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# ELASTIC INFRASTRUCTURE: A HISTORICAL PERSPECTIVE ON CREDIT IN GLOBAL CORRESPONDENT BANKING AND THE CROSS-BORDER PAYMENTS SYSTEM

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## Foreword

The *GloCoBank 1870–2000 Working Papers* series reflects the work in progress of the researchers associated with the ERC Horizon 2020 funded project Global Correspondent Banking 1870–2000 (GloCoBank) and of others whose papers directly address GloCoBank research themes. The papers are peer reviewed by GloCoBank and associated researchers and seek to identify and analyse the international network of correspondent banking relationships across the 20th century.

The views expressed in this working paper, and all errors and omissions, should be regarded as those solely of the authors and are not necessarily the views of the affiliated institutions.

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## Abstract

Financial technology (fintech) innovations have the potential to disrupt traditional banking by unbundling banking, money, and payments. However, the impact on the cross-border payments system—which still relies on correspondent banking networks—remains uncertain. This uncertainty partly stems from a historical focus in the literature on cash clearing over credit. Challenging this distinction, this article explores the role of credit in correspondent banking and international payments. A *longue durée* perspective on cashless payments reveals the deep-rooted importance of credit in the cross-border payment system and highlights correspondent banks' role in providing it. Changes in bank-intermediated trade finance practices during and after World War I reshaped the London-based correspondent banking network. Furthermore, cash clearing and credit operations remained remarkably congruent until at least the 1980s, as reflected in banks' internal organisation, reporting, and bankers' own descriptions of the payment system. This article argues that adopting a definition of payment system infrastructure that integrates both dimensions is essential to understanding how correspondent banking has facilitated international liquidity provision. It also suggests that relying on fintech firms, rather than banks, to provide this elastic payment infrastructure could amount to jumping out of the frying pan and into the fire.

## Keywords

Correspondent banking, payment systems, infrastructure, banking history

## Introduction

In recent years, interest in payment systems has exploded. Silicon Valley investors, journalists, economists, and central bankers have spilled much ink about digital currencies and blockchain-based payment technologies. Some have praised these innovations and highlighted how "narrow banking" could challenge the privileges traditional banks enjoy thanks to the "bundling" of banking, money, and payments. Unbundling these theoretically distinct systems, they claim, would decrease the need for banking regulation and increase competition, innovation, financial inclusion, and banking and financial system stability while eliminating the too-big-to-fail problem that arises when the payment system is underpinned by systemically important banks (Awrey 2021, Williamson 2024).

In parallel, however, specialised financial technology firms and Big Tech have increasingly leveraged their vast data troves to move from payments into unsecured, cashflow-based short-term loans to underbanked consumers and the businesses reliant on their platforms (Boissay et al 2021, Frost et al 2019, Parigi et al 2022, Gambacorta et al 2023, Liu et al 2022). These developments pose new challenges for macro-prudential regulation and monetary policy transmission and might reinforce tech firms' monopolising tendencies (Huang et al 2023, de la Mano and Padilla 2018, He et al 2023, Stulz 2022). Crucially, they also suggest that the theoretical case for separating payments and credit is not as clear cut as some would have it.

Although debates about payment system innovation and the role of tech therein have largely focused on retail payments on the national level, similar discussions about wholesale and cross-border payments are also underway. Regulators have expressed frustration about the high cost and lengthy time periods required to process cross-border bank transfers despite the "bewildering speed" of technological innovation in the payments space (Cunliffe 2020). Improving the plumbing of the cross-border payment system (CBPS), they believe, would have benefits both for migrant remittances and cross-border retail shipments, as well as for financial institutions eager to capitalise on the reduced settlement risk and liquidity cost resulting from increased payment system efficiency at the wholesale level (Humphrey 2019; Cleland 2023). This has led to ongoing talks about the potential of creating interoperable central bank digital currencies and fast payment systems and how these challenge traditional financial institutions (Cornelli et al 2024, CPMI 2021). However, the fact is that cross-border

payment services—including those provided by tech firms—still rely almost entirely on global correspondent banking, the established private interbank networks that have facilitated cross-border payments for centuries.[1]

Talk of CBPS reforms in recent years has shed increased light on correspondent banking. Interest in correspondent banking is particularly high among regulators and policymakers eager to understand the 20% drop in cross-border banking relationships in the last decade and its impact on the price of cross-border payments, financial inclusion and the integrity of the global financial system (Rice et al 2020, Grolleman and Jutrsa 2017). However IPE specialists have also described how global correspondent banks—the exclusive "oligopoly of private companies" underpinning the CBPS—have leveraged the state to establish and preserve their central position in the CBPS and use their resulting power "to shape financial markets to their own advantage" (Brandl and Dieterich 2021, Petry 2021, Westermeier 2020). In this regard, global correspondent banking emerges as a good example of an "infrastructural entanglement" (Braun and Gabor 2020) which is difficult for tech to replace since it constitutes a "socio-technical system" that "combine[s] human and non-human elements" (Brandl and Dieterich 2021, p. 18, based on Bernards and Campbell-Verduyn 2019).

To fully appreciate the contemporary role of correspondent banks in the CBPS—and the potential for fintech to replace them—it makes sense to explore its history, yet historians have paid remarkably little attention to correspondent banking and its evolving role in payment systems (Schenk 2024). Notwithstanding the business history and management studies literature on the theory of bank internationalisation, this has focused almost exclusively on cross-border branching (Baster 1929, 1935, Jones 1990, Casson 1990, Cameron and Bovykin 1991, Jones 1995). The rare scholars who *have* integrated correspondent banking into their work have mostly focused on explaining the co-existence of correspondent and multinational internationalisation models using a neo-institutionalist framework. While agency-based correspondent relationships constituted a rational choice for banks mainly involved in the "transaction" services needed to settle debts, branching made sense for banks developing "intermediation" services linking borrowers and lenders and performing maturity,

[1] The Bank of International Settlements defines correspondent banking it as "an arrangement under which one bank (correspondent) holds deposits owned by other banks (respondents) and provides payment and other services to those respondent banks" (BIS Glossary; quoted in CPMI 2016, 9). Banks refer to their account with a correspondent as a "nostro" account while the account they hold for that correspondent is a "vostro" account.

liquidity and risk transformation (Merrett 1995, Panza and Merrett 2019). Historical studies by financial historians have argued that correspondent banking underpinned macro-historical processes like globalisation and financialisation (Battilossi 2006, Mollan 2012, Mollan and Michie 2012), while others emphasise the role of correspondent bank networks—both national and international—in banking crisis transmission (Richardson 2006, 2007a, Schenk 2014, Das et al 2018, Calomiris et al 2019, Mitchener and Richardson 2019). The most recent contributions document how information and communications technology innovations since the 1960s have sought to eliminate bottlenecks in the payment system infrastructure caused by the sheer volume of cross-border payments in the context of growing international trade (Schenk 2021, 2023, 2024).

Notwithstanding the invaluable contributions they make, a reading of the recent literature leads to a striking observation: it is characterised by an important conceptual divide regarding the question of how to define what a payment system is, which has important implications for how we understand correspondent banks' role therein. On the one hand are scholars who focus exclusively on the clearing and settlement (or, in contemporary industry parlance, "cash clearing") dimension of payments and the institutions that underpin them.[2] On the other hand are those who explicitly recognise credit as an important aspect of correspondent banking and the payment services they provide. Puzzlingly, however, even scholars who adopt a broader conceptualisation of payment system institutions have not made credit their main analytical focus.

At first sight, there are good reasons for historians of correspondent banking to focus exclusively on cash clearing. For one, it brings analytical clarity to their work, not least because it avoids prickly questions about what money is. For another, operationalising narrow contemporary definitions of payments and payment systems makes sense if the aim is to

[2] Clearing is "the process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including the netting of instructions and the establishment of final positions for settlement". Settlement, meanwhile, is the "act that discharges obligations in respect of funds or securities transfers between two or more parties" (Rambure and Nacamuli 2008, pp. 218, 226). In this literature, credit only really appears in the form of intraday credit, which wholesale payment system providers give counterparties to satisfy their temporary liquidity needs as payments are settled throughout the day (in gross settlement systems) or until they are cleared at day's end (in net settlement systems) (see Zhou 2000).

provide historical insights into current debates about CBPS reform.[3] Nevertheless, there are good theoretical reasons for them to consider credit, too. The odd mainstream economist has criticised the absence of a "unifying analysis" capable of allowing us "to fully understand the payment system, including the evolution and structure of its constituent institutions" and signalled that to overcome this limit "it is necessary to appreciate both [the payment system's] monetary and financial aspects" (Goodfriend 1990, pp. 247–48). However, by taking the endogeneity of money as their starting point, heterodox economics probably offer the most sophisticated argument about why credit is essential to our understanding of the payment system.

Indeed, monetary theories in the Minskyan tradition and critical macro-finance conceptualise the economy as a set of interlocking balance sheets and economic actors—including financial, non-financial, government institutions and even households—as cash-inflow and cash-outflow entities. These entities must constantly mediate the tension between the disciplining effect of the "settlement" (or "survival") constraint and the elasticity provided by agents possessing either means of payment or the ability to create them (Mehrling 2013, 2015, 2017, 2018, 2022, Dutta et al 2020). These approaches consider banking and finance as constituent parts of a coherent system at the heart of which lies the interbank call money market where "the clearing and settlement of cash flows and cash commitments" are carried out (Mehrling 2000, pp. 82). By providing a mechanism to convert assets into high-powered money, the lender of last resort constitutes the ultimate source of elasticity in modern payment systems. However most of the time elasticity is provided by financial institutions endowed with the ability to create private credit money at par through "the alchemy of banking"; in fact, in hybrid public-private monetary systems it is from this ability that private financial actors derive their power (Mehrling 2018). This may be true at the domestic level, but others claim that payments and finance are intertwined on the international level, too. Theories of the international monetary system inspired by Charles Kindleberger's "key currency" approach to

[3] Manning et al (2009) state that at its most basic level, a payment is "a transfer of value between agents" while "any *organised* arrangement for transferring value between parties is a payment *system*" (3). Rambure and Nacamuli (2008), meanwhile, define a payment *system* as "a set of instruments, banking procedures and, typically, interbank funds transfer systems that ensure the circulation of money". It requires (a) a payment instrument (e.g. cash, cheque, electronic fund transfer, etc.); (b) a set of rules governing the "procedures, practices and standards" shared by payment service providers; (c) a transfer mechanism; and (d) "a legal framework to guarantee irrevocable and unconditional finality, that is the discharge of the obligation between debtor and creditor" (4).

studying the international monetary system (e.g. Mehrling 2022a, 2023) conceive of it as "a world-spanning payment system that is inherently hierarchical because it needs central nodes for clearing and settlement" (Murau et al 2022, p. 1). Because most cross-border transactions are done in private international money, banks on the periphery rely on connections with global banks to link into the CBPS. This is especially true in times of crisis, as Murau et al explain:

> In any payment system, hierarchically higher institutions act as lenders of last resort to lower-ranking institutions to compensate for missing cash inflows in order to prevent a default contagion…. Peripheral banks may face a situation when some of their cash inflow commitments in key currency default and their customers insist on having their key currency deposits redeemed on demand. They could try to obtain emergency liquidity in key currency from banks located in the key currency jurisdiction which act as lenders of first resort (Murau et al 2022, p. 7).

