion).

Another trend impacting cross-border payment flows is the reshuffling of supply chains. Companies are changing where they source materials and services in efforts to prevent pandemic-like disruptions and to navigate escalating geopolitical tensions. A noticeable effect of this has been the shifting of production out of China and into regions such as Southeast Asia, LATAM, and the Middle East. According to BCG, in the past five years, over 90% of North American manufacturers have relocated their production efforts from China to more cost-competitive countries with less saturated labor markets, such as Mexico, India, Morocco, and Turkey.<sup>27</sup> Major companies such as Apple and Walmart are also deploying this strategy; both companies have shifted significant amounts of their production efforts from China to India in the past year.<sup>28, 29</sup>

Government policies are also incentivizing some supply shifts. For example, with the Inflation Reduction Act, the US extended tax credits for electric vehicles with 40% of their batteries sourced from the US or its Free Trade Agreements partners, which include Mexico and a few countries in LATAM.

24: "Retail E-Commerce Sales Worldwide From 2014 to 2027," Statista, June 2023.

25: "Failed Cross-Border Payments Cost US Merchants an Estimated \$3.8B," PYMNTS, February 21, 2024.

26: We discussed payroll tech in greater detail in our Q4 2023 Enterprise Fintech Report.

27: "Harnessing the Tectonic Shifts in Global Manufacturing," BCG, Jonathan Van Wyck, et al., September 21, 2023.

28: "Walmart Shifts to India From China for Cheaper Imports," NBC News and Reuters, November 29, 2023.

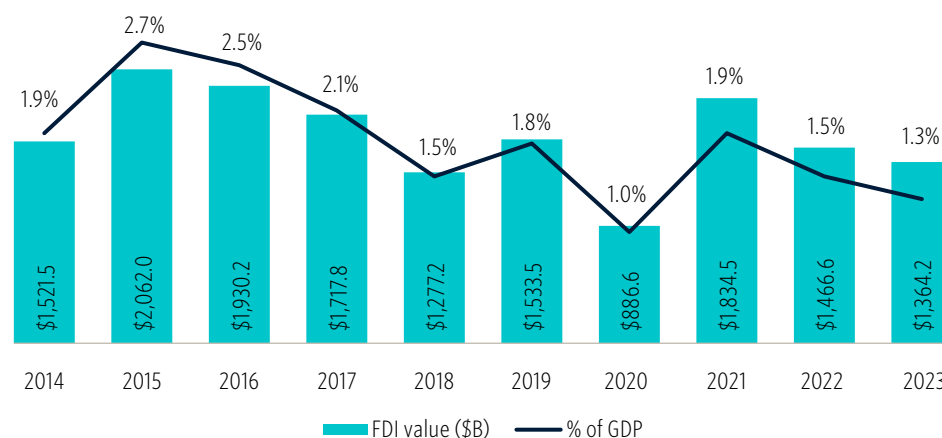
29: "Apple Doubles India iPhone Production to \$14 Billion as It Shifts From China: Report," CNBC, Ashley Capoot, April 10, 2024.

However, the flip side of this trend is that more companies are adopting a regional strategy. In the wake of the COVID-19 pandemic, many companies that suffered from supply chain challenges bolstered their inventories and looked to bring their supply networks closer to home. A survey conducted by McKinsey last year reported that 64% of businesses plan to regionalize their supply chains.<sup>30</sup> Still, this could generate demand for better cross-border payments if supply chains shift into newer regions with less developed payment infrastructures, such as LATAM.

### *Investment flows amid geoeconomic fragmentation*

Foreign direct investment (FDI) flows are an important component of wholesale cross-border payments, as they represent the value of international equity and debt transactions. Following strong figures in 2021, FDI flows have sequentially declined each year, reaching \$1.4 trillion in 2023 (down 7.0% YoY).<sup>31</sup> This has largely been a result of rising geopolitical tensions, slowing growth in some economies, diversification of supply chains, and a generally higher interest rate environment. Notably, China, the world's second-largest recipient of FDI, saw its FDI flows drop to a record low of \$200.1 billion in 2023, marking a 43.0% YoY decline.<sup>32</sup> This trend was also evident across G20 economies, where FDI flows fell by 22.8% YoY in 2023.<sup>33</sup> Additionally, cross-border M&A activity has declined, with deal values and counts dropping by 43% and 18%, respectively.<sup>34</sup>

### **FDI value (\$B) and share of GDP\***



Source: OECD • Geography: Global • \*As of April 30, 2024

On the other hand, a key trend has been the growing share of FDI flows captured by developing economies. The United Nations Trade and Development reports that developed countries' share of global FDI flows has been gradually declining over the past several years. In 2023, developed countries captured 34.8% of global FDI inflows, compared with 65.1% for developing economies.<sup>35</sup> If this trend continues, additional cross-border payment flows will need to be facilitated for countries with less developed payment infrastructures or more exotic currencies.

30: "Tech and Regionalization Bolster Supply Chains, but Complacency Looms," McKinsey & Company, Knut Alicke, et al., November 3, 2023.

31: "Investment," OECD, April 2024.

32: Ibid.

33: Ibid.

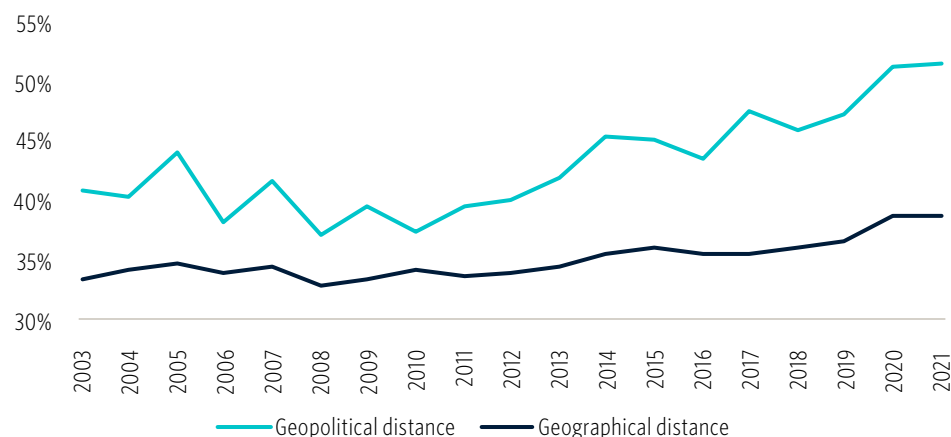
34: Ibid.

35: "World Investment Report 2024," United Nations Conference on Trade and Development, n.d., accessed July 16, 2024.

In the near future, some FDI flows could be redirected out of the US, which currently captures the majority of FDI flows. Trade tensions between the US and China, investment incentives for renewable energy and semiconductor production, and strength in the US dollar have kept FDI inflows to the US robust. However, potential cuts in US interest rates, rising debt, and increasing political uncertainty with the upcoming presidential election could reduce global investor appetite and in turn increase demand for foreign currencies.

Another caveat of current geopolitical tensions is that countries are shifting their FDI flows to economies with which they are more politically aligned. Over the past decade, countries have increasingly favored investing in politically allied nations over geographically proximate ones, according to the International Monetary Fund.<sup>36</sup> This trend suggests that as geopolitical tensions escalate, FDI flows could be redirected toward coalitions of politically aligned countries. This shift in investment patterns could result in a shuffling of international payment flows, leaving cross-border payment companies and banks to adapt and to facilitate them.

### Share of FDI between geopolitically and geographically close countries\*



Source: IMF • Geography: Global • \*As of April 5, 2023

### The link between financial access and remittances

Global remittance flows make up a key market in retail cross-border payments and were estimated to have reached \$857 billion in 2023, marking a 1.7% YoY increase.<sup>37</sup> Though the growth in remittance flows from 2022 has been sluggish, levels have grown significantly from a few years ago. In 2017, global remittance flows were \$728 billion, or 33.7% lower than 2023 levels.<sup>38</sup> Using estimates from the World Bank, the top recipients of remittances are India, Mexico, China, the Philippines, and Pakistan.<sup>39</sup>

Remittances are a vital source of external finance, especially for low- and middle-income countries (LMICs). They allow millions of households in these nations to

36: "Fragmenting Foreign Direct Investment Hits Emerging Economies Hardest," IMF, JaeBin Ahn, et al., April 5, 2023.

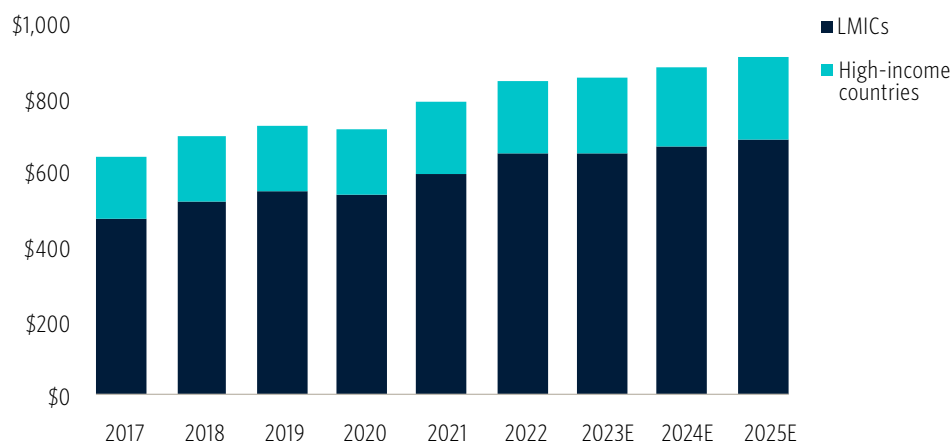
37: "Remittances Slowed in 2023, Expected to Grow Faster in 2024," The World Bank and KNOMAD, June 2024.

38: Ibid.

39: Ibid.

have a stable income, which alleviates the challenges of poverty and economic volatility. In addition, remittances can also drive economic development by boosting investments in education, healthcare, and businesses. This can be seen in countries such as Nepal and Nicaragua, where remittances account for more than 20% of each country's GDP.<sup>40</sup> In 2023, remittances to LMICs totaled \$656 billion (up 0.7% YoY), outstripping FDI as the primary source of external finance for these nations.<sup>41</sup>

### Remittance value (\$B) by country income level\*



Sources: The World Bank, KNOMAD • Geography: Global • \*As of June 2024

Greater financial inclusion, driven by increased access to technology and banking services, has significantly boosted cross-border payments and remittances. Historically, LMIC populations have been underbanked due to lower capital availability, thus hampering the development of necessary banking infrastructures such as physical branches, digital banking platforms, and ATMs. Additionally, many people in these countries live in rural areas far from the nearest bank. As a result, the costs of maintaining bank accounts and sending payments can be prohibitively high. Furthermore, a lack of financial literacy and education in these regions often prevents individuals from using or trusting banking services, especially in politically and economically unstable environments.

Innovations in fintech, coupled with increasing access to mobile phones, are helping drive remittance flows by unlocking payment capabilities for underserved countries. This has been happening for some time; companies such as M-PESA have been democratizing access to smartphones and mobile banking services since 2007. Today, M-PESA serves more than 51 million customers across seven African countries.<sup>42</sup> Still, the opportunity to unlock banking services and facilitate remittances in LMICs remains enormous. According to the World Bank, of the 24% of the global adult population who did not have a bank account in 2021, nearly all were in developing economies.<sup>43</sup>

40: "Personal Remittances, Received (% of GDP) - Nepal, Nicaragua," The World Bank, n.d., accessed July 16, 2024.

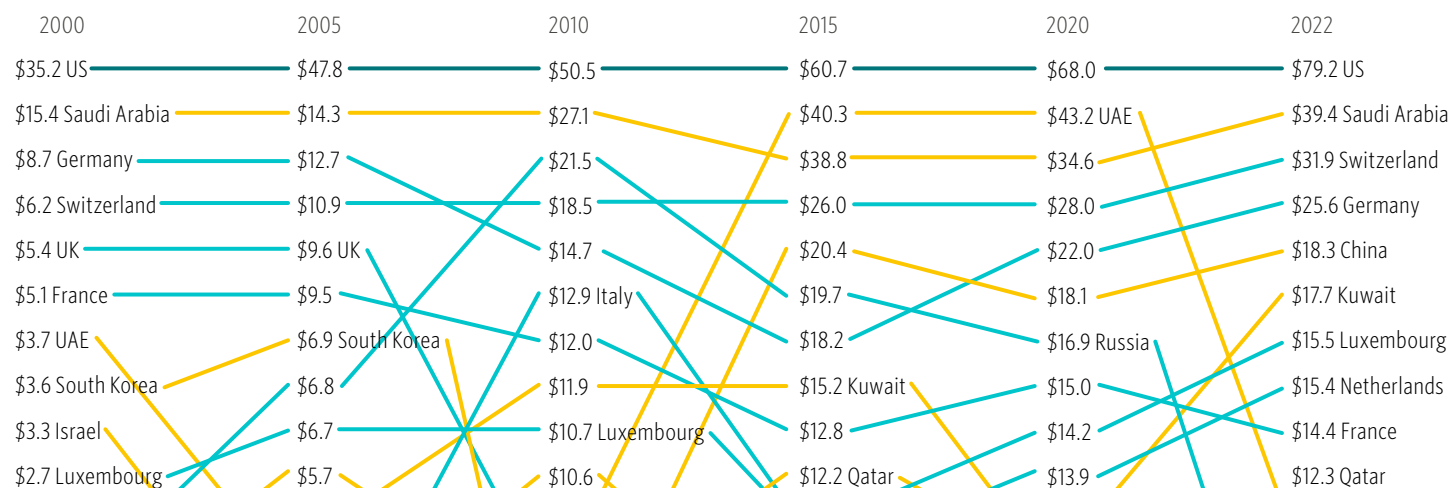
41: "Remittances Slowed in 2023, Expected to Grow Faster in 2024," The World Bank and KNOMAD, June 2024.

42: "How Mobile Money Fosters Financial Inclusion," Knowledge at Wharton, Seb Murray, December 15, 2023.

43: "Financial Inclusion," The World Bank, September 13, 2022.

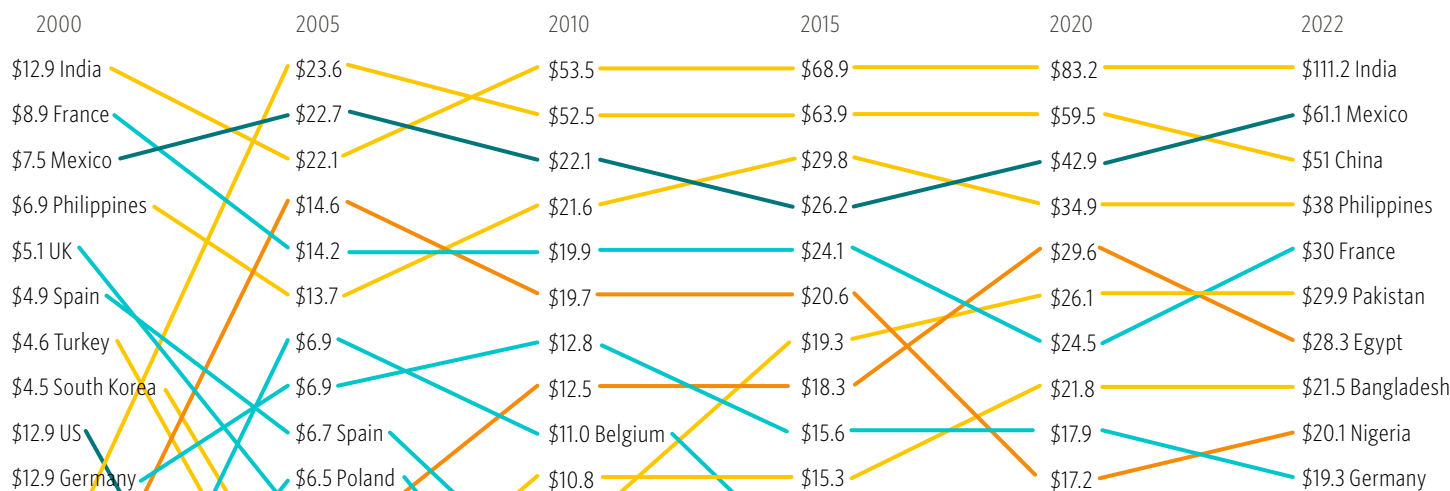
However, flows from developed economies play a key role in international remittances as well, especially for migrants sending funds to their families back home. Global remittance flows sent home from these migrants totaled \$831 billion in 2022, with 80% of the destinations in LMICs.<sup>44, 45</sup> Annually, the top sources for remittances are the US (\$79.2 billion), Saudi Arabia (\$39.4 billion), and Switzerland (\$31.9 billion).<sup>46</sup> The top recipients of remittances are India (\$111.2 billion), Mexico (\$61.1 billion), and China (\$51.0 billion).<sup>47</sup>

## Top remittance sources by value (\$B) since 2000\*



Sources: IOM, The World Bank • Geography: Global • \*As of May 7, 2024

## Top remittance recipients by value (\$B) since 2000\*



Sources: IOM, The World Bank • Geography: Global • \*As of May 7, 2024

44: "World Migration Report 2024," IOM, n.d., accessed July 16, 2024.

