

Somnolence to Dominance: A Hundred Years of the Foreign Exchange Market in London*

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ABSTRACT

London's preeminence as a foreign exchange trading center is of recent vintage. Before World War I, there was little demand for foreign currencies by British banks, firms and investors, which conducted the majority of their cross-border transactions in sterling. Foreign currency transactions were mainly in dollars, reflecting the historical importance of the American cotton trade. Hence with the rise of dollar invoicing and settlement, London was well positioned as a venue for dollar transactions. This specialization in turn enabled it to become the leading center for Eurodollar deposits in the 1950s and the premier currency trading center following the removal of exchange control in 1979. London's current preeminence is partly a reflection of this history: of the City's status as a financial center in the 19th century, of the worldwide role of sterling, and of a distinctive demand for dollar credit. It is partly a reflection of the readiness of regulators and financial associations to welcome competition from foreign financial firms. It is partly a reflection of the facility with which market participants adopted new trading and communications technologies, again reflecting London's historic financial center status. Thus, the same factors that made for London's late start as a foreign exchange trading center contributed to its subsequent success.

1. Introduction

2020 marked the centennial of the modern foreign exchange

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market in London. This anniversary serves as a reminder that prior to 1920 there was little in the way of a foreign exchange market in London or, more generally, the British Isles. We are used to thinking of London as a if not the leading international financial center, in the 19th century, for much of the 20th century and today. Before World War I, Britain was the leading creditor nation, whose residents “adventured” as much as half their savings abroad (to paraphrase Keynes in *The Economic Consequences of the Peace*).¹ The Bank of England was the “conductor of the international orchestra” (again in the words of Keynes, this time in his *Treatise on Money*), with the capacity to influence monetary and financial conditions worldwide. Britannia, with its powerful navy and merchant marine, was the leading trading nation. As important as the navy and merchant marine were the London-based merchant banks that provided the majority of global trade finance, which they extended by discounting sterling bills of exchange. On the eve of World War I, according to Thomas (1921), as much as 90 per cent of British overseas trade and 50 per cent of global trade were financed by sterling bills drawn on London.² The prices of gold and many of the world’s industrial commodities were similarly set in British markets, bought and sold using British-sourced credit, and quoted in sterling.

One might therefore presume that London was the leading center for foreign exchange transactions, as is the case today.³ This

¹ For estimates see Morgan and Thomas (1962) and Davis and Huttenback (1986).

² Thomas (1930), p. 381.

³ London is the leading center today in terms of turnover as measured by the Bank for International Settlements. What it means to say that a transaction occurred “in London” today, when a large share of transactions are executed online, via Reuters or EBS electronic platforms, is not entirely straightforward, in contrast to earlier years, when transactions were completed in person (over the counter) at a specific location such as the Royal Exchange (as explained below). BIS (2019) specifies that in today’s age of electronic trading the basis for geographical categorization should be the location of the “sales desk,” in other words the bank or security broker that arranges the trade on behalf of the client. In cases where no sales desk is involved because the trade is executed via an electronic platform, the location of the sales contact who services the client is used. When there is no sales contact, the location of the trading desk or electronic matching engine is used to determine the location of the transaction.

would be incorrect, however. Prior to 1920, the London foreign exchange market was a largely inconsequential backwater. There was some trading of U.S. dollars, but volumes were small by the standards of the leading Continental financial centers.⁴ Historians are unanimous in concluding that the volume of turnover in London was far below that in Paris, Berlin and other foreign financial centers. John Atkin, the leading historian of the market, describes this period as “the somnolent years.”⁵ Ranald Michie puts it more strongly. “Nevertheless, there is one curious omission from the success that the City of London enjoyed before 1914. That omission was the almost total absence of a foreign-exchange market.”⁶

This surprising fact takes some explaining. Explaining it provides a perspective on the roles of trade, technology, history and finance in the geography of the foreign exchange market.

The discussion and analysis that follow are primarily based, of necessity, on qualitative evidence. While we have data on foreign exchange *rates* and foreign exchange *reserves*, we have no data on turnover in the foreign exchange *market* prior to the 1970s. For example, it has been widely argued, by both contemporaries and historians, that exchange rate volatility creates hedging and speculative demands for foreign exchange and thereby contributes to the volume of foreign exchange transactions. But while we can measure the volatility, we do not observe the volume of transactions. This reflects the fact that currencies were not traded on an exchange, where trades were observed and could be recorded, but rather “over the counter,” in bespoke transactions between individuals and/or their institutions (typically banks).

⁴ In addition, there was some trading in the currencies of the members of the British Empire and to a lesser extent of various Latin American countries, although this was even less than trading of U.S. dollars.

⁵ This is the title of the chapter on the period in Atkin (2005). As one market participant (Dudley Ward of British Overseas Bank), observed in 1922, “As it exists today the London foreign exchange market is very largely an after-war development.” Cited in Michie (2005), p. 21. Developments during and after World War I are discussed further below.

⁶ Michie (2007), p. 66.

The earliest data on turnover in foreign exchange or foreign exchange-related derivatives start in 1972, coincident with the final collapse of the Bretton Woods System (presumably an instance of volatility contributing positively to demand). From this point we have data on exchange-based trading of dollar-Deutschemark futures on the Chicago Mercantile Exchange.⁷ Unfortunately, futures accounted for a very small share of foreign exchange trades, which were predominantly spot and forward transactions still conducted over the counter. Trading in currency options, which then started on the Philadelphia Stock Exchange in 1982 and the Chicago Mercantile Exchange in 1984, similarly accounted for only a small share of the market.⁸ Detailed data on turnover in the foreign exchange market became available only in the late 1980s with the advent of electronic trading systems, which leave a data trail, and with the triennial surveys by the Bank for International Settlements of financial institutions utilizing those systems.

