

Curb Your Enthusiasm: The Fintech Hype Meets Reality in the Remittances Market

Tito Nicias Teixeira da Silva Filho

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Curb Your Enthusiasm: The Fintech Hype Meets Reality in the Remittances Market

Prepared by Tito Nicias Teixeira da Silva Filho*

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ABSTRACT:

Fintech has become one of the most popular topics among policymakers and experts. It usually comes with the qualifier “disruptive”. Thus, the hype is easy to understand: fintech would upend the financial system due to its disruptive nature, as it would allow financial services to be completed faster, cheaper, and more efficiently. Indeed, many have predicted that the remittances market was on the verge of being disrupted as remittances are considered too costly while remittance service providers inefficient, opaque, and outdated. Therefore, there seems to be no better setting for assessing the allegedly disruptive effects of fintech. Against that background, this paper investigates how those predictions have fared so far. Contrary to expectations, it found that instead of disrupting incumbents fintechs have increasingly been entangled with them. Therefore, not only there is no evidence of disruption, but it is unlikely to occur in the foreseeable future. Even so, the paper argues that fintechs play an important role in the remittances market.

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WORKING PAPERS

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I. Introduction

Recent years have witnessed the advent of a few buzzwords related to financial technology and the excitement created around them, which has far surpassed their subject areas. Bitcoin, blockchain and **fintech** – portmanteau of financial technology – are some of the best examples.¹ According to Google Trends “What is bitcoin?” was the most searched “What is” question in 2018 in the US, after having been the runner-up in 2017. In addition, “How to buy bitcoin” was the most searched “How to” question in 2017 in the US – and ranked third globally – and among the top ten in 2018. Most strikingly, bitcoin was the second most-searched global news term in 2017, behind Hurricane Irma and ahead of Las Vegas shooting.² And, more recently, in early 2021, despite the pandemic still raging, searches for bitcoin reached twice as much as those for Covid-19.³

Even though financial technology materializes in different shapes and forms, bitcoin and the technology that made it possible, the blockchain, are perfect examples of recent financial innovation. And, although financial services have hugely benefited from technological gains for many decades, the recent wave of innovation has been perceived as unique due to their allegedly disruptive potential. These innovations are driven by a surge in connectivity and are underpinned by the widespread use of the internet, the advent of smartphones, and sharp increases in communications network coverage and speed.⁴

This new technological landscape set the groundwork for the emergence of the so-called **fintechs** – short for fintech firms – defined here as companies whose business models heavily rely on this new virtual landscape, which allow them to provide financial services with a small or negligible physical footprint.⁵ As a result, fintechs would be able to offer some of the services provided by traditional financial institutions, but in a more efficient way (e.g., faster) and at lower cost.

Figure 1A shows that the excitement about fintech started to get momentum in 2014, while the excitement about bitcoin and blockchain came a few years later.⁶ Note, however, that the individual series are normalized and cannot be compared. However, Panel B provides such a comparison, even if for a shorter time span due to data limitations.⁷ It shows that the relative enthusiasm about bitcoin reached impressive levels, which still lingers. Indeed, in recent years the interest in the word bitcoin has been severalfold higher than that in fintech or blockchain.

¹While bitcoin and blockchain are recent words fintech is not. According to [Merriam-Webster](#), the term was created in the early 1970s. However, the excitement about it is a recent phenomenon (see Figure 1) and has culminated with its inclusion in the English dictionary (see [5 Fintech Trends that Will Grow Your Business](#) (Techfunnel, 2020) and [This 30-year-old financial term was finally added to the dictionary](#) (MarketWatch, 2018)).

²On the hype about blockchain and fintech see, for example, [Blockchain - The next big thing](#) (The Economist, 2015), [How blockchains could change the world](#) (McKinsey & Company, 2016), [“The Blockchain Will Do to the Financial System What the Internet Did to Media”](#) (Ito and Ali, 2017). For the hype about fintech see [The Coming “FinTech” Revolution](#) (Brookings, 2016) and [“How Fintech Is Eating The World”](#) (Forbes, 2019).

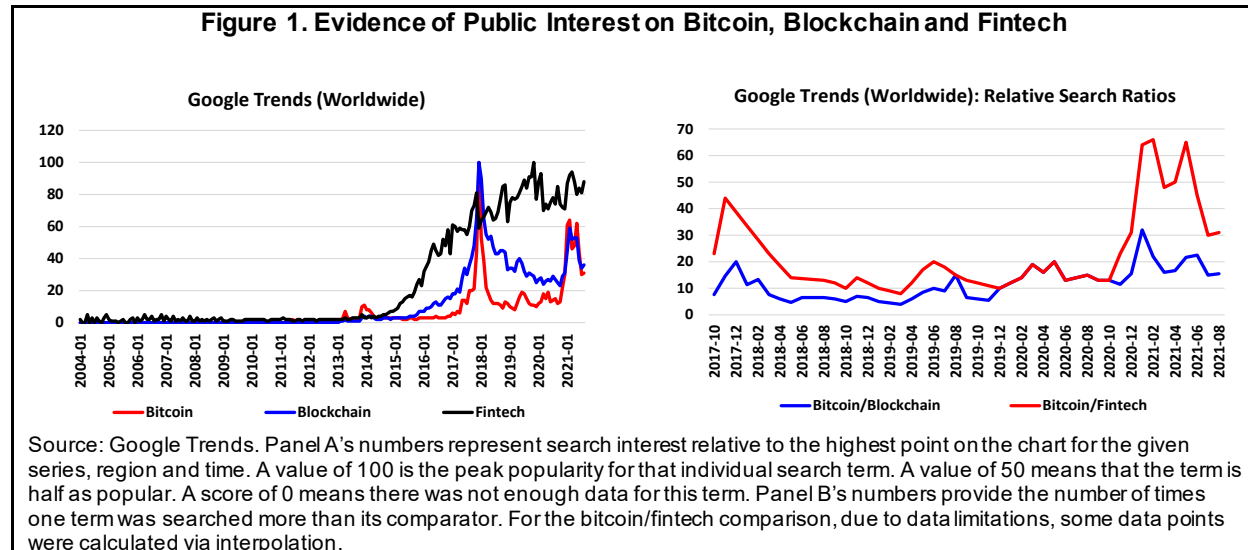
³See [Google Trends: “Bitcoin” is Now Searched Twice as Much as “Covid-19”](#) (The Tokenist, 2021).

⁴This surge in connectivity has had an impact that far surpasses the financial industry and has enabled the creation of what has been labelled the internet of things (IoT). See, for example, [What is the IoT? Everything you need to know about the Internet of Things right now](#) (ZDNet.com, 2020).

⁵Although obviously tightly related, it is important to differentiate **fintech** (the technological landscape) from **fintechs** (firms whose business model heavily depend on it). The definition of fintech is not straightforward and sometimes the two concepts are lumped together. See, for example, [This 30-year-old financial term was finally added to the dictionary](#) (MarketWatch, 2018). See also [What Is Fintech And How Does It Affect How I Bank?](#) (Forbes, 2020).

⁶In this paper, panels are ordered notionally as A, B, C, D..., from left to right and top to bottom.

⁷Google Trends has a built-in option that allows for such a comparison.

Figure 1. Evidence of Public Interest on Bitcoin, Blockchain and Fintech

One must acknowledge that bitcoin's hype has largely been fueled by its striking rise in price, which has caught people's attention, and explains the two peaks in Figure 1.⁸ However, it has also been driven by its allegedly disruptive potential or, more specifically, that of the blockchain, the technological innovation underlying it. In a nutshell, the excitement behind blockchain lies in its distributed nature and the tamper proof consensus mechanism underlying it, which allows secure peer-to-peer transactions, bypassing intermediaries. As a result, predictions about the large impacts of blockchain technology, not only on financial services, but also on other type of services, mounted.⁹ In other words, a revolution was on its way, one that would upend the financial system and, possibly, the world.

Interestingly, this new technological landscape emerged amid longstanding concerns by the international community on the high cost of remittances. According to the CPMI (2018) retail cross-border payments "... are typically perceived as being slower, costlier and more opaque than domestic payments." Such concerns are further justified given that not only remittances are a lifeline for millions of poor people around the planet, but the evidence also suggests that they could be beneficial in many other ways.¹⁰ In addition, remittances costs show a large degree of "inequality" as the poorest countries face the highest costs. Thus, those that most need them are precisely the ones who bear the largest costs. Furthermore, remittances flows are often macro critical as they are a key source of financing for many developing countries, sometimes reaching levels above 30 percent of GDP. Finally, remittances also show a key property: they are anti-cyclical, playing an even more pivotal role during difficult times.¹¹ As a result, since at least 2009 there has been a global push to decrease the

⁸See, for example, [The Bitcoin Bubble Is On](#) (Forbes, 2019) and [Don't Call Bitcoin a Bubble. It's an Epidemic](#) (Bloomberg, 2021).

⁹See, for example, [6 ways blockchain will revolutionise banking and commerce](#) (BBC, 2016), [Blockchain Will Disrupt Every Industry](#) (HuffPost, 2017), [35 Amazing Real World Examples Of How Blockchain Is Changing Our World](#) (Forbes, 2018), [How Blockchain Could Disrupt Banking](#) (CBINSIGHTS, 2019) and [6 Ways Blockchain Will Change The Financial System](#) (Boogle via Medium, 2020). See also [How Bitcoin Will End World Poverty](#) (Forbes, 2015).

¹⁰For example, Azizi (2019) and Adams (2011) analyze their effects on poverty, Terrelonge (2014) and Amega (2018) on health, Acharya and Leon-Gonzalez (2014) and Askarov and Doucouliago (2020) on education, while Aggarwal *et al.* (2011), Donou-Adonsou *et al.* (2020) and Bhattacharya *et al.* (2018) study their effects on financial inclusion.

¹¹See, for example, Frankel (2011) and Bettin *et al.* (2014). See Lubambu (2014) for the evidence following the 2008 crisis. See Mohapatra *et al.* (2012) on evidence that remittances increase in the aftermath of natural disasters.

cost of remittances. That push has culminated with the inclusion of remittance costs in the Sustainable Development Goals (SDG).¹²

Against the above background it seems safe to argue that there is no better setting for assessing the allegedly disruptive effects of fintech on the financial system than the remittances market. Not surprisingly, there have been an abundance of (over) optimistic predictions on how fintech would upend the remittances market. Many hinged on the allegedly disruptive effects of the blockchain, but the excitement goes well beyond bitcoin, and included also mobile money and remittance fintechs – henceforth called **remtechs**.

In addition, that optimism has been shared by a variety of stakeholders, including major financial news outlets and specialized analysts, which have helped to build the narrative that the remittance market was on the verge of being disrupted.¹³ Finally, distributed ledger technology firms have also actively pushed the narrative that their products were about to revolutionize the remittances market.¹⁴ If taken at face value such narratives would mean that reaching the ambitious – mainly for low-income countries (LIC) – SDG target on remittances costs would be just around the corner.

Against the context above, this paper's main goal is to answer two related questions. First, has the enthusiasm about the effects of fintech – more specifically, bitcoin, mobile money and remtechs – on the remittances market been justified?¹⁵ Second, have remtechs seem to have played a *major* role in helping to drive remittances costs down? The answers to those questions should provide key insights and have important policy implications. For example, they could curb – or reinforce – the enthusiasm on the fintech narrative, helping policymakers to devise more realistic – or ambitious – strategies and policies for their countries, be on achieving the SDG target on remittance costs or, more generally, on achieving other goals, such as financial inclusion.

It must be noted that the paper's aim is not to assess how important a role has fintech played in driving remittances costs down, but rather to take stock whether those initial – and still common – (over) optimistic predictions have materialized or not. In other words, the paper looks for evidence on disruption. That is an important distinction.

This paper complements and give greater granularity to the findings of da Silva Filho's (2021), who mapped the myriad of factors that drive remittance costs and analyzed the difference in costs charged by banks, MTO and Post Offices (PO), but did not assess the impact of fintech. This paper benefits from a larger sample. While the analysis is still based on the evidence from 365 corridors the sample now goes (from 2011Q1) until 2020Q4, compared to 2018Q3 in da Silva Filho (2021).¹⁶

The paper is structured as follows. Section 2 defines fintech and explains how it would disrupt the remittances market. Section 3 unveils the fintech landscape in the remittances market and provides key statistics. Section 4 provides *prima facie* evidence on the link between remittance costs and remtechs. Section 5 investigates why bitcoin, mobile money and remtechs have not disrupted the remittances market. Section 6 goes deeper on the

¹²See da Silva Filho (2021) for a detailed timeline of those efforts. The G20 has recently come up with a global roadmap, which contains 19 building blocks, to enhance cross-border payments (see CPMI, 2020).

¹³On the allegedly disruptive effects of fintech on remittances see, for example, [Fintech takes aim at the steep cost of international money transfers](#) (The Economist, 2019). On the allegedly effects of blockchain on remittances see, for example, [How Blockchain-Based Technology Is Disrupting Migrants' Remittances: A Preliminary Assessment](#) (Flore, 2018), [Blockchain is disrupting the \\$700 billion remittance industry](#) (Blockdata via Medium, 2019) and [How Cryptocurrency Is Changing Remittances](#) (Yahoo!Finance.com, 2021).

¹⁴Note that there are non-trivial conceptual challenges on defining blockchain and, unfortunately, many firms have taken advantage of that blurriness to promote their products using a misleading narrative.

¹⁵Depending on the context, remtechs and fintechs might be used interchangeably.

¹⁶That number excludes 12 corridors that were surveyed for a limited time during the survey's initial years.

evidence presented in Sections 4 and 5, especially on that related to remtechs. Section VII concludes the paper.

II. What is Fintech?

To assess the effects of fintech on remittance costs one faces non-trivial conceptual and practical challenges. The first, obviously, is to define what fintech means. As pointed out in the introduction, fintech is simply short for financial technology, and perhaps at odds with what one might think, fintech is not a recent phenomenon, although it is a recent buzzword. Indeed, improvements in financial technology have been materializing for decades, in different shapes and forms, and with different degrees of impact. Even so, most people associate fintech with *new* financial technologies.

Nonetheless, two historical examples of fintech are the creation of automated telling machines (ATM) and the credit card, more than half a century ago. The former had a great impact on people's lives as it allowed economic agents to carry less money in their pockets, saving precious time and resources that would otherwise be spent going to bank agencies. Besides lowering shoe leather costs, credit cards also allowed agents to improve their financial planning and better cope with liquidity problems. From a business point of view they enabled, for example, the creation of fidelity programs. And an innovation that directly affected the remittances market was the creation of SWIFT. Although just a simple messaging system, SWIFT had a great impact on cross-border payments.

Finally, two key more contemporary examples of fintech are the rise of internet banking and online brokers. Most recently, its most visible manifestation is the advent of mobile banking. Therefore, fintech has not emerged in recent years, even if its latest materializations have either occurred on top of *relatively* newer technological innovations (e.g., the internet and personal computers) or very recent ones (e.g., smartphones).¹⁷

It is also important to differentiate the concept of fintech from the business models grounded on them, since both are often lumped together. For example, Merriam-Webster defines fintech as “products and companies that employ newly developed digital and online technologies in the banking and financial services industries.”¹⁸ This is not only a narrow definition, since it is linked to *new* technologies, but it bundles together the financial innovation (product) with the economic agent (company) whose business model heavily depends on it. In addition, incumbents (e.g., banks) also employ “newly developed digital and online technologies”, but they are hardly seen as fintechs.

Therefore, this paper makes that differentiation and uses **fintech** as short for financial technology and **fintechs** for those companies whose business models are indissociable from this new technological landscape.¹⁹ More specifically, the latest financial innovations have been built on the back of an explosion in connectivity due to sharp increases in internet usage and speed and a surge in communications network coverage and speed. As a result, this new landscape has sowed the seeds for the emergence of companies with little or negligible physical footprint as their business models hinged on providing services through personal computers and mobile devices.

While the financial innovations mentioned above had a large impact on people's lives and made possible the emergence of new financial services, to a large extent their main impact has arguably been on convenience as,

¹⁷The iPhone, which can be considered the first *de facto* smartphone, was launched in 2007, and while smartphones have disseminated quickly, personal computers, which were created in the 1970s, have only become a household item well into the 1980s and early 1990s.