45: "How Remittances Affect a Country's Development," The Economist, March 20, 2023.

46: "World Migration Report 2024," IOM, n.d., accessed July 17, 2024.

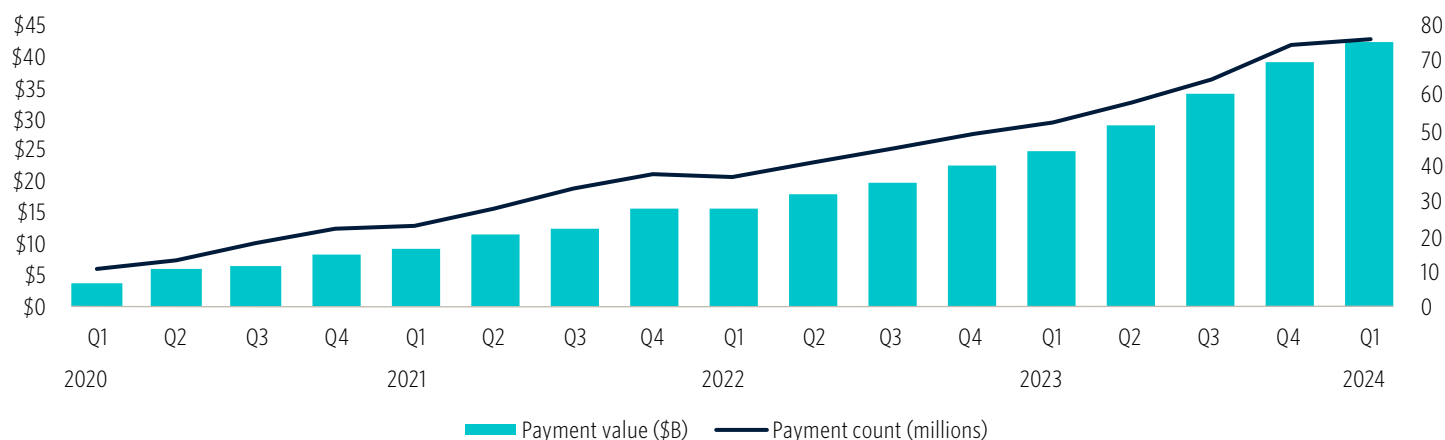
47: Ibid.

## Payment infrastructure advancements

Global advancements in payments infrastructure are helping reduce the high friction and costs commonly associated with cross-border payments. A key trend to note is the development of faster payment systems, which allow transactions to settle in real time. Over 80 countries have introduced instant payment schemes,<sup>48</sup> with notable examples in the US, UK, Brazil, China, India, Nigeria, Hong Kong, and Australia.

Some countries, such as Brazil and India, have seen incredibly fast adoption of their instant payment rails, while countries such as the US have seen slower rates of usage. Nonetheless, banks in the US have informed us that while instant payments still make up a small percentage of the total payments they facilitate, they are the fastest-growing payment type. In Q1 2024, the Real Time Payments (RTP) rail in the US processed 76 million transactions, totaling \$42 billion, representing YoY increases of 46.2% and 68.0%, respectively.<sup>49</sup> Faster payment rails are tackling an age-old pain point in cross-border transactions: slow speeds. However, the emergence of faster payment rails will also bring new complexities into cross-border payments, such as managing liquidity and fraud.

### RTP Network payment activity by quarter\*



Sources: The Clearing House, PitchBook • Geography: US • \*As of June 30, 2024

Another ongoing development in the advancement of payment infrastructures is the migration to ISO 20022, a modern messaging standard used in payments. As we discuss in greater detail later in this note, the increasing global adoption of this standard is helping bring faster speeds and greater transparency to cross-border payments. This adoption is also being pushed by regulators, central banks, and key players around the world.

For example, some payment schemes in the US and Europe are synchronizing their timelines to adopt ISO 20022, aligning with the Swift mandate to do so by November 2025. Additionally, in November 2020, G20 leaders highlighted the enhancement of

48: "Envisioning the Future of Money Movement," This Week in Fintech and Visa, Jenny Johnston and Nik Milanović, n.d., accessed July 16, 2024.

49: "Real Time Payments for All Financial Institutions," The Clearing House, n.d., accessed July 16, 2024.

cross-border payments as a crucial priority. They established key targets, including the harmonization of ISO 20022 data requirements, to improve efficiency and interoperability in the global financial system.

While global migration to ISO 20022 does not guarantee interoperability between payment rails, several payment services have begun to become interoperable with each other.<sup>50</sup> Examples include the linkage of Singapore's PayNow and Thailand's PromptPay payment services in April 2021,<sup>51</sup> which further expanded to Malaysia's DuitNow service in June 2021.<sup>52</sup> In February 2023, PayNow also established connectivity with India's Unified Payments Interface (UPI).<sup>53</sup> In Kenya, mobile network operators Safaricom (owner of M-PESA), Airtel, and Telkom have also established interoperability with each other.<sup>54</sup>

In the US, The Clearing House (TCH), the operator of RTP, is actively exploring interoperability with Europe's RT1 instant payment system. A pilot initiative known as the Immediate Cross-Border Payments (IXB) service is currently underway in collaboration with Euro Banking Association (EBA) Clearing and Swift.<sup>55</sup> This pilot involves 25 financial institutions from both the US and Europe that are aiming to simplify international payment processes between the regions.

Rusiru Gunasena, senior VP of RTP product management and strategy at TCH, noted to us that the IXB initiative will help streamline the correspondent banking process (explained in detail later in this note) for payments between the US and Europe. "We don't want to reinvent the wheel when it comes to what is already built with both real-time payment networks, but rather connect them together while keeping changes to each system to a minimum," Gunasena said. "IXB will help streamline the overall cross-border payments process. There will still be a provider bank on the US side and a provider bank on the European side. However, they will know ahead of time what the [foreign exchange] rate is, they will know which banks will be involved in the correspondent banking chain, and they will know what final amount will be sent to the recipient."<sup>56</sup>

Following the initial launch with Europe, TCH also plans to expand interoperability with payment systems in other jurisdictions. Still, achieving interoperability is difficult for many reasons. "It gets challenging when you get legal teams from two different countries to hash out regulatory frameworks on [know your customer, anti-money laundering], data privacy, and data security," Gunasena explained. "Financial institutions in different countries also have differing incentives. If their current models are working and successful from a business standpoint, then there is little incentive to want to migrate and invest in new technologies. Then, from a customer perspective, it also comes down to determining how the new technology investment will enable new use cases that provide benefits to the customer."<sup>57</sup>

50: "Interoperability in Fast Payment Systems," The World Bank, September 2021.

51: "PayNow-PromptPay Linkage - Fact Sheet," Association of Banks in Singapore, November 28, 2023.

52: "PromptPay Now Linked to DuitNow," Bangkok Post, Somruedi Banchongduang, June 19, 2021.

53: "Launch of Real-Time Payments Between Singapore and India," Monetary Authority of Singapore, February 21, 2023.

54: "Airtel and Telkom Customers Can Now Make Mobile Money Payments Directly Into Safaricom's M-PESA Pay Bill Numbers," Telkom, July 15, 2022.

55: "Immediate Cross-Border Payments (IXB) Pilot Set to Revolutionize International Payments," The Clearing House, October 5, 2022.

56: Rusiru Gunasena, senior VP of RTP product management and strategy at TCH, interview by Rudy Yang, June 27, 2024.

57: Ibid.



Payment services are also becoming interoperable with payment rails. For example, in the US, the bank-owned P2P payment service Zelle can settle transactions instantly over the RTP network. Other examples exist in Asia; PayNow in Singapore uses the country's FAST electronic funds transfer service, and China's Alipay and WeChat Pay can use Hong Kong's Faster Payment System for settlements.<sup>58</sup>

### *Generative AI*

Generative artificial intelligence (GenAI) continues to be explored rapidly in the fintech industry. We have repeatedly written about how GenAI use cases are currently centered on driving operational excellence and automating manual tasks. In our view, cross-border payments companies stand to benefit from the same use cases. In particular, we see strong use cases for automating customer support and compliance functions relating to know your customer (KYC) and anti-money laundering (AML).

Customer support functions are crucial in cross-border payments due to the inevitable issues that arise during the payment process. Both senders and receivers want assurance that their payment will reach its destination. However, the involvement of multiple parties in a cross-border payment can lead to delays, causing frustration when payments get stuck and their status is not trackable. Companies such as interface.ai and eSelf AI are developing conversational AI solutions that enable banks to automate customer support functions for these scenarios.

KYC and AML functions will also benefit from GenAI, as banks and cross-border payment companies facilitating international transactions are required to perform these functions, which can vary by country. Fintech companies such as Unit21, Oscilar, and DataVisor are already leveraging GenAI to enhance their crime surveillance and antifraud tools. As highlighted in our note [Banking Innovation Front and Center at FinovateSpring 2024](#), a number of startups such as Greenlite, Norm Ai, and Parcha are also using AI agents to streamline compliance workflows. Banks leveraging this technology could conduct KYC and AML tasks more quickly and accurately when handling cross-border payments. Key players in the space, such as Mastercard, have also begun to use GenAI for detecting fraudulent card transactions.<sup>59</sup>

<sup>58</sup>: "List of Faster Payment System (FPS) Participants as of 2024-07-17," Hong Kong Interbank Clearing Limited, July 17, 2024.

<sup>59</sup>: "Mastercard Accelerates Card Fraud Detection With Generative AI Technology," Mastercard, May 22, 2024.

To enhance global payment processing, the payments industry is adopting a common messaging standard known as ISO 20022. This shift is driving demand for fintech companies that can help banks and other payment businesses transition to the new format.

## Sorry, do you speak ISO 20022?

### *The role of a modern payment messaging framework*

ISO 20022, a modern messaging standard for payment transfers, is significantly enhancing the efficiency of cross-border payments. Since its inception two decades ago, ISO 20022 has steadily gained global adoption due to its effectiveness as a standardized approach for exchanging payment messages. This standardization is crucial for achieving interoperability among various payment systems, which currently use different message formats. These diverse formats can be thought of as different languages; when two people speaking different languages interact, they may miss crucial details, misinterpret context, or fail to communicate altogether.

For example, while ISO 20022 is an XML-based messaging format, other payment and financial messaging standards that leverage XML include MDDL, FIX, FinXML, XBRL, VRXML, TWIST, and many other languages. ISO 20022 was developed with the long-term goal of converging these multiple specifications into one unified standard. Still, this migration will be a lengthy process because financial institutions will need to upgrade and test their infrastructures to support the new format. As a result, existing standards will need to coexist in the meantime.

In addition to enabling greater payments interoperability, ISO 20022 allows for richer data quality, thereby enabling faster payments speeds and greater transparency. An ISO 20022 message can contain data such as the payment's purpose, party identification and contact details, invoice references, a breakdown of charges, foreign exchange details, and payment instructions. By comparison, older messaging standards such as Swift MT (which adheres to the ISO 15022 standard) provide basic remittance information that is less structured, often leaving it open to interpretation. The lack of granular details regarding a payment's purpose and transaction references can slow KYC and AML processes and hinder the ability to trace a transaction from start to finish, especially when it involves multiple links, which is common in cross-border payments.

ISO 20022's richer data is enabled by a wider range of characters and data fields. Additionally, data fields can be structured, thus allowing messages to be sent in organized, hierarchical formats. This enables information to be captured more coherently and with greater granularity. For example, in an unstructured message, address details such as a street name, building number, state, country, and ZIP code are grouped in a single data field. Conversely, a structured message allocates separate data fields to each address element, thereby enhancing clarity and enabling precise analysis of specific details. This increased precision can accelerate payments by enhancing processes such as KYC and AML. For example, in the case of a sanctioned entity named Volan that needs to be restricted, unstructured data messages containing "Volan Street" might be incorrectly flagged by associating the street address with the entity name. A structured message distinguishes these fields.

## Examples of unstructured and structured messages in ISO 20022

### Unstructured

```
<AdrLine>Theoretical Building, 123, Volan Street</AdrLine>
<AdrLine>Springfield, Anystate, 12345</AdrLine>
<AdrLine>US</AdrLine>
```

### Structured

```
<StrtNm>Volan Street</StrtNm>
<BldngNb>123</BldngNb>
<BldngNm>Theoretical Building</BldngNm>
<PstCd>12345</PstCd>
<TwnN>Springfield</TwnNm>
<CtrySubDvsn>Anystate</CtrySubDvsn>
<Ctry>US<Ctry>
```

Source: PitchBook Emerging Tech Research • Note: For illustrative purposes only.

Notably, many banks and payment schemes using older versions of ISO 20022, particularly the 2009 version, are upgrading to the 2019 version to fully leverage structured data. This is because the 2019 version includes new data fields that the 2009 version did not have, allowing for even more data granularity. New data elements in the updated version include detailed information on the ultimate debtor, the ultimate creditor, and the category purpose, as well as structured remittance information and related remittance information.

### *Global transition to ISO 20022 is already underway*

Currently, ISO 20022 is the closest messaging framework to becoming a global standard. Several organizations, namely the Cross-Border Payments and Reporting Plus (CBPR+), High Value Payments Plus (HVPS+), and Common Global Implementation Market Practice (CGI-MP) groups, are furthering ISO 20022 adoption by publishing implementation guidelines and best practices. These frameworks will be key for many banks, financial institutions, and payment systems in the coming months, as there are now several global mandates to migrate to ISO 20022. For Swift participants, the key migration period is already underway, beginning in March 2023 and ending in November 2025. This 32-month migration period is also known as the coexistence period for ISO 20022, when Swift MT and ISO 20022 CBPR+ messages (ISO 20022 messages formatted in line with CBPR+ guidelines) will simultaneously be used. By November 2025, Swift will discontinue key message categories under its Swift MT format,<sup>60</sup> leaving ISO 20022 to become the new standard.

Migration to ISO 20022 is also being seen in major regions around the globe, with upgrades to newer versions of ISO 20022 also occurring for payment rails that use older versions. Over 70 countries have already adopted the new standard.<sup>61</sup> Key examples include:

- **Europe:** The ECB has ensured that all Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET) services, including T2, T2S, TIPS,

<sup>60</sup>: "ISO 20022 in Bytes for Payments: Focus on Instruction Messages for November 2025," Swift, June 6, 2024.

<sup>61</sup>: "ISO 20022: Implementing the Global Payments Messaging Standard Within CHAPS and RTGS," Bank of England, June 5, 2024.

and ECMS, use ISO 20022. EURO1, a high-value transaction rail operated by EBA Clearing, also completed its migration to ISO 20022 in March 2023. Single Euro Payments Area (SEPA), which used the 2009 version of ISO 20022, migrated to the 2019 version in March 2024.

- **UK:** The BoE required CHAPS to switch to the ISO 20022 standard. While CHAPS completed this in June 2023, the BoE has additional mandates planned. In the fall of 2024, the BoE will further migrate to ISO 20022 standards with the introduction of a new RTGS core ledger, requiring account-related messages (messages communicating account balance information between customers and banks) to also migrate to new ISO 20022 formats. Subsequently, new data elements, specifically Purpose Codes and Legal Entity Identifiers, will be required by CHAPS starting in May 2025.
- **US:** The Clearing House Interbank Payments System (CHIPS), which is operated by TCH, completed its migration to ISO 20022 in April 2024. CHIPS' counterpart, the Federal Reserve's Fedwire, plans to move to the new standard in March 2025. Both US instant payment rails, RTP and FedNow, adopted ISO 20022 upon their launches in 2017 and 2023, respectively.

Notably, the National Automated Clearing House Association (Nacha), which governs the ACH in the US, supports adoption of ISO 20022 but has not mandated a transition. The gradual approach is likely due to the small volume of cross-border payments that settle through the ACH network compared with other RTGS or wire systems. However, new services running on ACH, such as Request for Payment (RFP), are more data rich and use ISO 20022.