Notwithstanding these theoretical insights, they lack a clear empirical foundation in history. This paper contributes to building that foundation by asking whether paying more attention to credit might be a fruitful strategy to enrich our understanding of the history of correspondent banking and its relationship to the CBPS. In line with efforts to explore the macro-micro connection in finance (Bernards and Campbell-Verduyn 2019), it adopts an expansive definition of payments infrastructure that considers credit as something that gives narrowly-defined material infrastructures (e.g. the nostro/vostro accounts banks hold with one another) their "structural power" and the ability to "shape the choices available to participants" (Petry 2021, Bridges 2023, p. 108). Drawing inspiration from Mehrling's work and the term's use by contemporaries, the concept of elasticity is used here to refer to the payment system's ability to satisfy actors' need for a flexible means of payment despite the rarity of high-powered money. In this regard, it should not be construed with the orthodox definition of elasticity found in most economics textbooks. Building on the assumption that to understand correspondent banking and the payment system in specific historical and geographical contexts requires an examination of how contemporaries themselves conceptualised them, the secondary literature and qualitative archival data are analysed with a view to identifying how credit appears in the practice of correspondent banking and in practitioners' conceptualisation of the CBPS itself.

The first part of this article draws on secondary literature to provide a long-term historical perspective on the role of credit in payment systems and correspondent banking. Section 1

reviews the history of cashless payment systems, identifying deposit banking and bills of exchange as bank- and market-based institutions developed to manage payment system elasticity. Section 2 examines correspondent bank networks in England and the United States, arguing that by extending credit to facilitate cash clearing and correct seasonal imbalances, domestic correspondent networks helped ensure payment system elasticity—insights potentially relevant for understanding global correspondent banking networks in the CBPS. The second part explores how credit shaped cross-border interbank networks and correspondent banking in the 20th century, drawing on secondary sources and archival material from European commercial, merchant, and central banks, up to recent payment system reforms. Section 3 suggests that shifts in correspondent bank-mediated trade finance procedures around World War I likely influenced the dynamics of the London-based correspondent bank network. Section 4 presents evidence of the central role credit played in building and sustaining correspondent banking relationships, and of the continued alignment of cash clearing and credit in correspondent banking well into the late 20th century. The article confirms the value of integrating credit into analyses of correspondent banking to better understand the evolving nature of the business and the historical development of correspondent bank networks. Only by viewing the payment system as an elastic infrastructure can we fully grasp the stakes of payment system innovation and the promise and peril of tech firms potentially supplanting correspondent banks as the institutional foundation of the CBPS.

## I: Payment System Elasticity in Historical Perspective

Despite numerous documented examples from Antiquity, banking and cashless payments virtually disappeared in Europe during the Middle Ages. Historians debate why this was but there is a broad consensus that continental banking was "reborn" in Italy and was "exported" to other parts of Europe during the 12th and 13th centuries (Geva 2011, p. 354) and constituted an important feature of the "commercial revolution" (Lopez 1971). By reducing the need to produce, transport and evaluate the quality of specie, the cashless payment system greatly increased the monetary system's flexibility and ability to support the economy, but to work efficiently it required a reduction in the net volume of final settlements. This was achieved by enabling debtors to discharge payment obligations through the assignment of third-party debt (Kohn 2020). The assignment of debt may be straightforward in local communities where

actors know and trust each other, but to have a meaningful impact on economic activity the debts of unknown but creditworthy parties such as banks had to be assignable, too.

In Medieval Europe, the assignment of third-party debt relied on two main institutional models: transfers on the books of deposit banks and bills of exchange. In 12th century Genoa, moneychangers began accepting coins for safekeeping which they converted into deposits in the form of book entries which could then be assigned to other merchants in settlement in a practice known as "assignment in bank" (Bogaert 1966, Geva 2011, p. 534, De Roover 1974, p. 216). By promising to convert deposits into coin on demand, bankers ensured the par value of their book entries. However this system had a limit: there was no mechanism allowing inter-city book transfers in the Middle Ages so the benefits were limited to the local level (Geva 2011). The bill of exchange, meanwhile, was an order issued by a merchant in one city (the drawer) ordering a merchant in another city (the drawee, acceptor, or payer) to make a payment on his behalf (Nogues-Marco 2020). It effectively enabled the transfer of purchasing power across space without transporting specie. Drawers and payers kept accounts with one another so that only net balances were periodically settled (De Roover 1953, Einzig 1962, Neal 1990, Jobst and Nogues-Marco 2013). This instrument almost always involved a currency conversion, allowing bankers to include a hidden interest rate and bypass usury laws (Geva 2011).

Book transfers and bills of exchange both provided the payment system with elasticity. Because deposits backed by coins and deposits created out of thin air were indistinguishable, banks could provide merchants unable to settle debts on time with liquidity in the form of an account overdraft. Kohn explains how banks at the Champagne fairs provided payment elasticity to merchants. Early in the year, Italian merchants purchased textiles from Flemish merchants and paid for them by transferring balances on the fair bank's books to the Flemish seller who in turn used them to pay for spices sold by Italian merchants later in the year (these payments were considered as final because the bank guaranteed their conversion into coin). However, the Italian merchants' initial balances were not necessarily obtained by depositing coins; they could also result from the Italians overdrawing their accounts. Furthermore, if a merchant had a negative balance on his account on the day of settlement, he could borrow deposits from another merchant and pay him back at the next fair. This active market in inter-fair deposits provided merchants with a "liquidity facility" allowing them to meet payment

obligations using credit while deferring final settlement to a later point in the annual commodity trade cycle (Kohn 2020, p. 229). Overdraft lending of this ilk constituted the "natural extension of the bank's function as a payments intermediary" (Kohn 2020, p. 228). According to some, this fundamental synergy between payments and liquidity provision suggests to some that payment services, rather than intermediation between savers and borrowers, explain the origins of banking (McAndrews and Roberds 1999, Kohn 2001).

The other source of payment system elasticity was the bill of exchange. The European bill of exchange system was structured by a network of liquid and competitive bill markets emerged (Boyer-Xambeu et al 1994). These early money markets were themselves a source of payment system elasticity. Following the decline of the Champagne, Venice, Geneva and Lyons fairs, Genoese bankers established alternative exchange markets in Besançon and then Piacenza during the 16th century "for the sole purpose of clearing bills of exchange" (it was these centres that became the "keystone of the 'Genoese system' of finance and remittance") (Kohn 2020, p. 234). These "inside markets" involved a close-knit group of merchant-bankers willing to accept each other's debts in payment. The following quote illustrates these markets' dual clearing and elasticity-providing features:

> Participating merchant bankers compared their "market books," in which each had listed his bills payable and receivable. Pairs of bankers netted bilaterally payments due to each other. Any remaining imbalance was covered either by assigning debts due from third parties, which might be netted later in the process, or by drawing new bills. These bills might be payable at the next fair or at another banking place. Instead of relying on deposit bank overdraft for liquidity, participants accommodated each other through "overdraft" on their own market books. Instead of relying on interfair deposits to balance credits and debits over time…a merchant temporarily lacking the funds to honour a bill presented for payment could—if his credit was good—become the taker on another bill, thereby acquiring the funds he needed to meet his obligation on time (Kohn 2020, pp. 232, 234).

Although deposit banking and the bill of exchange system provided the payment system with flexibility, for a long time they struggled to do this in an efficient and reliable manner. In the words of De Roover: "the lack of liquidity and elasticity constituted a serious defect of the medieval banking system" (1946, p. 116). Due to the expansion of their lending activities, banks' demand deposit liabilities often exceeded their coin reserves, exposing them to liquidity and insolvency risks. These risks were exacerbated by the small size of banks, political instability, and the lack of safe and liquid assets in which to invest. In the second half of the

15th century, a "bullion famine" further worsened banks' liquidity position and a wave of bank failures ensued in Venice, Florence and Bruges. As the value of bank money declined in relation to coins and public authorities' hostility to these institutions grew, deposit banking underwent a decline (Kohn 2020, pp. 232–33, Geva 2011). A solution to this problem soon emerged in the form of a new type of public exchange bank in the late 16th century—of which Venice's Rialto Bank and the Bank of Amsterdam (or "Wisselbank") were prime examples—whose purpose was "to insulate their host cities' commercial payments systems from the vagaries of fractional reserve banking" and thereby guarantee deposit liquidity (Quinn and Roberds 2005, p. 1). These banks accepted demand deposits and conducted book transfers, but because they sought to separate payments and credit they paid no interest on deposits, did not issue bank notes, did not deal in bills of exchange, and were banned from providing overdraft facilities (De Roover 1974). Yet, despite these experiments in narrow banking, demand for payment system elasticity did not disappear. The Rialto bank's subsequent decision to ignore the ban on overdraft lending "no doubt improved the efficiency of the payments system" (Kohn 2020, p. 237). Within a matter of years, private bankers in Amsterdam, willing to make and receive payments on behalf of merchants and to provide them with loans appeared, and came to monopolise the provision of international trade finance (Van der Wee and Kurgan-Van Hentenryk 2000). And when the Wisselbank again began providing unbacked deposits in 1683, it led to "a surge in deposits into the Bank and an increased turnover of bank money" (Quinn and Roberds 2014, pp. 1–2). By making loans in excess of deposit liabilities, public exchange banks like the Wisselbank and the Bank of Sweden "laid down foundations to what subsequently developed in England to herald the modern banking and payment system" (Geva 2011, p. 369, Ferguson 2009).

The 1489 decision by Antwerp authorities to ban banks entirely following a string of failures left merchants with little choice but to use commercial paper to make cashless payments (Kohn 2020). But these instruments were not collateralised, so they relied on knowledge about the creditworthiness of the parties involved (Trivellato 2019). Commercial paper was therefore of little use in impersonal transactions and their resulting illiquidity meant the bill market struggled to replace bank-based elasticity provision. This problem of liquidity was eventually overcome thanks to two major legal reforms introduced in the Low Countries in the 1500s and generalised across Europe in the following century (Kohn 2020). The first

reform consisted in the recognition of the transferability principle by an Antwerp civil court decision in 1507 which made it possible for third party holders of debt to assert their right to payment, but issues relating to risk measurement remained so bill liquidity was still hampered.[4] A second reform introduced by Charles V in 1537 consisted in the legal doctrine of endorsement. By endorsing the third-party bills used to make payments (i.e. by adding their signature to the back of the bill), merchant-bankers became jointly liable for their ultimate settlement; as a result "all parties involved in a bill transaction…were legally responsible *in solidum* for the payment" (Nogues-Marco 2020, p. 255).