¹⁸See [fintech](#) (Merriam-Webster, accessed on April 15, 2022). See also footnote 5.

¹⁹For challenges on defining fintech see Schueffel (2016).

for example, agents did not need to go to the bank anymore for ordinary tasks such as making transfers, paying utility bills, withdrawing money, etc. However, the most recent batch of financial innovations has been received differently from previous ones, as they have enabled the emergency of new business models (e.g., microlending, crowdfunding, robo-advisors, etc.), some of which could mitigate market failures. Consequently, fintechs would not only be able to tap into markets that incumbents could not participate – or were unwilling to – but would also be able to disrupt markets that have long been dominated by deemed outdated incumbents.

And, as argued above, the perfect setting where such disruption would take place is the remittances market where, according to the Financial Stability Board (FSB), “... for too long cross-border payments have faced four particular challenges: high costs, low speed, limited access and insufficient transparency.”²⁰ Not surprisingly, traditional remittance service providers (RSP), such as money transfer operators (MTO) and banks, are often perceived as having an outdated business model, one that is based on legacy technologies and dependent on brick-and-mortar shops and bank agencies. Therefore, it is difficult to imagine a better setting for fintech to showcase their disruptive potential than in the remittances market. But how disruption would take place? There are two main narratives.

First, many articles claimed that bitcoin and the blockchain could be used to send remittances seamlessly, at a much higher speed and at much lower cost, by completely bypassing financial intermediaries. Some of those articles even laid down eye-catching numbers and claimed that remittances settlement times would be almost 600 faster and costs almost 250 times cheaper using blockchain technology. Others even claimed that remittances would be transferred instantaneously with bitcoin.²¹ Such hype was taken to a new level with the recent decision of El Salvador to make bitcoin a legal tender, a decision that was heavily rooted on its expected effect on lowering remittance costs.

A second, and the dominant narrative, focuses on the disruptive effects of remtechs. It argues that by adopting cutting edge technologies and more efficient business models, they would be able to send remittances much faster and charging much less than traditional RSP, since remtechs would not incur in many of the costs bore by incumbents such as Western Union (WU), MoneyGram (MG) and banks.²² As a result, they were set to disrupt the remittances market. It was just a matter of time, and one would not have to wait long.

For example, Azimo explains why it can keep its prices low: “As a digital money transfer company, we don’t have to spend money on expensive high street premises. Instead, we invest in three things: a lower fee (...) a better exchange rate (...) a world-class payment network”.²³ Similarly, WorldRemit argues “We’re low cost. We offer better exchange rates and lower fees than most conventional banks and money transfer services”.²⁴ However, it does not explain what is behind those lower costs (and better exchange rates). Remitly’s mission is unspecific and reads “We, Team Remitly, are united through our mission - to tirelessly deliver on our promise to immigrants sending money across the world.”²⁵ Indeed, notice that there is no mention of lower costs. Finally, Wise’s – formerly Transferwise – mission reads “Money without borders - instant, convenient, transparent and eventually free.”²⁶ Although Wise’s mission also lacks specifics on how it would achieve such bold promises, Wise has made it clear elsewhere how it would reach those goals. Section 5 provides further details.

²⁰See [Cross-border Payments](#) (FSB, accessed on November 8, 2021).

²¹See, for example, [Pantera Bitcoin Letter](#) (Pantera Capital, 2015) and [Blockchain is disrupting the \\$700 billion remittance industry](#) (Blockdata via Medium, 2019).

²²See, for example, [Fintech takes aim at the steep cost of international money transfers](#) (The Economist, 2019) and [Fintech Startups Seek to Shake Up Money-Transfer Industry](#) (Wall Street Journal, 2017).

²³See [How does Azimo keep prices so low?](#) (accessed on April 15, 2022).

²⁴See [Why choose WorldRemit?](#) (accessed on April 15, 2022).

²⁵See [Vision & Mission](#) (accessed on April 15, 2022).

²⁶See [The Wise Mission](#) (accessed on April 15, 2022).

Finally, the advent of mobile money has also created expectations on its effects on reducing the remittances costs. However, the excitement about mobile money is mostly focused on financial inclusion rather than in the remittances market.

The context provided so far should have unambiguously conveyed how great have been the expectations on the impact of fintech on the remittance market. The next sections assess how things have turned out so far.

III. The Fintech Landscape²⁷

To assess how the predictions mentioned above have fared so far one first needs to identify a meaningful group of remtechs to serve as a benchmark or comparator. As it will become clear, besides the conceptual issues pointed out earlier, one also faces practical challenges to identify and choose fintech candidates.

Indeed, the Remittances Price Worldwide (RPW) database does not identify remtechs among the surveyed RSP. Rather, it classifies RSP in three main categories: banks, MTO and PO.²⁸ Therefore, one must search outside the database for such an information. One obvious starting point is to identify the most well-known fintechs operating in the remittances market. This is a feasible strategy since the RPW database also provides the names of the RSP surveyed, making it is straightforward to identify the associated fintech entries.

Annex 1 provides a concise history on fintechs venturing into the remittances market. As it turns out, it does not seem a coincidence that the forerunners are precisely the most well-known remtechs, given first-mover advantages. Therefore, our comparator group of remittance fintechs is formed by seven remtechs: Azimo, InstaRem, Remitly, TransferGo, Wise, WorldRemit and Xoom.

While such an exercise was relatively straightforward, one might note that those are just a handful of remtechs among a supposedly much larger universe. However, the challenges behind identifying the additional remtechs are significant. Indeed, it is an impractical endeavor as the RPW database contains more than 550 MTO, the group that fintechs belongs to. Besides, one would need to know the precise context in which each one exists, since some MTO, for marketing purposes, sell themselves as fintechs even when they have been around for a long time. Finally, some remtechs have not been around for long and are still small, so would not add much information to the analysis.²⁹

Fortunately, it turns out that identifying the remaining remtechs might end up not being necessary for the purpose of the paper. Indeed, note that while the MTO market is formed by a very large group it is also highly concentrated. According to the RPW, WU and MG – the two largest MTO – operate in 95% and 90% of the surveyed corridors. And, according to Watkins and Quattri (2014), WU and MG controlled at least 50% of the remittances market (proxied by the number of payout locations) in more than two thirds of SSA countries back in 2014, a situation that is unlikely to have changed much since then.

The evidence strongly suggests that the same phenomenon is occurring in the remittances fintech space. For example, funding statistics show that the overwhelming share of raised resources have benefited just a few remtechs (Figure 2A). And, even among the top receivers, funding has been very concentrated, with Wise

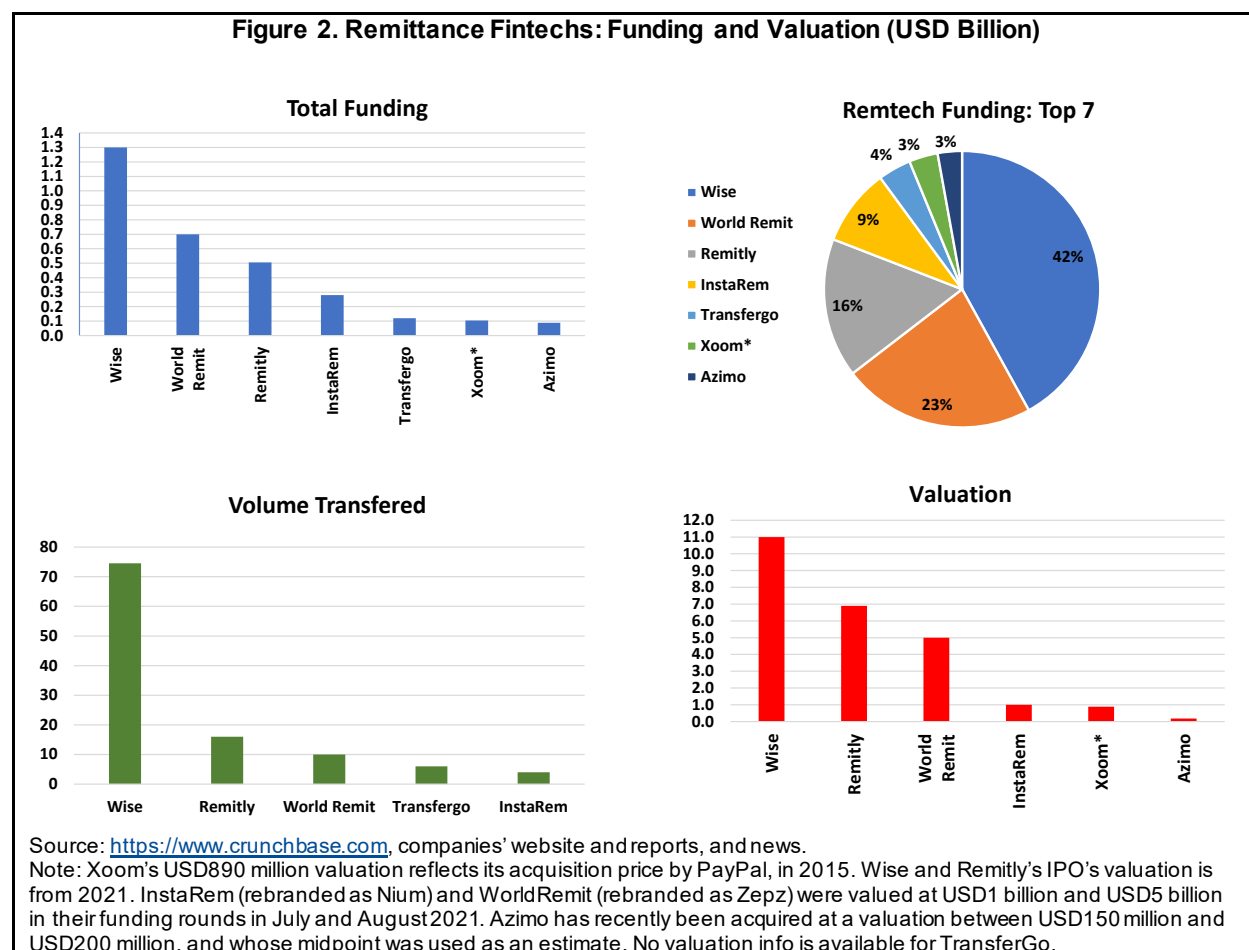
²⁷For a detailed overview of the Remittances Price Worldwide (RWP) database, including its strengths, weaknesses and limitations, see Section IV in da Silva Filho (2021).

²⁸Fintechs are part of the MTO group. The survey also identifies non-bank financial institutions, credit unions and building societies. However, the number of entries related to those types of RSP is negligible. While the first group makes less than 0.25% of all entries, the last two are close to 0%.

²⁹In addition, a necessary condition for a RSP to be included in the RPW survey is having at least one percent market share.

raising the lion's share of resources (Figure 2B). Among the top 7 recipients, the top 3 tapped around 80% of the resources raised. Not surprisingly, this "funding inequality" has been translated into market share (Figure 2C). According to companies' reported information, Wise transferred £54 billion (USD74 billion) in FY2021,³⁰ while Remitly moved USD16 billion in a 12-month window through end-June 2021.³¹ During its latest funding round in August 2021, and after having acquired Sendspace in 2020 due to its African portfolio, WorldRemit (now rebranded as Zepz), informed that the volume transferred by its two brands reached almost USD10 billion.³² Finally, InstaRem (rebranded as Nium) informs that it "... moves \$4 Billion annually."³³

Figure 2. Remittance Fintechs: Funding and Valuation (USD Billion)



Not surprisingly, "funding inequality" has also been translated into "valuation inequality" (Figure 2D). Recently, Wise, the first remtech unicorn, entered the London Stock Exchange with a valuation of USD11 billion. A few months later, Remitly achieved a USD7 billion valuation at its Nasdaq IPO.³⁴ World Remit was valued at USD5

³⁰[London Stock Exchange welcomes Wise to the Main Market](#) (London Stock Exchange, 2021).

³¹See [Remitly Form S1](#).

³²See [WorldRemit Hits \\$5B Valuation, Rebrands As Zepz](#) (PYMNTS; accessed on February 8, 2022)

³³See [Why InstaRem?](#) (accessed on February 8, 2022).

³⁴At end-October 2021, just before the market peaked, Wise and Remitly market capitalization hovered just above USD8 billion and USD5 billion, which reflected a fall or around 25% fall since their IPO. For companies that are bound to disrupt the remittances market, which have received a boost during the pandemic, this is unexpected.

billion.³⁵ Finally, InstaRem was valued above USD1 billion in its July 2021 funding round and has become the latest remtech unicorn.

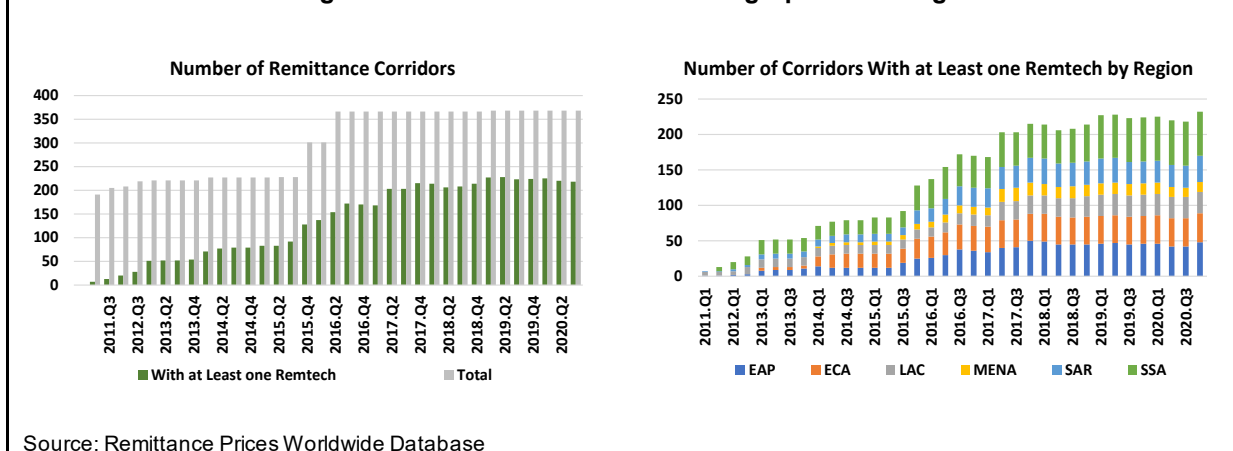
Table 1. Remittances Price Worldwide: RSP Share

	2011Q1–2016Q1				2016Q2–2020Q4			
	Banks	MTO	PO	Remtech ²	Banks	MTO	PO	Remtech ²
Total Entries ¹	26.8%	69.2%	1.4%	3.3%	18.6%	78.2%	1.3%	11.1%
Corridors	66.5%	99.7 %	14.2%	38.4%	68.4%	96.7%	11.4%	68.8%

¹Besides banks, MTO and PO, the RPW database also surveys other types of RSP, whose participation is negligible, such as credit unions and non-bank financial institutions.
²The remtech group is a subset of the MTO group, and is formed by Azimo, InstaRem, Remitty, TransferGo, Wise, WorldRemit and Xoom.
Source: Remittance Prices Worldwide Database

Table 1 provides an insightful breakdown of the RPW database and, therefore, the remittance market. It shows that among the three main groups of RSP, MTO is by far the largest, as proxied by their presence in the database.³⁶ While MTO amounted to around 70 percent of the entries in the first half of the sample they made up almost 80 percent in the second. The MTO dominance is even higher geographically. While banks engage in remittances in around two thirds of the surveyed corridors, MTO are present in virtually all of them.

Figure 3. Remtechs: Growth and Geographic Coverage



Having defined the benchmark group for remtechs, Table 1 also provides interesting evidence on them. It shows that they have played a relatively small role in the remittances market, but their importance has been growing fast. While remtechs amounted to around three percent of the entries in the first half of the sample, they surpassed ten percent in the second. However, when one focuses on their geographical coverage remtechs' expansion has been remarkable. Indeed, in the second half of the sample remtechs were present in almost seventy percent of the corridors (see also Figure 3A), a percentage similar to that of banks. In addition, the increase has been geographically diverse (Figure 3B). Note also that although the increase in the participation of remtechs in the RPW database has occurred at the expense of that of banks (Table 1), the

³⁵Zepz has kept both of its brands, WorldRemit and Sendspace, operational.