- **Canada:** Canada's high-value payment rail, Lynx, adopted ISO 20022 in March 2023. Real-Time Rail (RTR), Canada's instant payment rail, also plans to use the new standard upon its expected launch in 2026. Additionally, Payments Canada, which governs the Automated Clearing Settlement System (ACSS), is planning to replace ACSS with a modern batch settlement rail that uses ISO 20022, known as Settlement Optimization Engine.
- **APAC:** Several countries in the APAC region have already migrated to the ISO 20022 standard. In China, the Cross-Border Interbank Payment System (CIPS) and China National Advanced Payment System (CNAPS) rails already use ISO 20022. The Monetary Authority of Singapore Electronic Payment System (MEPS+) adopted the standard in August 2022. Singapore's FAST payments rail also uses ISO 20022.

Other RTGS networks such as Hong Kong's Clearing House Automated Transfer System (CHATS), Japan's Foreign Exchange Yen Clearing System (FXYCS), Thailand's Bank of Thailand Automated High-value Transfer Network (BAHTNET), Malaysia's Real Time Electronic Transfer of Funds and Securities (RENTAS) System, India's Real-Time Gross Settlement, Australia's High Value Clearing System (HVCS) and Reserve Bank Information and Transfer System (RITS), and New Zealand's Exchange Settlement Account System (ESAS) operate with the ISO 20022 format.

- **LATAM:** Adoption of ISO 20022 in LATAM countries remains limited. Brazil's Pix, one of today's leading instant payment rails, is a well-cited example. However, few

LATAM countries beyond Brazil are pushing for ISO 20022 adoption. According to Swift, the small banking communities in Guatemala and Belize have begun to prepare for ISO 20022 adoption.<sup>62</sup>

- **MEA:** The MEA region has seen some key countries adopt ISO 20022 standards, although efforts from many mobile money operators have been sluggish. Many changes in the Middle East are being driven by regulations issued by the Gulf Cooperation Council (GCC). The Gulf Payments Company, established by the central banks of the GCC countries, currently uses ISO 20022 for its Arabian Gulf System for Financial Automated Quick Payment Transfers (AFAQ) service in cross-border transactions.

Other examples of payment rails using ISO 20022 include Saudi Arabia's RTGS system, Saudi Arabian Riyal Interbank Express (SARIE); South Africa's RTGS system, South African Multiple Option Settlement (SAMOS); Zambia's RTGS system, Zambia Interbank Payment and Settlement System (ZIPSS); and Morocco's RTGS system, Virement Instantané. Other key countries working to move to ISO 20022 include Ghana, Kenya, and Nigeria.

### *Implications for cross-border payments*

The growing adoption of ISO 20022 is laying a foundation for global payments interoperability, which remains one of the most difficult problems to solve in cross-border transactions. Moving to ISO 20022 is a critical step toward connecting closed-loop payment schemes and payment rails. Closed-loop schemes operating in multiple markets could need to develop only a single connection to access other payment systems, thus streamlining integration processes. Standardized data fields under ISO 20022 can also help align regulatory standards across nations.

However, ISO 20022 adoption is not the be-all and end-all of enabling payments interoperability; it is just the first step. Achieving interoperability involves agreeing on goals and objectives, upgrading infrastructures, and aligning on regulatory standards. Furthermore, building interoperability between different rails is technically complex, especially for fast payment systems that settle in real time. Each scheme has distinct rules relating to elements such as liquidity and funding requirements, data flows, and other operational aspects. This is why even payment rails operating within the same country may not necessarily be interoperable. For example, in our note [Time for Real Time](#), we wrote about how the US instant payment rails RTP and FedNow are not interoperable despite both using the ISO 20022 standard.

Though global payment rail interoperability may still be years away, some banks have strong incentives to migrate to ISO 20022. These are not smaller banks that facilitate a negligible amount of wire transfers, but rather those that engage in a high volume of payments. For these banks, upgrading to this new standard is not just about complying with regulatory mandates; they are recognizing the value that a standard and data-rich messaging system can provide for their businesses. Specifically, this transition can enable them to operate more efficiently by reducing back-office operations and increase the value they offer to customers through faster and more transparent payments. Furthermore, upgrading from a local standard to a modern global standard

62: "ISO 20022 in Bytes: The Voice of the German Community, Swift Platform Connectivity Guidance and More," Swift, April 8, 2021.

can help banks scale their business more effectively. This is because proprietary standards, while able to meet the niche requirements of their local jurisdictions, make it more difficult for a bank to work with nondomestic banks and payments companies in the long run.

Still, upgrading a bank's infrastructure to handle a new modern standard—while ensuring no disruption to daily business operations—is difficult, especially for smaller banks with legacy architectures. This is why mandates to upgrade to ISO 20022 include timelines that span multiple years and commonly see delays. The process can be costly and resource-intensive, requiring skilled personnel, extensive testing and validation phases, alignment with compliance standards, staff training, and effective data management. Yet banks that successfully achieve these upgrades can gain competitive advantages through quicker and more transparent payments, better personalized services, reduced back-office errors, and improved analytics.

Fintech companies are playing a crucial role in helping banks upgrade their infrastructures and adopt ISO 20022 standards. Incumbent core banking providers including FIS, Fiserv, and Jack Henry help banks support the new format and connect to fast payment rails. Modern cloud-native core banking providers such as 10x, Finzly, Five Degrees (acquired by Topicus in 2023), Temenos, Thought Machine, and Tuum are also helping banks migrate to new core banking systems that are inherently built with ISO 20022 formatting and compliance in mind. Players such as Mambu offer AML screen capabilities for ISO 20022 credit transfers, thereby streamlining transaction monitoring and sanctions screening capabilities.

Some core banking providers are also partnering with payment-focused fintech companies to help banks move toward the ISO 20022 standard. A recent example of this occurred in Q1 2024: Core banking provider Backbase partnered with cloud-based payments company Alacriti to help clients integrate with faster payment rails that use ISO 20022, such as RTP and FedNow. Other cloud-native payment companies, such as PE-backed Volante Technologies, provide low-code and API solutions to streamline initiation and translation of ISO 20022 between legacy formats.

## Select fintech companies helping with ISO 20022 migration\*

Company	Estimated employee count	Year founded	Last known valuation (\$M)	Last fundraising (\$M)	Last fundraising date	Total capital raised (\$M)	IPO probability	M&A probability
10x	350	2016	\$700.0	\$45.0	January 13, 2024	\$326.4	10%	86%
Finzly	174	2012	\$50.0	\$10.0	October 19, 2023	\$10.1	N/A	N/A
Thought Machine	563	2014	\$2,064.5	\$161.8	May 18, 2022	\$636.5	4%	90%
Tuum	105	2019	N/A	\$27.2	February 6, 2024	\$50.0	14%	65%
Mambu	710	2011	\$5,529.7	\$265.2	December 22, 2021	\$444.7	21%	77%
Backbase	2,000	2003	\$2,654.3	\$127.4	June 9, 2022	\$127.4	N/A	N/A
Volante Technologies	807	2001	N/A	\$66.0	November 7, 2023	\$156.0	N/A	N/A
Nymbus	255	2015	\$168.0	\$70.0	May 2, 2023	\$204.3	52%	33%

Source: PitchBook • Geography: Global • \*As of June 30, 2024  
Note: Probability data is based on [PitchBook VC Exit Predictor methodology](#).

Pain points of cross-border payments stem from the correspondent banking system, a concept that works similarly to connecting flights.

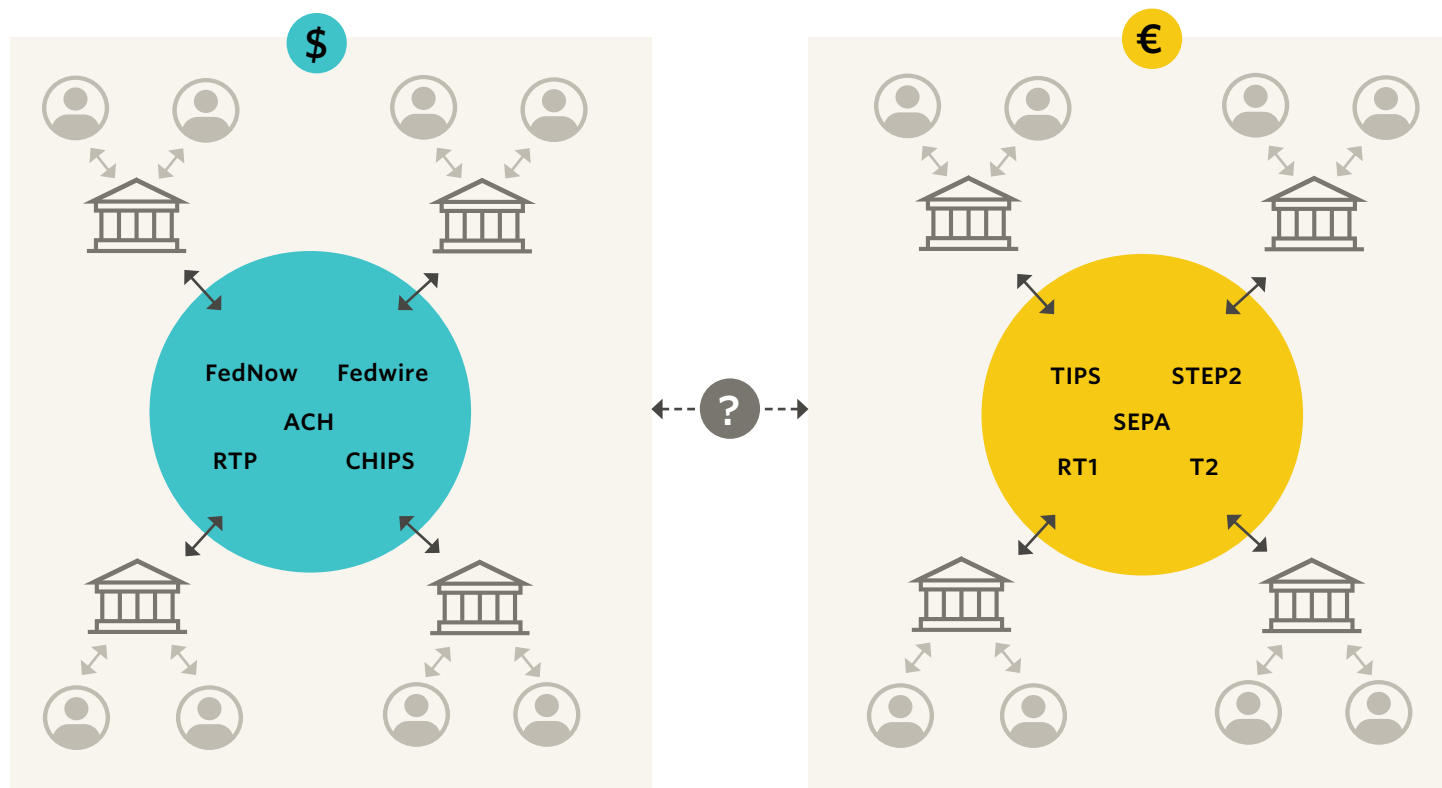
## Now boarding: Your cross-border payment

### *Behind the scenes of a cross-border payment*

To understand the pain points and solutions in cross-border payments, it is helpful to first recognize how the underlying flow of international transactions works. Behind the scenes of a traditional cross-border transaction, a domestic bank needs to send funds to, or receive funds from, an international bank. However, money does not physically move across borders in these transactions (a common misconception). This is because currencies are inherently closed-loop systems that are confined to their domestic payment systems. For example, US payment rails such as ACH, CHIPS, RTP, Fedwire, and FedNow settle currencies in US dollars and currently are not interoperable with nondomestic payment rails such as UPI in India or T2 in Europe.

Rather, domestic and international banks hold accounts with each other, which are debited and credited accordingly to simulate the transfer of different currencies. These accounts are referred to as nostro and vostro accounts. Nostro accounts are bank accounts held in an international country and denominated in the international country's currency. For example, a Czech bank holding an account in US dollars (USD) at a US bank would refer to this account as a nostro account. From the US bank's perspective, the same account would be referred to as a vostro account.

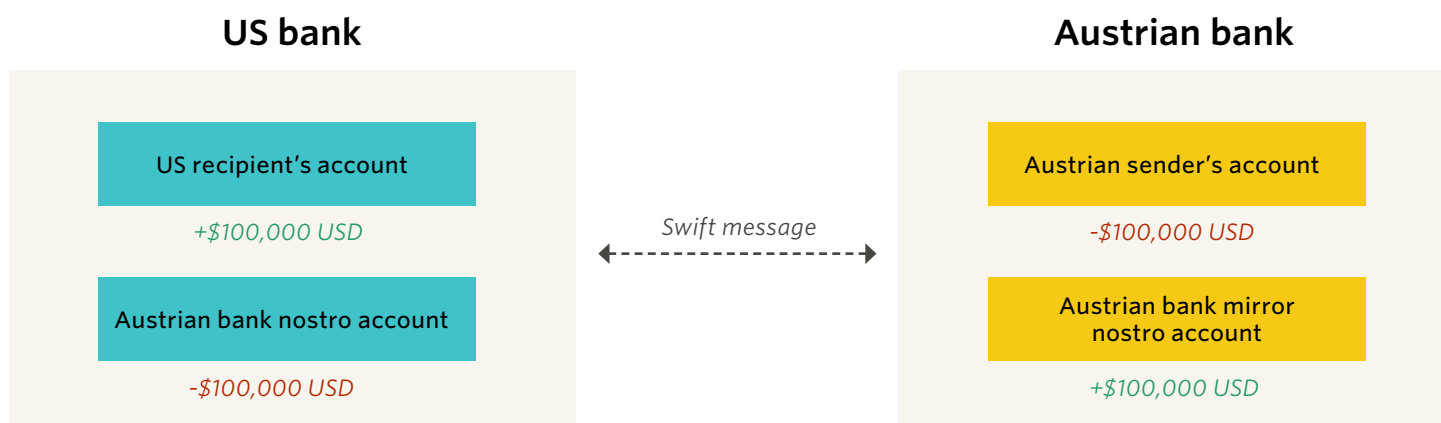
### Examples of closed-loop currency systems



Source: PitchBook Emerging Tech Research • Note: For illustrative purposes only.

At a high level, a simple cross-border transaction involves debits and credits in nostro and vostro accounts. In the following graphic, an Austrian customer paying a US recipient \$100,000 involves the Austrian bank debiting both the customer's domestic account (the euro equivalent of \$100,000) and its USD nostro account at the US bank. The US bank then credits the US recipient's account with \$100,000. In other words, the Austrian bank debits the euro equivalent of \$100,000 from the customer's account and instructs the US bank to pay the end recipient using the \$100,000 held in its USD nostro account at the US bank.

### Example of a simple nostro account transaction



Source: [ISO 20022 Payments](#) • Note: For illustrative purposes only.

### The role of correspondent banking

Because not all originating and beneficiary banks have direct relationships with each other, intermediary banks with accounts at both institutions must be used. In the context of cross-border transactions, these intermediary banks are known as correspondent banks. In many cases, multiple correspondent banks may be required to settle a transaction from the originating bank to the beneficiary bank, creating a chain of multiple correspondent banks involved in a single transaction.

An easy way to contextualize the flow of payments through correspondent banks is by comparing it to connecting flights. When there are no direct flights, a connecting flight (or a series of them) must be used to reach the final destination. Yet when a connecting flight is delayed or canceled, a passenger's journey becomes disrupted, which may result in longer travel times, rerouting, extra fees, and customer dissatisfaction. The correspondent banking system faces identical issues. A hiccup at any point in the chain of intermediary banks can similarly delay the flow of payment and cause frustration.

### An in-depth correspondent banking example

To illustrate how a correspondent banking chain functions, we can revise the earlier scenario. If the Austrian bank and US bank do not have a direct relationship with each other, then a correspondent bank will need to be used.



In this scenario, illustrated in the following graphic, we will assume that a US business wants to pay its Austrian supplier \$100,000, which the Austrian supplier wants to receive in euros. The bank of the US business ("US Bank") and the Austrian supplier's bank ("Austrian Bank") do not have a direct relationship with each other, so a correspondent bank in the US ("US Correspondent Bank") that has a relationship with both banks will need to be used.

To begin the transaction, the US business will instruct its bank, US Bank, to send the funds to Austrian Bank. US Bank will then look to move the funds over to US Correspondent Bank. Because both of the US banks operate on the FedNow network, they can settle the funds in real time.