Section 2, which follows immediately, summarizes the argument of the paper. The remainder of the paper then unfolds chronically. Section 3 describes the position of the London foreign exchange market prior to World War I. Section 4 then analyzes the changes wrought by the Great War. Section 5 focuses on the increasingly important role of the Bank of England in the foreign exchange market in the 1930s, during World War II and in the war's aftermath. Section 6 considers developments in the third quarter of the 20th century, centering on the Eurodollar market. Sections 7 and 8 bring the story up to date, focusing on technology and policy respectively. The conclusion, in addition to summarizing, looks to the future. It uses this

⁷ See Jorion (1996). These future contracts were traded on the Chicago Mercantile Exchange because its chairman, Leo Melamed, had been in touch with famed local economist Milton Friedman. Friedman, an apostle of flexible exchange rates, wrote a memo for Melamed arguing that flexible rates were coming and convinced the chairman that it was possible to make a market in exchange rate futures. See Melamed (2011).

⁸ Trading of exchange-rate-related derivatives grew in importance in subsequent decades, as documented in the triennial foreign exchange market surveys of the Bank for International Settlements (more on which below).

historical perspective to frame some speculations about how the London foreign exchange market might evolve in light of Brexit and the rise of China.

2. Summary of the Argument

The argument in this paper about the development of the London foreign exchange market comes in three parts. First, some of the same factors that allow a location to become a dominant international financial center broadly defined handicap it as a foreign exchange trading center. In the case of London, the City's rise as a financial center reflected Britain's early start as an exporter of manufactures, the country's importance as an importer of industrial inputs and entrepot center for commodities, the facility of English merchant banks in providing credit for this trade, and the success of British investment banks in underwriting and marketing foreign bonds to investors with the wherewithal to buy them.⁹

But these same factors – British producers' and commodity traders' substantial market shares together with the facility of merchant banks in providing trade credit – meant that British importers and exporters, who found it convenient to finance and settle their transactions in sterling, could insist on adoption of these same practices by their foreign customers and suppliers. In other words, these British importers and exporters had market power.¹⁰ Similarly, when foreign firms and governments sought to attract British capital, British underwriters could insist that they denominate their bonds

⁹ This story is well known; see e.g. Kindleberger (1974) or Cassis (2007) – even Bagehot (1873).

¹⁰ That power was even greater to the extent that British trade and investment in the Commonwealth and Empire was invariably done in sterling. Thus, that market which existed in foreign exchange in London in the 19th century was largely a market in U.S. dollars, reflecting the importance of cotton imports from North America (discussed momentarily). But the cotton that Britain imported from India and the commodities it imported more generally from the Empire and Commonwealth were invoiced and settled in sterling, reflecting not just market power but also political power.

in sterling, given the substantial weight of British investors in global financial markets and the preference of investors for sterling-denominated securities.

Consequently, British exporters and investors had no need to convert foreign currency income into sterling, since they had little foreign currency income. They had no need to purchase foreign exchange in order to import merchandise and commodities, since that merchandise and those commodity transactions were invoiced and settled in their own currency. They had little need to hedge foreign currency exposures, since they had few foreign exposures to hedge.

Hence, there was little demand for foreign currency in London and few foreign exchange transactions. Rather, the vast majority of such transactions took place in other financial centers, such as Paris, Hamburg and Berlin, in countries whose residents completed substantially larger shares of their cross-border transactions in a currency other than their own, and who therefore had a need for currency conversion and hedging services.¹¹

As a result of World War I-related disruptions and measures by the newly-created Federal Reserve System designed to foster a market in dollar denominated trade credit (trade acceptances), the dollar matched and by some measures surpassed sterling as an invoicing and settlement currency and as a vehicle for overseas investment already in the early 1920s.¹² This created a demand for foreign exchange on the part of British importers and exporters, and a need

¹¹ In a typical transaction, a French producer exporting to Britain would receive payment in the form of a sterling bill sent through the mail. Once the bill arrived, the French producer would sell it to his local bank in exchange for francs, in foreign exchange transaction number one. The local bank would mail it back to the London bank on which it was drawn, receiving sterling in return, perhaps having purchased forward cover in Paris, in foreign exchange transaction number two, in order to relieve itself of exchange risk while the bill was in transit. As this example illustrates, the foreign exchange transactions related to this sterling business took place not in London but abroad.

¹² The shares of the dollar and sterling in trade finance and as currencies of denomination for international bonds in this period, and the fact that the dollar had already largely overtaken sterling in the 1920s, are documented by Eichengreen, Mehl and Chitu (2018).

for currency hedging services on the part of British producers and investors. In turn this explains the growth of currency spot and forward markets in London after World War I.

Part 2 of the explanation departs from the fact that such limited demand for foreign exchange as existed in London before World War I was a demand for U.S. dollars. This reflected Britain's historic links with the United States, political and financial links but also the cotton trade stimulated by the growth of the Lancashire industry in the first half of the 19th century.¹³ It reflected the fact that the first Transatlantic telegraph cable, used for foreign exchange and other financial transactions, linked the United States directly to the British Isles, not to Continental Europe, as a function of those same commercial and political factors but also geography (the distance across the northern part of the Atlantic being short relative to other potential routes).¹⁴ It helped that the UK and U.S. had similar legal frameworks, again as a legacy of history.¹⁵ British brokers and dealers, like their American counterparts and customers, also spoke English.¹⁶

With the rise of the United States as a commercial and industrial power in the late 19th century and then as a source of trade credit and portfolio capital in the 1920s, other countries experienced a growing need to transact in and hedge exposures in U.S. dollars. London, it so happened, possessed a head start in providing these specific services. These same factors – experience in dealing dollars, the fact of speaking English – then came into play a second time, in the 1950s, with the growth of the Eurodollar market, centered in London, creating additional demands for foreign currency transactions.

¹³ These transactions were frequently handled by the Liverpool branches of London-headquartered banks, Liverpool being the port of debarkation for most American cotton (Lorca-Jana 2014).

¹⁴ Hence the practice of referring to the dollar-sterling exchange rate as “cable.”