³⁶This assumes that RSP relative numbers in the RPW database are a good proxy of their actual relative market shares.

geographical presence of the latter has slightly increased, which is a testament to the pivotal role banks play in the functioning of the remittances market. Finally, remtechs' growth also implies that the use of digital channels has increased, which brings extra benefits in addition to greater convenience (e.g., easier price comparisons)

Indeed, acknowledging the growing importance of new payment means the RPW report has started to track costs associated with payments made through digital channels since December 2020.³⁷ Before that, in June 2016, it had already started to track remittance costs associated with Mobile Operators. And, more recently, since March 2021, the RPW report has started to track costs from what it calls “the digital-only MTO index”, which is composed by five out of the seven fintechs mentioned above: InstaRem, Remitly, Wise, WorldRemit and Xoom. However, this seems to be a misnomer since the digital qualifier refers only to the sending channel (Section 5 for further context on pickup methods offered by remtechs).

Thus, Table 2 replicates Table 1 but now providing statistics on the prevalence of digital remittances as well as three statistics that aim to capture different dimensions of mobile-related remittances: mobile money remittances, mobile wallet, and mobile money operators (MMO). Mobile money is defined as those services that use “mobile money, as the instrument to fund the transaction and as the means to disburse...”.³⁸ Mobile wallet captures remittances received into a mobile wallet, regardless of how it was sent.³⁹ And, mobile operators are companies that provide wireless voice and data communication services and, in this context, remittance services as well

Table 2. Remittances Price Worldwide: Selected Characteristics¹

	2013Q3–2016Q1				2016Q2–2020Q4			
	Digital	Mobile Operator	Mobile Money	Mobile Wallet	Digital	Mobile Operator	Mobile Money	Mobile Wallet
Total Entries	10.7%	0.1%	-	-	16.9%	0.6%	0.8%	1.9%
Corridors	44.4%	4.8%	-	-	72.8%	8.2%	11.7%	31.9%

¹See footnote 37 on why statistics for digital remittances are calculated from 2013.Q3. Mobile wallets and mobile money started being surveyed in 2016Q2.

Source: Remittance Prices Worldwide Database

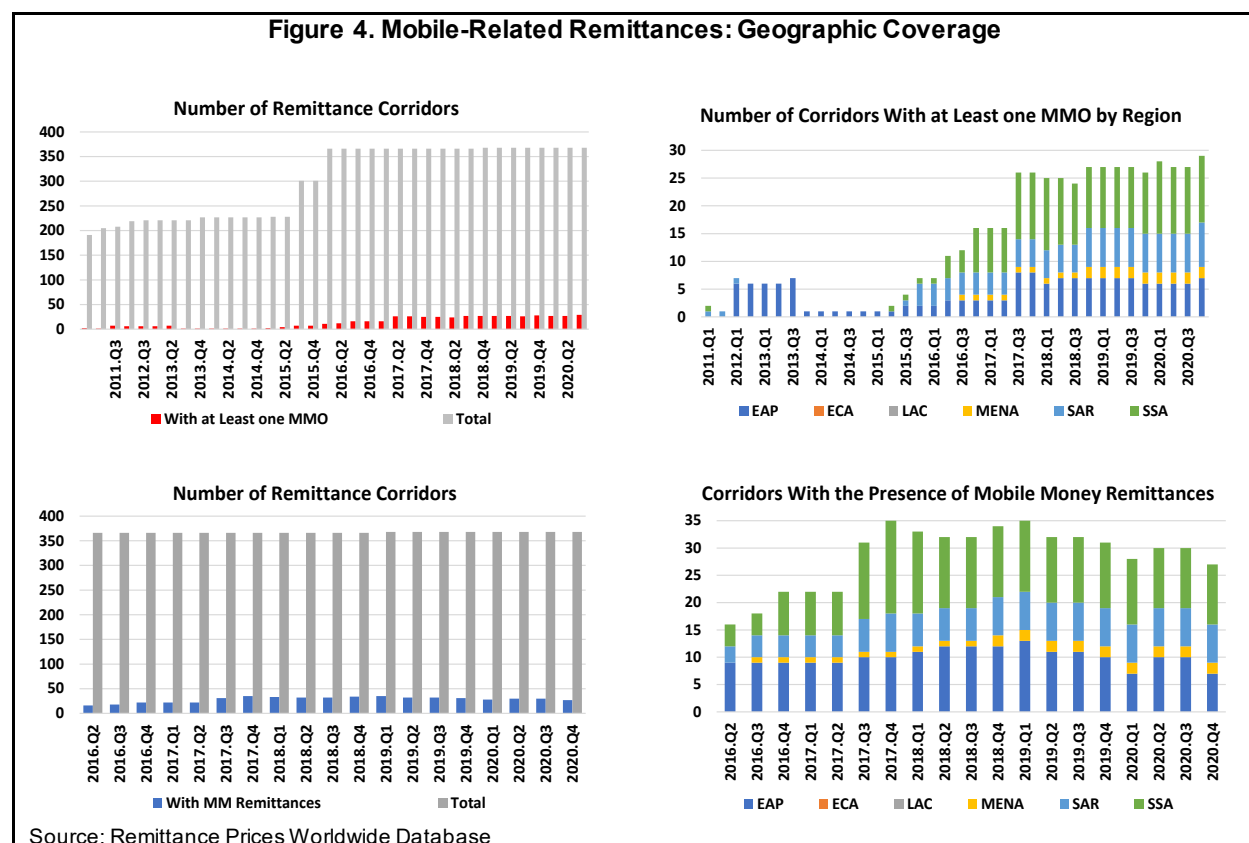
³⁷It defines that “a digital remittance must be sent via a payment instrument in an online or self-assisted manner, and received into a transaction account i.e., bank account, transaction account maintained at a non-bank deposit taking institution (say a post office), mobile money or e-money account” (see RPW Report, Issue 36). However, the RPW methodological notes are not clear enough to allow one to replicate the published digital series, in a context where available support is limited. This is unfortunate, mainly because before 2016.Q2, when the methodological change took place, that series is derived using simplifying assumptions and behaves in a non-intuitive manner. Indeed, according to the RPW Report (see, for example, Figure 1 in RPW Report, Issue 37), digital remittances were way more expensive than cash remittances before 2016, and especially between 2011 and 2013, when the difference was around 4 p.p. Then, they begin falling sharply in 2013 and, since 2016 they have become increasingly cheaper than cash remittances. Note, also, that besides the issues just described, the RPW does not allow the identification of mobile operators' entries. Therefore, the RPW database needs better documentation and support.

³⁸See RPW Report, Issue 36, December 2020. Alternatively, mobile money can be defined as those transfers made through MTO using mobile phones and having mobile money as the payment instrument.

³⁹ The RPW uses an (implicit) restricted definition of mobile wallet, one that reflects only those accounts held with mobile operators.

As one can see, despite the excitement, mobile-related remittances are all but an appendix to the remittance market. Indeed, the RPW database shows that mobile money operators (MMO) meaningfully operate in only a few corridors (Figure 4A). In addition, they are absent (or negligible) in Latin America (LA) and Europe and Central Asia (ECA) regions (Figure 4B). Therefore, despite much enthusiasm about mobile money, mobile remittances are present in a very limited number of corridors (Figure 4C) and are absent in LA and ECA regions (Figure 4D). Or, more precisely, they are not significant enough to enter the RPW database.

Figure 4. Mobile-Related Remittances: Geographic Coverage



IV. Fintech and Remittance Costs: A First Look

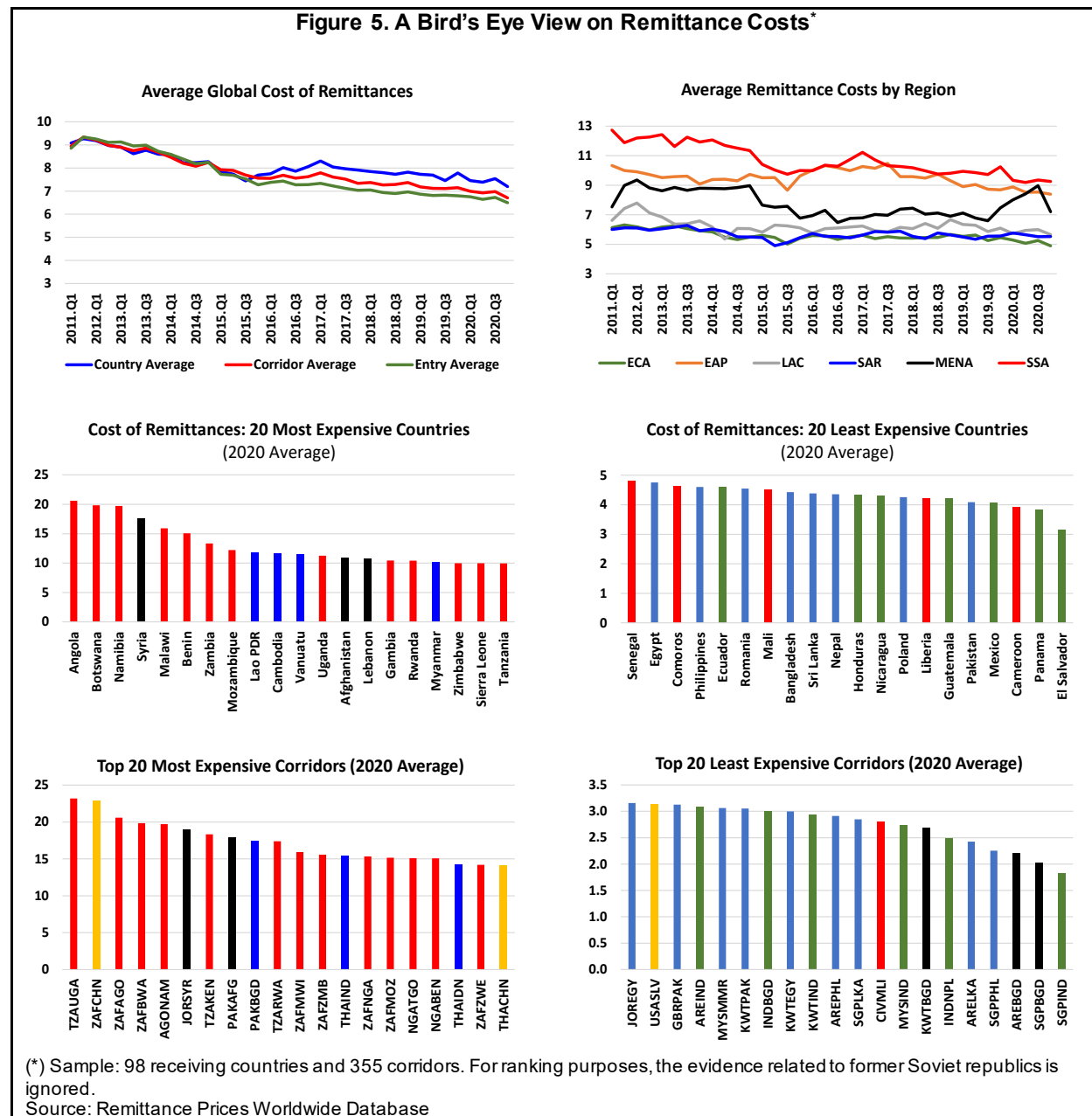
Figure 5 provides an overall look at how remittance costs have evolved from the first quarter of 2011 to the last quarter of 2020. On average, global remittance costs have been falling, but remain well above the SDG target of 3 percent (Figure 5A).⁴⁰ And, after a large decrease until 2015, the reduction has remarkably slowed down.

Remittance costs have fallen in all regions, but at very different speeds (Figure 5B). The largest decrease took place in SSA, a region that hosts the most expensive countries and corridors (red bars in Figures 5C and 5E).

⁴⁰Figure 5A shows three different global average costs series to show that aggregation effects are non-trivial. This paper's preferred strategy is to aggregate from corridor-level data. This contrasts with the strategy followed by the RPW report, which aggregates from individual entries. That strategy puts excessive weight on richer corridors and countries, producing an overly optimistic assessment on remittance cost dynamics. As a result, it magnifies the decrease in remittance costs and increases the probability of reaching the SDG target. For details on aggregation effects, as well as other relevant measurement issues affecting the RPW database, see da Silva Filho (2021).

On the other hand, average costs in ECA, LAC and SAR regions appear to have stabilized since 2015 as they seem to face some resistance to fall below 5 percent.

Figure 5. A Bird's Eye View on Remittance Costs*



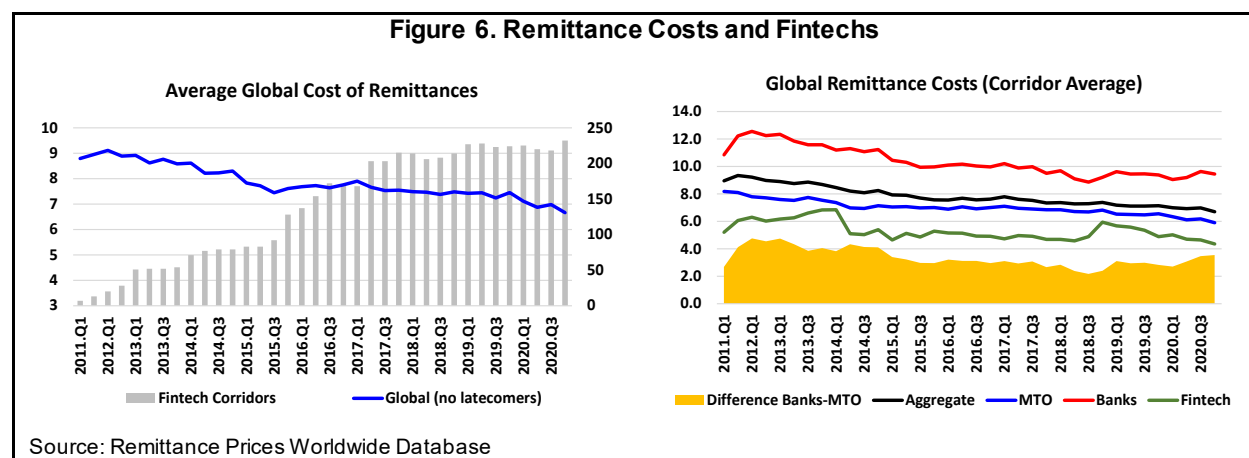
The slowdown in the decrease of global average costs becomes evident when one compares the 2020 to the 2015 average: SSA and EAP, the two most expensive regions, with costs well above the others, have experienced the largest decreases, yet they amounted to just around 0.75 percentage point. The ECA and LAC

regions faced an average decrease of around 0.25 percentage point. Surprisingly, two regions experienced increases in costs: SAR and MENA, of around 0.40 and 0.80 percentage points.⁴¹

Figure 5 also provides the list of the 20 most expensive and least costly countries and corridors. It is mind-blowing how expensive some countries and corridors are. Among the 105 surveyed remittance-receiving countries, around 20 percent faced costs at least as high as 10 percent in 2020 (Figure 5C). And, among the 365 surveyed corridors, around 15 percent faced costs around 10 percent or higher, while 5 percent faced costs at least as high as 15 percent (Figure 5E). Unfortunately, the vast majority of those countries and corridors are in SSA.

It is eye-catching that 4 out of the 5 most expensive countries are in SSA, with 3 of them facing costs higher than those found for Syria and Afghanistan, two countries involved in conflict. Therefore, it is not surprising that 4 out of the 5 most expensive corridors are between SSA countries and are also more costly than corridors to Syria and Afghanistan. In total, 65% of the 20 most expensive remittance-receiving countries and corridors are in SSA and between SSA countries.

It is interesting to notice the presence of 7 LAC (green bars) and 5 SSA (red bars) countries among the least costly group (Figure 5D).⁴² It is impossible to ignore that among the LAC countries one finds El Salvador, Panama and Ecuador, all of which have the US dollar as legal tender, which sharply decreases FX risks.⁴³ Among the least costly corridors (Figure 5E) 6 involve India (green bars) – 4 as the destination country and 2 as the source country – and 3 have Bangladesh as the destination country (black bars). This is not a surprise given that the Indian remittance market is probably the most competitive one.