Together, these legal changes transformed bills of exchange into fully "negotiable instruments" (De Roover 1953, Geva 2011, Accominotti and Ugolini 2019, Kohn 2020). By separating the parties involved in generating the instruments and the parties who used them as a means of payment, negotiability allowed bills to circulate far beyond the personal networks on which the exchange market had heretofore relied (Santarosa 2015, Nogues-Marco 2020). Bills commonly changed hands twenty times and some bills carried up to one hundred names (Kohn 2020, Van der Wee 1963). And although bills still remained less liquid than a bank deposit convertible into cash on demand (Geva 2011), this shortfall was subsequently eliminated when bill discounting by Antwerp moneychangers was formally legalised in 1540.[5] This mechanism for transforming bills into deposits or currency increased their liquidity, so discounting both "improved the quality of the market" and "increased the acceptability of commercial paper in settlement" (Kohn 2020, p. 236). Together, the changes established bills of exchange as a pure form of "capitalist credit money" under the control of non-state agents (Ingham 2004) and in the centuries that followed, they underpinned the growth and integration of international money markets and constituted the main form of foreign exchange used to settle international payments (Kindleberger 1984, Volckart and Wolf 2006, Flandreau et al 2009, Jobst and Nogues-Marco 2013, Battilossi 2016).

[4] Initially, if Merchant A received an IOU from Merchant B in exchange for commodities, he could theoretically assign it to Merchant C in payment; however, if Merchant B defaulted, Merchant C had no recourse to collect the debt (only Merchant A was formally recognised as a creditor). After the 1507 transferability reform, Merchant C could legally enforce Merchant B's settlement of the debt. However, because Merchant C likely did not have direct dealings with Merchant B in the same way that Merchant A did, it was difficult for him to ascertain the risk involved in accepting Merchant B's debt in payment in the first place.

[5] Discounting refers to the sale of an asset at a slight discount to face value, generating non-interest-based profit for the buyer at maturity.

Over the course of the 18th and 19th centuries, there emerged in England what Benjamin Geva calls "the architecture and institutional framework for the modern payment system". This "English model" of banking and payments improved continental techniques in four ways. First, a new genre on banking institution emerged that combined deposit banking, bill of exchange dealings, and the extended issue of banknotes. Second, a dense correspondent network facilitated the emergence of a "national banking and interbank cheque system" and "facilitated specialisation in information-intensive, non-traded loans" alongside their more liquid investments. Third, interbank payment netting was made more efficient after the foundation of the London Clearing House in 1773. Finally, the Bank of England emerged as a facilitator of multilateral settlements (clearing house members settled their net credit positions "in bank") and a provider of a liquidity backstop (Geva 2011, pp. 467–68). As the Bank of England progressively developed its lender of last resort practice and doctrine over the course of the 19th century (Sissoko 2022, Flandreau and Ugolini 2013), it established itself as the ultimate guarantor of the payment system, serving both as a source of liquidity (through the monetisation of private credit money) and discipline (through the centralised management of the ultimate means of settlement, namely Bank of England notes and gold) (Desan 2014).

This "modern payment system" was a boon for economic activity. By expanding the supply of private credit money on a stable basis, English bankers "came to provide a reliable source of liquidity to the economy" (Geva 2011, p. 468). Historians have linked the payment system's ability to provide working capital by mobilising trade receivables through the discounting mechanism to early British industrialisation (Pressnell 1956, Pollard 1964, Hudson 1986). This English model, further complemented by the rise of the London discount market as the main channel of domestic interbank lending, stimulated net inflows of foreign funds for the purpose of settling payments and seeking profitable, liquid investments (Arrighi [1994] 2010, Pollard 1985). This institutional configuration's provision of global payment system elasticity underpinned the City's dual status as the "clearing house of the world" and the "centre of world liquidity" (Baster 1937, Michie 2005, Flandreau and Ugolini 2013), making it *primer inter pares* in both monetary and financial terms during the "first globalisation" and supporting the expansion of global trade and investment during that period.

Cashless payment systems support economic activity by providing the payment system with

elasticity. Both deposit banking and bills of exchange—as well as the markets in which they were bought and sold—provided this elasticity since the late medieval period even if the institutional means of achieving this elasticity varied across time and space. In the first half of the 19th century, the London based payment system reached an unprecedented level of sophistication. The question remains, however, of the role of correspondent banks and interbank networks in mediating the tension between elasticity and discipline in payment systems.

## II: Correspondents as Providers of Payment System Elasticity

Cashless payments have relied on networks of correspondents since the medieval period even if who those correspondents were, and the nature of their relationships, have changed over time. Banking correspondents settled mutual debts using drafts on bank deposits as far back as the Ptolemaic and Roman periods (Bogaert 1968). Archival records also indicate that by 1200 the Genoese had established interbank arrangements for the purpose of facilitating cashless payments between different banks (Geva 2011). With the exception of some Venetian bankers, however, deposit-taking moneychangers typically did not have foreign correspondents (De Roover 1974). Instead, the problem of making payments over long distances was solved by a second type of institution: the merchant (or exchange) bank. These merchant-bankers had networks of branches and correspondents across Europe (in the 13th and 14th centuries they were mostly Italian, while in the 15th and 16th centuries they were mostly German). They used these networks to remit money to distant cities and in that regard were essential in extending the use of bills of exchange and establishing a Europe-wide, multilateral interbank clearing and settlement system (Geva 2011).

The vast literature on long-distance mercantile networks during the "Age of Commerce" and "merchant capitalism" in the early modern period highlight the centrality of credit and flexible payment conditions in an era when joint stock banks did not yet exist. Mercantile transactions were "systematically financed either wholly or in part through credit, and participants at the time essentially operated like small banks, opening current accounts that carried negative balances and issuing their own quasi-currencies in the form of commercial paper" (Gervais 2012, p. 696). Some merchants subsequently specialised in finance, and in the early 19th century a small but eminent group of London merchant bankers became key players in the financing of international trade (Chapman 1984), but as Geoffrey Jones notes: "multinational

banking on a large scale began with the British banks in the 1830s" (Jones 1993, p. 5). Thus, it was only in subsequent decades, and especially after 1870, that a global network of commercial banks emerged capable of underpinning a truly global payments system through branching, the creation of foreign subsidiaries, or through agent-based correspondent relations (Cameron and Bovykin 1991). But how exactly did they provide elasticity to the CBPS?

The question is unclear given that the limited literature on the history of global correspondent banking networks has not explicitly addressed the question. To gain some possible insights into the role of correspondent bank networks in providing CBPS elasticity, it is therefore helpful to mobilise studies of correspondent banking on the domestic level. The case of England, where the "modern payment system was born", is a good place to start. According to Pressnell's classic work on English banking, the number of banks outside London experienced dramatic growth during the second half of the 18$^{th}$ century (between 1784 and 1793, the number of country banks trebled). Country banks emerged to satisfy industrial firms' growing payment and credit needs and to establish links to London and its money market as the main outlet for liquid resources seeking remuneration. However, due to the growing payment demands of wholesale trade and the state in the context of its growing tax prerogatives, country banks' "leading function was that of remittance" of bills given their importance as a means of domestic payment, and as a result "their most indispensable feature was a regular link with the London market". By linking the country's myriad unit banks together "the correspondent system was the principal device by which the underlying economic unity of the country was given institutional expression" (Pressnell 1956, pp. 7, 75, 79, 105).

The correspondent relationship between country and city banks was a close one. Meetings between the country banker and his correspondent (or "agent"), of which he typically had just one, were regular and the relationship was often formalised by a partnership agreement. London correspondents provided their country respondents with a variety of services but payment operations—including dealings in bank notes and bills of exchange and book transfers to the London agents of other country banks through the London Bankers' Clearing House—constituted the bulk of their day-to-day activity. As Pressnell goes on to explain: "the basis of the account might be a permanent deposit, kept without payment of interest by the

agent in order to remunerate him, and a current account, on which the country banker earned or paid interest when it was in credit or debit respectively" (Pressnell 1956, p. 116). Alternatively (or in addition) correspondents charged respondents a commission for services rendered calculated as a flat rate or a percentage of total turnover.

Crucially, London correspondents constituted a source of liquidity for the country banker in case of money market tension. The latter's London account was the best-managed part of his business "since it formed a banker's first reserve in time of trouble, and was ever likely to receive the impact of a liquidity panic" (Pressnell 1956, p. 116). Because country banks could not open accounts at the Bank of England until 1826, they effectively relied on their correspondents to provide accommodation by rediscounting bills or providing an overdraft credit. Thus, whenever demand for liquidity outstripped supply in industrial areas "country banks in general turned to London, much as London firms turned to the Bank of England, as the lender of last resort" (Pressnell 1956, p. 76). It was in the interest of London banks to ensure country respondents continued to meet their payment obligations and allowed their local customers to do the same, but they had no formal obligation to do so, and when they did not, it had an immediate impact on banking stability:

> At times of crisis, or impending crisis, correspondent and agent were torn between feelings of need and fear of each other. Refusal of a London firm to continue acceptance of country drafts and payment of country notes (to be distinguished from failure, by bankruptcy, to do so), was often the occasion, though not always, the primary cause of banks collapsing (Pressnell 1956, p. 120).

From the 1830s onwards, banking amalgamations and branching brought an end to the unit banking system (Grossman 2010). Scholars disagree about whether the decline in use of bills of exchange as a domestic instrument of payment and credit should be attributed to this changing banking structure or to improvements in transportation and communication (King 1936, Nishimura 1971). But there is little doubt that the rise of joint stock clearing banks with extensive branch networks reduced the importance of the domestic correspondent bank network.

Nowhere has the history of correspondent banking received more attention than in the United States (US), where correspondent bank networks remain a key feature to this day. Due to hostility towards, and subsequently legal limitations on, bank branching since the early 19$^{th}$ century, the US banking system relied on a hierarchical interbank network of unit banks

linking country banks on the periphery to regional banking centres, which in turn were dominated by the nation's main banking centre in New York City.[6] This hierarchical correspondent banking network emerged organically in the first half of the 19th century (James and Weiman 2010). Much like in England, it too provided a means of satisfying merchants' payment needs and of allowing country banks to funnel idle funds to the main money market in New York to earn returns. In contrast, its degree of legal institutionalisation was much greater insofar as in the 1840s and 1850s many states allowed banks to count their New York balances as official reserves. The National Banking Acts of the early 1860s led to a "pyramiding" of reserves. In addition to reserves held in lawful money, country banks thenceforth held a portion of their reserves in the form of deposits at banks in one of 18 designated reserve cities, while those banks held a portion of their reserves as deposits at banks in central reserve cities (i.e. New York, Chicago and St Louis) (James [1978] 2015, Watkins 1929).

Domestic cash clearing relied on correspondent banks. They were essential for the redemption of private banknotes before the Fed was created and obtained a monopoly on note issue. By the end of the 19th century, they were essential in creating markets for domestic exchange and New York funds, and the biggest correspondents in the main money centres "increasingly specialised the clearing and settlement of draft payments" (James and Weiman 2010, p. 241). As key providers of credit correspondent banks also provided both the retail and wholesale payment system with elasticity. As James and Weiman explain, by crediting customer accounts as soon as cheques were deposited or certifying cheques written for amounts greater than the balances on hand, temporary overdraft credit improved the operation of the retail payments system. New York banks reportedly gave respondent banks one month to settle their clearing accounts. The "spatial concentration of reserves" held in New York "economised on the liquidity and information costs of making payments and underwrote backstop credit lines that greased the wheels of the check payments system" (James and Weiman 2010, pp. 238n3, 248-9n20, 240).