To do this, US Bank will screen the payment and send a message in the ISO 20022 format to the FedNow Service. After the message is validated by FedNow and confirmed by US Correspondent Bank, the FedNow Service will settle the payment between both banks.

Next, US Bank's account is debited \$100,000 and US Correspondent Bank's account is credited \$100,000 in real time. If a DNS system such as CHIPS was used instead, then settlement would not be instant and would occur later within the same business day.

US Correspondent Bank will then execute a book entry to credit Austrian Bank the \$100,000 in Austrian Bank's nostro account. From Austrian Bank's perspective, its nostro account at US Correspondent Bank now holds \$100,000 in USD.

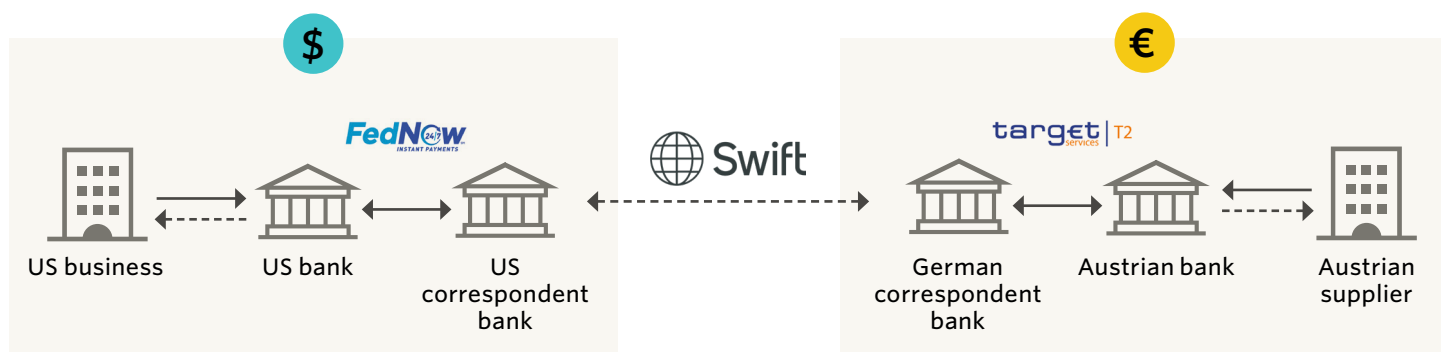
To begin the transfer of the \$100,000 USD to Austrian Bank, US Correspondent Bank will then create and send a message over the Swift network. As previously illustrated, a system of debits and credits can then be used to have the euro equivalent of \$100,00 reflected in Austrian Bank's account.

If another correspondent bank ("German Correspondent Bank") needed to be used, however, then US Correspondent Bank would first need to credit the euro equivalent in German Correspondent Bank's account. German Correspondent Bank could then settle the funds to Austrian Bank using T2, an RTGS system for the eurozone.

US Correspondent Bank can be compensated by invoicing service and foreign exchange fees to US Bank and/or deducting a percentage fee from the \$100,000 itself. If German Correspondent Bank is involved, then it will also take a cut for facilitating the transaction.

The correspondent banking chain becomes increasingly complex with the involvement of more correspondent banks. Payments may need to go through multiple steps, involving various KYC and AML screenings and the usage of different payment rails. Banks will also need to take liquidity into account, especially if payments are settling in real time.

## Example of a correspondent banking transaction



Source: PitchBook Emerging Tech Research • Note: For illustrative purposes only.

### Why correspondent banking remains

Historically, the correspondent banking system has been the foundation of international transactions. Many incumbent organizations and fintech companies still rely on this legacy framework to facilitate global money movement, as it is not feasible for a single bank to establish a presence in every country. Doing so would require understanding and complying with countless local regulations, obtaining banking and money transfer licenses, and managing foreign exchange and geopolitical risks. From a cost perspective, banks would also incur massive operating expenses from infrastructure, compliance, staffing, and liquidity requirements. The result would be a complex organization that is nearly impossible to manage and scale.

Furthermore, it is impractical for all the unique payment systems of every country to be interconnected. Because each country uses a different set of technologies, standards, and protocols for their payment rails, achieving interoperability between multiple rails would require significant infrastructure upgrades. Additionally, regulators would need to align on differences pertaining to data privacy and security. Preventing fraud would also be difficult, as interoperable payment rails would need to be fast and operate 24-7 across different time zones, creating new avenues for faster fraud. These issues would compound with more interconnected payment schemes.

While some cross-border transactions are quick and can settle within a day, these transactions typically pass through RTGS rails and occur between major currencies that are highly liquid. Cross-border payments are often slow when they settle through underdeveloped payment rails and involve exotic currencies, which is common in developing regions such as Africa. This delay occurs because payments need to be routed through multiple correspondent banks, often through other countries, to access the necessary currencies and faster payment networks. For example, in 2013, Swift reported that 48% of intra-African payment flows involved an intermediary bank outside of the continent, and that intra-African trade accounted for 23% of the continent's total trade.<sup>63</sup>

63: "Africa Payments: Insights Into African Transaction Flows," Swift, Thierry Chilos, et al., 2013.

## Key pain points from correspondent banking

Because many cross-border payments must pass through a series of banks, the process of moving funds internationally has historically been slow, costly, and opaque.

- **Slow speeds:** Payment speeds may decrease with every correspondent bank involved in a transaction process. Though times can vary depending on the routes the payments take, some of the slowest paths can take multiple days to weeks to process.<sup>64, 65</sup> Payment times can also be reduced if an involved correspondent bank is not integrated with or does not have access to an RTGS rail, creating longer settlement periods that can take multiple days.

In addition, processing times can be lengthy because banks must conduct various compliance checks concerning KYC and AML functions. For some banks, these processes can be manual and prone to error, which may further delay transaction times. Depending on its complexity, a KYC or an AML function can sometimes take multiple weeks.<sup>66, 67</sup>

Complying with the regulations of each country cannot be overlooked, as potential fraud losses and imposed fines can be significant. For instance, in 2022, Danske Bank was fined \$2.1 billion after its Estonian branch enabled high-risk customers from outside Estonia, including Russia, to access the US financial system.<sup>68</sup> Another example is Standard Chartered Bank, which paid \$1.1 billion in penalties to US and UK authorities in 2019 for breaching sanctions and AML laws.<sup>69</sup>

- **Expensive fees:** Cross-border payments that traverse through multiple correspondent banks can incur substantial fees. Each correspondent bank takes a cut of the payment for facilitating a transaction, adding to the overall cost. At a high level, these fees comprise direct transaction fees and foreign exchange fees.

Direct transaction fees typically cover services such as acting as an intermediary, assuming counterparty credit risk, managing liquidity, and ensuring compliance, as well as other operational and administrative costs, such as staffing and infrastructure. Notably, KYC and AML costs account for a substantial portion of the total fees charged by correspondent banks, potentially ranging from 20% to 40%.<sup>70, 71</sup>

64: "Is Technology the Panacea for Today's Cross-Border Payment Frictions?" Swift and Mastercard, Alicia Krebs and Jesse McWaters, October 30, 2023.

65: "Cross-Border Fast Payments," The World Bank, September 2021.

66: "KYC & AML: Key Differences and How They Work Together," SEON, Jimmy Fong, n.d., accessed July 17, 2024.

67: "Firms Should Invest in KYC & Model 'Good' Customer Transactions to Reduce Pile-Up of Monitoring Alerts," Thomson Reuters, Rachel Wolcott, June 16, 2023.

68: "Danske Bank Pleads Guilty to Fraud on U.S. Banks in Multi-Billion Dollar Scheme to Access the U.S. Financial System," Office of Public Affairs, December 13, 2022.

69: "Standard Chartered Bank Admits to Illegally Processing Transactions in Violation of Iranian Sanctions and Agrees to Pay More Than \$1 Billion," Office of Public Affairs, April 9, 2019.

70: "Overcoming the Complexities of Cross-Border Payments," Trulioo, October 5, 2022.

71: "The 'Amplus' Initiative - A Modular Approach to Improving Cross-Border Payments," Bank for International Settlements and Deutsche Bundesbank, David Ballaschk and Marcus Härtel, n.d., accessed July 17, 2024.

Foreign exchange fees typically account for the spread between the actual exchange rate used and the mid-market rate (the midpoint between the bid and ask rates of a currency). Some banks may base their foreign exchange fees on a fixed percentage above the mid-market rate or their internal exchange rates.

These fees can either be grouped together or charged separately, either as flat fees or percentages of the transaction amount. Because the length and complexity of a cross-border transaction depends on many variables, the fees charged by correspondent banks can vary per transaction. We have encountered various estimates for correspondent banking fees. Wise estimates correspondent bank fees may cost \$25 to \$75 in addition to up-front transfer and exchange fees.<sup>72</sup> J.P. Morgan and Oliver Wyman estimate an average cross-border fee of \$27 per transaction, assuming \$5 paid at each step, and that “40% of cross-border transactions incur fee deductions of \$25 per correspondent bank for 2 banks.”<sup>73</sup> As of Q4 2023, The World Bank reports a global average cost of 6.39% to send remittances, with the average cost of remitting through banks at 11.99%.<sup>74</sup>

- Lack of transparency:** In cross-border transactions that involve multiple correspondent banks, it is challenging for the originating bank to provide the customer with precise details about settlement times and total costs. As noted earlier, this is largely due to differences in each correspondent’s settlement methods, compliance protocols, nostro/vostro liquidity, and fee structures. A lack of standardization in payment systems, data formats, and communication protocols can additionally make it difficult to track the status of a payment throughout its journey, especially if it becomes stuck at some part in the correspondent banking chain.

As a result, senders commonly have little visibility over how long their payment will take, how much it will cost in total, and the final amount that will be posted in the receiver’s account. These factors can significantly impact a consumer’s or business’s cash flow and financial forecasts. In a recent survey conducted by Swift, both consumers and SMEs ranked transparency and security among their top three most important factors when sending money internationally—even above cost.<sup>75</sup>

Steve Dooley, head of market insights at Convera, provided additional context: “During the correspondent banking process, it’s hard sometimes to establish where the money is—it can be a bit of a black hole regarding where the money actually is at any time. With compliance and anti-money laundering processes, funds can also get held up at a full stop wherever they are in their journey. 90% of the time [in the cross-border payments industry], this probably doesn’t happen, but the remaining 10% of the time it does cause significant issues in the user experience. That’s why we often focus on transparency.”<sup>76</sup>

72: “What Is a Correspondent Bank?” Wise, Adam Rozsa, January 19, 2022.

73: “Unlocking \$120 Billion Value in Cross-Border Payments,” Oliver Wyman and J.P. Morgan, Jason Ekberg, et al., n.d., accessed July 17, 2024.

74: “Remittance Prices Worldwide Quarterly,” The World Bank, December 2023.

75: “Swift Finds Security and Transparency Matter Most for Low-Value Cross-Border Payments,” Swift, July 13, 2023.

76: Steve Dooley, head of market insights at Convera, interview by Rudy Yang, June 12, 2024.

Contrary to common belief, most cross-border payments settle in a day and do not involve a chain of several banks. But payments to developing regions can still be slow and expensive, and solving for global interoperability and real-time settlement speeds will be a multiyear effort.

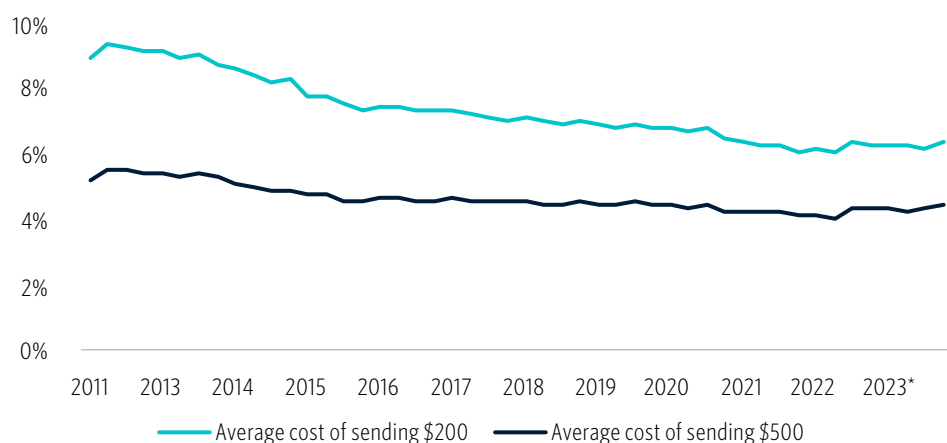
## The state of cross-border payments

### *Speeds and costs have drastically improved*

Traditionally, the cross-border payments market was dominated by banks and established MTOs such as Western Union and MoneyGram. These providers often facilitated transfers that were both slow and expensive. However, in the past decade, fintech companies and modern payments architecture transformed the process of moving funds internationally, pressuring traditional market players to adapt by improving transfer speeds and reducing costs. As discussed earlier in this note, advancements in payment infrastructure, rising digital adoption, and both market- and regulatory-led initiatives have also been pivotal in advancing the efficiency of cross-border transactions.

These improvements in cross-border payments have been evident in transaction times and costs. The global average cost to send \$200 decreased from a peak of 9.34% in Q3 2011 to 6.97% in Q4 2018, and further to 6.39% in Q4 2023.<sup>77</sup> To send \$500, the pattern was similar: The global average cost dropped from a high of 5.54% in Q3 2011 to 4.58% in Q4 2018, and again to 4.45% as of Q4 2023.<sup>78</sup>

### Average cost of sending \$200 and \$500



Sources: The World Bank, Remittance Prices Worldwide, available at <http://remittanceprices.worldbank.org>  
Geography: Global • \*As of December 2023

Significant cost reductions are also apparent when examining payment corridors, or the routes transactions take to reach their destinations. According to the World Bank:

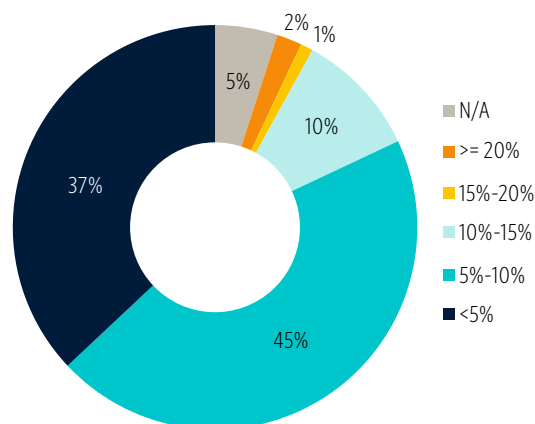
- In Q4 2023, 81% of corridors had average costs below 10%, compared with only 53% of corridors in Q1 2009.
- The share of corridors with average costs less than 5% grew significantly from 17% in Q1 2009 to 37% in Q4 2023.

77: "Remittance Prices Worldwide Quarterly," The World Bank, December 2023.

78: Ibid.