The attentive reader would have noticed that the evidence presented so far suggests that the emergence of remtechs does not seem to have had any *noticeable* effect on remittance costs (Figures 3A and 5A). Indeed, interestingly, the slowdown in the decline of global remittance costs coincided with the period when there was a

⁴¹However, the recent increase in costs in the MENA region reflects a sharp increase in remittance costs to Syria. Excluding Syria, average costs would have decreased by around 0.4 percentage point.

⁴²That assessment does not consider the evidence from 12 corridors between Russia and former USSR republics.

⁴³Even though this seems an expected outcome, the overall evidence on the effects of the exchange rate regime on remittance costs is much less clear, to say the least. When comparing difference in average costs between countries in the polar classification categories of the IMF AREAER database, Da Silva Filho (2021) did not find a statistically significant difference between them. Beck and *al.* (2021) argue that pegged exchange rate regimes are associated with lower costs. However, the presented econometric evidence is fragile. As Da Silva Filho (2021) argues, one reason behind the lack of a clear connection between costs and the exchange rate regime could be the fact that what matters is the exchange rate between the sending and the receiving country, which might not be fixed even if the latter has a fixed exchange rate regime.

surge in the number of corridors with remtechs presence (Figure 6A). Given the multi-dimensional and multi-layered structure of the remittance market more disaggregated evidence is needed to uncover further insights.

Figure 6B provides another piece of evidence. It shows global average remittance costs for three different types of RSP: banks, MTO and remtechs.⁴⁴ The evidence shows that banks are the most expensive type of RSP while remittance fintechs are the cheapest. Contrary to what it might seem, this finding is not necessarily benign for the disruptive fintech narrative, as the comparison also elicits another interesting evidence. For example, when comparing 2020 to 2015 one sees that MTO and banks' average costs decreased by a similar, and small, magnitude (0.8p.p. vs 0.9p.p.). As a result, the bank-MTO cost gap has remained unchanged during this period. This is troublesome evidence for the disruptive fintech narrative.

With the advent of supposedly disruptive remtechs one would have expected that not only the decrease in remittance costs would have accelerated since 2015 – when there was a sharp increase in the number of corridors served by remtechs (Figure 6A) – but also that the costs charged by banks would have started to converge to those of MTO's. However, that was not what happened. In addition, it is worth pointing out that the costs to remit via remtechs faced only a marginal decline (0.3p.p.) during this five-year period. In other words, remtechs disruptive power seems to have run out of gas.

Table 3. The Bank-MTO Remittance Cost Gap by Regions*

Regions	EAP	ECA	LAC	MENA	SAR	SSA
2015 Average						
Bank	11.8%	9.2%	7.3%	9.3%	7.1%	14.9%
MTO	7.2%	6.8%	6.6%	6.5%	5.4%	8.9%
2020 Average						
Bank	10.8%	8.5%	6.3%	7.6%	6.6%	13.6%
MTO	6.0%	5.5%	6.0%	6.6%	4.3%	7.8%
Bank-MTO Gap¹						
2015 Average	4.6%	2.1%	0.9%	2.1%	2.1%	5.1%
2020 Average	4.9%	2.3%	0.6%	1.2%	2.5%	5.9%

* Bank and MTO cost statistics are not available for all corridors and/or quarters. When a corridor does not have costs statistics for all quarters of the year, the annual average only uses those for which data is available. Bold numbers indicate the largest regional gaps in 2015 and 2020, while shaded cells show those regions in which the gap has increased.

¹ While bank and MTO averages are calculated across all corridors in which they have been surveyed, the bank-MTO gap is calculated only for those corridors where both RSP were surveyed. Therefore, they do not reflect the difference between the two years.

Source: Remittance Prices Worldwide Database

Before proceeding, note that remtechs' costs show a sharp decrease in 2014.Q2 and a large increase in 2018.Q4. Those sudden changes are linked to unusual large variations, in a very short period, in the cost of a few corridors, which is not credible. Appendix 2 plots some of those large changes for the first event (left panel in Figure A2.1) and for the second event (right panel in Figure A2.1). In the former episode, most of the problems arose when

⁴⁴As pointed out in Section 3, remtechs are a subset of MTO.

several corridors were added to the survey in 2014.Q1 (see Appendix 3) and their initial observation was sharply at odds with the subsequent data points.⁴⁵

Although Figure 6B shows that the global bank-MTO gap has been stable since 2015, its aggregation level hides important evidence. Indeed, Table 3 reveals the existence of large variations in that gap across regions, as one might have suspected. It also shows additional interesting evidence. For example, in 2015 and 2020 the largest gaps were in the SSA region, while the smallest was in the LAC region. No region had an average negative gap. More crucially, Table 3 also shows that from 2015 to 2020 the gap increased in four out of the six regions, including in SSA, which indicates a divergence in cost dynamics, further harming the disruptive fintech narrative. The gap decreased in only two regions (LAC and MENA).

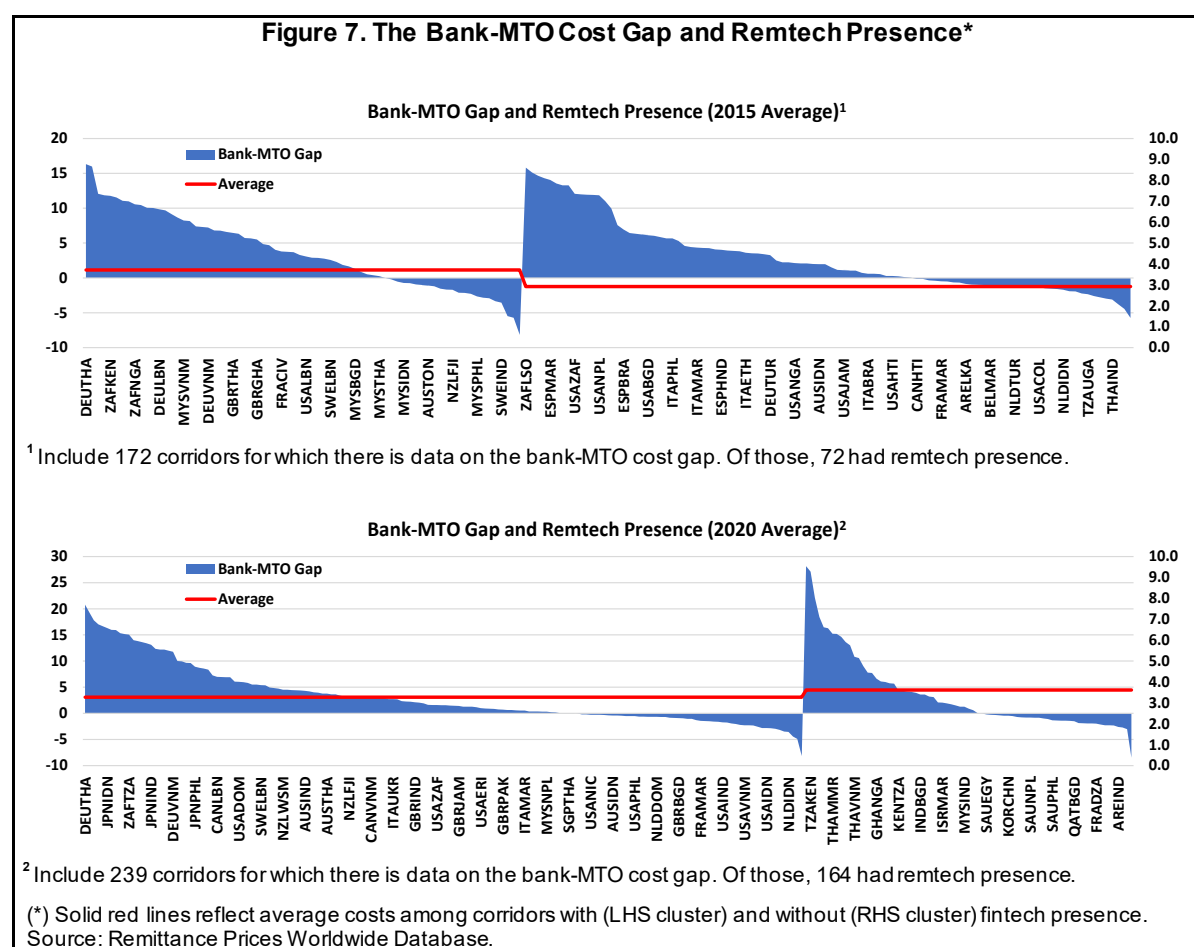


Figure 7 provides a more granular view on the bank-MTO gap fintech link. Now, in addition to showing the gap at a corridor level, it also clusters the data according to whether corridors had remtech presence (LHS cluster) or not (RHS cluster).⁴⁶ It reveals that there is wide variation in the bank-MTO gap among corridors, both within and between those that have and do not have remtech presence. It also shows that in 2015 the corridors with remtech presence had an average cost *higher* than those without remtechs (3.7 vis-à-vis 2.9 percent). The

⁴⁵Curiously, the initial costs from all corridors originating in Germany to Bosnia and Herzegovina, Croatia, Libya, and Serbia were all recorded at 12.8 percent.

⁴⁶A corridor is considered to have remtech presence if, at any quarter during a reference year, remtech costs were surveyed. As Annex 3 shows, in many corridors remtechs presence in the RPW survey has been uneven and somewhat erratic.

situation inverted in 2020, with corridors with remtech presence now showing a slightly lower average cost (3.3 vis-à-vis 3.6 percent).

One hypothesis for the apparently counter intuitive result for 2015 is endogeneity, as remtechs might have entered those corridors with higher costs first. By the same token, that would also help to explain the lower costs for corridors with fintech presence in 2020. However, in both years the difference is not statistically significant, so those results might just be spurious.

Table 4 elaborates further the evidence from Figure 7, by calculating separately bank and MTO costs in those corridors with and without remtech presence. It also brings to the forefront another key feature of remittance services: digital remittances.⁴⁷ In a market that most remittances are carried out in cash, remtechs are usually taken as synonyms for digital transactions. However, both banks and traditional MTO also offer digital services, which are becoming increasingly popular.⁴⁸ In addition, as shown in Section 7, remtechs are increasingly offering cash pick-up. Finally, Table 4 also shows remittances costs associated with mobile money.

Table 4. Average Remittance Cost and Remtech Presence*

	Bank	MTO	Digital	Mobile Money
2015				
Remtech	10.5%	6.8%	6.3%	–
No Remtech	10.4%	7.4%	8.2%	–
2020				
Remtech	9.3%	6.0%	5.2%	4.3%
No Remtech	9.4%	5.8%	7.4%	4.1%

(*) The 2015 sample includes 172 corridors, of which 72 have remtech presence. The 2020 sample includes 239 corridors, of which 164 have remtech presence. Mobile money was not surveyed in 2015. In 2020, 25 corridors also included mobile money remittances. Of those, 14 were in corridors with remtech presence. When bank or MTO costs are not surveyed in all quarters of the year for each corridor the average uses the available data. Averages are calculated over individual entries.

This breakdown unveils revealing evidence. First, both in 2015 and in 2020 banks' average costs were the same in corridors with or without remtechs presence, even though average costs fell. However, that was not the case with MTO. While in 2015 average MTO costs were lower in corridors with remtechs, in 2020 they stood slightly above, which is unexpected.

However, the most revealing piece of evidence seems to be the large difference in digital remittances costs between corridors with and without remtechs presence. In 2015, digital remittances in corridors with remtechs cost, on average, 1.8p.p. lower than in those without their presence. In 2020, not only the situation remained the same, but the gap increased. Thus, interestingly, digital remittances in corridors with remtech presence cost consistently less than in corridors without remtech presence. This could reflect three factors. First, aggregation effects, as the number of corridors with remtechs has increased sharply from 2015 to 2020 (Figure 3) and digital remittances via remtechs are cheaper than via banks and MTO. Second, the discrepancy in costs could indicate

⁴⁷See footnote 37.

⁴⁸See, for example, [How Western Union Became a Global Digital Front-Runner for Cross-Border Payments](#) (Western Union, 2021) and [MoneyGram's Digital Platform Expansion to Augment Growth](#) (Yahoo News, 2018).

that digital remittances via traditional RSP are costlier as they subsidize other types of services (e.g., cash). In other words, cash services provided by traditional MTO, which entail extra operational costs, are cross subsidized by their digital services. Third, another possibility is endogeneity, as those corridors that do not have remtech presence are probably more costly.

Finally, mobile remittances seem to be the cheapest way to remit, which is likely related to the fact that mobile money is a textbook example of leapfrog technology, which adds to the fact that it is a cheap way to attract customers to mobile operators' core business. This is especially true if the same operator is present at both ends of the transaction.

So, what might explain the slowdown in the decline of remittance costs despite the sharp increase in the number of remtechs entering several corridors as well as the lack of cost convergence between banks and MTO? Given the complexity of the remittance market it is difficult to pin down the reason, as many factors play a role and interact with each other. For example, stricter AML/CFT regulation caused correspondent banks to leave some corridors, decreasing competition and making compliance more costly, which might have played a role. Also, given current conditions and context, there could be limits to how much costs can fall. The expansion of services offered by remtechs (see Section 6 for more details) could also have played a part.

Nonetheless, the central issue here is that, regardless of the reasons and the relative importance of each factor, remtechs and, more generally, fintech, have not delivered what they initially promised and many expected: to disrupt the remittance market. The next two sections dig deeper for the reasons behind that.

V. Why Are There No Signs of Disruption?

While the evidence shows that remtechs and mobile money remittances are, on average, cheaper than traditional RSP, it also shows that there are no signs that they have disrupted, or are disrupting, the remittance market even though, according to the popular narrative, it looked set for disruption. As argued earlier, there is no better setting for fintech to showcase its disruptive potential than the remittance market, which is supposedly populated by slow moving, inefficient and technologically obsolete RSP. That fits the assessment that RSP are slow, non-transparent, and costly (CPMI, 2018; FSB, 2020). On the other hand, the narrative continues, remtechs would be nimble and efficient, with a much smaller footprint and lower operational costs, supported by the latest innovations. In other words, remtechs would represent the state of the art.

Therefore, why fintech has not disrupted the remittance market as most people expected it would? What went wrong? To make that assessment it is useful to break the analysis into three parts. The first focuses on the impact, or lack thereof, of the bitcoin/blockchain. The second, zeroes in on the relevance of mobile money and, the third, centers on the impact of remtechs.

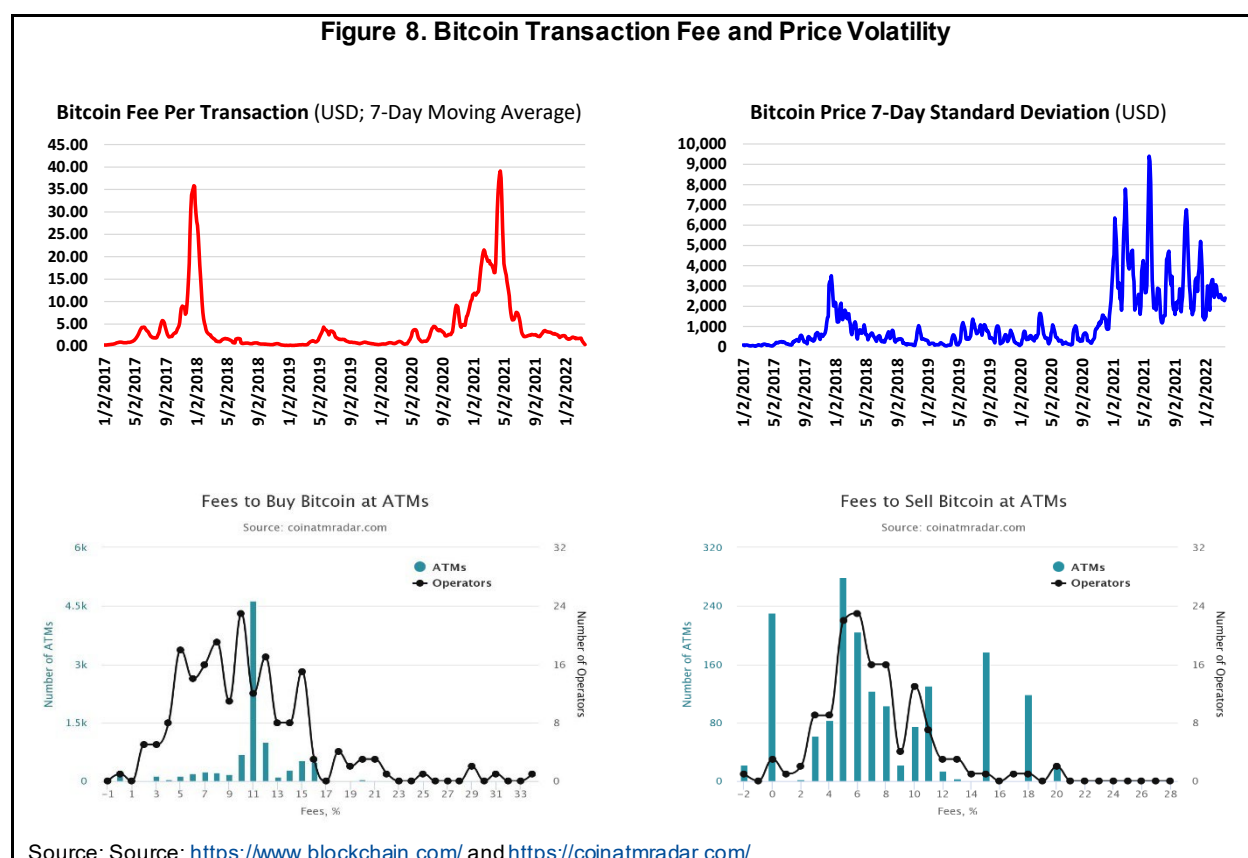
The Bitcoin/Blockchain Fairy Tale

The most formidable predictions about the disruptive effects of fintech on the remittances market are those related to the bitcoin and the blockchain. They are among many predictions on how the blockchain not only would disrupt the remittances market, but also the banking system and even the world.⁴⁹ Nonetheless, those predictions are precisely the ones that have failed most clearly. There are several reasons for that.