In addition to the credit facilities streamlining cash clearing, correspondent banks also

[6] In 1900, there were approximately 12,000 banks in the US (James [1978] 2015, 89). Federal limitations on interstate branching were only fully eliminated by the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 (Medley 1994).

provided more generic forms of interbank lending to respondents. As one expert on postbellum US banking explains:

> One of the principal services of city correspondents was the provision of loans to their country correspondents…. [C]ountry banks knew their city correspondent would take care of them and that was one of the principal reasons why they kept deposits there….The maintenance of correspondent accounts, then, was quite important to country banks, because a bank ordinarily could borrow only from a city bank with which it carried an account (James [1978] 2015, pp. 149–50).

In this way, credit lines between correspondents increased the liquid resources banks had at their disposal to make payments. Indeed, they functioned much like a demand deposit, "effectively increasing borrowers' current account balances against which they could write cheques or purchase bank drafts on demand" (Redenius and Weiman 2011, p. 5).[7] In practice, respondents typically accessed these credit lines by rediscounting the commercial paper of their customers which they carried on their balance sheets, by issuing promissory notes collateralised by either the deposits held with the correspondent or commercial paper and stock exchange securities with a margin of anywhere between 10 and 100%, or by arranging an overdraft. Loan durations were determined by the maturity of the discounted paper (although paper was often renewed) while notes were payable on demand or carried maturities of anywhere up to six months (Lockhart 1921a). Because banks liked to conceal their recourse to loans from correspondents, they often used borrowing methods that appeared under the generic "other liabilities" heading on their balance sheet, if at all (Watkins 1929). These included overdraft facilities, repurchase agreements, and personal loans to bank directors.

Examinations of interbank credit between US correspondent banks provide three noteworthy insights of potential relevance for how we think about the relationship between cash clearing and credit in global correspondent banking. First, interbank credit lines based on the nostro/vostro account relationships were a key manifestation of the interbank lending market that facilitated the movement of funds around the country and allowed banks to borrow short-term funds to meet their payment obligations and, in turn, fund business activity. As Watkins observes: before the creation of the Federal Reserve "the absence of an established

[7] This contention is in line with financial theories postulating that "both demand deposits and loan commitments offer…a very similar service: the provision of liquidity on demand to accommodate unpredictable need" (Kashyap, Rajan, and Stein 2002, p. 35).

rediscount market [for standardised commercial paper] made a dependable connection of very great importance to the average bank, not so much because of actual amounts that had to be borrowed, as for the feeling of security that such a connection gave" (Watkins 1929, p. 153). Indeed, correspondent banking relationships offered city correspondents an outlet for their large non-financial corporate customers' commercial paper; likewise, correspondents often bought excess paper from respondents, enabling country bankers "to retain for themselves the business of home industries which would otherwise need to seek outside credit" (Demmery 1924, p. 298). Interbank loans ranged between $1,000 and $50,000 (James [1978] 2015), but according to accepted practice the volume of credit offered was proportional to the average balance it held (loans never exceeded four-fifths of the balance) (Watkins 1929). The interest charged on interbank loans varied according to prevailing money market conditions but was typically around 6%, and given the significance of credit terms for respondents "general arrangements for borrowings [were] usually made at the time of opening correspondent relations" (Lockhart 1921a, p. 156). The actual extent of interbank lending is unclear due to concealment; nevertheless, monthly call reports submitted to regulators indicate that the amount of outstanding interbank lending was highly volatile (in the 1907/14 period it oscillated between $24.7 million in February 1909, and $162 million in October 1914) (Lockhart 1921b).

The second, albeit related, noteworthy insight is that interbank lending between correspondents played an essential role in smoothing temporary imbalances in the US's highly seasonal production and trade cycle. As Redenius and Weiman explain, total interbank lending resembled an inverted U-shape, peaking in July and August. As demand for liquidity from the country's vast agricultural sector surged in the months leading up to the harvest, small country banks had no choice but to "[turn] to correspondents in distant money centres, mainly New York, for accommodation". The banks in monocultural regions like the Cotton South therefore "functioned…like brokers, bundling their customers' loans and deposits for ultimate placement with or by their correspondents" (Redenius and Weiman 2011, p. 7). The geographical distribution of farming meant that interbank lending was subject to strong regional variations. Between 1897 and 1914, banks located in cotton-producing states borrowed almost as much from correspondents as those in all other states combined. Notwithstanding the problem of concealment, the ratio of interbank borrowing to bank

capital and surplus in the South was 15.5% during that period compared to the national average of just over 3%. In Philadelphia, Boston and Cleveland, interbank loans never represented more than 4% of bankers' balances. In other cities, however, the ratio was much higher. Figures for January 1914 indicate that this ratio was 17% in Houston and Louisville, 25% in Dallas, 28% in Washington, and 35% in Omaha and Kansas City. Banks in these secondary cities often served as intermediaries, on-lending the funds borrowed from correspondents in reserve cities to smaller banks in their hinterland. Specialists considered this desirable under the tiered reserve system that existed before the Federal Reserve's creation "since it served to increase the amount of loans which could be made on the basis of a given amount of lawful money and thus increased the elasticity of the credit system" (Lockhart 1921b, p. 237).

The third insight is that, just as in England, banks occupying central nodes in the US correspondent bank network provided respondents with lender of last resort services. Before the creation of the Fed, correspondent credit lines (and the New York Clearing House Association) provided the payment system with an elasticity backstop comparable to that provided by a central bank when temporary liquidity squeezes or crisis situations arose (Sylla 2020). As Watkins notes:

> Interior banks perforce came to rely on the larger banks of financial centres for services that would have been performed by the central bank in the centralised banking systems of Europe. It was out of this dependence of country banks on city banks, and of city banks on other city banks, that the importance of correspondent relations, typified by bankers' deposits, grew" (Watkins 1929, p. 6).

The Federal Reserve Act of 1914 centralised reserves, created a cheque clearing infrastructure, and established a mechanism for transforming financial assets into lawful money, and in the years that followed considerable efforts were put into creating an open discount market for bills of exchange (O'Sullivan 2019, Myles 2023). Even then, the correspondent banking system remained an important source of payments services and interbank credit provision in the decades that followed. Why? For one, thousands of US banks did not join the Federal Reserve System, so their city correspondent "[still served] as a kind of central bank, regularly holding legal reserves and providing currency for the country

correspondent and occasionally extending credit to it" (Finney 1958, p. 2).[8] For another, the Fed's strict rules limiting types of financial instruments that were eligible at the discount window meant many of the assets banks held—including renewable short-term loans used to fund positions in stock exchange securities or long-term investments in inventories and fixed capital—could not be used for that purpose (Beckhart 1932). As Demmery (1924) noted: "even in times of stress when credit is tight and relief imperative, the correspondent banks can often take care of most of their country banks' needs" and when required they can even "secure aid from the Federal Reserve banks" in their stead (p. 299). In the Great Depression era, providing a line of credit still constituted "one of the most important services that correspondents offered [their respondents]" (Richardson 2006, p. 9).

The analogy between correspondent bank credit lines and central banks' lender of last resort function is flawed. Correspondents did not establish fixed, uniformly applied rules defining the conditions under which respondents could access liquidity. As Richardson notes, despite being well-positioned to lend to respondents thanks to their close monitoring of their financial health, when crises hit correspondents could simply cancel credit lines. Furthermore, if a large correspondent came under stress the bankers' balances they held could lose the liquid quality of central bank reserves (Richardson 2007b). This danger became very real during banking panics. As research on the Great Depression has shown, respondent withdrawals from correspondents affected large correspondent banks' ability to lend to businesses (Mitchener and Richardson 2019). Given that the volume of interbank credit available to respondents still depended on the size of their average balance, banking panics impeded country banks' ability to satisfy the liquidity needs of businesses in peripheral areas (Hamilton 1991). Still, historical studies show that US correspondent banks played an important role in providing domestic payment system elasticity. This elasticity provision involved the short-term treasury services needed to ensure cash clearing efficiency and reserve management, the offsetting of medium-term payment imbalances resulting from certain types of economic activity, and the provision of a liquidity backstop to banks further down the banking hierarchy—even if the form and significance of that backstop depends on the existence of, and degree of accessibility to, a central bank capable of issuing the ultimate

[8] Officials struggled to induce banks to join the Federal Reserve System throughout the 1920s. Of the 30,000 or so banks operating in the US in 1923, just one third (approximately 9,800 banks) were members (Myles 2021, p. 185).

means of settlement.

Cross-border correspondent bank relations are undoubtedly more complex than domestic ones insofar as they are subject to foreign exchange and political risks since they involve different currencies and multiple regulatory regimes. Furthermore, there is no world central bank with a global regulatory and monetary purview. Notwithstanding these caveats, however, the country's size and the historic and enduring fragmentation of its banking system, as is also the case on the international level, suggest it is worthwhile considering the purpose, extent, and precise form of interbank lending in specific historical and geographic contexts in order to better understand the role of correspondent banks in the CBPS. Moreover, since interbank networks provide both wholesale and retail payment services, focusing on the credit relationships between them could explain changes in the shape of correspondent bank networks and how non-financial firms used the payment services they provided. To illustrate this, the next section explores how changing credit procedures in the domain of international trade finance after WWI appear to have affected the structure of the London-based global correspondent bank network and of the nature of the relationships that comprised it.

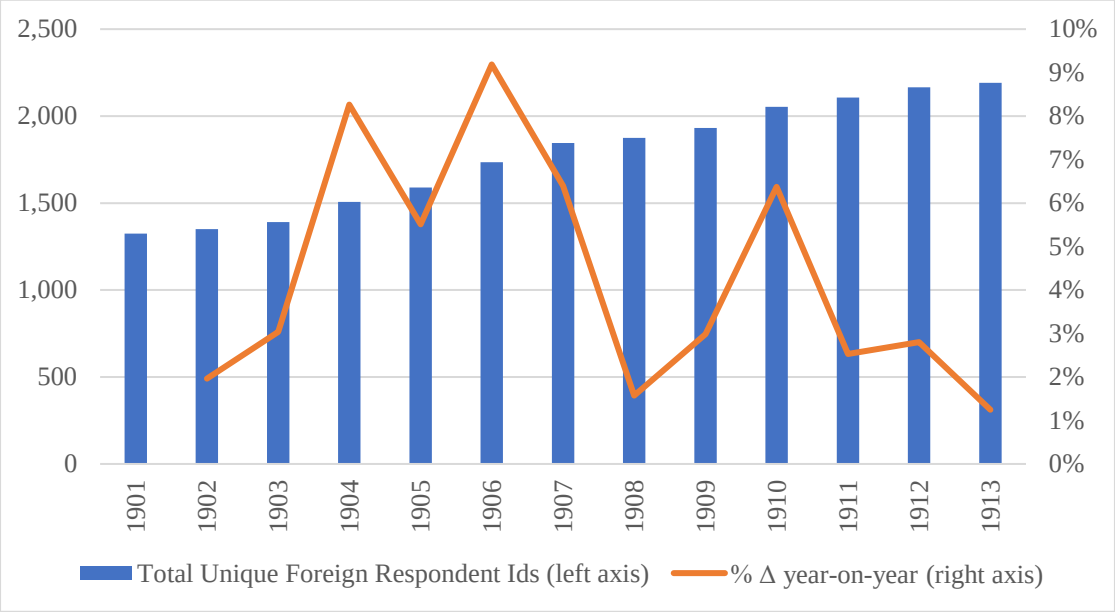
## III: Trade Finance Procedures and the Dynamics of Correspondent Banking Networks

In the early 20th century, the London-based global correspondent bank network underwent a dramatic expansion. As indicated in Figure 1, between 1901 and 1913 the number of unique foreign banks with a correspondent connection in London increased from 1,324 to 2,194 (+65%). By 1920, that figure had reached around 2,390, an increase of approximately 69%. In the five years that followed, that number increased again, this time by some 37%, reaching over 3,119 in 1925 before dropping down below 2,961 in 1930.[9] These changes are further illustrated by the Midland Bank, one of the great London commercial (or "clearing") banks. Between 1907 and 1914, the number Midland's overseas respondent banks reported in *The Bankers' Almanac*—a London-based yearbook published since 1845 in which banks reported their most important correspondent banking relationships—jumped from 106 to 174, an increase of 64%; by 1920, however it had 838 foreign correspondents, a jump of some 381%

[9] Data provided by Giovanni Pala, ERC Project "Global Correspondent Banking, 1870-2000", https://glocobank.web.ox.ac.uk/home.