¹⁵ Using modern data, Daude and Franzscher (2006) show that bilateral financial flows between two countries are larger, other things equal, when their legal systems share a common origin (as classified by LaPorta, Lopez-de-Silanes, Shleifer and Vishny 1997).

¹⁶ Modern studies (e.g. Chitu, Eichengreen and Mehl 2014, Feng, Lin and Sim 2018) find that sharing a common language lends significant stimulus to cross-border financial flows.

Part 3 of the explanation emphasizes London's early adoption of new trading technologies. These included, at different points in time, communication technologies such as the telegraph, the telephone, the telex and online information systems such as Reuters Monitor. They included transaction technologies ranging from mechanical calculators to computerized dealing systems such as Reuters Money Dealing and electronic trading on co-located platforms operated by Reuters and Electronic Broking Services. London foreign exchange dealers were among the first movers in adopting these technologies, reflecting complementarities between other financial business, in which London was a global leader and where it possessed the scale and scope to defray expensive investments in new technologies, and currency transactions.¹⁷

For instance, London stockbrokers and dealers were early adopters already before World War I of the telephone as a means of communicating with their customers. Installing and using telephone lines paid because of the relatively high value of securities transactions. In the foreign exchange market, in contrast, the value of transactions was less and the speed and convenience of telephonic communication did not justify the cost. But when turnover rose after World War I, the fact that institutions and individuals active in this market already were familiar with telephony and its practical requirements made for early adoption. Similarly, London foreign exchange dealers were early adopters of the telex machine as a technology for communicating substantial amounts of market intelligence faster and more efficiently than might be done by telegraph or voice in part because Britain was the first country to install a working telex network. London foreign exchange dealers were early to adopt online information and dealing systems because significant

¹⁷ This argument about the technological precociousness of London and how this derived in part from the scale and scope of the market and thus from London's early start as a financial center rests uneasily with Part 1 of the explanation emphasizing other disadvantages of that early start. Hence the qualifier "some" in the sentence introducing the disadvantages of an early start in the opening paragraph of this section.

contributions to these new technologies were developed in Britain. These were developed there partly because of the existence of potential demand from a large population and market of stock, bond and, eventually, foreign exchange traders. Many of the technologies in question were developed by a company, Reuters, that had been established in London in the mid-19th century because of the existence there of a large clientele of banks, brokerage houses and business firms with a need for commercial and financial intelligence. Thus, where London's early start as a financial center initially held back its development as a foreign exchange trading center by limiting the demand for foreign exchange, subsequently it promoted London as a venue for foreign exchange trading by stimulating the development and adoption of new trading technologies.

In sum, no single factor explains how London went from being a bit player in the global foreign exchange market at the turn of the 20th century to the leading foreign exchange trading center today. Rather, this evolution reflected Britain's early preeminence and subsequent decline as an industrial and commercial power, its historic links with the United States together with the growing importance of transactions in dollars, and technological spillovers from other early-developing financial transactions to the late-blooming market in foreign exchange.

The full tale, as always, is more complex. There was the unusual openness of London to the activities of foreign banks and bankers, the presence of a rich ecosystem of support services (accountants, barristers, and what today we call IT specialists), and, later and less prosaically, the decimalization of sterling.¹⁸ But the disadvantages of an early start, the "special relationship" with the United States (to coin a phrase), and technological spillovers from other financial markets are central elements of the story.

¹⁸ Decimalization occurred in 1971. Prior to this, conversion tables would be taped to the walls of dealer rooms to aid nondecimal calculations. Starting in the 1920s, there was also the development of calculating machines with drums and rings calibrated for a non-decimal currency.

3. Pre-History

Although foreign exchange transactions were not prominent in London before World War I, neither were they absent. British investors sometimes purchased foreign-currency-denominated securities, such as dollar-denominated U.S. railway bonds, which paid interest in a foreign unit that they then asked their local bank to convert.¹⁹ Such transactions were disproportionately transactions in dollars, reflecting the extent of British investments in U.S. railway and other securities. Less frequently, British importers and exporters were asked to settle cross-border transactions in a foreign currency, requiring them to convert the proceeds or to secure another currency in order to pay. Less frequently still, there might be a speculative demand for foreign exchange, as investors bet on appreciation or depreciation of a currency. However, the price volatility that creates opportunities for currency speculation was limited so long as sterling and other currencies were securely tied to the gold standard. Some currencies, of course, were more securely tied than others: Einzig (1938) contrasts sterling with the more volatile currencies of Germany and Austria-Hungary when explaining why spot and forward markets were more active in Berlin and Vienna.²⁰

Organized trading centered on the Royal Exchange, where trading in securities took place, and where from 1851 Paul Reuter operated a wire service with the capacity to obtain information from abroad using the Dover-Calais cable.²¹ (The alternative to using Reuter's service was to refer to rates on Continental European currencies communicated to the Royal Exchange by postcard).²² In a

¹⁹ American railways typically denominated bonds marketed in London to British investors in sterling, although British investors might also purchase dollar tranches that U.S. railways marketed domestically.

²⁰ There were active forward markets also in New York, Rio de Janeiro, Valparaiso, St. Petersburg and even Shanghai in the final decades of the 19th century and first decade of the 20th. Daily quotations can be found in the London financial press. Einzig (1961) notes that, in contrast, there was no significant trading of currency forwards in London until the very final years before the Great War.

²¹ The cable came into operation in 1850.

²² Phillips (1926), p. 52.

tradition that stretched back to 1820, foreign bills were bought and sold on Tuesday and Thursday afternoons. These modest opening hours were themselves indicative of the limited scope of the market. London papers then printed the *Course of the Exchange*, with currency quotations from these afternoon sessions, in their Wednesday and Friday editions. In contrast, the daily foreign exchange quotations published by the London financial press were rates against sterling quoted in foreign centers and cabled to London.²³

It is not possible to determine the volume of transactions, since the Royal Exchange did not keep transaction or turnover records. There was also some after-hours trading, in person and, late in the period, by telephone and telegraph, though, as is always the case of curb markets, it is again difficult to know how much. Be this as it may, contemporaries were convinced that London lagged behind Paris, Brussels, Amsterdam, Berlin, Vienna and possibly other Continental financial centers in the volume and value of transactions.