- Corridors with average costs exceeding 15% decreased considerably from 18% in Q1 2009 to just 4% in Q4 2023.
- As of Q4 2023, most corridors (45%) have average total costs in the 5% to 10% range, while 37% have costs below 5%.<sup>79</sup>

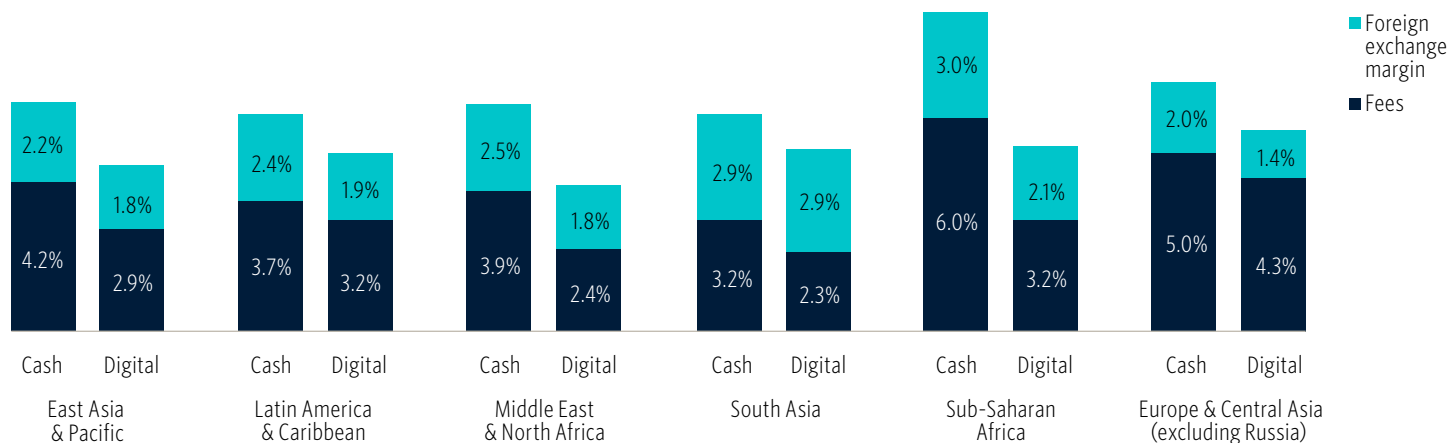
### Share of corridors by average total cost in Q4 2023\*



Sources: The World Bank, Remittance Prices Worldwide, available at <http://remittanceprices.worldbank.org>  
Geography: Global • \*As of December 2023

These improvements in cross-border payment costs are due in part to greater digital adoption. Digital platforms have made it easier for facilitators to communicate transaction data, thus reducing error rates and allowing for automation of processes such as KYC and AML checks. In some countries, the movement away from cash and toward digital payments has also led to stronger adoption of instant payment rails, which can reduce currency exchange risks. Across all regions, the cost of digital remittances has been consistently lower than the cost of nondigital remittances.<sup>80</sup>

### Average cost of sending \$200 by region: Cash versus digital services\*



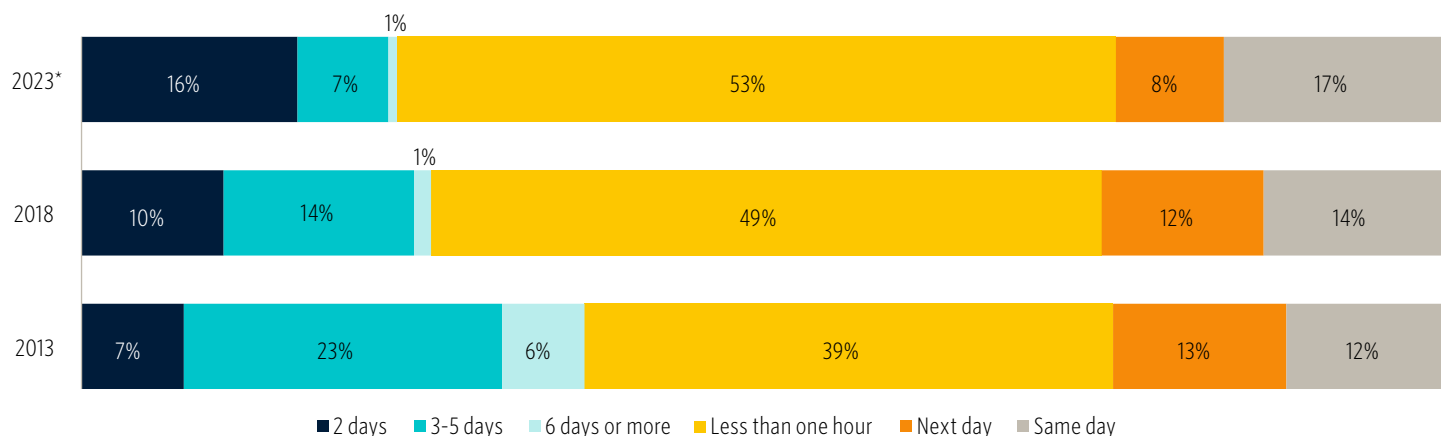
Sources: The World Bank, Remittance Prices Worldwide, available at <http://remittanceprices.worldbank.org>  
Geography: Global • \*As of December 2023

79: "Remittance Prices Worldwide Quarterly," The World Bank, December 2023.

80: Ibid.

Improvements in the speed of cross-border payments have also been apparent over the past decade. The proportion of payments made available to the receiver in less than one hour, the most common payment speed, increased from 38.7% in 2013 to 52.7% in 2023. During this period, the share of same-day transfers rose from 11.9% to 16.5%, while three-to-five-day transfers dropped from 23.5% to 6.6%. Notably, the share of two-day payments also grew, likely due to a shift from the share of payments taking three days or longer.<sup>81</sup>

## Share of cross-border payments by delivery speed



Sources: The World Bank, Remittance Prices Worldwide, available at <http://remittanceprices.worldbank.org>  
Geography: Global • \*As of December 2023

This data illustrates that while cross-border payments are commonly thought to be lengthy transactions spanning multiple days, the reality is that many international transactions today settle within 24 hours. Transactions on the Swift network show similar trends, with 89% reaching recipient banks within one hour.<sup>82</sup> Moreover, 100% of Swift GPI payments settle within 24 hours, with 50% settling in 30 minutes and 40% in just 5 minutes.<sup>83</sup>

### *So, what remains to be solved?*

While the speed and costs of cross-border payments have significantly improved over the past two decades, the industry still faces many challenges that need to be addressed. We can observe from the data that a portion of cross-border payments remains slow, with many yet to achieve real-time settlement speeds. Swift reports that 40% of wholesale payments still encounter delays at the beneficiary leg due to compliance functions, batch processing, and market-operating-hour limitations.<sup>84</sup>

Achieving instant cross-border payments and enhancing speeds through global payment rail interoperability will likely be a multiyear endeavor, as the adoption of real-time payments worldwide is still far from critical mass. Additionally, not all facilitators of international transactions have modernized their infrastructures. For example, while Swift GPI offers strong settlement speeds, its adoption remains low

81: "Remittance Prices Worldwide Quarterly," The World Bank, December 2023.

82: "Swift's Cross-Border Payments Processing Speed Surpasses G20 Target," Swift, August 22, 2023.

83: "The Digital Transformation of Cross-Border Payments," Swift, n.d., accessed July 17, 2024.

84: "Swift's Cross-Border Payments Processing Speed Surpasses G20 Target," Swift, August 22, 2023.

due to the significant time and resources required to upgrade from legacy systems and meet stringent regulatory standards. Currently, over 4,450 banks have adopted Swift GPI,<sup>85</sup> a fraction of the more than 25,000 banks estimated worldwide.<sup>86</sup>

Brian Cho, VP of transformation, strategy & corporate development at Convera, provided additional context on these issues. “In terms of what we still need to solve for, there is still a lot of standard setting and complexity management at the underlying infrastructure level that has and will continue to take some time to truly solve,” Cho said. “In domestic payments, if it’s not something that is driven by governments, as you have seen in various countries like India with Paytm, it requires collaboration by financial institutions such as Zelle in the US. None of those paths are easy, and they are made even more complex when you factor in things like foreign relations, differing domestic financial infrastructure operating models and standards, and the sheer number of players involved.”<sup>87</sup>

Adoption of modern cross-border payment solutions has also been slow from businesses. Gabriel Grisham, senior VP of global sales for Payouts OS at PayQuicker, said, “There are a lot of companies that do cross-border payments today really well, but the major pain point is adoption. Replacing a legacy system for a massive company is going to take some time. Legacy systems aren’t going to move very quickly, and there is an education component that will be required. But the demand is there, and having a replicable solution via API and owning the user experience will be the answer.”<sup>88</sup>

Furthermore, while many cross-border transactions today can be completed seamlessly, the costs and speeds of cross-border payments are disproportionate by region. Remittances to and from countries such as the US and UK, which use developed payment infrastructures and involve major currencies, can be settled quickly. However, when a transaction involves countries with less developed infrastructures or exotic currencies, transmitting money across borders can still be problematic.

This is evident in regions such as sub-Saharan Africa, where the average cost to send \$200 is 7.90%, or 151 basis points above the current global average.<sup>89</sup> The corridors that currently see costs above 20% also have an origination or destination location in sub-Saharan Africa. Yet remittance costs can be high even for G20 countries; the average costs of remitting \$200 for South Africa, Japan, and Brazil are 12.82%, 7.03%, and 6.90%, respectively, while the G20 average is 6.46%.<sup>90</sup>

<sup>85</sup>: “Swift Compatible Application,” Swift, January 26, 2024.

<sup>86</sup>: “Creating a New, Connected Ecosystem for Commerce,” Identitii, October 2019.

<sup>87</sup>: Brian Cho, VP of transformation, strategy & corporate development at Convera, interview by Rudy Yang, July 1, 2024.

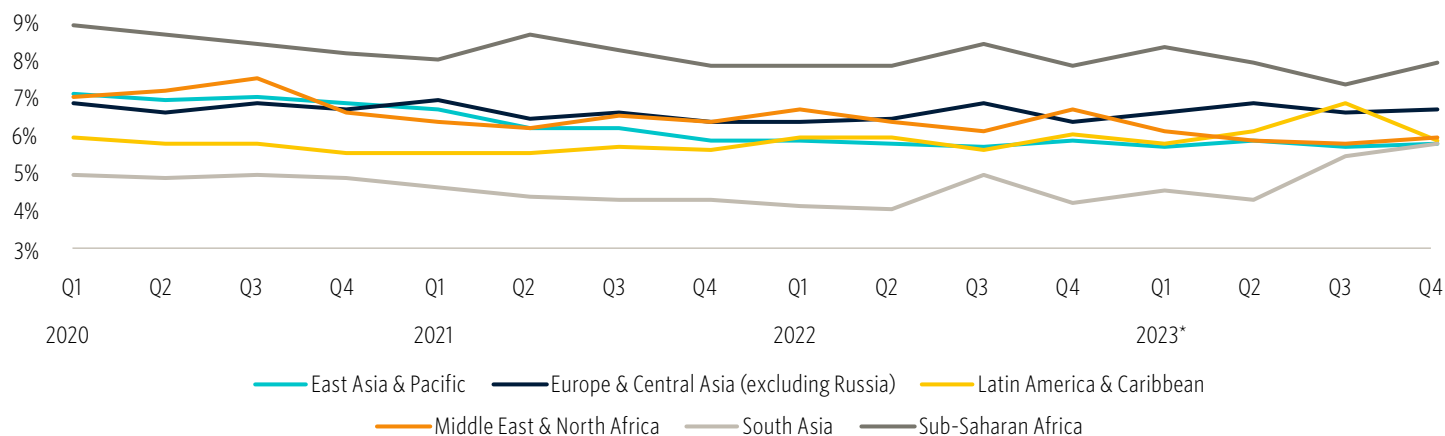
<sup>88</sup>: Gabriel Grisham, senior VP of global sales for Payouts OS at PayQuicker, interview by Rudy Yang, June 4, 2024.

<sup>89</sup>: “Remittance Prices Worldwide Quarterly,” The World Bank, December 2023.

<sup>90</sup>: Ibid.



## Quarterly average cost of sending \$200 by region



Sources: The World Bank, Remittance Prices Worldwide, available at <http://remittanceprices.worldbank.org>  
Geography: Global • \*As of December 2023

Finally, the data we currently see is based off the premise that facilitating a cross-border payment is possible. Many developing countries, and even developed ones such the US, still have large unbanked populations who do not have access to a financial institution. The number of unbanked adults globally sits at 1.4 billion as of 2021,<sup>91</sup> with the most underserved regions being the Middle East and North Africa, sub-Saharan Africa, and Latin America and the Caribbean.<sup>92</sup> Without the ability to digitize cash, these individuals have limited options to access digital MTOs and remit money internationally.

91: "Financial Inclusion," The World Bank, September 13, 2022.

92: "Our World Isn't Designed for the Growing Number of 'Unbanked' People," Fast Company, The Conversation, January 23, 2024.

Many players are competing to drive faster, cheaper, and more transparent cross-border payments. However, the industry is not a winner-takes-all market, as both incumbents and fintech companies have specific roles to play.

## Many players, one goal

### *Competition for market share*

If every consumer and business in the world had an account at the same bank, cross-border payments would be solved. However, this is not the case, and there is currently no single payment rail or company that reaches every region in the world. Cross-border payment companies recognize this problem and are enabling faster, cheaper, and more transparent payments by building their own payment infrastructures.

This naturally begs the question: Will the first company to create an infrastructure covering all regions dominate the market? In our view, this is unlikely, as many players will need to be involved in different aspects of the cross-border payments value chain. Companies offering infrastructures, bank technologies, compliance expertise, card issuing, payment processing, and blockchain solutions all have specific roles to play given that consumers and businesses today have a multitude of payment preferences and needs.

Emphasizing this point further, Nazuk Jain, VP of product and innovation at PayQuicker, noted, “We have to think about payout options—how do payees want to get paid, and what do customers want? There are numerous options like paying to cards, transferring to e-wallets, or using bank accounts. Different markets all have different needs but want money transferred to their preferred payment options.”<sup>93</sup>

Ravi Adusumilli, executive general manager for Americas at Airwallex, provided further insight: “The market is pretty massive, and just cross-border payments alone will be a half-trillion-dollar TAM in the next few years. Even if you put all of the fintechs like us together across the world, there are still trillions of dollars moving through traditional banks. It’s not a winner-takes-all market but a combination of players that will take share and win. I think it will be the likes of some banks that are tech-forward, leaders in acquiring and card issuing, fintechs with focuses on specific markets, and a handful of global financial infrastructure providers like Airwallex.”<sup>94</sup>

In the following section, we highlight the companies building solutions for these different payment preferences around the world, as well as the innovations in the cross-border payments space.

### *Business- and enterprise-focused fintech startups*

With correspondent banking serving as the backbone of cross-border payments, streamlining global transactions requires either enhancing specific elements of the correspondent banking process or bypassing it altogether. Fintech companies such as Airwallex are making this possible by building their own network of banks and payment systems, thus creating a proprietary infrastructure that addresses the main pain points of correspondent banking. This is done by establishing direct partnerships with local banks and integrating with the payment systems and

<sup>93</sup>: Nazuk Jain, VP of product and innovation at PayQuicker, interview by Rudy Yang, June 4, 2024.

<sup>94</sup>: Ravi Adusumilli, executive general manager for Americas at Airwallex, interview by Rudy Yang, June 24, 2024.

clearing infrastructures in each region. Using this method, Airwallex can access a jurisdiction's local payment method directly rather than by using intermediaries.

Airwallex works by maintaining banking relationships in numerous countries around the world. This means that when a merchant in Australia wants to pay a supplier in the US, Airwallex can originate a transaction via a banking partner in the US (in USD) using a local payment method (ACH) and periodically rebalance the relative money pools it holds in the US and Australia to reflect inflows and outflows. This is a quicker and cheaper process compared with sending international wires.

This proprietary network is the foundation of many opportunities. By leveraging its own direct network, Airwallex can facilitate cross-border payments within one day to over 120 countries and regions.<sup>95</sup> Many of these transactions are low-cost; some are free with the use of an Airwallex global account or multicurrency wallet, while foreign exchange conversions are executed at 0.5% to 1.0% above interbank exchange rates.<sup>96</sup> Moreover, Airwallex has built a suite of products off its internal network and offers multicurrency cards, expense management software, software integrations, and APIs that let customers integrate into Airwallex's global payment capabilities and create embedded finance offerings.

We believe Airwallex demonstrates the significant market opportunity in cross-border payments. According to company sources, Airwallex has an annual transaction volume run rate of \$90 billion, with roughly 94% of transactions processed through its own proprietary network (the remaining 6% is processed through Swift).<sup>97</sup> Notably, while Airwallex recognizes a substantial proportion of revenues from its direct payment services, the company also sees significant revenues from its core API and embedded finance offerings, which are faster-growing segments.<sup>98</sup> According to company sources, Airwallex became cash flow positive in 2023, and in Q1 2024, the company recognized a 68% YoY increase in transaction volumes and an 84% YoY increase in revenues (inclusive of interest income on customer funds). The following table breaks down this growth by region.

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<sup>95</sup>: "Payouts," Airwallex, n.d., accessed July 17, 2024.

<sup>96</sup>: "Transfers & FX," Airwallex, n.d., accessed July 17, 2024.

<sup>97</sup>: "Airwallex CEO and Co-Founder Jack Zhang - Empowering Businesses to Grow Beyond Borders," Wharton FinTech Podcast, January 18, 2024.

<sup>98</sup>: "Airwallex Raises \$200M at a \$4B Valuation to Double Down on Business Banking," TechCrunch, Ingrid Lunden, September 20, 2021.