(GloCoBank 2023). In the five years that followed, Midland's overseas respondents grew by a further 34%, reaching approximately 1,120 in the latter year. Changes in Midland's network structure between 1920 and 1930 are further reflected in the growth of the number of cities to which it was directly connected (+52%) and the total number of countries (+ 37%).

**Figure 1: Correspondent Connections between London and Foreign Banks, 1901-13**




Source: Unpublished data extracted from Bankers' Almanac (various years), provided by Marco Molteni.

These changes in of the London-based cross-border correspondent bank network in the years before and after WWI signal major changes in the global payments infrastructure and need an explanation. Of course, a variety of factors—including trade and investment flows, and changes in the absolute number of banks around the world or in the patterns of cross-border interbank deposits—could explain them. However given the historic importance of bills of exchange as payment and credit instruments and the significance of interbank credit provision through domestic correspondent bank networks, combined with the fact that international trade finance (ITF) "has for a very long time been 'bread and butter' business to the correspondent banker" (Wilkins 1993, p. 19), we might reasonably ask if ITF constituted one such contributing factor.

Insofar as international trade takes time, it relies on bank-intermediated payment instruments. Exporters typically want to be paid when they dispatch goods to reduce risk and working capital needs, and importers typically avoid paying for goods before receiving them (or, in some cases, until they have resold them) for the same reasons, so traders rely on banks to provide liquidity during the transaction and guarantee final settlement.[10] Two of the most important bank-intermediated ITF techniques are documentary collections and the documentary credit (Niepmann and Schmidt-Eisenlohr 2017). Trade finance handbooks define a documentary collection as "a method of payment where the sellers' and buyers' banks assist by forwarding documents to the buyer against payment", and that "the basis for this form of payment is that the buyer should either pay or accept the draft before they gain control over the documents that represent the goods". A documentary credit, meanwhile, involves a bank issuing a letter of credit, which today is defined as "a combination of a bank guarantee issued by a bank upon the request of the buyer in favour of a seller (normally through an advising bank) and a payment at sight or at a later stage against presentation of documents which conform to specified terms and conditions" (Grath 2016, pp. 49–50, 56). Significantly, while documentary collections and documentary credits constitute a payment technique from the point of view of non-financial firms involved in cross-border trade, they involve the creation of a contingent liability by the bank offering its guarantee as well as an interbank credit operation due to the time between the moment the exporter's bank pays it cash and the moment that bank's correspondent reimburses it.

Even though contemporary ITF instruments resemble centuries-old payment and credit instruments—letters of credit have been in use for close to a thousand years in Europe and even longer in the Islamic world (Usher 1914, Geva 2011)—they have nevertheless evolved considerably over time. In addition to the 16th century legal changes affecting bills of exchange described in Section 1, the creation of the acceptance credit by Dutch bankers in the late 17th century constituted another milestone. Under an acceptance credit, a bank accepted legal responsibility for accepting and honouring bills of exchange up to a pre-defined amount in the merchant's stead, effectively lending the latter its credit rather than actual funds, instead giving it access to the money market. Acceptance credits underpinned the

[10] In 2019, around 80% of the $19 trillion of international trade in 2019 was made possible by various forms of ITF (Beck et al 2023), and bank-intermediated trade finance services underpinned 47% of that (Niepmann and Schmidt-Eisenlohr 2017).

growth of long-distance trade in Europe in the following decades, but by the late 18th century it had largely fallen out of use, and it was only during the "first globalisation" of the second half of the 19th century that acceptance credits once again became prevalent—this time, in London (Houtman-de Smedt 1999). In fact, no other instrument better embodies London's monetary and financial dominance during the "first globalisation" than the bill of exchange accepted by a London merchant bank, the sterling "banker's acceptance". As the most liquid financial instrument anywhere in the world, the "bill on London" constituted the international means of payment *par excellence* , the foremost means of financing global trade, and the safe asset underpinning the City's main money market (Accominotti et al 2021). But as we will see, in the early 20th century London's ITF procedures involving sterling bankers' acceptances underwent some important changes.

Around the turn of the 20th century, an estimated 90% of the bills in circulation in London were drawn and negotiated overseas (Clare 1893). As Spicer explains, prime bankers' acceptances were typically drawn by a foreign entity on a London bank under either a confirmed or unconfirmed bankers' credit. In the first case, the British import merchant obtained a letter of credit from a London merchant banker (or "accepting house") confirming that the latter would accept the bills the exporter drew on it if certain conditions were met. In the second case, the British importer merely informed the exporter that they should draw bills on the importer's London banker without the latter giving a legal undertaking to accept the bill. Thanks to the stability of the currency and the ease with which the "bill on London" could be turned into cash at a moment's notice, it was widely considered to be as good as gold. Meanwhile, British exporters usually received immediate payment in the form of remittances of sterling bills payable in London, which the overseas importer bought in the local foreign exchange market, but when this was not the case British exporters in the had two main options. Either they drew documentary bills (i.e. bills secured by legal titles to merchandise) that they then gave to (or in some cases discounted at) their London bank before the latter sent the bills to its overseas correspondent for payment collection; or they presented bills drawn on the overseas importer at the latter's London bank for outright purchase (or acceptance and purchase) under a letter of credit issued by the importer's local bank for the purpose of accrediting the exporter with its London correspondent (Spicer 1922, 1926).

Despite underpinning a huge increase in global trade during the "first globalisation", London-based ITF was highly concentrated, conservative, and relationship-based. The merchant bankers involved in financing trade overwhelmingly provided acceptance credits to merchants and industrialists with whom they developed long-term relationships (Balogh 1949). The London merchant banker represented "a sort of ruler and his perfect knowledge of the market enabled him to guarantee deliberately transactions of whose healthy commercial nature he was perfectly aware, and whose parties he knew to be solvent" (Truptil 1936, p. 133). This claim is reflected in the accounts of Barings Bank, one of the City's most eminent merchant banks (Chapman 1984). Of the 49 British borrowers listed in its commercial credit account annual report in 1907, just one appears to have been an incorporated bank and the vast majority of the bank's 23 main foreign accounts were merchants. Barings also provided commercial credits to a select number of foreign merchant banks with which it maintained intimate correspondent relations (e.g. Berenberg & Co. in Hamburg, Hope & Co. in Amsterdam, etc.) which distributed Baring credit to local merchants on a joint account basis.[11] A few US commercial banks also had commercial credit accounts with Barings, but they only appeared to any significant degree in a separate "financial credits" statement. Financial credits referred to acceptance credit lines provided for generic purposes such as stabilising the supply of sterling bills in overseas markets like the US which were characterised by highly seasonal trade patterns (e.g. Myers 1931). "Financial credits" represented half of the £23.8 million in credit lines Barings provided to correspondents that year.[12] Thus, apart from the joint account business carried out with its closest correspondents, Barings did not, for the most part, deal directly with foreign commercial bank correspondents to finance trade.[13]

The quasi monopoly that London merchant banks like Barings enjoyed in acceptance-based ITF began to weaken when the big joint stock deposit (or "clearing") banks entered the business in the first decade of the 20th century. Initially, the clearing banks had avoided ITF operations requiring intimate knowledge of the merchants involved and "[refrained] from

[11] These overseas merchants often acted as credit intermediaries, managing secondary accounts for smaller local merchants. This was the case of Baring's Buenos Aires correspondent, merchant firm E. Tornquist & Co., which oversaw accounts for at least 10 other Argentinian mercantile and industrial firms.
[12] Contemporaries estimated that approximately £350 million in bankers' acceptances circulated in the London discount market in 1913 (Balogh 1947, p. 174).
[13] "Mr. Bowden Smith's Reports on Credits", 1907. The Baring Archive (BaringA) 2302369.

transactions 'the results of which were dependent upon the rise and fall of [commodity prices]'" (King 1936, pp. 280–81). But this began to change in the early 1900s thanks to the use of an ITF mechanism which British bankers referred to as the "reimbursement (or reimbursed) credit". Reimbursement credits were defined as follows:

> Instead of dealing direct with the foreign exporter or importer, the English bank gives a credit to a foreign bank…and the foreign banker uses this credit in favour of its clients. The foreign banker authorises its clients to draw on the London acceptor to whom he gives his guarantee. The foreign banker naturally charges his client a commission and the commission of the English banker is reduced accordingly…. [The reimbursement credits underpinned the growth of clearing banks' involvement in international trade finance because] there [was] after all no particular need to have old-established family connections abroad in order to grant credits from one bank to another (Truptil 1936, p. 136).

Rather than accepting on behalf of "private customers" like the merchant banks, the London clearing banks therefore "ordinarily accepted only on behalf of other banks" (King 1936, p. 281). They considered these revolving reimbursement credit lines as being particularly safe insofar as "the foreign banks provided the expert service of scrutinising names" meaning bills drawn under such credits were also "more suitable for direct purchase by the joint-stock banks" (Balogh 1947, p. 155). Insofar as this allowed them to vastly expand their ITF business after the turn of the century by using correspondents as intermediaries, and because the London acceptor would have to share the commission with the overseas correspondent opening the reimbursement credit, this constituted a major challenge to London merchant banks' business model. While joint stock clearing banks could accumulate reserves from their other areas of business, merchant banks—whose acceptance liabilities frequently reached four to six times their capital and reserves—had less available alternatives (Balogh 1947).

The potential benefits of using reimbursement credits on a broad basis in London came to the fore during WWI. Banking experts reporting to government commissions examining the limits of Britain's market-based financial system called on British banks to be more "adventurous" by replicating the "new conception of the functions of a banker" based on "the German system of commercial banking" whose flexibility they believed explained the dramatic increase in mark-based ITF and growth of German exports in the pre-war decades. If British banks abandoned their "fixed traditions and precedents" and wholeheartedly embraced the reimbursement credits used in the "continental school" of banking, they might succeed in

appropriating the business of the German and Austrian banks.[14] Significantly, after the war even the merchant banks got into the reimbursement credit business. There were three main reasons for this. For one, they had little choice insofar as clearing banks saw the ITF business as "a profitable and expanding one in the early part of the decade" and "were prepared to operate on lower rates of commission than the merchant banks" to increase their market share (Diaper 1986, p. 66). For another, the "worldwide economic disorder" caused by the war had "resulted in a rupture of the relationships which had existed [between merchant banks and] foreign merchants and industrialists" and disrupted the "close contact that had originally connected them with certain branches of commerce"; this "general uncertainty led acceptance houses in many cases to grant their credits only through the intermediary of foreign banks, and with their guarantee". As a result, the London merchant banks became "more and more like bankers and less and less like merchants" (Truptil 1936, p. 136).