⁴⁹See, for example, [How blockchains could change the world](#) (McKinsey & Company, 2016) and [“The Blockchain Will Do to the Financial System What the Internet Did to Media”](#) (Ito and Ali, 2017).

According to the bitcoin/blockchain narrative, the remittances market would be disrupted because one could use bitcoin to completely bypass the middleman and remit easily, instantly, and at a negligible cost.⁵⁰ Those predictions were wrong in every aspect, because they ignored, overlooked, or misunderstood several important features not only of the remittance market, but also of the bitcoin technology and economics.

On technical grounds, besides the high energy intensity required for mining, the limitations behind the bitcoin's blockchain technology became clear as the number of transactions grew and caused serious “blockchain congestion”. Transactions proved to be neither instantaneous nor transaction fees negligible. Indeed, bitcoin's transaction fees not only have shown great volatility over time but have also reached levels above USD60 per transaction during periods of high market activity (Figure 8A), when transaction times have sometimes exceeded two days. While costs have fallen a lot lately – average costs in the second half of 2021 were around USD3.0 – they remain volatile (Figure 8B). Since 2015, costs have been above USD5.0 fifteen percent of the time, which in a USD200 remittance transaction, means *at least* a 2.5 percent transaction cost.⁵¹



While such fee level is compatible with the SDG target on remittance costs, they tell only part of the often-heard bitcoin fairy tale narrative. For example, they ignore the crucial fact that remittance-receivers need to convert any bitcoins they receive back into domestic currency to spend it. To do that the receiver needs to sell the bitcoin received, which implies one additional fee. However, even if properly accounted for, those are only

⁵⁰See, for example, [Pantera Bitcoin Letter](#) (Pantera Capital, 2015), [Blockchain is disrupting the \\$700 billion remittance industry](#) (Blockdata via Medium, 2019) and [How Cryptocurrency Is Changing Remittances](#) (Yahoo!Finance.com, 2021).

⁵¹Two improvements to the bitcoin protocol aimed at mitigating the so-called scalability problem are the lightning network and SegWit.

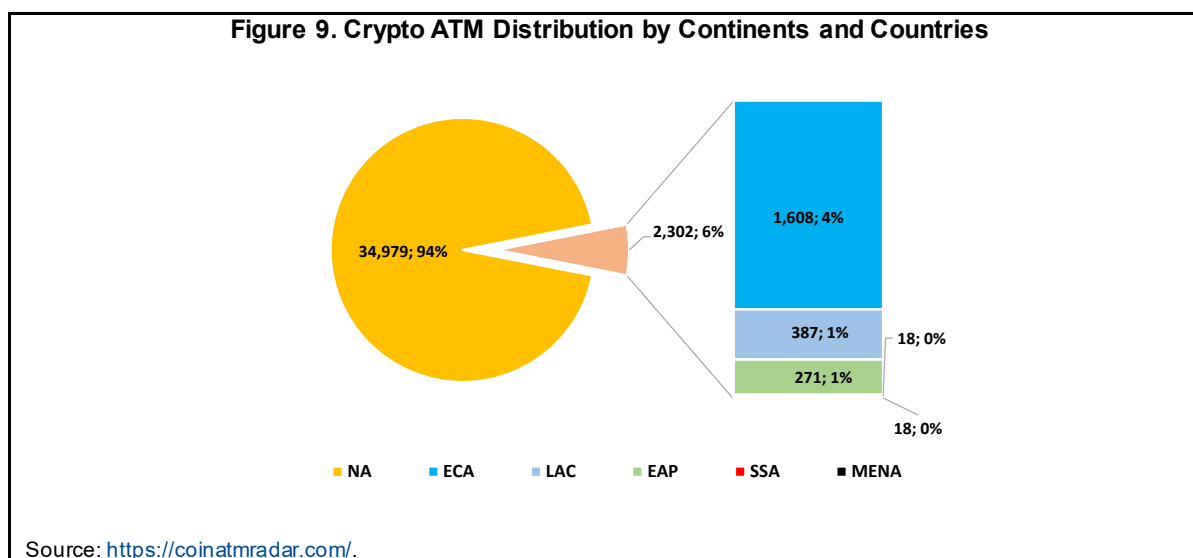
network-related fees, which are linked to miners' remuneration for their services. In addition, one also needs to account for third party fees (i.e., those from the so-called crypto exchanges), which can be expensive. In other words, costs are underestimated mainly because not all costs are accounted for.

Part of the reason why non-network fees are high is that bitcoin exchanges also face exchange rate risks and risks related to changes in the bitcoin price itself. Indeed, Coinbase, one of the main cryptocurrency exchanges in the US informs that:

“Coinbase includes a spread in the price when you buy or sell cryptocurrencies or in the exchange rate when you convert cryptocurrencies. This allows us to temporarily lock in a price for trade execution while you review the transaction details prior to submitting your transaction.”⁵²

That adds to compliance costs, given AML/CFT concerns, which are particularly high for cryptocurrencies, given their elusive nature. However, these are not the end of the story.

Indeed, and most crucially, most of the remittance transactions take place in cash, mainly at the receiving end, where financial inclusion is typically very low. That means remittance-receivers would need to convert bitcoins into cash using a bitcoin ATM (BATM), whose fees are usually five percent or higher (Figure 8D), in part because BATM entails additional operational costs. In addition, since cash is a very popular payment instrument for sending remittances, it means that most remitters would have to buy bitcoins using cash, which implies even more fees (Figure 8C). In a nutshell, bitcoin is not economically viable.⁵³



To make things worse, the overwhelming majority of BATM are located not only in the richest regions of the planet, but mostly in the US (Figure 9). Indeed, the poorest regions, such as Africa, have a negligible number of BATM.

Finally, bitcoin and cryptocurrencies are not an easy subject. Well-educated people often don't know how cryptocurrencies work, the technical details involved, such as public and private keys, wallet addresses, and the risks involved, let alone less-savvy agents. Even if one ignores the preference for cash, low financial

⁵²See [Understanding slippage and spread](https://www.coinbase.com/learn/glossary/slippage) (coinbase.com; accessed on April 1, 2022).

⁵³This should remind us to the fact that many remitters do not opt for cheaper ways (e.g., digital) to remit not necessarily due to the lack of financial literacy, as it is usually assumed, but because of constraints they face (see Orozco and Yansura, 2017).

inclusion, and the complex nature of cryptocurrencies, if bitcoin were to become a popular way to remit, given its current technological limitations, fees will likely surge again. For at least all those reasons, it is not surprising that, to the best of my knowledge, bitcoin and blockchain-based remittances are virtually nonexistent.

However, despite the massive failure of the predictions that vaunted bitcoin's disruptive power and the lack of evidence on its viability to send remittances, the bitcoin-remittances hype gained a new chapter in late 2021 when El Salvador decided to make bitcoin a legal tender. Indeed, that decision's main motivation was precisely to decrease the cost of remittances, which according to El Salvador's president could save the country USD400 million.⁵⁴ Since the obstacles identified above are also binding for El Salvador, it is extremely unlikely that bitcoin would turn out to be a competitive alternative to send remittances to the country, even with the large government subsidies involved to foster its use. Indeed, in 2020 remittance costs to El Salvador were just above 3 percent (Figure 5D), which made it the lowest cost countries among 99 remittance-receiver countries.⁵⁵

The Mobile Money Hope

Along with bitcoin, mobile money is another example of genuine fintech innovation, as it enables people to engage in digital financial transactions without the need of having a bank account.⁵⁶ However, unlike bitcoin, mobile money is a successful story (i.e., it actually mitigated a market failure), even if one that requires a few footnotes. In addition, its history or, more specifically, that of M-Pesa's – the poster child of mobile money – comes with a few enlightening ironies.

M-Pesa was created in 2007, the same year the first iPhone – who gave true meaning to the word smartphone – hit the market. However, M-Pesa was created on the back of simple and cheap cell phones, a situation that largely remains today, as its frontend technology centers around simple text messaging. And, as opposed to the iPhone, which was the result of a visionary man, M-Pesa was the outcome of a happenstance of factors, and open-minded Kenyan policymakers.⁵⁷ Indeed, its initial purpose was to facilitate the repayment of microloans by the poorest part of the population. In other words, M-Pesa was not created as an ingenious way to enable the unbanked to make digital payments and transfer money, but due to a series of favorable circumstances and policymakers receptive to experimentation, it evolved into a powerful tool for the financial inclusion of millions of Kenyans, which were excluded from the traditional financial system. As a result, millions of low-income Kenyans have become able to convert cash into digital money and vice-versa, make digital payments, including paying utility bills, store money into their cell phones, and send money to their families and friends.

The following evidence gives an idea of M-Pesa's impact in Kenya: in 2014, while 55% of Kenyans had accounts on financial institutions (up from 42% in 2011), 58% had mobile money accounts. In 2017, while the first number stagnated (56%), the second soared to 73%. That meant the "inclusion gap", defined here as the difference between those financially included (even if in a limited way) thanks to mobile money and those formally included via the banking system, widened from 3p.p. to 17p.p. Thus, thanks to M-Pesa a large part of the unbanked population has become, at least in some form, financially included. And that has had an important impact on people's lives. Today, M-Pesa has 51 million customers across seven African countries, which adds to mobile money from other operators.⁵⁸

⁵⁴See [Remittance costs key to take-up of Salvadoran bitcoin plan - development bank](#) (Reuters, 2021).

⁵⁵Figure 5D ignores evidence from six former Soviet republics, which face lower remittances costs.

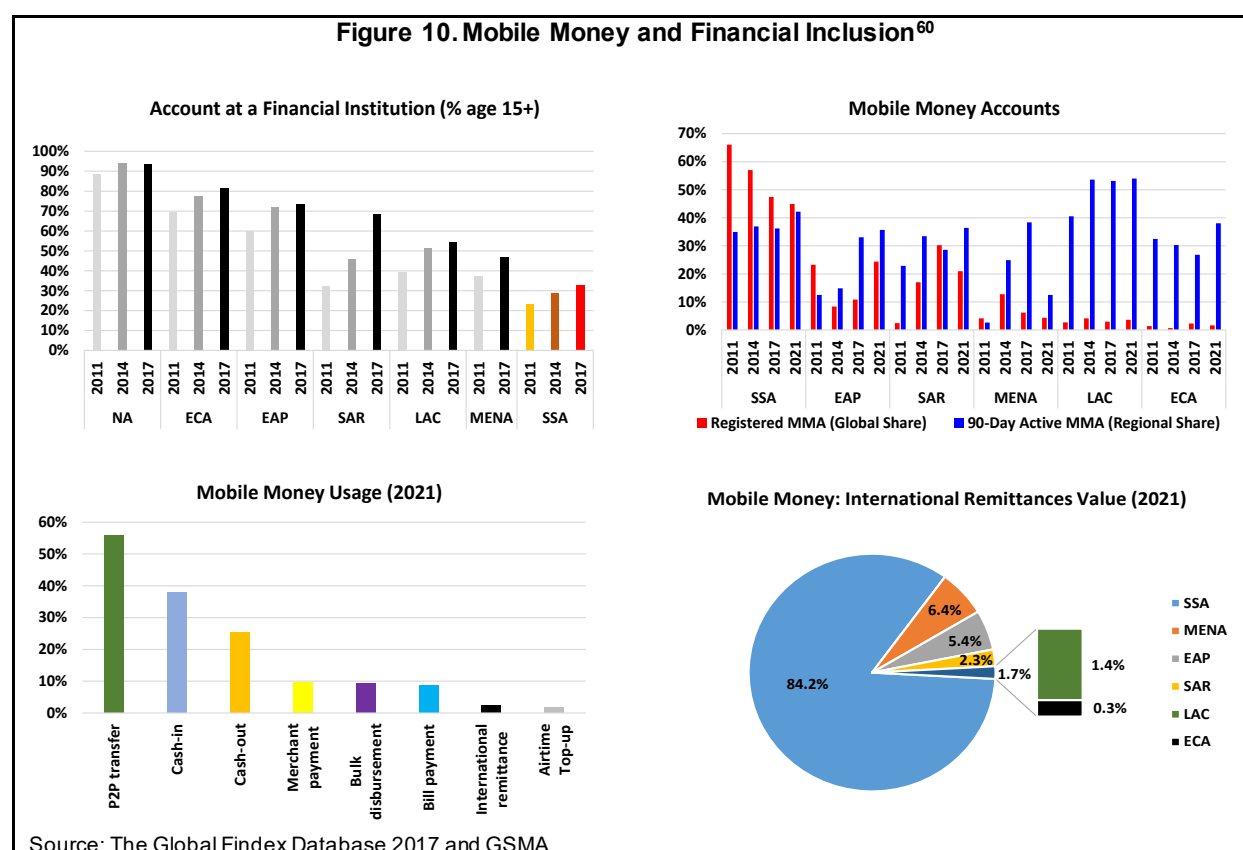
⁵⁶Mobile money refers to money deposited in accounts held with a mobile operator. Those accounts can be linked or not with traditional bank accounts.

⁵⁷This video provides a short account of [The Story of M-Pesa](#).

⁵⁸Democratic Republic of Congo, Egypt, Ghana, Kenya, Lesotho, Mozambique and Tanzania. The M-Pesa network has more than 600,000 active agents. See [What is M-PESA?](#) (Vodafone, accessed on April 1, 2020).

In fact, there is some evidence that mobile money helps users smooth their consumption (Jack and Suri, 2014), increases household consumption (Munyegeera and Matsumoto, 2016), decreases the probability of extreme poverty (Suri and Jack, 2016), decreases the share of households with very low food security (Wieser et al., 2019) and increases health care access (Ahmed and Cowan, 2019).⁵⁹ Aron and Muellbauer (2019) also document a myriad of other effects.

Figure 10A unveils a grim picture of the unbanked around the world. In 2017, only around one third of the SSA population fifteen years or older had bank accounts at a financial institution (red bar), the lowest ratio by far across all regions. In the MENA and LAC regions that share was higher but still very low, hovering just around 50 percent. Not surprisingly, Figure 10B shows that mobile money accounts have become relatively popular in SSA, which in 2017 hosted around 45 percent of the global registered mobile money accounts.



Against the above background, the excitement about mobile money is understandable. However, unfortunately, the reality on the ground turned out to be more complex than most expected, as the M-Pesa success in Kenya

⁵⁹For an excellent review of the evidence see Aron (2018).