## Airwallex revenue and transaction volume growth by region in Q1 2024\*

Region/market	Revenue increase YoY	Transaction volume increase YoY
Americas	396%	555%
EMEA	152%	125%
APAC	71%	53%
China	57%	50%
Hong Kong & Singapore	142%	118%
Hong Kong	108%	86%
Singapore	320%	282%
Australia & New Zealand	93%	28%
UK	157%	136%
Israel	129%	51%

Sources: Airwallex, PitchBook • Geography: Global • \*As of June 2024

Ravi Adusumilli provided us with additional context, saying, “We built our proprietary infrastructure from the ground up using direct connections with financial partners, card networks, and payment methods. Airwallex’s network sees 90% of our \$90 billion in annualized volume with 85% of transfers arriving the same day and half of them arriving near-instantly. Our moat is the combination of this network that is built on top of our partnerships with more than 50 financial institutions globally and our flexible software layer. It allows us to build a breadth and depth of solutions for multiple uses cases. In payroll, we have zero room for delays and need to ensure people get paid on time. For large Fortune 500 companies with millions of dollars in vendor and supplier payments, we ensure they get the best rate. Depending on the use case, we determine which part of our infrastructure should be used, and we have the flexibility to determine how we run our network to provide the best outcome for our customers.”<sup>99</sup>

Airwallex has raised a disclosed \$902.0 million to date and was last valued at \$5.6 billion in 2022. The startup’s most recent major funding round was a Series E2, wherein it secured \$100.0 million in venture funding from Tencent Holdings, 1835i, and Salesforce Ventures. Other participants in this round included Hermitage Capital, Square Peg Capital, HongShan, Sequoia Capital, Lone Pine Capital, and Hostplus Superannuation Fund. In Q2 2024, Airwallex was reported to be in discussions with the Abu Dhabi Investment Authority, Mubadala Investment Company, and Saudi Arabia’s Public Investment Fund as it prepares to raise capital for expansion into the Middle East.<sup>100</sup> Caplight estimates Airwallex’s valuation to be \$4.0 billion currently. Based off Caplight’s data, we estimate Airwallex currently trades at 6.2x sales. By comparison, enterprise value/TTM sales multiples currently sit at 1.8x for Payoneer, 6.4x for Corpay, 2.5x for Remitly, 1.9x for PayPal, 16.0x for Visa, and 16.5x for Mastercard.

99: Ravi Adusumilli, executive general manager for Americas at Airwallex, interview by Rudy Yang, June 24, 2024.

100: “Tencent-Backed Startup Courts Middle Eastern Wealth Funds,” Bloomberg, Archana Narayanan, May 10, 2024.

Other key startups building their own networks to streamline cross-border payments include Nium (last valued at \$1.4 billion), Thunes (last valued at \$900.0 million), and Rapyd (last valued at \$700.0 million). Nium's strategy similarly involves direct relationships with banks, as well as partnerships with payment service providers and MTOs, enabling the startup to quickly move funds globally among accounts, cards, and digital wallets. The company primarily helps financial institutions, businesses, and enterprises facilitate cross-border payments in over 190 countries across 110 currencies, with an annual transaction volume of \$25 billion.<sup>101</sup> In addition, Nium offers APIs that allow customers to build solutions for various needs such as payroll, spending management, and travel.

Thunes is also building its own global payment infrastructure via direct relationships, enabling fast payouts in over 130 countries across 85 currencies.<sup>102</sup> The startup serves mainly banks, MTOs, businesses, digital merchants, and payment service providers, processing 180 million transactions per year.<sup>103</sup> Since its inception in 2016, Thunes has processed a total of \$65 billion in transaction volume.<sup>104</sup>

Comparatively, Rapyd's global network facilitates payouts to over 190 countries across 70 currencies.<sup>105</sup> The startup caters to businesses in e-commerce, marketplaces, gaming, and the creator economy, supporting them with global accounts, pay-ins and payouts, dynamic currency conversions, and subscription management solutions. Rapyd's support for various payment methods, including cards, digital wallets, bank transfers, cash, and vouchers, makes its offering a robust solution for global businesses. According to Rapyd's CEO, the company is projected to achieve \$66 billion to \$72 billion in transaction volume from cross-border payments in 2024, with 75% of its total revenues coming from SMEs and large-scale enterprises and the remaining 25% from small businesses.<sup>106</sup>

Nonetheless, cross-border payments present a massive market in which many fintech players are competing for share. Another notable company in the space is TerraPay, a Series B startup that provides APIs to connect to its extensive network. TerraPay is regulated in 30 markets, supports 71 currencies, and enables payouts to over 210 countries.<sup>107</sup> Similar startups enabling access to expansive infrastructures and partner networks via APIs include Series A startup Navro, seed-stage startup Routefusion, and early-stage startup Keeta.

Other startups are adding value by focusing on niches or specific parts of the cross-border payments value chain. For example, early-stage startup Payall helps banks process and launch cross-border payments solutions while focusing on compliance; late-stage startup Veem streamlines accounts payable and accounts receivable for businesses globally; early-stage startup Numo helps remote and international contractors get paid around the world; late-stage startup Neo offers an international

<sup>101</sup>: "Avoiding Cost in Translation," Nium, n.d., accessed July 17, 2024.

<sup>102</sup>: "Thunes," Thunes, n.d., accessed July 17, 2024.

<sup>103</sup>: "One Cross-Border Payment Network," Thunes, n.d., accessed July 17, 2024.

<sup>104</sup>: "Thunes Signs New Deal With Visa to Broaden Its Global Reach," Forbes, David Prosser, March 21, 2024.

<sup>105</sup>: "Your Global Payment Problem Solvers," Rapyd, n.d., accessed July 17, 2024.

<sup>106</sup>: "Rapyd's PayU GPO Acquisition: CEO Arik Shtilman on the Company's Five-Year Strategic Jump," FXC Intelligence, Daniel Webber and Lucy Ingham, August 10, 2023.

<sup>107</sup>: "Global Money Movement, Simplified," TerraPay, n.d., accessed July 17, 2024.

treasury management platform for managing foreign exchange risk; and late-stage startup PingPong helps e-commerce companies transact worldwide.

We also remain bullish on companies that emphasize serving specific markets and regions. Companies expanding their infrastructures are likely to partner with businesses that have expertise and established connections in distinctive jurisdictions, as entering new markets from scratch can be difficult. In addition, currently no single company covers all payment networks in the world, and we expect to see a high frequency of M&A in this sector as companies seek to expand into new markets. This strategy has been common throughout the fintech sector. For instance, Visa acquired Pismo and Prosa to expand its LATAM presence, Ant Group acquired MultiSafepay to expand into Western markets, Deel acquired PaySpace to strengthen its presence in Africa and the Middle East, and Airwallex acquired MexPago to enter the LATAM market.

DSGPay is an example of a company that specializes in a specific market. Founded in 2014 and headquartered in Singapore, the company helps businesses in Asia process international payouts and collections with multicurrency virtual accounts. DSGPay's specialty in this region allows it to provide better solutions for underserved businesses in Asia, many of which are still overpaying for payment services. DSGPay accomplishes this with its extensive partner network throughout Asia, including integrations with several local Asian payment networks. In addition, the company also helps businesses transact with 81 countries and offers embedded finance solutions via its API.<sup>108</sup> Other region-focused startups include Onafriq, Verto, Zeepay, Moment, and Cleva for Africa; BRISKPE, PayGlocal, XPay, XTransfer, Skydo, and Aspire for Asia; and transferbank, Jeeves, Supra, BRLA, and ESCA for LATAM.

<sup>108</sup>: "Empower Your Business With the Leading Payment Service Provider in Asia," DSGPay, n.d., accessed July 17, 2024.

## Select VC-backed enterprise cross-border payment startups\*

Company	Estimated employee count	Year founded	Last fundraising (\$M)	Last fundraising date	Total capital raised (\$M)	IPO probability	M&A probability
Airwallex	1,500	2015	\$100.0	October 11, 2022	\$902.0	96%	2%
Aspire	706	2018	\$79.2	N/A	\$374.3	86%	7%
BRISKPE	N/A	2023	\$5.0	April 29, 2024	\$5.0	N/A	N/A
BRLA	7	2022	\$0.2	January 29, 2024	\$0.8	1%	54%
Cleva	15	2023	\$1.5	May 1, 2024	\$2.0	N/A	N/A
Jeeves	182	2019	\$75.0	May 6, 2024	\$443.2	12%	73%
Keeta	14	2022	\$6.0	July 27, 2023	\$25.7	1%	41%
Kyshi	17	2015	\$0.1	November 1, 2023	\$0.3	1%	76%
Navro	87	2022	\$32.9	February 9, 2024	\$39.2	7%	75%
Neo	28	2017	\$13.2	January 18, 2024	\$18.8	7%	60%
Nium	1,000	2014	\$50.0	June 5, 2024	\$548.7	88%	10%
Numo	5	2023	\$1.5	N/A	\$1.5	N/A	N/A
Onafriq	354	2009	\$200.0	June 14, 2022	\$323.0	48%	49%
PayAll	43	2017	\$10.0	November 1, 2023	\$32.8	1%	85%
PayGlocal	58	2021	\$12.0	June 18, 2022	\$17.5	6%	65%
PingPong	362	2015	\$122.0	September 17, 2020	\$164.4	3%	29%
Rapyd	784	2015	\$700.0	August 1, 2023	\$1,506.1	24%	74%
Routefusion	21	2018	\$10.5	January 19, 2022	\$14.1	1%	78%
Skydo	29	2022	\$6.0	June 22, 2022	\$6.0	N/A	N/A
Supra	N/A	2022	\$1.2	December 6, 2023	\$1.2	N/A	N/A
Terrapay	567	2014	\$20.0	July 10, 2024	\$167.3	N/A	N/A
Thunes	375	2016	\$72.0	July 1, 2023	\$202.7	45%	51%
transferbank	25	2019	\$0.8	November 9, 2022	\$0.8	1%	44%
Veem	113	2014	\$35.1	February 3, 2023	\$134.4	8%	87%
Verto	100	2017	\$10.0	January 1, 2022	\$12.3	1%	87%
Xtransfer	2,000	2017	\$138.0	September 17, 2021	\$168.0	N/A	N/A
Zeepay	149	2014	\$23.0	March 29, 2024	\$32.1	10%	83%

Source: PitchBook • Geography: Global • \*As of June 30, 2024  
Note: Probability data is based on [PitchBook VC Exit Predictor methodology](#).

## *Consumer- and remittance-focused solutions*

Establishing a proprietary network is essential for providing faster and more cost-effective cross-border remittances. Companies such as Wise have succeeded by building an infrastructure that matches users sending money in one currency with those sending money in the opposite direction. For example, if a US user wants to send money to a UK user, Wise will find a corresponding transaction where someone in the UK wants to send money to the US. In the background, Wise reroutes the funds so that the dollars from the US sender go directly to the US recipient, and the pounds from the UK sender go directly to the UK recipient. This method eliminates the need for intermediaries because no currency is moved outside its home country. These transactions are also executed with transparency using the mid-market exchange rate, thus providing a lower cost than most remittances.

Using this framework, Wise has become a well-known disruptor in the remittance industry. The company quickly facilitates transactions, with 62% of payments being instant,<sup>109</sup> and charges fees that are generally below those of its competitors. This is evident in Wise's cross-border take rate of 0.67%,<sup>110</sup> compared with average remittance costs of 12.66% for banks, 5.35% for MTOs, 3.87% for mobile operators, and 6.63% for nonbank deposit-taking institutions, such as post offices.<sup>111</sup> Moreover, Wise solves for a large pain point in the remittance industry: transparency. The company's platform informs users of all fees involved in a transaction, providing customers with greater knowledge over the exact amount they are sending and the final amount that will be made available to their recipients. As a testament to its dedication to transparency, Wise also offers its users a tool that compares the costs of its transaction with those of its competitors—even if competitors' costs are cheaper.

Wise's strategy has yielded the company notable success. In fiscal year 2023, Wise had 12.8 million active customers, facilitated \$149.6 billion in transaction volumes (up 13.4% YoY), generated \$1.3 billion in revenues (up 24.3% YoY), and delivered a profitable bottom line of \$447.7 million (up 211.1% YoY).<sup>112, 113</sup> Another public fintech company helping to drive cheaper and faster remittances is Remitly. In Q1 2024, Remitly had \$42.4 billion in TTM transaction volumes (up 36.3% YoY) and \$1.0 billion in TTM sales (up 39.9% YoY) but recognized a TTM net loss of \$110.6 million (versus -\$119.0 million in the prior-year period).<sup>114</sup>

However, despite being recognized as industry leaders, both companies face heavy competition in a challenging market. This landscape includes loyal customers who stick with established incumbents such as Western Union, which continue to earn billions of dollars in annual revenue, as well as price-sensitive consumers who readily switch to cheaper alternatives. Still, the massive market sees a lot of money that moves across borders, giving way to numerous fintech companies competing for share.

<sup>109</sup>: "Preliminary Results for the Financial Year Ended 31 March 2024," Wise, June 13, 2024.

<sup>110</sup>: Ibid.

<sup>111</sup>: "Remittance Prices Worldwide Quarterly," The World Bank, December 2023.

<sup>112</sup>: "Preliminary Results for the Financial Year Ended 31 March 2024," Wise, June 13, 2024.

<sup>113</sup>: Numbers were converted from British pounds to USD using the currency conversion rate as of March 31, 2024.

<sup>114</sup>: "Quarterly Results," Remitly, n.d., accessed July 17, 2024.



Paysend is another fintech company facilitating cross-border remittances at low costs. The late-stage startup, last valued at \$720.0 million, serves over 9 million customers and covers more than 170 companies with its global network.<sup>115</sup> The startup accomplishes this by establishing direct partnerships and collaborating with other infrastructure players such as Plaid. In addition, Paysend powers its money-movement network with in-house processing and acquiring capabilities. At scale, this in-house vertical integration strategy enables cheaper transactions and creates robust unit economics. However, without significant volumes and operating leverage, this model can lead to a high cost structure and wear down profits.

Zepz, a late-stage startup last valued at \$5.0 billion in 2021, competes in the space with the two remittance platforms it owns: WorldRemit and Sendwave (acquired by WorldRemit in 2021). Both platforms provide a digital alternative to remit funds, with a focus in Asia and Africa. WorldRemit supports 5.7 million customers, 130 countries, and 70 currencies,<sup>116</sup> while Sendwave supports over 400,000 users and 30 countries.<sup>117, 118</sup> Notably, while Sendwave advertises low costs and fast speeds, the platform has also been fined by regulators for misleading consumers. In 2023, Sendwave received a consent order from the Consumer Financial Protection Bureau, partly due to misrepresenting the “instant” speeds and low fees it advertised. This demonstrates both the importance of transparency in the remittance market and the difficulty of serving consumers in multiple regulated countries.

Another startup gaining traction in the space is NALA, which raised a \$40.0 million Series A in July 2024. NALA currently enables over 500,000 customers based in the US, UK, and EU to send money to 249 banks and 26 mobile money services across 11 markets in Africa.<sup>119, 120</sup> The company’s network is integrated with mobile money platforms such as M-PESA, enabling senders from supported countries to reach a high number of consumers in the African countries it serves. There is significant value in startups like NALA that focus on enabling access to developing regions such as Africa. These include startups such as Félix and EFEX in LATAM, YouTrip and Orange Square in Asia, Chipper Cash and YMoney in Africa, and Hubpay and InstaKin in the Middle East.

Additionally, NALA serves businesses with its B2B payments platform Rafiki. This is a similar expansion strategy to those of Wise (which saw 26.4% of its fiscal year 2024 revenues from B2B) and Paysend. However, our conversations with cross-border payments companies suggest that it is difficult for consumer companies to expand into B2B, and vice versa. This is due to different infrastructure requirements, sizes and volumes of payments, and preferences of both consumers and businesses for sending and receiving cash.

Other startups, such as Pomelo, are building innovative solutions by combining remittances with credit. Pomelo, which raised a \$35.0 million Series A in April 2024, offers its customers a send now, pay later option. The startup provides its users with

<sup>115</sup>: “We’re Simplifying Cross-Border Payments and Connecting People All Around the World,” Paysend, n.d., accessed July 17, 2024.

<sup>116</sup>: “About Us,” WorldRemit, n.d., accessed July 17, 2024.

<sup>117</sup>: “Our Brands,” Zepz, n.d., accessed July 17, 2024.

<sup>118</sup>: “Send Money With Love,” Sendwave, n.d., accessed July 17, 2024.

<sup>119</sup>: “Send Love Home,” NALA, n.d., accessed July 17, 2024.

<sup>120</sup>: “Nala to Use \$40M Series A to Build B2B Payments Platform, Scale Remittance Services,” TechCrunch, Annie Njanja, July 9, 2024.

a Mastercard credit card approved for up to \$1,000, which can then be used to send cash in the form of credit. No interest or transfer fees are charged (though there are late fees), which provides consumers with faster access to cash and an option to build credit. However, this model differs by eliminating transfer fees and earns revenues primarily through interchange and foreign exchange.