Buyers and sellers meeting at the Royal Exchange did business with the help of specialized currency brokers. Each broker dealt regularly with the same subset of banks, earning a commission in return for reducing search costs for the clients of those institutions.²⁴ The main buyers and sellers were merchant banks, such as N.M. Rothschild & Sons and J.S. Morgan and Co., and the London branches of foreign banks such as *Crédit Lyonnais* and the *Comptoir national d'escompte de Paris*. In practice, foreign banks dominated the market, most English banks having no specialized foreign department.²⁵

London's openness to trading by foreign banks would again play an important role in the post-World War II growth of the Eurodollar market and again in the growth of post-1999 trading in the euro, and hence in London's maintenance of its status as the leading

²³ Thomas (1921), p. 50.

²⁴ Phillips (1926), p. 50 recalls how different groups of bankers, sorted by nationality or other speciality, rarely spoke directly to one another.

²⁵ Atkin (2005), p. 20. Cassis (2005, p.115) reports that the first foreign exchange department was established by London City & Midland Bank only in 1905. See also Holmes and Green (1986), pp. 133-135.

foreign exchange trading center, as described below. As this observation about the pre-World War I period makes clear, this practice had a long history. Already in the 19th century, we see the importance of the distinction between London as a venue for foreign exchange transactions and British financial institutions as principals.

4. Impact of World War I

World War I was a sea change, in this context as others. Most obviously, exchange rates began to fluctuate more widely. Sterling was buffeted first by the reluctance of commercial banks to provide short-term loans to the discount market, resulting in a shortage of new sterling bills, and then by increasing British purchases of war materiel abroad, notably in the United States.

The government mobilized the foreign security holdings of residents and used them to stabilize the exchange rate, first against the dollar in January 1916 and then against the French franc and other currencies. Nonetheless, increased exchange rate volatility, actual and prospective, took its toll. In particular, financing and settling imports and exports in sterling, which was the practice, as we have seen, not just in Britain but also to a considerable extent worldwide, was riskier in this environment. Producers in the United States and elsewhere, whose intermediate inputs and wage payments were priced and denominated in local currency, demanded as a price of doing business that their export transactions similarly be invoiced and settled in that currency. The suppliers had the purchasers, who desperately needed their merchandise, over a proverbial barrel. As Thomas (1930, p. 383) put it, "it became much more the case than formerly for mercantile transactions to be settled in the currency of the country which supplied the goods."

Specifically, wartime disruptions to European markets, together with the establishment of the Federal Reserve System, greatly increased use of the dollar in foreign trade and finance. In part, this transition was natural; it reflected the fact that the U.S. had over-

taken Britain in terms of aggregate GDP already in 1870 and supplanted it as the world's largest exporter in 1914. In addition, however, the transition was induced, as the newly created Federal Reserve System actively fostered a market in trade acceptances in order to promote wider international use of the dollar.²⁶ The result was an increased need for British residents to convert sterling into dollars. The Bank of England estimated that, as of 1928, as much as 82 per cent of all currency transactions on the London foreign exchange market involved purchases or sales of dollars.²⁷

Use of the dollar stimulated the growth of forward and swap (combined spot and forward) markets, meeting the demand from British banks and firms for hedging foreign currency exposures. Forward contracts replaced checks and bills of exchange, leading to daily (as opposed to biweekly) publication of forward rates at which business was conducted in London and to the creation of an organized forward market. The biweekly meetings at the Royal Exchange were discontinued in 1921 after more than a century.

More generally, ongoing (even increasing) exchange rate volatility in the first half of the 1920s, once wartime exchange rate pegs and restrictions on transactions were relaxed, encouraged hedging and speculative transactions. (In March 1919 the British authorities abandoned their wartime efforts to peg sterling to the dollar, at which point volatility increased significantly.) London was an attractive venue in which to book hedging transactions; Berlin and Vienna were in no position to compete, given the financial chaos in Central Europe following the war, while transacting in New York was awkward for Europeans, given time-zone differences.²⁸ Kleinworts quickly emerged as the dominant firm in this market segment.²⁹

²⁶ For details, see Treman (1923) and Eichengreen (2011).

²⁷ This estimate is cited in Accominotti and Chambers (2013).

²⁸ On the time-zone problem, see Einzig (1962), p. 242. Michie (2005, p. 21) similarly points to exchange rate volatility as fueling the demand for foreign exchange transactions in the 1920s and suggests that London again surpassed New York as a foreign exchange trading center, but not also in other lines of financial business, in the 1920s.

²⁹ Cottrell (2005), pp. 154-155.

Another effect of the war was to induce changes in transactions technology. The conveyance of bills of exchange and checks through the mail became less reliable owing to the riskiness of wartime shipping and requisitioning of ships for military needs. In turn, this accelerated the shift to telegraphic trading.³⁰ A reliable transatlantic cable dated to 1865, and the first submarine cable with the capacity to carry telephonic communication between Britain and the Continent was laid in 1891. As noted above, for some years the telephone was used sparingly for foreign exchange transactions, given the cost. During the war, however, new telephonic cables were laid between Britain and the Continent to enhance military communication. As capacity went up, cost went down, and telephones were increasingly used for trading currencies with foreign counterparties.³¹ Facing this intensification of competition, banks that previously had walked messages to the local telegraph office installed dedicated telegraph connections in their dealing rooms.³² Transactions that had taken several days to execute previously were now completed within the hour.³³

Volatility reinforced incentives for the rapid execution of trades. Traders in London increasingly used the telephone to communicate not just with Paris but in addition with their brokers. Bank dealing departments strung private telephone lines to their brokers, and on occasion to important retail customers. More generally, the banks took the advent of the switchboard as an occasion to shift their interactions with the growing base of retail customers to the telephone.³⁴

By the mid-1920s, reflecting this confluence of influences, Lon-

³⁰ Government-led development of wireless telegraphy during the war (Sarkar et al. 2006) worked in the same direction, creating another vehicle for communicating foreign exchange quotations between centers and thereby stimulating arbitrage transactions.