⁶⁰The GSMA (2018b) considers as mobile money service those that meet the following definitions: a) It must be available to the unbanked, e.g., people who do not have access to a formal account at a financial institution; b) It must offer at least one of the following services: Storage of value; Domestic or international transfer; mobile payment, including bill payment, bulk disbursement, and merchant payment; c) It must offer a network of physical transactional points outside bank branches and ATMs that make the service widely accessible to everyone; d) It must offer an interface for initiating transactions for agents or customers that is available on mobile devices; e) Mobile banking services that offer the mobile phone as just another channel to access a traditional banking product are not included; and f) Payment services linked to a traditional banking product or credit card, such as Apple Pay and Google Wallet, are not included.

has proved not to be easily replicable in other countries. For example, in the LAC and MENA regions, despite low financial inclusion (Figure 10A) mobile money is still uncommon (Figure 10B). Indeed, according to the GSMA (2021), 73 percent of the countries analyzed in the LAC region had a Mobile Money Prevalence Index rated as low or very low in 2021.⁶¹ Interestingly, the proportion of active accounts the LAC region is the highest among all regions (Figure 10B). Even in SSA, the leading region in mobile money services, mobile money has failed to get traction in many countries, including in South Africa and Nigeria, the two largest economies. Overall, around one third of the SSA countries were rated as low or very low in the Mobile Money Prevalence Index in 2021.

Therefore, it is not surprising that mobile money remittances just make a tiny fraction of global remittances. Indeed, it amounted to just over 2 percent of the total value of mobile money transactions carried out in 2021 (Figure 10C). And, from that amount, 84 percent took place in SSA (Figure 10D). This evidence sharply contrasts with that of domestic transfers, which made the bulk of mobile money transactions in 2021 (Figure 10C). In other words, mobile money remittances are still a marginal way to remit. In fact, this evidence is consistent with that shown in Table 2 and Figure 4.

The Remtech Hype

The poster child of disruptive remtechs is undoubtedly Wise (formerly Transferwise), which was founded in 2011. Its mission reads “Money without borders – instant, convenient, transparent and eventually free.”⁶² Wise’s debut came with a lot of excitement, given its promises and bold narrative. As can be inferred by the quote above, it promised not only to sharply reduce remittances costs, but eventually to make remittances free, which obviously is unrealistic. Indeed, in one interview Wise’s CEO and co-founder asked “How is it that it’s free to send an email and it costs to send money? Why does it have to cost much at all, when we’re moving bits and bytes around?”⁶³ This analogy is problematic as sending money internationally is a much more complex task than sending emails.

Although business models differ, even among remtechs, Wise’s narrative is taken here as a proxy for remtechs’ narrative.⁶⁴ It centered around two issues. First, a key part of Wise’s narrative was to point out, correctly, the sizable hidden fees represented by typical FX margins. In other words, Wise called the attention to misleading pricing practices by RSP and argued that the only fair exchange rate would be the mid-market rate.⁶⁵ As a result, Wise threw the spotlight on transparency, or the lack thereof, in the remittance industry.

The second part of the narrative was about its superior, more efficient business model, which could be described as matching flows, or yet peer-to-peer. Wise argued that by matching incoming and outgoing remittance flows between two countries, transactions would be cheaper and faster. Indeed, if money does not have to cross borders, transactions could and should take place faster and less costly.⁶⁶

⁶¹The Mobile Money Prevalence Index is a composite index that considers mobile money adoption, activity and accessibility at country level in order to facilitate comparisons between markets. See [The Mobile Money Prevalence Index](#) (GSMA, 2021).

⁶²See [The Wise Mission](#) (accessed on April 9, 2022).

⁶³See [Fintech Startups Seek to Shake Up Money-Transfer Industry](#) (WSJ, 2017).

⁶⁴See, for example, [Meet the 2015 CNBC Disruptor 50 companies](#) (CNBC, 2015), [How TransferWise Is Disrupting The Currency-Exchange Business And Expanding In The U.S.](#) (Forbes, 2015), and [Money transfers in seconds. A start-up that is trying to usurp Western Union and shake up the \\$689 billion money transfer market](#) (CNBC, 2019).

⁶⁵See [The Only Fair Exchange Rate: The Mid-Market Rate](#) (Wise, accessed on April 9, 2022).

⁶⁶The merits of the second part of the narrative are analyzed in the next section.

As to the FX margin, Table 5 shows regional FX margins for banks, MTO and remtechs. The expected evidence is that remtechs should have much lower margins than banks and MTO, given the higher transparency of their service, better operational efficiency, and improved business models.

Table 5. FX Margins by RSP Type and Region*

Regions	ECA	EAP	LAC	MENA	SAR	SSA
2011.Q1 – 2016Q1 Period						
Bank	0.4%	2.5%	1.2%	1.0%	1.7%	1.5%
MTO	1.4%	1.9%	1.9%	2.3%	1.5%	2.4%
Remtech	1.0%	1.7%	1.6%	2.7%	1.3%	2.5%
2016.Q2 – 2020Q4 Period						
Bank	0.5%	2.5%	1.2%	1.8%	1.5%	2.2%
MTO	1.8%	2.1%	2.0%	2.5%	1.5%	2.7%
Remtech	1.4%	1.7%	1.5%	2.2%	1.3%	2.5%
Change Between Periods						
Bank	0.2p.p.	0.1p.p.	0.1p.p.	0.8p.p.	-0.2p.p.	0.7p.p.
MTO	0.4p.p.	0.2p.p.	0.1p.p.	0.2p.p.	0.0p.p.	0.3p.p.
Remtechs	0.3p.p.	0.0p.p.	-0.1p.p.	-0.5p.p.	0.0p.p.	0.0p.p.

(*) The average is calculated from individual entries. For each region, shaded cells indicate which type of RSP has the lowest margin, while bold numbers indicate those that have the highest. Shaded cells also indicate those regions where FX margins have fallen between the two periods.

However, at odds with the remtech narrative, and expectations, according to the RPW database banks practice the lowest margins in general. They have the lowest margins in four out of the six regions, and in some cases by a large difference, in the two periods under analysis. Remtechs have the lowest margins for the two remaining regions. It is interesting to notice that in SSA, the highest cost region, and where there is much room for costs to fall, remtechs had the highest margins in the first period and are costlier than banks, which according to Wise are its main competitor, in the second. What might explain such evidence?

Table 6. Percentage of FX Margins Equal to Zero or Negative (2011.Q1 – 2020Q4)

FX Margin	Banks	MTO	Remtechs
Zero	30%	17%	14%
Negative	3%	4%	8%
Estimated FX Bias	0.9p.p.	0.6p.p.	0.6p.p.

Note: Bias is calculated assuming that entries with zero and negative margins were equal to the average margin for that quarter net of the former entries.

As Da Silva Filho (2021) notes, mismeasurement problems are a relevant issue in the RPW survey. Among the problems identified, the fact that many surveyed services show zero or even negative FX margins, which is not credible, stands out. Indeed, according to Table 6, this seems to be a key factor here. It shows the percentage of zero or negative entries for the 3 types of RSP. As much as one third of bank entries seem problematic, while around 20% of MTO and remtechs entries are also affected. Table 6 also provides an estimate of the “FX

bias” by replacing zero and negative margins by the average value for the specific quarter they occur. The estimated bias is sizable, reaching 0.9 p.p. for banks and 0.6 p.p. for MTO and remtechs.

To try to account for the “FX bias”, Table 7 shows what would be the FX margin if the estimated bias was accounted for. Indeed, the correction redeems remtechs’ reputation, but it also shows that things are more complicated than the fintech narrative suggest. While remtechs now have the lowest margins in four out of six regions in the first period, and in all of them in the second period (tied with banks in SSA), the difference is often not large when compared to the second lowest margin (last three rows at the bottom). In addition, remtechs’ average FX margin in SSA is either the same or higher than that of banks. This is disappointing, given that SSA hosts the most expensive corridors and, therefore, in theory is the region that would have most room to benefit from remtechs’ disruptive power. Finally, despite having the lowest margins in both periods, remtechs’ FX margins actually increased between periods in ECA, EAP and SSA, which is also disappointing.

Table 7. Adjusted FX Margins by RSP Type and Region*

Regions	ECA	EAP	LAC	MENA	SAR	SSA
2011.Q1 – 2016Q1 Period						
Bank	2.6%	3.1%	2.7%	2.7%	2.4%	2.7%
MTO	2.8%	2.2%	2.9%	2.5%	1.7%	3.2%
Remtech	1.8%	1.9%	2.6%	2.8%	1.5%	2.9%
2016.Q2 – 2020Q4 Period						
Bank	2.6%	2.8%	2.7%	2.8%	2.1%	2.9%
MTO	3.0%	2.4%	2.8%	2.8%	1.7%	3.3%
Remtech	2.3%	2.3%	2.3%	2.4%	1.6%	2.9%
Change Between Periods						
Bank	-0.1p.p.	-0.3p.p.	0.0p.p.	0.1p.p.	-0.3p.p.	0.2p.p.
MTO	0.2p.p.	0.2p.p.	-0.1p.p.	0.3p.p.	0.0p.p.	0.2p.p.
Remtechs	0.4p.p.	0.3p.p.	-0.3p.p.	-0.3p.p.	0.1p.p.	0.0p.p.
Difference: Remtech vs. Second Lowest Margin						
2011.Q1 – 2016Q1	-0.8p.p.	-0.2p.p.	-0.1p.p.	0.2p.p.	-0.2p.p.	0.2p.p.
2016.Q2 – 2020Q4	-0.3p.p.	-0.1p.p.	-0.4p.p.	-0.4p.p.	-0.1p.p.	0.0p.p.
Full Sample	-0.4p.p.	-0.1p.p.	-0.3p.p.	-0.3p.p.	-0.1p.p.	0.1p.p.

(*) Regional averages are calculated from individual entries. Shaded cells indicate which type of RSP, in each region, had the lowest margin or experienced the largest decrease in margins between the two periods, while bold numbers indicate those RSP that had the highest FX margin or faced the largest increase between periods.

Lastly, notice that while mitigating the bias was beneficial to remtechs, it also meant that the RPW database (further) underestimates the costs of remittances, which implies that the SDG target is farther than what Figure 5 shows.⁶⁷

⁶⁷Another key source of underestimation is the fact that the RPW survey does not capture fees charged at the destination.

VI. Remittances And Fintech: A Reality Check

Section 4 unveiled two key pieces of evidence that were not supportive of the disruptive fintech narrative. First, it noted that, ironically, the decline in remittance costs started to slow down precisely when the number of corridors with remtech presence started to surge. Second, if remtechs were really disrupting the remittances market one would expect that the bank–MTO gap – the average difference in costs between banks and MTO – would begin to shrink. However, this gap has remained largely stable from 2015 to 2020.

Therefore, the *prima facie* evidence was not supportive of the disruptive remtech narrative. Even so, one might argue that since remittance costs are affected by a smorgasbord of factors, perhaps some of them could have offset the disruptive effects of remtechs. While this might have been the case, it should be noted that the expected effects of a disruptive force would most likely show up in the data, mainly after so many years.

Therefore, Section 5 delved deeper into the disruptive narrative, analyzing the link between fintech and remittance costs from three different angles: the impacts of bitcoin/blockchain, mobile money and remtechs. The more rigorous analysis unveiled key evidence showing a large discrepancy between the disruptive fintech narrative and the reality on the ground, confirming and reinforcing previous findings. This section elaborates further on the evidence presented in Sections 4 and 5, especially on that related to remtechs.

Among the boldest predictions on how fintech would disrupt the remittance market lies the bitcoin/blockchain narrative. It is difficult to find not only a more disruptive narrative, but also a prediction that has failed so clearly. As argued in the last section, those predictions have basically failed due to three reasons.

Firstly, they overlooked the limitations of the very technology they were touting about. Bitcoin’s transaction fees are not only usually volatile but can reach very high levels due to “blockchain congestion” – which would become chronic if bitcoin were to become a popular way to remit – two characteristics that makes bitcoin less suitable to be used as a vehicle currency for remittances (Figure 8B).

Secondly, amazingly, those predictions did not take properly into account the peculiarities of the remittances market, most notably the fact that participants are usually unbanked. Thus, most transactions involve cash, mainly at the receiving end, which means bitcoin is not a viable option to remit. This fact, by itself, should have been enough to alert against hyped bitcoin narratives, mainly because they are often built around decreasing remittances costs to poor countries.

Thirdly, narratives are usually superficial as they do not account for all costs involved in a bitcoin transaction and ignore relevant real-life bitcoin constraints, conveying a misleading picture of bitcoin’s actual transactions costs and its viability. For example, they ignore the fact that people need to convert bitcoin back to cash to be able to spend it. That means bitcoin remittances are subject to two separate fees. In addition, besides network-related fees one needs to add third party fees. Finally, those constrained to using cash would need to use bitcoin ATM to convert cash into bitcoins and vice-versa. However, BATM fees are typically high (Figures 8C and 8D). And, even if this were not the case, most locations do not have bitcoin ATM. In a nutshell, bitcoin is neither cost effective nor a viable option to remit.

Last, but not least, hyped narratives overlook the complex nature of cryptocurrencies, which makes them unappealing to the less tech-savvy. In fact, even the financially literate are often not knowledgeable about cryptocurrencies and the associated risks, which are many. In other words, bitcoin also lacks convenience.⁶⁸

⁶⁸Ironically, narratives also ignore the fact that to bypass the financial system using bitcoin one needs to use that very financial system, since exchanges are usually linked to bank accounts, and transactions are subject to stringent regulation, especially those related to AML/CFT.

Therefore, it should not be surprising to learn that, several years after those initial disruptive narratives appeared, not only has the use of bitcoin to send remittances been virtually non-existent, but the evidence strongly suggests that the situation is unlikely to change. Taking as reference Flore's (2018) list of "notable examples" of blockchain-based remittances start-ups the problems with that narrative become clear.⁶⁹ Most of them seem to be ordinary crypto exchanges, and while Bitspark and Coinpip had very short lives and closed their doors on 2020, Toast gave up on using Bitcoin/Blockchain.⁷⁰ In addition, none of them are present in the RPW database with one exception: ZipZap, which was surveyed only from 2016 to 2019 and, in those cases, the associated services were either traditional payments (e.g., bank transfer) or mobile money remittances.

In its turn, mobile money is a financial innovation that has been lauded by many (e.g., Aron and Muellbauer, 2019). The praise is warranted as it could be an important instrument for financial inclusion in countries where a large share of the population is unbanked. For example, thanks to M-Pesa a large part of Kenya's population has gained access to mobile accounts and has become able to convert cash into digital money, store it, use it to pay for goods and services, and easily transfer money to friends and relatives. However, despite its success in Kenya, Section 5 has showed that mobile money has not disseminated to as many countries as people expected, including within SSA. In addition, although it is largely used to make domestic money transfers, its use to send remittances has been quite limited (Figures 10C), even though mobile remittances are typically less costly (Table 4).

The main reason why mobile money has not been more ubiquitous seems to be the fact that M-Pesa's success in Kenya was largely due to a happenstance of factors, making its replication in other countries much more challenging. Ironically, one of the key factors behind its success, and which has been an important hindrance to its replication elsewhere, is its large footprint. Since its early days M-Pesa has benefited from a large physical network of agents, which has allowed the easy exchange of cash for mobile money and vice-versa. That was made possible because of Safaricom's huge market share in Kenya, which facilitated its acceptance and led to an overwhelming dominance of M-Pesa. In 2007, when M-Pesa was launched, Safaricom had 65% market share in Kenya.⁷¹ In 2020, M-Pesa accounted for 98% of mobile money market.⁷²

The privileged position held by Safaricom in Kenya is also clearly reflected in M-Pesa's international statistics. While there were more than 28 million active M-Pesa's users and almost 250 thousand M-Pesa's agents in Kenya in 2021, there were around 18 million M-Pesa's active users and 300 thousand M-Pesa's agents in DRC, Egypt, Ghana, Lesotho, Mozambique, and Tanzania, even though their combined population is almost six-fold that of Kenya's. Not surprisingly, there is evidence that one factor behind the low adoption of mobile money in Niger is due to the limited number of agents (Aker *et al.*, 2020). In South Africa, Vodacom attempted to implement M-Pesa twice and failed. However, in this case, the main reason seems to be the fact that a much larger share of South Africa's population already had bank accounts.