### Select VC-backed consumer cross-border payment startups\*

Company	Estimated employee count	Year founded	Last fundraising (\$M)	Last fundraising date	Total capital raised (\$M)	IPO probability	M&A probability
Afriex	45	2019	\$0.5	October 18, 2022	\$11.9	1%	93%
Atlantic Money	14	2020	\$3.0	July 21, 2022	\$7.5	1%	69%
Avian Labs	15	2022	N/A	January 31, 2023	N/A	N/A	N/A
Coba	16	2021	\$2.2	January 30, 2024	\$2.7	N/A	N/A
EFEX	16	2022	\$1.5	November 21, 2022	\$1.5	N/A	N/A
Félix	62	2021	\$15.8	May 1, 2024	\$23.9	2%	82%
Global66	233	2018	\$12.0	February 17, 2022	\$22.5	1%	65%
Hubpay	67	2019	\$1.5	May 22, 2024	\$30.6	2%	79%
InstaKin	20	2019	\$0.5	N/A	\$0.8	1%	17%
Kappa	10	2021	\$8.7	March 28, 2024	\$8.7	N/A	N/A
Lemfi	91	2020	\$33.0	August 17, 2023	\$48.8	9%	71%
NALA	100	2017	\$40.0	July 9, 2024	\$50.2	2%	81%
Orange Square	60	2013	\$7.7	July 11, 2024	\$10.7	40%	55%
Orovera	N/A	2023	N/A	June 28, 2023	N/A	N/A	N/A
Payqin	18	2017	\$0.1	N/A	\$1.1	1%	58%
Paysend	291	2010	\$65.0	November 29, 2023	\$231.9	9%	89%
Pomelo	55	2017	\$35.0	April 22, 2024	\$110.0	5%	87%
Revolut	10,000	2015	\$139.4	N/A	\$1,833.2	35%	63%
Taptap Send	149	2014	\$65.0	May 17, 2023	\$153.8	4%	82%
Transfergo	375	2012	\$10.0	April 9, 2024	\$126.5	18%	72%
Wirebarley	59	2016	\$9.3	November 1, 2022	\$17.7	2%	85%
Ymoney	43	2018	\$3.2	April 5, 2023	\$3.6	1%	64%
YouTrip	150	2016	\$50.0	October 26, 2023	\$105.5	34%	51%
Zepz	1,400	2010	\$3.9	August 1, 2023	\$1,297.6	23%	55%

Source: PitchBook • Geography: Global • \*As of June 30, 2024  
Note: Probability data is based on [PitchBook VC Exit Predictor methodology](#).

## *Established fintech companies and legacy players*

While a robust proprietary network is the key to creating a competitive moat in the cross-border payments industry, building one is a difficult task that takes several years, primarily because of the complexity of regulatory requirements in each region. These issues can become increasingly complex with language barriers and require teams with local expertise. Specifically, different countries have their own mandates on matters such as KYC, AML, capital controls, messaging standards, consumer protection, and data privacy.

Countries such as China and India require datacenters to ensure that data is stored locally and in compliance with privacy regulations whenever it is transmitted across borders. For example, China's Personal Information Protection Law, Data Security Law, and Cybersecurity Law stipulate that certain data collected within the country must be stored locally, and that cross-border transfers of this data are permitted only after passing a security assessment organized by the Cyberspace Administration of China. Furthermore, companies must also balance the placement of distributed datacenters with latency performance, making sure that servers are placed optimally to respond as fast as possible to customer requests.

For these reasons, established fintech companies and legacy players should not be discounted in the cross-border payments landscape. Companies such as Payoneer and Corpay (rebranded from FLEETCOR Technologies) have established themselves as reliable players in the industry, operate long-standing payment infrastructures, and possess the resources and knowledge to adhere to regulatory standards. In addition, these companies continue to process a noteworthy share of cross-border payments for financial institutions, businesses, merchants, and contractors. Payoneer enables transactions in over 190 countries and 70 currencies and recognized transaction volumes of \$69.1 billion on a TTM basis in Q1 2024 (an increase of 10.9% YoY).<sup>121, 122</sup> Comparatively, Corpay processes payments across more than 200 countries and 145 currencies and had spending volumes of \$145.9 billion on a TTM basis for its corporate payments segment in Q1 2024.<sup>123, 124, 125</sup>

Further, these companies are both profitable (a difficult achievement in this space), hold ample cash on their balance sheets, and continue to deliver growth on their top and bottom lines. In Q1 2024, Payoneer had \$867.2 million in TTM revenues (up 27.0% YoY), recognizing a take rate of 1.25% (1.06% for SME customers).<sup>126</sup> It also delivered \$114.3 million in TTM net income, compared with -\$24.4 million from the prior-year period.<sup>127</sup> For the same period, Corpay delivered \$1.2 billion in TTM revenues for its corporate payments segment (up 15.6% YoY), recognizing a take rate of 0.79%, and \$996.8 million in TTM net income (up 4.8% YoY).<sup>128</sup> While not a direct comparison, Wise's cross-border take rate was 0.67% in fiscal year 2024.<sup>129</sup>

<sup>121</sup>: "Hello Business Everywhere," Payoneer, n.d., accessed July 17, 2024.

<sup>122</sup>: "Quarterly Results," Payoneer, n.d., accessed July 17, 2024.

<sup>123</sup>: "Streamline Cross-Border Payments," Corpay, n.d., accessed July 17, 2024.

<sup>124</sup>: "Corpay to Acquire Cross-Border Payments Company," Corpay, June 19, 2024.

<sup>125</sup>: "Reports," Corpay, n.d., accessed July 17, 2024.

<sup>126</sup>: "Quarterly Results," Payoneer, n.d., accessed July 17, 2024.

<sup>127</sup>: Ibid.

<sup>128</sup>: "Reports," Corpay, n.d., accessed July 17, 2024.

<sup>129</sup>: "Preliminary Results for the Financial Year Ended 31 March 2024," Wise, June 13, 2024.

Convera, which officially spun off from Western Union Business Solutions in 2023, also continues to be a key player in B2B cross-border payments. The company brings 40 years of operating experience and offers an expansive network of bank partners, covering over 200 countries and 140 currencies, according to company sources. Convera powers cross-border payments for its customers, which include businesses, banks, and financial institutions, through a mix of direct and indirect models. In its direct model, the company leverages its own accounts where local currencies are held to facilitate pay-ins and payouts for customers. In its indirect model, Convera partners with banks to expand its network to cover regions where it is less economical for Convera to hold and manage its own accounts.

To differentiate from competitors, Convera leans into its experience and competes with its expertise in foreign exchange, compliance, and risk management. Brian Cho, VP of transformation, strategy & corporate development at Convera, said, “This is a space where industry expertise in both foreign exchange and payments better enables any player to best serve customers. Having the strongest expertise—understanding how foreign exchange markets work, being attuned to macroeconomic factors, local market nuances, understanding payments infrastructure and its evolution—is also a key factor in building a competitive moat.”<sup>130</sup>

Another significant contributor in the cross-border payments industry is PayQuicker. Founded in 2007, the company specializes in providing global payout solutions for businesses. Currently, PayQuicker recognizes over 200 payout partners and supports more than 210 countries and over 80 currencies.<sup>131</sup> PayQuicker enables global payments and optimized payout routing through an API that can be used by banks and payment rails. Notably, the company’s API also supports and enables connections to established players such as Convera, Corpay, Nium, and Thunes.

Brightwell is another established fintech player in the space. Founded in 2009, the company helps consumers and businesses from more than 140 countries handle cross-border payments.<sup>132</sup> Brightwell has historically focused on a niche in the maritime industry but also serves financial institutions, airlines, nongovernmental organizations, payroll companies, and other enterprises. In terms of remittances, Brightwell’s ReadyRemit solution connects over 180 countries across 160 currencies, covering over 90% of the world’s population.<sup>133</sup> To streamline cross-border transfers, Brightwell establishes partnerships and direct connections to money movers such as Corpay, Western Union, MoneyGram, Visa, and Mastercard and offers APIs to integrate with its infrastructure.

A competitive element of Brightwell is the company’s expertise in meeting compliance standards. Brightwell includes built-in solutions that help its customers navigate the complexities of cross-border payment regulations. In addition, the company’s Arden solution offers compliance as a service, helping users meet global regulatory requirements, conduct KYC and AML screenings, and prevent fraud. Larry Hipp, CEO at Brightwell, said, “An often-overlooked aspect of our business is our expertise in global compliance requirements. Many companies lack this

<sup>130</sup>: Brian Cho, VP of transformation, strategy & corporate development at Convera, interview by Rudy Yang, July 1, 2024.

<sup>131</sup>: “Powering Intelligent Global Payouts,” PayQuicker, n.d., accessed July 17, 2024.

<sup>132</sup>: “We Accelerate Growth for All Types of Businesses,” Brightwell, n.d., accessed July 17, 2024.

<sup>133</sup>: “Don’t Let Digital Nomads Wander Away From Your Banking App,” Brightwell, n.d., accessed July 17, 2024.

capability and do not offer both technology and compliance services to facilitate rapid deployment. Due to the complexities involved, even many credit unions struggle with facilitating cross-border payments, despite having the technical capacity. We have a built-in solution along with a team to manage compliance for our clients, enabling them to go live in the market in under 90 days.”<sup>134</sup>

Banks that offer cross-border and foreign exchange solutions, such as Crown Agents Bank (CAB), also hold competitive advantages. CAB, which was founded in 1833, is a UK-regulated and certified B-Corp bank that enables fintech companies, financial institutions, governments, and development organizations to transact across borders. The bank adopts a similar strategy of building direct relationships with other banks and specializes in B2B payments with a focus in Africa and LATAM. CAB offers APIs that let its customers access its network, allowing payments in over 100 currencies, transparency over transaction statuses, and precision on foreign exchange pricing. In addition, CAB benefits from being a UK-regulated bank, which allows it to more easily establish relationships with hard-to-reach markets in developing regions. This stems from the bank’s long-standing infrastructure and ability to both deeply understand and meet varying regulatory standards. Companies such as Wise leverage CAB’s network for access to local liquidity providers in developing regions.

Gaurav Patel, head of investor relations at CAB, said, “This business is fundamentally relationship driven. Building the extensive network that we have requires a breadth of skills, expertise, and deep understanding of emerging market dynamics. The countries in which we operate are often faced with all types of complex financial and economic challenges, and as a UK-regulated bank with a team of individuals who are highly skilled not only in the markets that we operate but also in strict KYC and AML compliance procedures, we are best placed to help them navigate those complexities.”<sup>135</sup>

Dwight Willis, CEO and director of DSGPay, explained how obtaining licenses is a difficult task, but one that can create a competitive advantage. “It’s the length of time, the effort, and the cost that goes into applying for licenses that makes obtaining them so difficult and complex,” Willis said. “If you want to obtain one in some of the leading countries, you’re looking at potentially hundreds of thousands of dollars in spend for resources like consultants, lawyers, and accountants. And requirements coming from regulators and payment organizations are becoming more complex. The regulators want to see from you that you can run the business, adhere to local rules and regulations, and you’re not going to be a risk to their systems. To justify all the license costs, you need to have the volume and scale.”<sup>136</sup>

Additionally, we believe global card schemes such as Visa and Mastercard will continue to be winners in this space. As mentioned earlier in this note, Visa is expanding its cross-border services to businesses through Visa B2B Connect, and Mastercard is doing the same with Mastercard Track. Visa and Mastercard also have the benefit of leveraging their established trust in customers and massive global infrastructures. Brightwell CEO Larry Hipp said, “Card networks hold a significant advantage and are poised to become major players in cross-border transactions.

134: Larry Hipp, CEO at Brightwell, interview by Rudy Yang, June 6, 2024.

135: Gaurav Patel, head of investor relations at CAB, interview by Rudy Yang, June 25, 2024.

136: Dwight Willis, CEO and director of DSGPay, interview by Rudy Yang, June 7, 2024.

The potential for disruptive technologies in the near term, such as leveraging card payment networks for services like push to card, is immense and expected to grow substantially.<sup>137</sup>

Players such as Brightwell have partnered with Visa to facilitate global payouts to bank accounts and digital wallets using Visa Direct. Visa has also partnered with Airwallex to launch borderless business cards, with Thunes to send payments to countries in Africa and Asia, with Western Union to enable remittances through Visa Direct, and with HSBC to support faster transfers for its remittance app Zing through Currencycloud and Tink (both Visa-owned companies). Industry players are also leveraging the infrastructure built by Mastercard. The company has partnered with key players such as Remitly to integrate Mastercard Send and Mastercard Cross-Border Services for remittances, PayQuicker to offer virtual and physical global cards, Fable Fintech and Payall to offer its cross-border payments facilitation tool Mastercard Cross-Border Services Express, and Ant Group to establish connections to Alipay wallets.

### Select established and legacy cross-border payment fintech companies\*

Company	Estimated employee count	Year founded	Financing status	HQ country
ACI Worldwide	4,000	1975	Formerly PE-backed	US
Banking Circle	512	2013	PE-backed	Luxembourg
Brightwell	150	2009	PE-backed	US
Convera	1,800	1992	PE-backed	US
Corpay	10,500	1986	Formerly PE-backed	US
Crown Agents Bank	346	1989	Corporation	UK
Dlocal	951	2016	Formerly VC-backed	Uruguay
Ebury	1,552	2009	Formerly VC-backed	UK
Euronet Worldwide	10,000	1994	Formerly PE-backed	US
Flywire	1,200	2009	Formerly VC-backed	US
Mangopay	400	2013	Corporation	Luxembourg
Mastercard	33,400	1966	Corporation	US
MoneyGram	3,274	1940	PE-backed	US
Payoneer	2,167	2005	Formerly VC-backed	US
PayQuicker	N/A	2007	Corporation	US
Tipalti	1,238	2010	VC-backed	US
TransferMate	1,400	2010	PE-backed	Ireland
Visa	28,800	1958	Corporation	US
Western Union	9,000	N/A	Corporation	US
Wordline	N/A	2020	VC-backed	Israel

Source: PitchBook • Geography: Global • \*As of June 30, 2024

137: Larry Hipp, CEO at Brightwell, interview by Rudy Yang, June 6, 2024.

## *Crypto solutions*

The use of blockchain technology in cross-border payments has been a popular subject of debate. This note does not dive into the dynamics of blockchain-based solutions; however, the technology's potential to solve for certain use cases should be considered. Generally, cryptocurrencies do not play a huge role for cross-border payments involving developed countries or major currencies. This is because many of these nations have advanced payment infrastructures that can leverage fast payment schemes, such as SEPA or Swift GPI. With fintech companies such as Airwallex further enhancing how banks and payment rails in these countries connect to each other, many cross-border transactions between these nations are already fast, cheap, and transparent. These are the same aspects that crypto is solving for in cross-border payments.

Nevertheless, these pain points become more prominent with cross-border payments to and from developing economies. This is especially true for those with undeveloped payment infrastructures and exotic currencies subject to volatility. In these cases, crypto can provide a more accessible solution for both individuals and businesses to transact across borders. Specifically, holding cryptocurrencies and stablecoins in digital wallets can enable access to a broader network of transactors while safeguarding against risks of local currency fluctuations. Because blockchain transactions do not require intermediaries, exchanges with developing countries can also be cheaper and faster than traditional correspondent banking methods.

Despite blockchain's ability to streamline cross-border payments, adoption of the technology continues to face challenges. Historically, a key issue with cryptocurrency transactions was that they operated in their own closed-loop environment. Difficulty converting between fiat currency and cryptocurrency (on- and off-ramping) created a limitation to cross-border payments using blockchain and prevented interoperability with traditional payment systems. In addition, the uncertainty of the industry's regulatory environment continues to deter traditional finance players such as banks from exploring blockchain opportunities. In our discussions with cross-border fintech companies, many companies were open to the idea of leveraging crypto but noted that there is still little appetite from their banking partners.

But there is no denying that innovations in the blockchain space are making cryptocurrency a more considerable solution in cross-border payments. Cryptocurrencies are becoming more mainstream, thanks to the advent of account abstraction (read more about it in our [Q3 2023 Crypto Report](#)), growing interest in CBDCs from multiple countries, and rising number of partnerships between traditional finance and crypto companies enabling fiat-to-crypto conversions (such as Decaf, Kravata, Onramper, and Ramp Network).