A third driver behind the extended use of reimbursement credits in was the competitive challenge that the world-historical rise of US international banking and finance posed to London banks during and after WWI. Thanks to reimbursement credits, there was no longer any "particular need to have old-established family connections abroad in order to grant credits from one bank to another" (Truptil 1936, p. 136), and the field of ITF was open to US banks too. And enter the field they did. Before the passage of the Federal Reserve Act in 1913, nationally chartered banks were barred from foreign branching and from accepting bills of exchange on behalf of customers. Only a handful of trust companies and private banks dealt in acceptances and did so only to a limited extent because they could already make "adequate arrangements and tidy profits through their lines of credit with correspondent banks abroad" (Abrahams 1967, p. 9). After 1913, both these limitations on international banking were lifted and the Fed actively encouraged the development of an acceptance market in New York (O'Sullivan 2019). These supply-side changes, combined with surging demand for new sources of ITF after the outbreak of WWI, contributed to the US dollar acceptance overtaking the sterling bill as the most important ITF instrument almost overnight (Eichengreen and Flandreau 2012). Notwithstanding expectations that specialised foreign banking institutions

[14] H.V. Burrell, "A Critical Estimation of the Services of British Banking to the Trade of the Country at Home and Abroad", *Journal of the Institute of Bankers*, vol. 38, November 1917, pp. 316-335; H.E. Evitt, "Foreign Reimbursement Credits—A Plea for Extended Facilities", *Journal of the Institute of Bankers*, vol. 37, January 1916, pp. 6-19; quoted in Myles (2021, p. 71).

and commercial banks' foreign branch networks would grow dramatically after the conflict, this did not transpire (Myles 2021). In 1920, US banks had just 181 foreign branches and that number dropped in the subsequent years (Parrini 1969). Instead, insofar as US banks "depended on foreign correspondents willing to open (and guarantee) credits for importers on their behalf" (Myles 2021, pp. 175–76, based on Phelps 1927), it was their foreign correspondent networks that "enabled American banks to enter the acceptance market" (Eichengreen and Flandreau 2012, p. 82). In 1927, one Federal Reserve Bank of New York official estimated that 90% of US banks' foreign acceptance credits were opened through correspondents.[15]

Competitive dynamics, both within the City and between the City and Wall Street, therefore drove the supply of sterling ITF using correspondent bank-intermediated reimbursement credits in the 1920s. But demand was also high—especially in Central Europe, where the financial, monetary, commercial and industrial reconstruction meant working capital needs were enormous, as documented by generations of financial and monetary historians. It could therefore be that continental banks increased their banking connections with London in the hope of accessing more credit lines. So, what changes do we see in the number of correspondent bank connections between London and that region?

Data extracted from the *Bankers' Almanac* for benchmark years indicates that the number of correspondent bank connections between London and banks in Central Europe increased by 173% between 1920 and 1925 before dropping off by 6% between 1925/30 (GloCoBank 2025). However, as Table 1 shows, some of London's most eminent merchant banks reported far higher proportions of new connections, both in terms of individual banks and geographic locations. Schroders, a particularly striking example, saw an increase of 448% in the number of its global correspondent bank connections between 1920/25 and 536% between 1920/30, and 271% and 371% increases in its city connections for those same years. The figures are even more dramatic when we look at its central Europe connections, where we see increases of over 1,200% in unique correspondents during the decade and of 536% in its city connections. While less dramatic, several of the other examples indicate growth well above the figures for London overall, and none (except Hambros) experienced the overall retreat in

[15] Kenzel to Strong, 20.07.1928. Federal Reserve Bank of New York Archives (FRBNYA) 440.

correspondent bank connections observed in London during the latter half of the decade. It is possible that merchant banks underreported their correspondent connections to the *Bankers' Almanac* in earlier years but as the best available indication of London' global correspondent bank network dynamics, these data confirm the degree to which highly specialised merchant banks that played no major role in cross-border cash clearing increased their declared correspondent bank connections during these years.

**Table 1: Selected London Accepting Houses' Central European Correspondents, 1920-30**

| | Central Europe | | | | | Worldwide | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **London Correspondents** | **1920** | **1925** | **1930** | ***Δ 1920/25*** | ***Δ 1920/30*** | **1920** | **1925** | **1930** | ***Δ 1920/25*** | ***Δ 1920/30*** |
| **J. Henry Schroder & Co.** | | | | | | | | | | |
| Unique Respondents | 9 | 113 | 118 | *1156%* | *1211%* | 25 | 137 | 159 | *448%* | *536%* |
| Unique cities | 4 | 32 | 34 | *700%* | *750%* | 14 | 52 | 66 | *271%* | *371%* |
| **Baring Brothers & Co., Limited** | | | | | | | | | | |
| Unique Respondents | 14 | 16 | 27 | *14%* | *93%* | 41 | 35 | 50 | *-15%* | *22%* |
| Unique cities | 7 | 6 | 9 | *-14%* | *29%* | 33 | 28 | 33 | *-15%* | *0%* |
| **Kleinwort, Sons & Co.** | | | | | | | | | | |
| Unique Respondents | 7 | 67 | 73 | *857%* | *943%* | 84 | 151 | 162 | *80%* | *93%* |
| Unique cities | 5 | 26 | 28 | *420%* | *460%* | 42 | 71 | 71 | *69%* | *69%* |
| **Seligman Brothers** | | | | | | | | | | |
| Unique Respondents | 6 | 24 | 25 | *300%* | *317%* | 20 | 49 | 52 | *145%* | *160%* |
| Unique cities | 5 | 11 | 12 | *120%* | *140%* | 18 | 29 | 25 | *61%* | *39%* |
| **N. M. Rothschild & Sons** | | | | | | | | | | |
| Unique Respondents | 4 | 13 | 23 | *225%* | *475%* | 22 | 35 | 50 | *59%* | *127%* |
| Unique cities | 4 | 5 | 9 | *25%* | *125%* | 22 | 19 | 27 | *-14%* | *23%* |
| **C. J. Hambro & Sons** | | | | | | | | | | |
| Unique Respondents | 0 | 36 | 26 | – | – | 82 | 346 | 249 | *322%* | *204%* |
| Unique cities | 0 | 14 | 13 | – | – | 46 | 186 | 137 | *304%* | *198%* |
| **Frederick Huth & Co.** | | | | | | | | | | |
| Unique Respondents | 2 | 16 | 17 | *700%* | *750%* | 43 | 65 | 59 | *51%* | *37%* |
| Unique cities | 2 | 13 | 11 | *550%* | *450%* | 36 | 47 | 42 | *31%* | *17%* |

Source: GloCoBank database, based on Bankers' Almanac.

The increased use of reimbursement credits in the early 20th century constituted a major rupture with dominant London ITF practices. The majority of the prime bills circulating in the London market before WWI were the result of transactions intermediated by entities linked through close relationship-based connections; with the growth of reimbursement credits, it became much easier for the local banks of foreign importers to access London acceptance credit (Scammell 1968). Since reimbursement credits involved importers initiating

transactions—wherever in the world they might be—and relied on correspondents to manage collateral and guarantee final payment, they implied a decentralisation of credit information gathering, a delegation of credit decisions, and qualitative changes in how the ultimate accepting bank evaluated counterparty risk profiles. In this respect, they illustrate how changes in retail ITF services provided to non-financial firms could affect the interbank relationship on which wholesale credit relied. The significance of this change was not lost on contemporaries in Britain and abroad. As German banking journal *Die Bank* noted in 1930:

> […T]he English deposit banks entered into the acceptance business and their sharp concentration… undermined the leading monopoly of the acceptance houses. It came to a heavy fight in the question of credit terms, which naturally ended in the victory of the more powerful large banks. Especially so because on the technical side of the acceptance business a change has taken place which favoured the mightier capital power. Whereas formerly old-established personal connexions between the London acceptance houses formed the basis of a world-embracing re-imbursement business, the less experienced and traditionless large banks introduced a new form of credit, the revolving 'en bloc' credit, which they granted to their banking friends abroad, especially to the large Central European joint stock companies for distribution amongst the latter's industrial and export clientele. The choice to whom the credits should be granted has been transferred to the foreign banks, and only the status and respectability of these banks was of consequence to the accepting banks in London.[16]

By making close personal relationships redundant, reimbursement credits paved the way for commercial banks in the early 20th century to develop their acceptance business on a more impersonal basis using standardised criteria to ascertain correspondents' creditworthiness. They also allowed the formerly dominant merchant banks to pursue ITF operations with a far larger group of correspondents while avoiding a proportional increase in the cost of information gathering. While ITF may be the "bread and butter" of correspondent banking, this section has shown that, while that may be true, the actual importance of ITF has varied between different types of banks over time.

More research is needed to establish beyond a doubt the connection between ITF procedures and correspondent bank network dynamics described here. Nevertheless, the previous paragraphs remind us that data extracted from *The Bankers' Almanac* are not only about cash clearing and highlight the relevance of paying more attention to credit procedures to explain major changes in the payment system's structure. The final section shows that credit was

[16] Synthesis of E. Saxon Napier, "London Acceptance Houses", *Die Bank* [1930]. BaringA 202918.

often a defining factor in the establishment and maintenance of correspondent relations and highlights the enduring congruence of cash clearing and credit in the business of cross-border correspondent banking through much of the 20th century.

## V: Credit in 20th Century Correspondent Banking

In the early 20th century, negotiating a line of credit was an important part of establishing correspondent relations and maintaining those that existed. There are innumerable examples from the archives that would illustrate this contention, but it makes sense to start with the Midland Bank, whose correspondent network grew considerably in the early 20th century, as shown in the previous section, and which differed from other clearing banks in that for decades it grew its international business using correspondent bank connections rather than branching (Holmes and Green 1986). In 1904, Midland's general manager, Edward Hopkinson Holden, undertook a two-month visit of the US in order to "learn more about Midland's existing partners and to establish new correspondents" (GloCoBank 2023). During the trip, Holden visited 24 banks in nine cities across the Northeast, Midwest, and South. Beyond New York, Holden's focus was on interior banks involved in financing the export of commodities like wheat and cotton which traditionally organised all their foreign exchange business through their domestic New York correspondent. Holden's aim was to convince these interior banks that "it would be more dignified to keep their account direct with London" and to draw directly on Midland to obtain sterling bills.[17]

For Midland's prospective US respondents, a line of credit with good terms was a *sine qua non* to open an account at Midland. The New York-based Corn Exchange Bank conditioned its opening of an account with Midland on the establishment of an unsecured line of credit of £200,000, and Holden acknowledged that to get the account Midland would have to meet that demand. Confirming his interest in developing a correspondent relationship with Midland, the National Bank of the Republic's president expressed interest in establishing relations with Midland, telling Holden he could "make very good safe use" of a £200,000 credit to weather the financial strain of the harvest season. The Oriental Bank of New York was also eager to do business with Midland. It promised to keep an average of £15,000 at

[17] Edward H. Holden, "Mr Holden's Report on His Visit to America", September 10-November 5, 1904, 97. HSBC Group Archive (HSBCGA) UK0150-0002.