Besides network effects, M-Pesa's success in Kenya also benefited from open-minded regulators, who were willing to experiment. The Central Bank of Kenya took a light regulatory approach, and its main initial requirement was for Safaricom to deposit its clients' funds in a separate trust account. Indeed, an enabling regulatory environment is not always present. For example, in Ghana the central bank required that mobile

⁶⁹The list includes Abra, Bit2me, Bitpesa, Bitspark, Coinpip, Coins.ph, Flutterwave, Rebit, Toast, ZipZap and Volabit.

⁷⁰See [Bitspark Fades Out Following COO Maxine Ryan's Departure](#) (CoinDesk, February 4, 2020), [CoinPip Shuts Down as Singapore Brings Crypto Under AML Rules](#) (Finance Magnates, March 3rd, 2020), [Bitcoin start-ups in Asia take aim at remittances market](#) (Reuters, 2018), [Remittance Firm Toast Pivots from Bitcoin, Raises \\$850,000](#) (CoinDesk, October 9, 2015).

⁷¹Safaricom's market share has remained remarkably stable, and in 2021 it was 64 percent (see Safaricom Annual Report, 2021).

⁷²On M-Pesa's virtual monopoly in Kenya see [Leading Country Example: Kenya](#).

operators partnered with banks, a requirement that was finally removed in 2015.⁷³ Similar requirements were also in place in India.⁷⁴ In Nigeria, telecoms have not been allowed to be on the driving seat of mobile money provision.⁷⁵ The evidence shows that the so-called bank-led regulatory model has hindered the diffusion of mobile money.⁷⁶ It is not surprising, therefore, that mobile money has not taken off in Nigeria, despite its large unbanked population.

Even though different regulators have genuine distinct views on how best to regulate mobile money services, unfortunately part of the reason behind countries choosing more restrictive regulatory approaches seems to be related to pressure from banks (i.e., regulatory capture), who want to stifle competition, even in a context in which it is not economically feasible for them to set up branches across the countries they operate, especially on rural regions.⁷⁷

Two additional, and unusual factors, also help to explain M-Pesa's success in Kenya. First, a well-thought marketing campaign that focused on urban migrant workers, and which pointed out that M-Pesa would allow them to easily send money back home to their relatives, who usually lived in distant rural areas.⁷⁸ Second, the widespread violence that followed the controversial 2008 election, which provoked havoc around the country, including by driving banks to close branches, and left trapped many people that needed help. In that context, the then recently launched M-Pesa played an instrumental role, as it allowed sending money to relatives and those in need.⁷⁹ Finally, interoperability has been a major challenge, as mobile money from one mobile operator usually cannot be sent to a user from a different mobile operator.

Given the assessment above, it is not surprising to learn that mobile money has played a marginal role in global remittances, including in SSA. The many challenges behind their domestic diffusion (e.g., infrastructure, regulation, etc.) are compounded by those related to technology (e.g., interconnectivity) and country and region-specific factors. For example, as pointed out above, mobile money has not really taken off in the LAC region. One important reason seems to be that in many LA countries access to financial services is *relatively* high.

For example, in Brazil and Colombia physical agents are present in 100 percent of their municipalities. In Brazil, there is a large network of the so-called *correspondentes bancários*, which act on behalf of banks and can, for example, receive deposits and process bill payments. The main type of *correspondentes bancários* is the Brazilian post office, but lottery houses also play that role (CPSS and The World Bank, 2007). In Mexico, which is part of the largest remittances corridor, there is a large network of physical banking agents (e.g., Oxxo). Therefore, in the above context, it is not realistic to expect that mobile money remittances would play a relevant role in the LAC remittances market, at least in the near future.

Interestingly, while bitcoin and mobile money are genuine financial innovations, this is not what is behind remittance fintechs. In fact, on closer examination one sees that they are about different business model rather than innovation. Thus, perhaps it should not come as a surprise that remtechs have failed to disrupt the remittances market, since mobile money has had a limited impact and bitcoin none. Yet, drawing on different

⁷³See Regulatory Framework for Branchless Banking (Bank of Ghana, 2008) and Guidelines for E-Money Issuers in Ghana (Bank of Ghana, 2015).

⁷⁴See Reynolds *et al.* (2018).

⁷⁵See Regulatory Framework for Mobile Money Services in Nigeria (Central Bank of Nigeria, 2018). See also Mobile Money Policy and Regulatory Handbook (GSMA, 2018a).

⁷⁶See Suárez (2016) and Mobile Money Policy and Regulatory Handbook (GSMA, 2018).

⁷⁷See Suárez (2016). See also [Nigeria mobile money revolution delayed by scarcity of licences](#). (Financial Times, 2020).

⁷⁸See, for example, the [Safaricom's Award winning TV ad](#).

⁷⁹See, for example, Tyce (2020).

business models is not necessarily a drawback as they can also be highly consequential. However, this has not been the case.

In addition, and not without some irony, remtechs' business model was born with an important constraint: it severely curtailed their ability to disrupt the remittance market. Indeed, by focusing on digital channels remtechs limited their capacity to operate where a large part of the action takes place in the remittances market: cash transactions. Unless they had been able to provide a feasible alternative to cash remittances, remtechs disruptive potential was bound to be limited since the beginning.

To deepen and solidify that understanding it is useful to analyze the history of how some of the most important remittance fintechs came to existence and grew (see Appendix 1). Such awareness makes it easier to understand some of their initial business decisions, as well as latest developments and prospects for the remittances industry.

The first fact that stands out is that despite entering the remittances market calling out how expensive remittances were, especially in African corridors, amid a narrative that incumbents are inefficient, costly and have outdated technology, remtechs have typically chosen to begin their operations in more developed corridors, where the need – and the disruptive potential – was much smaller. For example, Remitly debuted in the US-Philippines corridor, the fifth largest remittances corridor, and it took four years for it to enter two additional corridors: US-Mexico and US-India, the largest and third largest corridors. Those are among the most competitive and less costly corridors and, therefore, with a lesser need for disruption.

As pointed out, the RPW database only includes those RSP that have at least one percent of market share. And it shows that, from 2011.Q1 to 2020.Q4, Remitly reached that threshold in only four SSA corridors. Similarly, it also shows that, nine years after starting its operations, TransferGo had no meaningful presence in SSA.⁸⁰ The RPW database also reveals that Wise, the largest and most successful remtech, reached the above threshold in only five SSA corridors.⁸¹ Finally, Xoom, the oldest remtech, and which was acquired in 2015 by PayPal, an iconic fintech, meaningfully remitted to only five SSA countries during the period above.

Besides remitting to a small number of African countries, those remtechs also share another feature in common: in SSA, they focused on the main remittance markets, such as Ethiopia, Ghana, Kenya, Nigeria, and South Africa. Therefore, it is revealing but not surprising that, with one exception, none of the above remtechs are meaningfully present in *any* of the 20 most expensive corridors (Figure 5). The exception is WorldRemit, which is operational in some of the most expensive intra-SSA corridors originating in South Africa.⁸²

These developments are inconsistent with the disruptive narrative, and strongly suggest that entering the costliest, but less economically appealing corridors, is a challenging endeavor, even for an allegedly disruptor, which leads us to the next evidence.

A second stylized, and revealing fact, is that to get scale and grow remtechs needed not only to increase their geographical reach, but mainly to deviate from their original all-digital business model. For example, they needed to broaden the pick-up options they offered to include cash pick-ups and, in some cases, even home delivery. The only way to accomplish that was to engage in partnerships with precisely those institutions that they were supposed to disrupt, and which were deemed to be inefficient and obsolete: banks and traditional

⁸⁰Currently, according to TransferGo's website, it can remit to only three SSA countries (see [Send money to these countries](#), accessed on April 29, 2022).

⁸¹Indeed, SSA has never been a priority for Wise, a situation that seems to endure. Currently, according to Wise's website, it can remit to only seven SSA countries (accessed on May 2nd, 2022).

⁸²Differently from other remtechs, WorldRemit's initially focused on SSA corridors, more precisely, on remittances from the UK to Africa. Another distinct feature was the possibility, since early on, to send money directly to mobile wallets. For that, WorldRemit made agreements with mobile network operators.

MTO. Indeed, remtechs are increasingly partnering with banks, traditional MTO, mobile money operators and other agents to expand the reach and breadth of their services.

For example, since its early days WorldRemit has partnered with a “... wide range of partners, from banks, money transfer agents, telecoms companies and mobile money providers to businesses that want to find a better way to pay suppliers abroad”.⁸³ Indeed, given its large presence in SSA, WorldRemit needed to enter into many agreements to offer cash pick-ups in several SSA corridors.⁸⁴ Similarly, to be able to deliver remittances in cash Remitty found no other option than recently partnering with Ria, a traditional MTO, which it was supposed to disrupt.⁸⁵ Xoom, the oldest remtech, also partnered with Ria, which allowed it to offer cash pickups at more than 150,000 international locations.⁸⁶ In fact, Xoom has entered in many partnerships worldwide to increase its global network of cash pickups. Remtechs have also partnered with traditional credit card companies to expand payment options amid a “...growing need for strong international digital payments structures...”⁸⁷

In 2018 Wise partnered with France’s second largest bank and has recently announced that “We continued to work on our integration with our banking partner in Brazil to give us access to their instant payment network, PIX.”⁸⁸ This is an ironic turn of events, since Wise had initially pitched itself as a bank disruptor.⁸⁹

At this point, it is worth taking a deeper look at Wise’s business model. As pointed out in Section 5, besides adopting a digital business model – like other remtechs – Wise used to tout about another feature of its business model: the fact that it was a peer-to-peer model. Wise described it as a matching flows model, where opposite needs were matched (X wants to send money from country A to B, while Y wants to send money from country B to A. Thus, transactions could take place directly within each country). Therefore, money would not actually need to cross borders, which would decrease costs and increase speed.

However, even though that narrative remains common (e.g., Flore, 2018; Bersch *et al.*, 2021), the peer-to-peer model soon proved to be unsustainable since most corridors, especially those between rich and low-income

⁸³See [WorldRemit scoops \\$40 million investment from Accel Partners](#) (Business Wire, 2014). See also [WorldRemit Partners & Affiliates](#) (accessed on May 2, 2022).

⁸⁴See, for example, [Bank Of Africa, World Remit Sign Partnership Agreement On Digital Money Transfers](#) (EABW News, 2018; accessed on May 3rd, 2022), [WorldRemit continues its rapid expansion in Cameroon through new partnership with Express Exchange](#) (WorldRemit, 2018; accessed on May 3rd, 2022), [WorldRemit Partners With Mukuru to Fortify Remittances and Expand Cash Pick up Network in Zimbabwe](#) (Business Wire, 2020), [WorldRemit partners Diamond Trust Bank, Bank of Abyssinia for digital remittances](#) (Electronicpaymentsinternational.com; accessed on May 3rd, 2022), and [FBNBank partners WorldRemit to offer international money transfer services](#) (Business & Financial Times Online, 2022; accessed on May 4, 2022).

⁸⁵See [Remitty Doubles Cash Pick-up Locations Around the World with Ria Partnership](#) (Bloomberg, 2019).

⁸⁶See [Xoom Partners with Ria Money Transfer to Accelerate Global Expansion in 86 Countries](#) (Businesswire, 2018).

⁸⁷See [Mastercard and TransferGo partner to make fast, simple and secure cross-border payments](#) (OpenBankingExpo, 2020). See also [TransferGo partners with Visa to bring global real-time transfers to users](#) (Finextra, 2020).

⁸⁸See [TransferWise partners with France's second largest bank BPCE Groupe](#) (TechCrunch, 2018) and [Q3 2021 Mission Update: Speed](#) (accessed on May 2, 2022).

⁸⁹Indeed, it even once posted in its website “Bye-bye banks” (see [Skyping dough](#), The Economist, 2013) and [London's TransferWise aims to disrupt banking](#) (USA Today, 2014).

countries, are very lopsided.⁹⁰ As Wise expanded to more “unequal corridors”, its original business model started to increasingly fall short.⁹¹

Finally, in their struggle to gain scale some remtechs have also adjusted their business model and entered the corporate market, a market in which they have much less comparative advantage given, for example, the much higher value of the transactions, and already high digitalization.⁹² The quest for growth has also led to a consolidation trend in the remtech industry. For example, after struggling to grow in a consistent way for many years Xoom, the first remtech, was bought by PayPal in 2015.⁹³ Most recently, Azimo was acquired by the HR and payroll platform Papaya Global, in a deal valued between USD 150 and USD 200 million.⁹⁴ Compared to its previous funding round, when it was valued around USD 90 million, and taking into account that it had taken place in 2015 and the premium obtained by other remtechs when they went public, the evidence suggests that Azimo’s growth prospects were challenging.⁹⁵

Therefore, Wise’s history and, more generally, the history of remtechs, makes it clear that there is no easy way to disrupt traditional RSP and overcome “legacy systems”. In other words, there is a large distance between such narratives and the reality, a gap that is rooted not only on the lack of a proper understanding of the context in which the remittances market work, but also on what remtechs are really about.

The Importance of Fintech

The fact that fintech has not been able to disrupt the remittances market and bring costs down in a more decisive way, as many expected, does not mean that they are not playing an important role. For example, remtechs have helped to increase competition in at least three ways. First, the evidence shows that costs are strongly negatively correlated with the number of MTO and the ratio of MTO to banks [da Silva Filho (2021) and Beck *et al.* (2022)] at a corridor level. Second, remtechs have helped to raise awareness on the need for greater pricing transparency, especially regarding hidden FX margins. That has allowed end-users to make better decisions, based on a better information set. Third, remtechs’ digital business models facilitate price comparisons allowing end-users to choose more effectively between RSP and service types, which makes competition more efficient.

In addition, remtechs are leading the push for greater digitalization in the remittances market, putting pressure on incumbents to increase their offering of digital services and the quality of their services.⁹⁶ In its turn, greater digitalization comes with extra benefits as it not only improves convenience for end-users but also decreases non-pecuniary costs (e.g., time spent going to RSP branches) as well as those costs that are usually not captured in official statistics (e.g., transportation costs). It also increases safety as people do not have to carry cash for

⁹⁰See [The CEO of a \\$590 million FX company says Brexit showed TransferWise's peer-to-peer model is 'incomplete'](#) (Insider, 2016). See also [After a blockbuster debut, investors should be wary of Wise guys](#) (Financial Times, 2021).

⁹¹Indeed, one of Wise’s co-founders acknowledged that and said, “Our peer-to-peer model was an innovative solution at the time, but as we scaled, the original model wasn’t scaling with us”. See [Money transfers in seconds. A start-up that is trying to usurp Western Union and shake up the \\$689 billion money transfer market](#) (CNBC, 2019).

⁹²See, for example, [International money transfers for small businesses](#) (Azimo, accessed on May 10 2022), [The no-stress international business account](#) (Wise, accessed on May 10 2022) and [Send money safely with our business accounts](#) (TransferGo, accessed on May 13 2022).

⁹³See [Xoom Money Transfer: The Disruptor That Wasn't](#) (SaveOnSend, accessed on March 10, 2022).

⁹⁴See [A Leap Into the Future of Payments: Papaya Global Acquires Innovative Money Transfer Company Azimo](#) (accessed on May 11, 2022) and [Papaya Global to buy Azimo for \\$150M-\\$200M to expand its payroll payments to more markets](#) (TechCrunch, 2021). See also the consolidation story behind Finabl in Annex I.

⁹⁵See [Money Transfer Startup Azimo Raises \\$20M At A \\$100M Valuation](#) (TechCrunch, 2015).

⁹⁶See, for example, [How Western Union Became a Global Digital Front-Runner for Cross-Border Payments](#) (Western Union, 2021) and [MoneyGram's Digital Platform Expansion to Augment Growth](#) (Yahoo News, 2018)

remitting purposes. And, because all the advantages that come with greater digitalization, remtechs might also foster greater financial inclusion.

VII. Conclusions

The enthusiasm about the effects of fintech on the remittances market is ubiquitous and permeates major news outlets, financial analysts, technology experts, and economists, who have helped to build the narrative that the remittances market was on the verge of being disrupted. At first sight the hype is understandable, as there is no better setting for fintech to showcase their allegedly disruptive potential than the remittances market. According to the BIS (2018) cross-border retail payments "... are typically perceived as being slower, costlier and more opaque than domestic payments." Indeed, the cost of sending remittances can reach levels as high as 20 percent, while traditional RSP are known by their lack of transparency and often misleading pricing policies. In addition, they are often considered technologically outdated.