³¹ Still, the cost of telephony remained higher than that of the telegraph, so the telephone was used in communicating with foreign counterparties only for high value transactions.

³² This may be thought of as an early example of co-location.

³³ The Bank of England followed suit with a lag. It installed private telephone lines for use in communicating with the principal market makers starting in 1933. "Extracts from Minutes of the Committee of Treasury," 13 May 1936, Bank of England Archives, G14/133.

³⁴ Phillips (1926), p. 77.

don had overtaken the leading Continental foreign exchange markets and New York in terms of turnover.³⁵ But to say that the London market was now more important is not the same as saying that British banks and dealers were more important. Much of the additional dollar trading executed in London was by branches of U.S. banks such as National City Bank and Guaranty Trust. Guarantee Trust's operations in London dated back to 1895; as a trust company with a New York State charter, it had been permitted to set up a foreign branch. Commercial banks such as National City branched abroad only after restrictions on their ability to do so were eased by the Federal Reserve Act. This was another incarnation of the same historical pattern – a prominent role in London for foreign financial institutions – apparent already before World War I. It was a pattern that would reemerge with the growth of the Eurodollar market.

The 1930s and post-World War II period interrupted and even reversed London's rise. Depressed economic conditions and the stagnation of trade and capital flows made for fewer foreign exchange transactions in the 1930s. Greater exchange rate flexibility following abandonment of the gold standard might be thought to have made for increased demand for hedging services and additional speculative transactions, but many of Britain's commercial and financial partners pegged to the pound, forming the Sterling Area, thereby limiting volatility and hence the derived demand for foreign exchange.³⁶ Exchange control and bilateral clearing by the countries of Central and Eastern Europe eliminated another potential source of business.

5. Enter the Bank of England

An important development in the 1930s was the Bank of Eng-

³⁵ Atkin (2005), p. 37, citing Phillips (1926).

³⁶ This is not to imply that such speculative transactions were entirely absent. Keynes famously speculated on the forward market between 1932 and 1939 (Accominotti and Chambers 2013).

land's growing footprint in the market. While the Exchange Equalisation Account established in 1932 to regulate sterling's movement was situated in the Treasury, the Bank of England managed the resources of the EEA and executed its trades. As a result, the Bank quickly became the largest single player in the market.³⁷ Prior to 1933-4, when the U.S. took steps toward abandoning the gold standard, most Bank of England transactions involved purchases and sales of dollars and, to a lesser extent, French francs.³⁸ After mid-1935 the Bank also undertook transactions, more limited in amount, in Dutch, Swiss, Belgian, Swedish, Norwegian, Canadian, Argentine and Indian currencies. These transactions were mainly on the spot market, Governor Norman viewing the forward market as a hotbed of speculation. Nonetheless, forward transactions became increasingly important as the 1930s progressed. The goal of these transactions was to keep exchange rates vis-à-vis the major foreign currencies relatively stable, although there also were times when the Bank sought to introduce volatility into the market in order to wrong-foot speculators and discourage them from taking one-way bets against the Bank's stabilization efforts.

In addition, the Bank of England enforced regulations that limited borrowing in London by other governments, especially by non-members of the British Empire. To disseminate information about those regulations, the Bank encouraged the establishment of a London Foreign Exchange Brokers' Association.³⁹ It has been suggested that this had the unintended consequence of facilitating cartel behavior, as brokers brought together in the Association colluded in fixing the spread between buying and selling rates, uncompetitive practices that shifted trading to Paris, Brussels and Amsterdam.

This involvement of the Bank in the foreign exchange market prepared it for administering the more stringent exchange control

³⁷ Bank of England (1968) provides further discussion.

³⁸ Howson (1980), p. 35.

³⁹ An additional motivation for establishing the Association, sometimes cited, was to stamp out abusive trading practices.

regulations imposed under the authority of the Emergency Powers (Defence) Act of 1939, which eliminated the vast majority of private currency trading.⁴⁰ Many of those regulations remained in place after the war under the authority of the Exchange Control Act of 1947. As late as 1950, dealers were permitted to engage in only limited currency trading under license, only in particular currencies, and only for specified purposes. Interbank transactions, for example, were still prohibited. Finally, in 1951, London-based foreign exchange dealers were again permitted to engage in inter-bank transactions and maintain open positions in (net exposures to) convertible currencies such as the dollar and Swiss franc, up to designated prudential limits.⁴¹ Only at the end of 1958 was the convertibility of sterling on current account (the ability of nonresidents to convert sterling into any foreign currency) finally restored. Even then, capital controls on purely financial transfers remained in place, as continued to be the case for three subsequent decades.

A key difference from the pre-1939 period, when banks had taken open positions in foreign currencies on the basis of their own judgment, was that open positions were now regulated by the Bank of England, extending practices adopted during World War II. Limiting open positions limited the volume of transactions. Moreover, that most sterling balances were blocked after World War II further limited the scope for trading foreign currencies. British banks engaged in international business lobbied against controls and restrictions, but to little avail.⁴² London consequently lost business to New York and Zurich, where no such restrictions prevailed.

⁴⁰ The act permitted limited trading in Commonwealth currencies and in “minor foreign currencies” (Atkin 2005, p. 86).

⁴¹ Labour opposed reopening the market on the grounds that this might limit the ability of government to steer the economy. The Conservatives, with their less dirigiste economic philosophy, were more sympathetic. Thus, their victory in the October 1951 general election paved the way for reopening. Atkin (2006), p. 102; Naef (2019), p. 91. The timing was fortuitous, in that the sterling exchange rate was supported by the strong commodity prices resulting from the Korean War and the large commodity exports of Sterling Area countries (Yeager 1976).