Midland but would require a £50,000 line of credit under which it would draw 60-day bills at 1/16th of 1% per cent commission or 90-day bills at 1/8% secured by commercial paper carrying three good names. In addition, Oriental requested a second £100,000 line of credit "in case of necessity" on which it would draw against the deposit of stock exchange securities with a margin of 10% in exchange for a commission of 1/8%. Holden immediately agreed to these terms although they were subject to confirmation by headquarters in London.[18]

Adjusting the conditions on credit lines constituted a means of retaining the cash clearing business of existing customers. US correspondents that already had accounts with Midland tried to improve the terms attached to the credit lines the bank offered them. In addition to a reduction of the unremunerated deposit it already held with Midland, New York's Produce Bank requested an uncollateralised credit line of £50,000. Given "the length of time [the Produce Bank] has done business with us", Holden suggested to Midland managers that they "might reasonably" satisfy this demand. Meanwhile, Holden told the Bankers National Bank in Chicago that if it did "an extended business" with Midland, he would help the bank develop its foreign exchange business by setting up an arrangement under which Bankers National could accredit its country bank correspondents, allowing them to draw bills directly on Midland in London instead of going through New York correspondents (i.e., a "reimbursement credit"). Holden also met with the president of the Whitney National Bank in New Orleans, which was using its Midland account less and less because it believed it was being overcharged on payment commissions. If Midland wanted all its London business, the Whitney Bank would require a £100,000 line of credit to be collateralised by securities held in trust by two of the Whitney's directors in a personal capacity, and a commission of 1/16% on an acceptance credit allowing it to draw 60-day sight bills on Midland. To obtain the Whitney's existing London cash clearing business from Parr's Bank and its letter of credit business from the Bank of Montreal, Holden agreed to waive commissions on the checking account since the entire credit balance would now be interest free and to provide the £100,000 credit the bank had requested.[19]

As the Whitney Bank example illustrates, the cost of credit lines seems to have constituted an important factor in the competitive dynamics between London correspondent banks, but

[18] Holden, "Mr Holden's Report…", pp. 7, 60-1, 100-02.
[19] Holden, "Mr Holden's Report…", pp. 9-10, 45, 89-90.

there are other examples that confirm this was so. During a meeting at the Hibernia Bank in New Orleans, Holden learnt that the bank had chequing accounts and lines of credit with both Kleinworts and Crédit Lyonnais in London under which they could draw 90-day bills. With the ostensible aim of getting Midland to match the conditions offered by these correspondents, the Hibernia executive in charge of foreign exchange told Holden that they paid no commission whatsoever for payment services. Although Holden thought this impossible, he noted that even before this meeting Hibernia had "worried about the commission and they asked us for terms some time ago" and had found that "[Midland's] quotation was not satisfactory". Although the final decision of terms was left up to London, Holden was confident that Midland could get "a good share of this account if [it was] reasonable". In another case, a representative of the Canal Bank—a different New Orleans bank that already had an account at Midland but had not so far been active in the foreign exchange business—expressed the desire to "throw the whole of their business through [Midland], keeping a sort of courtesy account with [its other London correspondent, the London Joint Stock Bank]". As Holden reported, however, for this to happen Midland had "to extend their terms a little". Finally, signalling his desire to appropriate the commercial credit business of the London merchant banks, Holden objected to the fact that Wells Fargo's in New York "wanted to use our branches and at the same time keep their principal account with [merchant bank] Glyns" despite the fact this equated to "giving Glyns' customers the benefit of our branches" for payment collections. Holden therefore told Wells Fargo that "if they chose to re-imburse their drafts by an account with Head Office we should be glad to meet them, but if not we could not see our way to place these Offices at their disposal".[20]

The records of European correspondent banks confirm that different forms of credit constituted an important dimension of correspondent relationship management on the continent too. In 1909, the Rostov-on-Don branch of the *Banque de commerce de Volga-Kama* wrote to the *Comptoir national d'escompte de Paris* (CNEP) in London to complain that it was being charged a commission of ½ per mille on temporary overdrafts on its account. Because the remittances delivered to CNEP to provide the funds to cover outgoing payments did not always arrive before its account was debited, an overdraft facility was necessary but the bank informed CNEP that the commission charged for this service "would hinder our business with

[20] Holden, "Mr Holden's Report…", pp. 91-3, 97-8.

you".[21] CNEP answered that they could not waive this commission which it charged "all of its banking friends without exception" because offering such overdrafts—which were sometimes large and were often solicited at times when money was tight—"forced [it] to rediscount bills in [its] portfolio".[22] The following year, when CNEP wrote to its respondent to enquire why it was not making greater use of its account, the *Banque de Commerce* replied that it was giving its business to London houses who had waived the commission on temporary overdrafts. But it also suggested it would be happy to do more business with CNEP if it eliminated commissions on overdrafts of up to several days in length and if it agreed to provide documentary collections for a commission of just 1/80%.[23] Once again, CNEP refused, saying that it offered all of its correspondents the same rates.[24] However, it appears that when the CNEP was determined to win over business in specific locations, it made exceptions to that rule. Indeed, two years earlier CNEP's London branch informed the Taganrog branch of the *Banque d'escompte de Saint Petersbourg* that its Paris headquarters had instructed it to waive overdraft commission so as to "provide additional proof of [its] goodwill" and as a result of the "friendly and agreeable relations that [it] had the pleasure of sharing with [the bank]".[25] In addition to smoothing out cash clearing activities, temporary correspondent overdrafts were also essential for foreign exchange dealings. For example, in the early 20th century, the *Banque Sino-Belge* relied on a 48-hour FF 500,000 overdraft from its Paris correspondent, the *Banque Allard*, "to facilitate currency hedges for its London branch".[26] In the 1950s, the *Banque belge et internationale en Egypte* criticised Egyptian government efforts to impose stamp duty on temporary overdrafts provided to banking customers "since they do not represent veritable advances and are merely the result of handling everyday transactions that [we] carry out with correspondents".[27]

More generic, longer-term forms of credit also played a role in maintaining good relations with correspondents. One example of this can be found in the archives of French bank *Crédit Lyonnais*. In January 1912, the Yokohama Specie Bank asked this French correspondent to

[21] BCVK to CNEP, 16.04.1909. BNP Paribas Archive (BNPPA) 209AH/4.
[22] CNEP to BCVK, 21.04.1909. BNPPA 209AH/4.
[23] CNEP to BCVK, 06.06.1910; BCVK to CNEP, 17.06.1910. BNPPA 209AH/4
[24] CNEP to BCVK, 22.06.1919. BNPPA 209AH/4.
[25] CNEP to BESP, 17.08.1908. BNPPA 209AH/4.
[26] G. Kurgan, "L'internationalisation de la Société générale de Belgique", n.d.. Archives générales du Royaume 2 (AGR2), Banque de la Société générale de Belgique (BSGB) 2067.
[27] Meeting Minutes, Central Administration, no. 26, 08.05.1957, 2. AGR2, Banque belge pour l'étranger, 694.

provide it with a FF1 million line of credit. Considerable internal debates ensued about why they could possibly need so much franc liquidity, with some managers suggesting that the Specie Bank wanted to use it to make industrial investments in China.[28] Nevertheless, because other French banks had acceded to similar requests for credit and because the *Crédit Lyonnais* feared "missing out on this operation", it decided to respond favourably, providing it with a FF500,000 credit line collateralised by commercial paper and an additional FF500,000 unsecured overdraft facility.[29] Although *Crédit Lyonnais* refused a subsequent request to increase the line of credit, its executives maintained the existing credit lines because "it was very much in [their] interest to maintain good relations with the Specie bank since [they relied] on it all year long to discount bills drawn on Lyon [silk] import houses".[30]

Most of the examples presented so far date back to the first decades of the 20th century, but sources indicate that cross-border correspondent banking was characterised by a remarkable congruence between cash clearing and credit for decades after that. This congruence was reflected in at least three ways. Firstly, bankers regularly referred to correspondent credit lines as a means of payment. In the wake of WWI, the directorate of the *Banque de l'Union Parisienne* (BUP) was eager to encourage trade between France and Armenia to ensure it could escape the "Bolshevist yoke" and for that purpose were eager to help the *Banque Russo-Asiatique* obtain a FF10 million line of credit in Paris that would be used "for the payment of merchandise imports".[31] Around the same time, due to Canada's huge trade deficit with the US and the Canadian government's ban on gold exports, National City Bank reported it had established credit lines for Canadian correspondents which they could make available to Canadian importers for the purpose of making payments to US exporters.[32] In a 1928 letter to BUP, J.P. Morgan & Co. stated that "we are desirous of assisting you in so far as possible in extending your commercial business" and for this reason was extending a $250,000 overdraft credit which BUP could then make available to another French bank, the *Crédit Havrais*, for the purpose of making payments to US cotton exporters under revocable

[28] CL (Lyon) to administration, 01.02.1912. Archives historiques de Crédit Agricole (AHCA) 98/AH/16.
[29] CL (Lyon) to general directorate, 06.02.1912. AHCA 98/AH/16.
[30] CL (Lyon) to general directorate, 05.11.1912. AHCA 98/AH/16.
[31] Minutes of the BUP Directorate, 03.06.1919; Organisation des importations et des exportations en Russie, Banque Russo-Asiatique, [1919]. Archives historiques de la Société Générale (SGA) 14803.
[32] George E. Roberts, "Un pays créancier", Investment Bankers Association of America, 10.12.1918. BNPA 17CABET1.

sight credits.[33] To overcome the absence of banking relations between France and Iran after World War II, BNP suggested signing a payment treaty consisting of two credits, one in each country, that would be used to make cash payments to exporters in both countries with the expectation that trade would balance itself out over an annual cycle, allowing the clearing of trade debts without any need for final settlement.[34] In 1959, the *Deutsche Notenbank* (DN), East Germany's central bank, informed the State Bank of Czechoslovakia that it was beginning negotiations with a group of Swiss banks with a view to obtaining credit facilities to facilitate international payments for imports.[35] When describing the procedure involving bills drawn under a confirmed irrevocable letter of credit in 1963, the *Banque commerciale pour l'Europe du Nord* (BCEN) explained that from the perspective of exporters a payment organised on this basis "was assimilable to cash settlement against shipping documents" since the exporter was released from any contingent liability to pay the bill of exchange in his capacity as its drawer. It therefore allowed the exporter to receive "definitive" payment for goods as soon as they were shipped.[36] That same year, the BCEN announced to the DN that it was giving it three revolving credit lines worth respectively 3.6 million French francs, 2 million pounds sterling and 7 million US dollars which could respectively be used "to finance purchases of merchandise" from France, the Sterling Zone, and all other countries in the Western Hemisphere.[37] In a series of publications prepared for its corporate clientele in the early 1980s, Belgium's *Société Générale de Banque* (SGB) outlined how documentary collections and credits could help importers and exporters "pay and get paid" and characterised the latter as a "payment technique".[38]