This paper looked beyond the hype and dug deeper for evidence that could back, or curb, that enthusiasm. Upon closer scrutiny, it found paucity of fires among the overly optimistic fintech disruptive smoke narrative. It showed that there is a large gap between the allegedly and expected effects of fintech and the reality on the ground. During that process, it unveiled a few enlightening ironies.

Surprisingly, two reasons behind that disconnect seem to be the lack of a clear understanding of the context in which the remittances market operates and of the limitations and constraints underlying fintech in practice. In both cases, there was a failure to duly acknowledge an undisputable fact: in an increasingly digital world, for many, cash is still king. However, rather than reflecting "liquidity preference" this situation is the consequence of rampant economic and social inequality. More specifically, it is mostly driven by the lack of financial inclusion. This, by itself, is a structural factor that impedes digital disruption.

Initially, the paper unveiled two key pieces of evidence that are inconsistent with the disruption narrative: first, the decrease in remittance costs has slowed down markedly since 2015, precisely when the presence of remtechs in remittance corridors started to surge. Second, the bank-MTO cost gap has remained largely unchanged during the 2015–2020 period. Given that banks are usually more expensive than MTO, one would have expected this gap to start shrinking were banks really feeling the disruptive heat.

Next, to understand the reasons for the absence of disruptive evidence the paper analyzed three different materializations of fintech: bitcoin, mobile money and remtechs. All of them, to a lesser or greater extent, have been touted as a game changer for the remittances market. The most formidable predictions about fintech's disruptive effects have undoubtedly been those related to the bitcoin and its technological backbone, the blockchain. As a result, they are the ones that have failed most spectacularly. The bitcoin/blockchain narrative overlooked important aspects not only of the remittances market but, most surprisingly, of the bitcoin technology and ecosystem.

For example, it did not account for all bitcoin transaction costs. It ignored, for example, the fact that most remittances are sent and received in cash. That would imply extra transaction costs in addition to the regular bitcoin network fee (and third-party fees), which not only has proven to be volatile but often becomes prohibitive due to blockchain congestion. Hence, bitcoin is not a good currency vehicle for remittances. In addition, even if total transaction costs were competitive, bitcoin remittances would not be a feasible option as there is a huge scarcity of bitcoin ATM, mainly in poor countries. Finally, even if financial inclusion were not an issue, bitcoin transactions lack convenience as they are complex and involve nontrivial risks.

Therefore, it is not surprising that the use of bitcoin remittances is virtually non-existent. Even so, the disruptive bitcoin/blockchain narrative has recently gained momentum when El Salvador decided to make bitcoin legal tender, a decision that was largely motivated by an attempt to reduce remittances costs. That was unexpected,

because in addition to bitcoin remittances not being economically viable, El Salvador has one of the lowest remittances costs in the world.

In its turn, mobile money is an ingenious innovation that plays an important role in many countries as an instrument for financial inclusion. However, lesser known is the fact that its success in Kenya was largely due to a happenstance of factors, which explains why M-Pesa success has proven difficult to be replicated elsewhere. Ironically, one of the key factors behind M-Pesa's success was the large physical footprint of agents, which is a recurrent criticism of the deemed outdated business model of banks and MTO. In other words, the success of digitalization through mobile money chiefly depends on its large non-digital footprint. Indeed, mobile money success crucially hinges on its ability to be easily convertible back and forth into cash. In part because of that, it has failed to get traction in many countries. In addition, even in those countries where mobile money is popular, its use for international remittances is marginal. That highlights major infrastructure and interoperability challenges that mobile money faces.

Next, the paper pointed out that while bitcoin/blockchain and mobile money are genuine financial innovations this is not the case of remittance fintechs, which are largely about adopting a different business model. That realization also helped to uncover additional enlightening ironies. First, remtechs' digital business model is both a strength and a hindrance. While it enables a smaller footprint and more convenience, it also prevents them to disrupt the remittances market, notwithstanding the ubiquitous narrative otherwise. That is because, as pointed out above, most remittances involve cash, especially those to developing countries. Second, in their quest to gain scale and become relevant players, remtechs needed to adjust their original business model to increase their geographical reach and broaden the menu of services they offer (e.g., cash pick-up). To accomplish that they have, ironically, increasingly partnered with banks and MTO, precisely those companies remtechs have portrayed as outdated and which they were bound to disrupt. In other words, to be able to grow remtechs not only needed the large footprint of the incumbents, but also their payments infrastructure. As a result, instead of disrupting traditional RSP, remtechs have become increasingly entangled with them.

Against the above backdrop, it becomes easier to understand why, despite all the disruptive narrative, remtechs have shown, since their inception, a clear preference for entering richer and larger corridors, precisely where there is less need for disruption, but where their business model is more tailored to. The reluctance, or perhaps even impossibility, to enter the poorest and costliest corridors, is clear evidence that there is a large distance between the frictionless disruptive narrative and the bumpy reality on the ground.

In fact, those narratives assume away a myriad of frictions fintech face in practice, be low financial inclusion, technological constraints, inadequate infrastructure, network effects or else. And, most importantly, there is no easy solution to overcome them, as most are deeply structural and government policies have limited room to change that in a shorter time span. That means it is extremely unlikely that fintech will disrupt the remittances market in the foreseeable future.

Nonetheless, as also pointed out, while the evidence does not support narratives that fintech is disrupting the remittance market, which is this paper's main focus, that does not mean that fintechs are not playing an important role in driving remittance costs down. Indeed, the evidence shows that mobile money remittances are usually cheaper and that, on average, remtechs charge less than incumbents, which is in part explained by the type of service they provide. Therefore, they play an important role in fostering competition. Indeed, the evidence also shows that there is a clear negative correlation between average remittance costs and the number of MTO and even more so the ratio of the number of MTO to banks. In addition, remtechs' (predominantly) digital business model has pushed traditional RSP to improve the quality and convenience of their services, including by greater digitalization. And, even if costs have been declining slowly, digital remittances also decrease or eliminate the non-pecuniary costs of remittances (e.g., time spent to send and collect money) as well as costs that are not captured by traditional statistics (e.g., transportation costs to bank agencies and MTO's agents).

Finally, while this paper has analyzed the impact of fintech on the remittances market its findings have broader implications. Indeed, there are at least two reasons why they are particularly meaningful. First, although every context is different, it is hard to imagine a better setting to test fintech's disruptive power, which means fintech's disruptive effects are unlikely to be found elsewhere. Second, the paper shows that the disruptive narratives are usually simplistic as they usually overlook key elements from fintechs' technological ecosystem and the context in which they operate. That shows the need for deeper and more realistic analysis, both on economic and technological grounds, when assessing the effects of fintech on the financial system.

Therefore, policymakers should be skeptical about policy advice or strategies in which fintech is portrayed as an easy solution to deep rooted problems, such as expensive financial services and low financial inclusion. In fact, one might argue that insofar as they divert attention from less appealing, but more challenging and fundamental policy issues, such narratives could be counterproductive.

Indeed, while some policy advice seem unambiguous, such as providing a level playing field not only for fintech, but also for smaller MTO, given the dissemination of anticompetitive practices in the remittances market (e.g., exclusivity clauses), and adopting proportionate and risk-based regulation, others are not as clear-cut.⁹⁷ For example, although the lack of interoperability has played a role in limiting the diffusion of mobile money remittances, best practices on regulation are still evolving. In fact, while there is convincing evidence that the so-called bank-led regulatory model has hindered the diffusion mobile money, regulation to increase interoperability needs to strike the right balance between fostering innovation and fostering competition, in a context in which establishing the needed infrastructure is expensive and profitability is challenging (Aron and Muellbauer, 2019). In any case, policymakers have an important role to play not only in building or upgrading existing financial infrastructures, but also by setting rules and laying down regulations that are conducive to infrastructure sharing and compatibility. They could also foster innovation by preventing regulatory capture and be more open to experimentation.

⁹⁷See Section 8 in da Silva Filho (2021) for a host of suggested measures aimed at decreasing remittances costs.

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Appendix 1. A Short History of Remittance Fintechs⁹⁸

The history of fintechs venturing into the remittances market can be traced back to 2001, when **Xoom** was created in the US, with the purpose of disrupting the remittances market. However, it was not until 2007 that its business model finally converged to a digital-only model.⁹⁹ In November 2015, Xoom was acquired by PayPal, another pioneer of the online payment space. Currently, Xoom sends money to almost 160 countries.

In 2010, motivated by his frustration with how time consuming and costly sending remittances to his family was, a Somali refugee studying in London co-founded **WorldRemit** "...to bring an offline industry to an online future."¹⁰⁰ At the time, one of the distinct features of the company was the possibility of sending money directly to mobile wallets, which is now relatively common.¹⁰¹ In addition, differently from others, since early on WorldRemit focused on Africa.¹⁰² Currently, WorldRemit says it can send money from over 50 countries to more than 130 countries.¹⁰³

In 2011, Beamit (now **Remitly**) was founded in the US.¹⁰⁴ Among its early investors one finds former Amazon and Google CEOs, Eric Schmidt and Jeff Bezos.¹⁰⁵ Initially, Remitly worked only in the US–Philippines corridor. It took until 2015 for it to add two additional corridors: US–India and US–Mexico. And, it was not until 2016 that Remitly started adding non-US outbound corridors and smaller corridors. Only from 2017 on it started expanding more aggressively and became a global fintech company. Currently, Remitly says it supports transfers from 21 sending countries to more than 100 receiving countries.¹⁰⁶

The year of 2012 would become an important chapter in the remittances fintech history. That year witnessed not only the creation of a few remittance fintechs, but the foundation of the most successful remtech to date, **Wise** (formerly Transferwise), in the UK.¹⁰⁷ It arrived attracting a lot of attention with bold promises of sharply reducing remittances costs. To achieve that it argued it would adopt a different business model: on top of being a digital-only company, it would use a "peer-to-peer" approach, matching inflows and outflows from both ends of a corridor. In that way, it could provide remittances while minimizing cross-border flows, which would allow much lower fees. It would also allow Wise to virtually eliminate the FX margin, another promise the company made. However, it did not prove to be a sustainable model due to lopsided flows.¹⁰⁸ Even so, Wise is the most successful fintech in the remittances space. It has recently opened its capital with a valuation close to £9 billion,

⁹⁸Note that a company's founding date sometimes sharply differs from the date when it has become fully operational.

⁹⁹See [Xoom Money Transfer: The Disruptor That Wasn't](#) (SaveOnSend, accessed on March 10, 2022).

¹⁰⁰See [The man changing the world of remittances](#) (BBC News, 2014). See also [Our Story](#) (accessed on March 10, 2022).

¹⁰¹See ['I became a whistleblower and lost my job': the remarkable story of WorldRemit founder Ismail Ahmed](#) (Wired, 2019).

¹⁰²See [Send money to Africa](#) (accessed on April 27, 2022) for the current African countries WorldRemit currently remits to.

¹⁰³See [Send. Send. Send.](#) (accessed on May 13, 2022).

¹⁰⁴Its service was officially launched in August 2012. See [Beamit is Now Remitly](#) (Businesswire, 2012).

¹⁰⁵See [Beamit changes name to Remitly](#) (Geekwire, 2012).

¹⁰⁶See [Which countries does Remitly support?](#) (accessed on May 13, 2022).

¹⁰⁷On a curious note, Wise was co-founded by Skype's first employee.

¹⁰⁸See [After a blockbuster debut, investors should be wary of Wise guys](#) (Financial Times, 2021).

which made one of its owners the richest man in Estonia. Currently, Wise says it can send money to 80 countries.¹⁰⁹

Azimo, another well-known fintech company, was also founded in 2012, in the UK. It remains an eurocentric remtech, with only 3 out of the 28 sending countries being outside Europe.¹¹⁰ Azimo says it can send remittances to more than 200 countries and territories.¹¹¹ It has just been acquired by Papaya Global, a firm that provides a cloud-based HR and payroll platform for global workforce management.

Yet, another fintech founded in 2012 was **TransferGo**, aiming to “... completely shake up the international money transfer industry.”¹¹² It is also an eurocentric remtech, as all sending countries are located in Europe. Currently, TransferGo claims it can send money to 161 countries.¹¹³

Due to their young age and still incipient size, remittance fintechs that have been founded in recent years, are not the focus of this paper. Nevertheless, it is worthwhile mentioning the case of **Finabl**, self-described as “a global platform for Payments and Foreign Exchange solutions underpinned by modern and proprietary technology”, which was founded in 2018 and soon became one of the largest RSPs as it owned several subsidiaries such as UAE Exchange, Remit2India, Unimoni, Xpress Money and BayanPay.¹¹⁴ Not all of them were fintechs. For example, UAE exchange was founded in 1980, while Remit2India was created in 2001 and label itself “a pioneer in online remittances”. However, in May 2020 Remit2India interrupted its services, a decision that was probably linked to the financial and legal difficulties experienced by Finabl.¹¹⁵ Indeed, Finabl was bought in August 2021 for one dollar and re-branded as **Wizz Financial**.¹¹⁶ Still, it is worth pointing out that for a company that considered itself a pioneer of online remittances Remit2India never offered but a very limited range of services. Indeed, it only operated in four corridors, all of them having one destination: India.

¹⁰⁹See [Send money to 80 countries](#) (accessed on May 13, 2022).

¹¹⁰See [Which countries can I send from?](#) (accessed on May 13, 2022).

¹¹¹See [Send money to 200+ countries and territories](#) (accessed on May 13, 2022).

¹¹²See [Necessity: The Mother of Invention](#) (accessed on May 13, 2022).

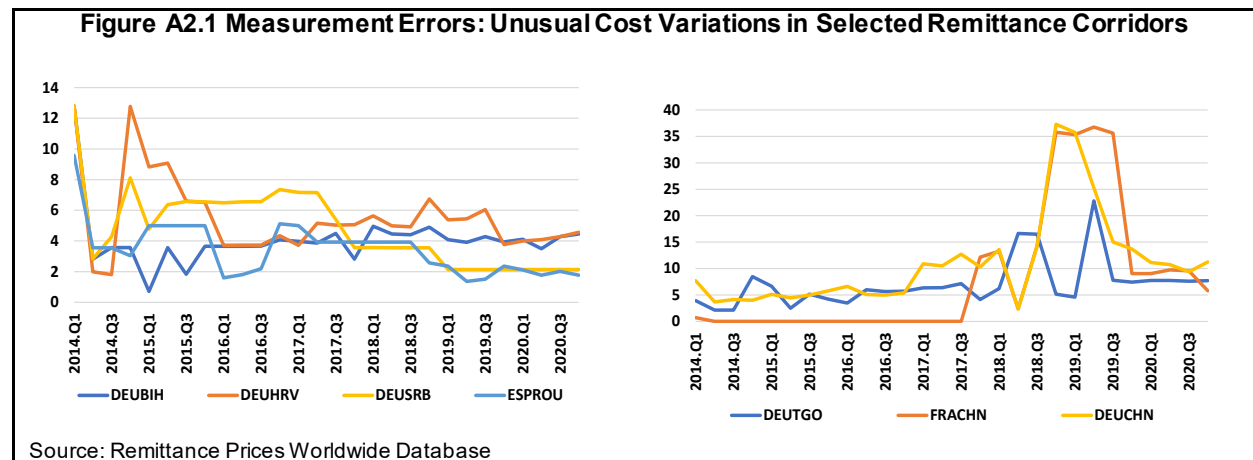
¹¹³See [Where can you send money with TransferGo?](#) (accessed on May 13, 2022). However, curiously, it lists 65 countries on its webpage. See [Send money to these countries](#) (accessed on May 13, 2022).

¹¹⁴See [Future. Enabled.](#) (accessed on May 13, 2022).

¹¹⁵See [Find alternatives for your next transfer to India with Monito](#) (accessed on October 12, 2021). Remit2India used to remit from Australia, Canada, the UK, and the USA. As of 13 May 2022, the website remained nonoperational for transactions originating from Australia, Canada and the USA.

¹¹⁶See [A new beginning for UAE-based payments company Finabl](#) (Wired, 2021) and [Finabl re-branded WizzFinancial, merged into leading payments group](#) (Reuters, 2021).

Appendix 2. An Example of Measurement Error in the RPW Database



¹¹⁷Cells with zeroes indicate quarters in which remtechs were surveyed in the indicated corridor.

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