⁴² Schenk (2010), p. 207 and *passim*.

6. The Advent of the Eurodollar Market

An important development starting in the mid-1950s that helped to set the stage for the recovery of the London foreign exchange market was the advent of Eurodollars (dollar deposits in European banks).⁴³ The birth of the Eurodollar market is commonly ascribed to the decision of Middle East and Eastern European countries to deposit their dollar earnings in London rather than New York in order to keep them out of the ambit of the U.S. government following the Suez and Hungarian crises.⁴⁴

But why London rather than Paris or Frankfurt? France and Russia shared a centuries old financial relationship, and the Soviet Union encouraged Eastern European countries to deposit their dollars not in London but in its state-controlled Banque Commerciale de l'Europe du Nord in Paris.⁴⁵ Part of the explanation for London's emergence as the leading center for Eurodollar deposits is that the British government and the Bank of England adopted a more permissive stance than foreign regulators.⁴⁶ German regulators maintained tight restrictions on foreign currency deposits, fearing inflationary consequences; at various times they prohibited the payment of interest on foreign-owned balances and taxed foreign deposits. In contrast, British regulators imposed no reserve requirements or restrictions on interest paid on Eurodollar deposits.⁴⁷ From this point of view, the Eurodollar market, which relied on foreign funding, was a singular exception to the tightly controlled and regulated regime under which British finance functioned from the outbreak of World War II until the final removal of exchange con-

⁴³ There were also other Eurocurrency deposits, although the dollar accounted for the dominant segment, upwards of three quarters for the period under consideration.

⁴⁴ For more on the context, see Altamura (2016) and Woo (2018). Subsequently, restrictive U.S. regulation (a Regulation Q interest rate ceiling that bound more tightly as inflation accelerated) and the Interest Equalization Tax of 1963 further encouraged the growth of the market.

⁴⁵ Capie (2010), p. 183.

⁴⁶ See the discussion in Schenk (1998) and Baker and Collins (2005).

⁴⁷ Later, when Eurodollar deposits gave rise to Eurobonds, the authorities further allowed interest on the latter to be paid gross of tax.

trol as one of the first acts of the new Thatcher Government in 1979.⁴⁸ Through this exception London's status as a leading foreign exchange trading center, gained in the 1920s and 1930s, was at least partially preserved, positioning it for further expansion in the 1980s.

In addition, in 1957, when in response to a bout of currency instability the Treasury banned the use of sterling for financing trade between third countries, the banks enlisted their Eurodollars in an effort to retain this business; this in turn compelled them to attract additional Eurodollar deposits.⁴⁹ The Bank of England opposed these controls precisely because they threatened to undermine London's position as a source of trade credit.⁵⁰ It has been suggested that the central bank even encouraged banks in London to actively solicit additional dollar deposits, since doing so would help to preserve London's share of global trade finance without weakening sterling.

More generally, foreign banks (including U.S. banks) wishing to take Eurodollar deposits and engage in foreign exchange trading in London faced few regulatory obstacles. They only had to demonstrate a familiarity with UK exchange control and other salient regulation.⁵¹ Foreign banks had long been active in the London foreign exchange market, as we saw in earlier sections. Starting in the 1950s, they became increasingly active in the Eurodollar market and then in foreign currency trading in London more generally. London was an attractive place for foreign governments and banks to place their dollars because they were able to do business there not just with English banks but with third-country banks with which they had established relationships. These third-country banks benefited from the liquidity of the London Eurodollar market, and they were able to pass a portion of that liquidity premium on to their clients.⁵²

⁴⁸ For more on this last development see below.

⁴⁹ See Burn (1999).

⁵⁰ Schenk (1998), p. 223.

⁵¹ This was true even under the restrictive conditions of the immediate postwar period. For example, when the Bank of England authorized select banks to resume limited trading in foreign exchange under the Exchange Control Act of 1947 (see below), a striking number of foreign banks were among those authorized.

⁵² The footprint of these foreign banks continued to grow over time: by the second half

But what exactly were the implications for the post-World War II recovery of foreign exchange trading in London? One view is that the presence of these deposits created funding opportunities for the banks, which in turn stimulated transactions in foreign exchange. Thus, starting in 1955, Midland Bank funded itself by actively soliciting dollar deposits but lent in sterling.⁵³ “Midland was essentially borrowing US \$ funds to obtain sterling,” in the words of Schenk (1998, p. 225). When it converted those borrowed dollars into lendable sterling, its transactions created a demand and supply of foreign exchange. In addition to the direct exchange of dollars for sterling, such transactions created an argument for hedging the resulting currency risk and, hence, a hedging demand for foreign exchange. Thus, when Midland Bank swapped the dollars into sterling in order to lend the latter, it combined spot and forward contracts. But another view is that, to the extent that lending as well as funding was in dollars, Eurodollar borrowing and lending constituted a closed circuit generating no foreign exchange transactions. Interbank lending of Eurodollars in London falls under this heading (Roberts and Arnader 2001).

The question is whether banks funding themselves either by taking Eurodollar deposits or on the Eurodollar interbank market that then lent to nonbanks did so in dollars or sterling. One finds examples of both, but no definitive evidence on the proportions. If the dollar loans dominated, then it can be argued that the development of London into the main Eurodollar center stunted its recovery as a foreign exchange trading center rather than stimulating it. In the same way that London had no need to trade foreign exchange in the 19th century because its banks took deposits and lent in the principal international currency of the day (sterling), now London again had no need to trade foreign exchange because banks there took deposits and lent in the principal international currency (in this case the dollar).

of the 1980s, nearly 80 per cent of turnover on the London foreign exchange market was accounted for by foreign financial institutions according to Bank of England (1986, 1989).

⁵³ Recall from above how long before Midland became the first London bank to fund itself by borrowing Eurodollars, its predecessor, City & Midland Bank, was first to establish a dedicated foreign exchange department.