Secondly, the congruence between cash clearing and credit was apparent in regulators' strategies during payment system modernisation in the 1960s and 1970s. Institutional improvements in national payment systems and the information and communications technology revolution of the late 20th century ostensibly reduced the role of credit in the clearing and settlement of payments—especially after the Herstatt crisis of 1974 highlighted

[33] J.P. Morgan to BUP, 07.12.1928. SGA 1096-2.
[34] Lettre de Téhéran, 31.05.1945. BNPPA 14AH522.
[35] BCEN to Státní bank československá, 06.03.1959. Bundesarchiv Berlin-Lichterfelde (BABL) DN 6 5185.
[36] BCEN to Deutsche Notenbank, 08.01.1963. BABL DN6 5181.
[37] BCEN to Deutsche Notenbank, 31.12.1963 & 31.10.1963. BABL DN 6 5181.
[38] Société Générale de Banque, "Importations-Exportations: comment payer et se faire payer?", 1980. AGR2 BSGB 2081.

the huge counterparty risks involved in clearing huge volumes of payments on correspondent bank accounts (Mourlon-Druol 2015). Nevertheless, regulators discussing potential improvements before they happened still considered cash clearing and credit as two sides of the same coin. As international trade and financial transactions grew during the 1960s and 1970s, banks increasingly struggled to process the vast quantity of paper-based settlement and trade credit-related orders from correspondents (Schenk 2023). The ensuing reflections on how to overcome this challenge led to the creation of the Society for Worldwide Interbank Financial Telecommunications, or Swift, in 1977. Up until then, payment messaging consisted of written ("free text") English and was therefore subject to interpretation. Swift's novelty was that it created a global standard for electronic payment messaging that allowed a more efficient processing of payment orders and reduced banks' operational risks by eliminating errors and providing a level of security and reliability that previous technologies like postal services and TELEX could not (Scott and Zachariadis 2012). Tellingly, discussions among central bankers involved in CBPS technology modernisation reveal that they considered trade finance as an important dimension of payment system infrastructure improvements. The Federal Reserve Bank of New York's vice-president and Special Legal Advisor suggested that central bankers gathered at the Bank of International Settlements in late 1970 establish a new "computerised multilateral payments mechanism" in collaboration with commercial banks (Schenk 2023, p. 292). For him, the task at hand was to "harmonise such other matters bearing upon international banking operations as may seem appropriate". Insofar as Swift allowed the transmission of both cash settlement orders and information related to letters of credit, securities clearing, foreign exchange arbitrage and corporate treasury management (SWIFT 2024), the spirit of Clarke's suggestion was *de facto* realised. In this respect, Swift introduced a common material infrastructure for correspondent banks' cash clearing and credit operations.

Third, the congruence of cash clearing and credit was reflected in the organisational features of major correspondent banks and in how they reported on their payment activities internally. Historically, activities directly involving respondents—including nostro/vostro account operations used to settle payments and documentary and acceptance credits—were often overseen by the same employees working in a single division. France's CENP had its "Foreign

Relations" department in the 1910s.[39] *Crédit Lyonnais* merged its "haute banque", foreign agencies department, treasury management and correspondent relations department in 1935.[40] In the 1960s, Belgium's SGB had its "foreign department". In the 1980s, *Deutsche Bank* had its "Central Office for Planning, Management, Coordination and Control of International Commercial Business", which was responsible for managing its network of 4,000 correspondents in 184 countries, assessing bank and country risk, surveying its "money, foreign exchange and commercial credit liabilities", and assisting foreign branches and agencies.[41] Bank of America promotional material from 1985 vaunts the array of "international payment services" it provided, stating that "such services, as Trade Finance and Multicurrency Payment transactions [sic], are available, covering all sides to any international transaction" and highlighting the "added convenience…as well as the inherent efficiencies of having it all done under one roof".[42]

Banks' internal financial reporting on the extent of their relations with foreign banks and their potential for development often analysed these two activities together. For example, French Bank BUP's correspondent files from the interwar years show how its foreign department kept files on each correspondent—and indeed correspondents' specific branch—describing its overall relationship, including account turnover, time deposits, temporary overdrafts, and interbank guarantees on credits provided to non-financial firms.[43] This, too, remained the case for decades. A 1972 SGB foreign department report on its relations with foreign banks over multiple years examined the number of nostro/vostro accounts, the volume of bankers' balances, the average amount of outstanding export credits, documentary and acceptance credits, and the number of personal visits made to foreign banks all together. Nostro/vostro accounts and credit were both pillars of the bank's strategy for developing its international business.[44] When calculating its revenues generated from cross-border payments in the mid-1980s, *Deutsche Bank* took into consideration both simple payments, documentary

[39] Various correspondence. BNPPA 209AH/4.
[40] Crédit Lyonnais, Rapport annuel de 1935. AHCA.
[41] Zentrale Stelle für Planung, Steuerung, Koordination und Kontrolle des internationalen kommerziellen Geschäfts. Historisches Archiv der Deutschen Bank (HADB) ZA18-0002.
[42] Bank of America, "Proposal for International Payment Services", 1985. Swiss National Bank Archive (SNBA) 291.31.
[43] See SGA BUP 1096/1 & /2, 1143/1, /2, & /3.
[44] Direction de l'étranger/Objectifs 1972, Société générale de banque, February 1972. BSGB 2077.

collections, and transactions carried out on a letter of credit basis.[45] Reporting cash clearing and credit/ITF operations together therefore suggests that bankers conceived of them as distinct but complementary parts of the bundle of international payment services they provided to merchant and industrial firms through their correspondent networks.

It is tempting to assume that credit only constituted an important dimension of the CBPS in bygone eras when slower communication made it essential for managing temporary discrepancies in treasury inflows and outflows. However, the sources described in the preceding paragraphs reveal just how long it remained an integral part of the payment system and the correspondent bank business. Indeed, large correspondent banks used credit line conditions as a means of attracting and retaining business from competitors, illustrating the importance of cross-selling as a means of reinforcing the basic cash clearing business. Furthermore, credit figured prominently in historical actors' conceptualisation of payment systems and shaped the organisation and communication strategies of correspondent banks themselves until late into the 20th century. This lends support to the argument made earlier that the significance of US correspondent banking networks as a source of payment system elasticity is indeed mirrored in cross-border correspondent banking. Notwithstanding the anecdotal nature of these examples and the fact that they cover a fairly long period, they illustrate the potential analytical advantages of using credit to explore how the business of correspondent banking and its role in the CBPS has varied across time and space.

## Conclusion

In recent years, few areas of tech innovation have received more attention than the domain of payments. Many of the most visible developments in this space have addressed retail payments at the national level, however there is growing interest among fintech firms and regulators alike to rebuild the wholesale and cross-border payments system which continues to be dominated by global correspondent banks. To understand what is at stake at a time when the established payment infrastructure faces the prospect of a profound reordering, it seems fitting to adopt a historical perspective on correspondent banking and its role in the CBPS.

This article began by observing that the limited literature on the history of correspondent

[45] Internationales Geschäft – Konzernentwicklung und Koordination, April 1988. HADB ZA/18-0002.

banking and its role in payment systems differentiate conceptually between payment systems' cash clearing and credit dimensions. Yet it is striking that even scholars who do acknowledge the payment system's credit dimension and recognise that correspondent banks provide each other with much more than just clearing and settlement services have neglected to pursue empirical analyses of "other services", despite the theoretical and historical reasons to consider cash clearing and credit together. With this in mind, the article set out to explore whether focusing on credit is a useful means of enriching our understanding of the history of global correspondent banking and its role in the CBPS infrastructure.

By adopting a long-term perspective on the instruments and institutions that endowed the payment system with elasticity, and by mobilising both the secondary literature and primary sources from European commercial banks, the article has revealed the deep-seated importance of credit in payment systems. Furthermore, it has highlighted correspondent banks' ostensible role in providing the payment elasticity necessary to support economic activity and address temporary liquidity shortages at the global level. The widespread adoption of new bank-intermediated trade finance practices in the early 20th century illustrates how in some cases payment services for the "real" economy affected the nature of interbank credit and the shape of the London-based correspondent bank network underpinning the sterling payment system. In many cases, credit lines were a determining factor in the establishment of new correspondent bank relationships as well as in the maintenance of existing ones in the early part of the century. However even though technological change in more recent decades has reduced the need for credit in the clearing and settlement of payments and with it the risk exposure of global financial institutions, credit remained an important dimension of correspondent banking relationship management through much of the 20th century. Indeed, the internal organisation and reporting of banks, and bankers' own descriptions of the payment system, suggest that cash clearing and credit operations remained remarkably congruent until at least the 1980s.

There is no denying that the empirical basis of these insights is based on a selection of somewhat fragmentary primary sources gleaned from a non-representative sample of bank archives. Nevertheless, by providing some initial empirical evidence of how correspondent banks help provide elasticity to both the retail and wholesale payment system, the preceding paragraphs appear to vindicate theoretical claims about the need to conceptualise both

banking and the non-financial firms as being part of one large payment system in which all entities must constantly navigate the need to align liquidity inflows and outflows.

In addition, the analysis formulated here is robust enough to have significant methodological implications for how we study of correspondent banking. Indeed, empirical analyses inspired by the narrow definition of payment system infrastructure typically used today cannot give us a complete picture of either the business of correspondent banking or the latter's role in the CBPS in decades and centuries past. Focusing on credit, however, facilitates the historicisation of these activities and institutions. This strategy could therefore be useful for generating convincing answers to key open questions—such as how banking strategy and structure is reflected in global correspondent bank networks and how correspondent banking relations reinforce or undermine the resilience of the CBPS as a conduit of international liquidity, both to other banks and the real economy. In-depth studies of topics such as how correspondent bank credit lines have been used to overcome seasonal imbalances and provide cross-border lender of last resort-like services would also be worthwhile. By pursuing these questions, we will be better equipped to explain how specific bilateral correspondent bank relationships and the operation of global correspondent bank networks at the systemic level fit together.

This exploration of payment system elasticity provision provides a welcome historical perspective on the promise and peril of tech replacing global banks as the institutional foundation of the CBPS. The notion that this is desirable relies in part on the assumption that it is possible to unbundle payments, money, and banking and that doing so would make the payment system more inclusive and democratic. Nowhere is this inherent assumption more striking than among proponents of stable coins and indeed among central bankers working on central bank digital currencies, most of whom tend to neglect the question of where and how elasticity is introduced into the payment systems of the future they seek to build. This paper, meanwhile, suggests that although unbundling might be possible at the bank level, we should not forget that cash clearing and credit have traditionally been intertwined on the systemic level. We should therefore not be surprised that digital payment providers are increasingly capitalising on accumulated payment data troves to move into lending, or that large platforms are using credit to increase the rents they extract from the firms that already rely on them to reach buyers (e.g. Mersch 2019, Gambacorta et al 2023). Although the

historical symbiosis between cash clearing and credit should by no means be considered as deterministic, it nevertheless invites us to pay heed to the traditional connections between them when considering the apparent merging of finance and tech—especially if claims that Big Tech's monopolising and extractivist logic of data monetisation is leading to a new era of techno-feudalism are true (e.g. Durand 2024). Most importantly, perhaps, it reminds us that however attractive the prospect of reducing private global banks' dominion over payments may appear, relying on fintech to provide the elastic infrastructure the CBPS requires to support economic activity could equate to jumping out of the frying pan and into the fire.

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