As mentioned earlier in this note, incumbents including J.P. Morgan, MoneyGram, and Visa are now leveraging crypto to improve cross-border payments. Established players such as PayPal are also launching products such as their PYUSD stablecoin and incorporating easy on- and off-ramp integrations. Furthermore, noteworthy crypto companies such as Worldcoin are also expanding in this space, as evidenced

by the company's acquisition of Solana-based digital wallet and payments startup Ottr Finance in Q1 2024.

Companies such as BVNK, a Series A startup last valued at \$340.0 million, are demonstrating how blockchain can be used to improve cross-border transactions. BVNK's infrastructure enables financial institutions and companies to facilitate cross-border payments using a mix of fiat currencies and cryptocurrencies. The startup's platform processes \$5 billion annually and supports over 150 countries and more than 30 fiat and digital currencies.<sup>138</sup> Users leveraging BVNK's infrastructure can launch stablecoin wallets, send and receive stablecoin payments, and convert between fiat currencies and cryptocurrencies.

Another startup innovating in this space is Avian Labs. The seed-stage startup operates a consumer payments app called Sling, which allows users to quickly send funds to over 50 supported countries using a stablecoin issued by Paxos called USDP.<sup>139</sup> Sling operates on the Solana blockchain, enabling its transactions to process within seconds and allowing users to hold self-custody wallets. An innovative feature of Sling's offering is the ability for users to receive money even without having the Sling app. The company allows payment links to be generated, which provides recipients with the option to deposit funds directly into their bank accounts instead of a digital wallet.

Many emerging startups are building solutions in this space. Early-stage startup Beam offers a digital wallet that allows users to instantly send money across borders using stablecoins, regardless of if they have a Beam digital wallet; seed-stage startup TipLink operates on Solana and facilitates transactions of digital assets even to noncrypto users. And seed-stage startup Code offers a digital wallet designed to enable instant microtransactions for over 100 currencies.<sup>140</sup>

As noted earlier with both consumer and enterprise solutions, we are also excited about startups focused on expanding payments access in specific or hard-to-reach markets. For example, in the crypto space, startups such as Koywe and Lemon are building for LATAM, and companies such as Accrue and Yellow Card are building for Africa.

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<sup>138</sup>: "Send Payments Anywhere," BVNK, n.d., accessed July 17, 2024.

<sup>139</sup>: "Effortless Money Everywhere," Sling, n.d., accessed July 17, 2024.

<sup>140</sup>: "Take Control of Your Money," Code, n.d., accessed July 17, 2024.



## Select VC-backed consumer cross-border payment startups\*

Company	Estimated employee count	Year founded	Last fundraising (\$M)	Last fundraising date	Total capital raised (\$M)	IPO probability	M&A probability
Accrue	8	2021	N/A	N/A	N/A	N/A	N/A
Beam	93	2018	\$60.0	April 1, 2022	\$94.5	31%	62%
Bridge.xyz	9	2022	N/A	March 4, 2024	N/A	N/A	N/A
BVNK	336	2016	\$40.0	May 12, 2022	\$40.1	7%	84%
ESCA	6	2021	\$0.1	N/A	\$0.2	N/A	N/A
Kotani Pay	19	2020	\$2.0	September 5, 2023	\$3.0	1%	57%
Koywe	32	2022	\$2.5	March 17, 2024	\$4.0	2%	60%
Lemon	150	2019	\$44.1	November 14, 2022	\$45.1	3%	67%
Onramper	18	2019	\$6.8	February 9, 2024	\$6.8	1%	72%
Ping	11	2021	\$15.0	November 9, 2022	\$0.5	N/A	N/A
Ramp.network	187	2017	\$70.0	N/A	\$135.0	16%	55%
Sendcash	30	2017	\$1.0	January 1, 2021	\$1.1	1%	36%
Sphere	8	2022	N/A	February 27, 2024	N/A	N/A	N/A
Yellow Card	220	2014	\$40.0	March 18, 2024	\$57.7	1%	94%

Source: PitchBook • Geography: Global • \*As of June 30, 2024  
Note: Probability data is based on [PitchBook VC Exit Predictor methodology](#).

Despite annual declines in VC activity, cross-border payment companies appear to be rebounding from 2023 levels based on YTD activity. Notably, most deals are in Europe.

## Deal environment

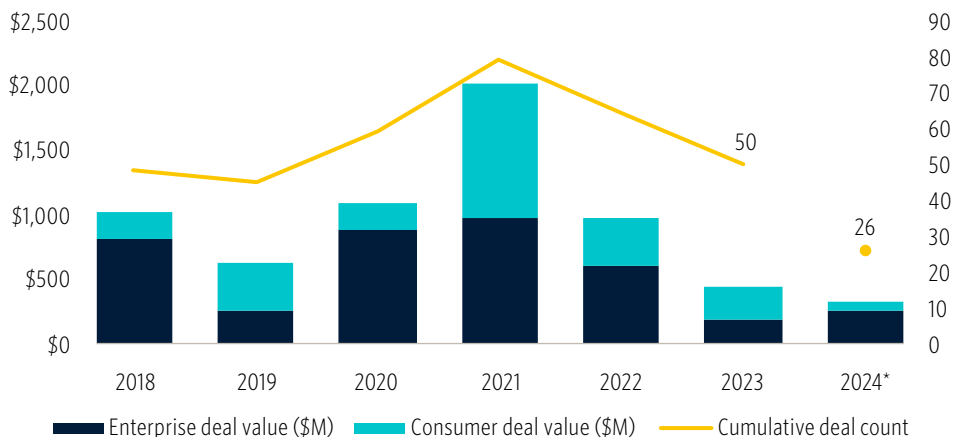
### VC activity

As of Q2 2024, cross-border payment companies raised \$318.4 million in venture capital YTD. This represents 2.3% of the \$13.8 billion in YTD VC deal value we logged for the overall fintech sector. Breaking out the \$318.4 million by quarter, we recorded \$97.0 million in VC deal value for Q1 and \$221.4 million in VC deal value for Q2. VC deal value for cross-border payment companies has been steadily declining since its peak levels in 2021, which is in line with trends in the broader fintech space. Cross-border payment companies raised \$2.0 billion in 2021, \$970.4 million in 2022, and \$445.3 million in 2023. While cross-border payment companies declined 54.1% YoY in VC deal value in 2023, it appears 2024 will rebound from last year's levels.

The proportion of deal activity in this space has been significantly weighted toward enterprise companies, which captured 78.5% of YTD VC deal value, compared with 21.5% for their consumer remittance counterparts. This has historically been the case, except for in 2021, when consumer companies captured a slightly higher share of VC deal value than enterprise companies. Enterprise cross-border payment companies made up 43.4% of VC deal value in 2023, 63.3% in 2022, and 48.3% in 2021.

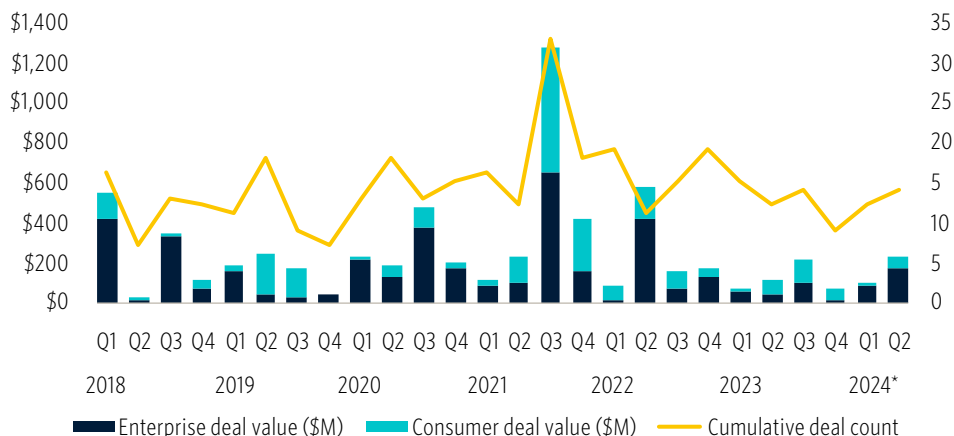
In terms of deal count, we recorded 26 startups in the cross-border payments space that have raised VC YTD. 61.5% of these companies had B2B models, while 38.5% had B2C models. In 2023, 2022, and 2021, VC deal counts for cross-border payment companies were 50, 64, and 79, respectively. Enterprise companies captured 58.0% of deal count in 2023, 46.9% in 2022, and 57.0% in 2021.

### Cross-border payments VC deal activity



Source: PitchBook • Geography: Global • \*As of June 30, 2024

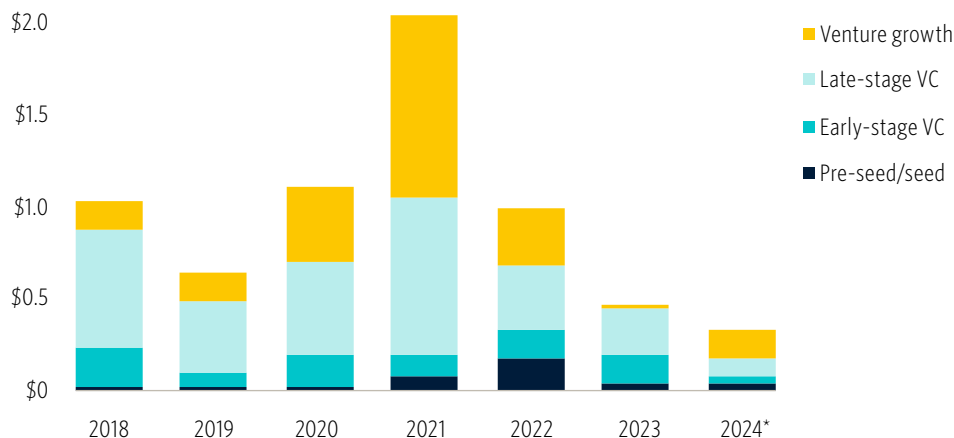
### Cross-border payments VC deal activity by quarter



Source: PitchBook • Geography: Global • \*As of June 30, 2024

2024's YTD VC deal value for cross-border payment companies primarily comprises venture-growth companies (48.1%) and late-stage companies (28.4%). Early-stage companies and pre-seed/seed companies made up the remaining 12.4% and 11.1%, respectively. In the past two years, this split has varied. In 2023, 1.9% of VC deal value in the sector came from venture-growth companies, 54.6% from late-stage companies, 37.2% from early-stage companies, and 6.3% from pre-seed/seed companies.

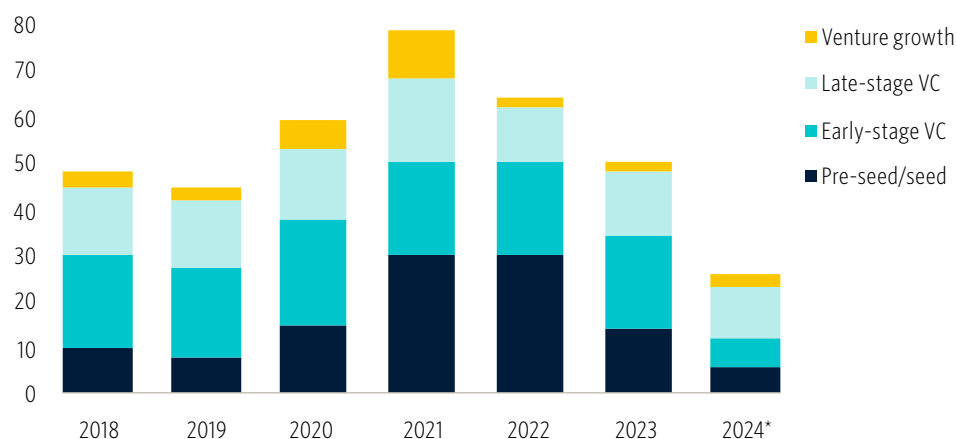
### Cross-border payments VC deal value (\$B) by stage



Source: PitchBook • Geography: Global • \*As of June 30, 2024

Deal count by stage tells a slightly different story. For 2024, 11.5% of YTD VC deal count has come from venture-growth companies, 42.3% from late-stage companies, 23.1% from early-stage companies, and 23.1% from pre-seed/seed companies. In 2023, the allocation was 4.0% for venture-growth companies, 28.0% for late-stage companies, 40.0% for early-stage companies, and 28.0% for pre-seed/seed companies.

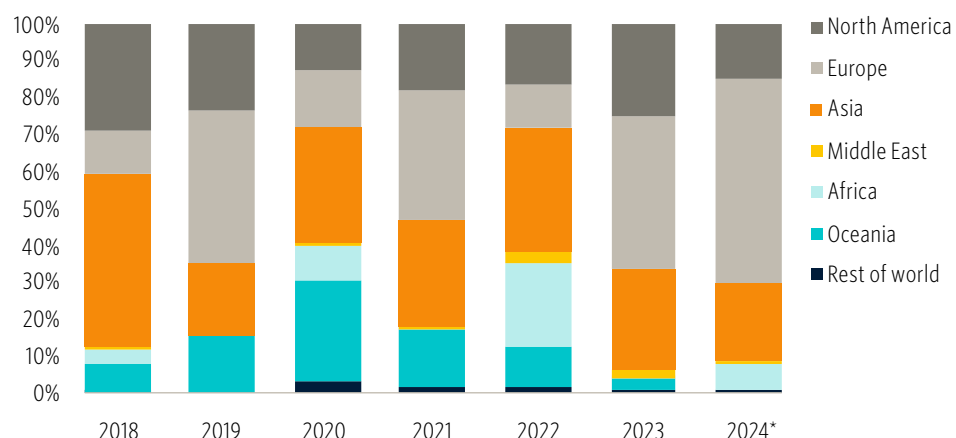
### Cross-border payments VC deal count by stage



Source: PitchBook • Geography: Global • \*As of June 30, 2024

A high percentage of VC deal value in this space has been captured by Europe-based companies. So far in 2024, European companies have secured 55.2% of total cross-border payments VC deal value, followed by 21.1% for Asian companies and 15.3% for North American companies. Africa, Oceania, and the rest of the world made up the remaining 8.3%. There was a similar occurrence in 2023, when European startups made up 56.9% of cross-border payments VC deal value, followed by 39.0% for Asian startups and 35.3% for North American startups. The remaining regions earned 8.6% of the remaining 2023 VC deal value.

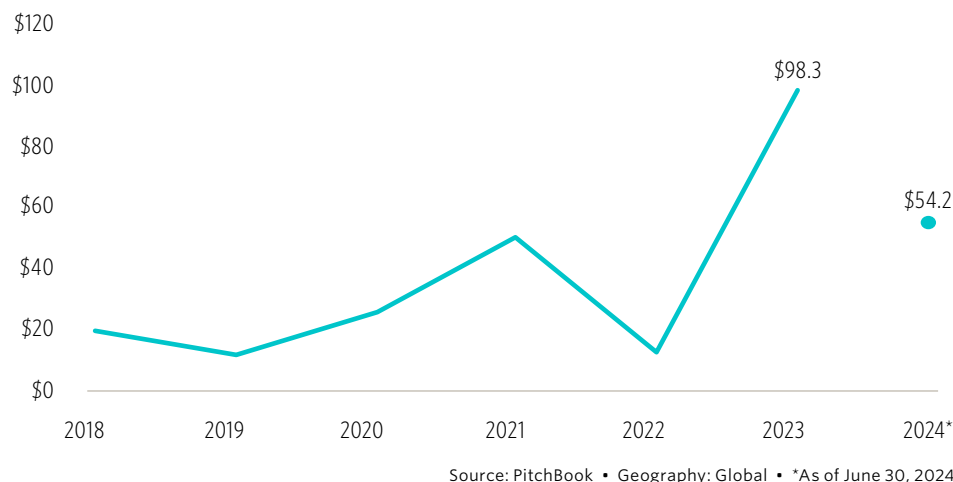
### Share of cross-border payments VC deal value by region



Source: PitchBook • Geography: Global • \*As of June 30, 2024

YTD in 2024, the median pre-money valuation for cross-border payment companies sits at \$54.2 million, down 44.9% from 2023's median. Notably, our dataset for 2024 is currently sparse due to the small number of companies disclosing valuations in their funding rounds (26.9% of the total number of deals we have recorded in the space YTD). However, our dataset is fuller for VC deal sizes, and we logged a median VC deal size of \$4.8 million for 2024 YTD. This is up by 20.5% from 2023's median of \$4.0 million and 32.9% from 2022's median of \$3.6 million.

### Median cross-border payments VC pre-money valuation (\$M)



### Median cross-border payments VC deal value (\$M)