That Frankfurt, where regulators discouraged banks from taking Eurodollar deposits, had overtaken London as a foreign exchange trading center by the end of the 1970s (see below) is consistent with this argument. But there were other factors also making for the rise of Frankfurt and trading in the DM, including the rapid growth of the German economy after World War II and the DM's status as a perennially strong currency. Whether London would have recovered faster or slower as a foreign exchange trading center had British regulators discouraged banks there from participating in the Eurodollar market is an interesting but unanswerable counterfactual question.

7. Technology Marches On...

If the role of the Eurodollar market was uncertain, the role of technology was not. First, the use of traditional technologies expanded. Before the war, a bank with a dedicated dealing room might have a private line to its broker, but now it maintained multiple private lines to multiple brokers, as well as private lines to other banks with which it might exchange information.⁵⁴ In addition, the 1950s saw widespread adoption of the telex, the international message-transfer service consisting of a network of customer-to-customer teleprinters supported by switched exchanges. These allowed traders to transmit and receive data in larger amounts than was possible by telegraph and more efficiently than by voice. Teleprinters had the advantage that they could be located in dealing rooms. This led to improvements in information flow and efficiency in London, compared to other market centers that lagged in adopting this technology and still dealt with off-site telegraph offices.

Britain had been one of three national pioneers, along with the U.S. and Germany, in developing telex technology. It was the first country, starting in 1920, to install a working network of teleprinters using technology provided by the London-based Creed & Company

⁵⁴ Einzig (1966), p. 19.

Ltd.⁵⁵ Initially, this was an initiative of the Press Association, also based in London, which used teleprinters to communicate news between London and Britain's provincial newspapers. The Press Association's network became and for many years remained the largest teleprinter network in the world, with several hundred Creed teleprinters linking newspapers throughout the country.⁵⁶ In 1925 the Press Association then acquired a majority interest in Reuters, enabling it to seamlessly link foreign content obtained via wire service with its domestic telex network. Subsequently, teleprinters were used by the railways to provide up-to-date scheduling and status information.

In 1931 the General Post Office introduced person-to-person teleprinter services for business and industrial users, including banks. The Post Office used the Creed Model 7, the state-of-the-art teleprinter technology of the day. With updates, the Model 7 remained in production through the late 1960s, providing the basis for building out the country's telex network, including the part used by foreign exchange traders in the 1950s and 1960s (Battilossi 2010).

Technology continued to shape the evolution of the foreign exchange market in subsequent decades, and London remained at the forefront of innovation and adoption. The 1970s saw the development of online information systems, such as Reuters Monitor, which provided continuous online foreign exchange quotations. Reuters had long been in the business of transmitting financial business by teleprinter; it now moved into providing it on dedicated computer terminals deployed in the offices of banks and foreign exchange dealers, linked to one or more central servers which were in turn linked by a dedicated transatlantic cable. Dealers could use these terminals to input their foreign exchange bid and ask rates, which

⁵⁵ Canadian by birth and inventor by trade, Frederick George Creed moved to Scotland, where he developed his first teleprinter. He then set up manufacturing operations in London in order to be closer to what he anticipated would be his most important customer, the General Post Office.

⁵⁶ Huurdeman (2003), p.304.

were immediately available on screen to other banks and international businesses.

The first such products, rolled out in the mid-1960s, were developed in cooperation with Ultrasonic Systems of New Jersey, founded by a set of former RCA engineers, Reuters lacking adequate engineering expertise of its own. By 1972, however, this had changed. Monitor was developed by Reuters' in-house computer services division, located in London, and rolled out there in June 1973. That rollout came barely two months after the final collapse of the parities agreed at the Smithsonian Conference in December 1971 and thus of the Bretton Woods System itself, timing that helps to explain Monitor's immediate success. Major bilateral rates such as dollar/Deutschemark and dollar/yen became significantly more volatile than before, creating speculative and hedging demands and generating an increased volume of foreign exchange transactions.⁵⁷ Monitor was extended subsequently to bonds, equities, commodities and U.S. government securities. But foreign exchange came first.⁵⁸

The 1980s then saw the introduction of computerized dealing systems, such as Reuters Money Dealing, built on top of the Monitor system. This was not yet computerized matching; dealers still had to work out their own deals amongst themselves. But dealers could now communicate directly with one another over the system, making it easier and faster to execute trades. By the end of the 1980s, more than half of all spot foreign exchange transactions worldwide were completed using Reuters Money Dealing.⁵⁹

Meanwhile, 1988 saw the completion of the first submarine fiber

⁵⁷ The increase in volatility was documented in many places; see for example Bodnar G., Bartolini L. (1996), Figure 1. Whether the increase in volatility reflected more volatile fundamentals or simply more trading was disputed, but this is a separate point. The increase in volatility and associated trading also created scope for losses, including major losses when trading opportunities raced ahead of banks' internal controls. Schenk (2017) discusses the notorious case of rogue trading at Lloyds Bank International in 1974.

⁵⁸ Reuters was also the first financial firm to use satellite communications, connecting Monitor in London with Hong Kong in 1975.

⁵⁹ Read (1999), p. 370.

optic cable linking Britain with Belgium. This pioneering link was followed a year later by a second cable, TAT-8, linking Britain to both France and the U.S. via a branching unit located underwater on the continental shelf off the Cornish coast. The key technological breakthroughs had occurred earlier, in 1952 when the UK-based physicist Narinder Singh Kapany demonstrated the feasibility of fiber optic cabling, and in 1965 when two British research scientists, Charles Kao and George Hockman, showed that the attenuation problem limiting the utility of fiber optics was caused by imperfections in the manufacturing process.⁶⁰ Practical problems remained to be solved, however, before submarine fiber optic cables could be deployed; this occurred toward the end of the 1980s.⁶¹

While these cables were laid by telecom companies (in the UK case, by Cable & Wireless plc) as cheap, high-capacity conduits for telephone traffic, they quickly became vehicles for the transmission of other forms of data, including data on foreign exchange quotations and transactions.⁶² Among other things, they enabled dealers in other European countries to communicate more quickly with the London market and to take advantage of the high density of transactions there.

The existence of these fast, high-capacity communications links and a still larger volume of transactions then led Reuters, building on its earlier Monitor system, to develop its first matching server place it in a data center in London in 1992. Known initially as Reuters Dealing 2000-02 (or D2000-2), this was the first automated system allowing dealers to enter buy and sell prices for executable transactions directly, avoiding all need for a human broker, and to do so quickly, via fiber optics. D2000-2 identified the best pairing of

⁶⁰ Further advances in fiber optics were developed by U.S. researchers at Corning Glass, and the U.S. government pioneered their use when creating a network of computers at NORAD headquarters in 1975.

⁶¹ These notably included adding Kevlar insulation to protect the cables from shark attack (sharks being electro-receptive).

⁶² Eichengreen, Lafarguette and Mehl (2016) discuss the role of fiber optics in the geography of the modern foreign exchange market.

buy and sell orders for a stated amount of a given currency, and allowed traders to execute the transaction at the touch of a key. It permitted dealer-to-dealer conversations, as had the earlier Money Dealing system, but also produced an automatic electronic ticket feed to the back office, removing the need for handwritten tickets (receipts). In time, it encouraged the emergence of high-speed trading, in which traders rushed to beat other traders to the best available price, which in turn meant co-locating as near as possible to the physical server, namely in London.

Eventually, New York and Tokyo also acquired matching servers.⁶³ But that Reuters, the market pioneer, was British and that the London market was a practiced quick adopter meant that its first-mover advantage further solidified London's position as the dominant foreign exchange market, particularly in nearby time zones. Ultimately, this would translate into London becoming the leading venue for trading the euro.

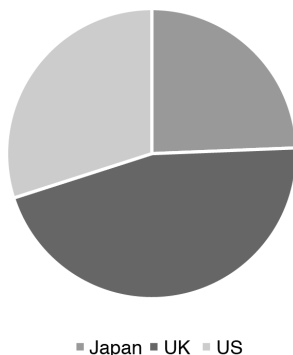
8. ...As Does Policy

This mention of the single European currency brings us, lastly, to recent developments in the policy sphere. Recall how, following World War II, the volume of foreign exchange transactions on the London market was depressed. Blocked balances and associated trading limits remained a constraint on the recovery of the market for many years. There was some recovery of activity with the growth of the Eurodollar market, as we have seen. Nonetheless, a Group of Thirty survey conducted at the end of the 1970s suggested that London significantly lagged Frankfurt when it came to foreign exchange turnover.⁶⁴ The rise of Frankfurt reflected the rapid recovery and

⁶³ Reuters itself established additional matching servers in data centers in other countries. In addition, in 1993 D2000-2 was met by a competitor, Electronic Brokerage Service (EBS), formed by a consortium of big international banks that had evidently had enough of Reuters' monopoly. See Luca (2007).

⁶⁴ See Group of Thirty (1980).

FIGURE 1
Forex Market Turnover (1986)



vigor of the German economy and its foreign trade, and also the emergence of the Deutschmark as a strong currency in which foreigners wished to invest.

This situation was transformed by Chancellor Geoffrey Howe's removal of Britain's remaining exchange controls in 1979. Previously, Britons who had wished to purchase, say, U.S. securities could do so only by obtaining "investment dollars" priced at a premium from a specially designated pool. (Shortly before that the Government had relaxed limits on purchases of foreign exchange for paying for foreign vacations and purchasing real estate abroad.) The initiative was part and parcel of the new Thatcher Government's deregulatory policies and of its faith in and reliance on markets.⁶⁵ Bank of England (1981) describes how the abolition of exchange controls was followed by a sharp increase in foreign currency deposits in London. These funds were then on-lent, including domestically, which required banks to convert their foreign currency into sterling. Against the backdrop of an increase in exchange rate volatility, the result was the explosive growth of trading in the 1980s. 1986 surveys by the Bank of England, Federal Reserve and Bank of Japan confirmed that

⁶⁵ See Ikemoto (nd) and Vinen (2009) for details.

London was now the largest forex market by turnover, marking a sharp change from seven years before.⁶⁶

The next policy initiative with first-order implications for the London market was the decision of European Community countries to create, within six years, a single market characterized by four freedoms, one of which was the free movement of finance. This enabled banks active in London to conduct business with counterparties in the EC on terms equivalent to those enjoyed by the national champions of other countries. In turn this permitted London-based firms to build on the City's status as market leader.

The UK then entered the European Monetary System in 1990. With its $\pm 2\frac{1}{4}$ per cent fluctuation bands, the EMS established in 1979 was intended to limit exchange rate variability. Insofar as it succeeded, it limited speculative trading opportunities involving other currencies against the Deutschmark, the EMS's de facto anchor currency. But there could be bursts of volatility and, consequently, of trading, whenever EMS currencies were realigned against the Deutschmark and speculators attempted to anticipate the policy action. Thus, a Bank of England's survey of the foreign exchange market in 1986 showed that Deutschmark/dollar was the second most important currency pair traded in London, after only sterling/dollar, with respective shares of 30 and 28 per cent. Those spikes in volatility became more dramatic, albeit less frequent, as countries relaxed their capital controls in anticipation of completing the Single Market. They became more dramatic because capital could flow more freely, placing greater pressure on fragile pegs, but less frequent because governments grew more reluctant to realign EMS parities for fear of provoking those same speculative flows. It would appear that the less frequent dominated the less dramatic in the short run, as the share of turnover in London accounted for by Deutschmark/dollar

⁶⁶ See Bank of England (1986, 1989). BIS survey data for 1986, though covering only the UK, U.S. and Japan, point to the same conclusion. See <https://stats.bis.org/statx/srs/table/d11.2>. Following a now familiar historical pattern, foreign banks accounted for the vast majority (78 per cent) of banks' aggregate turnover in London.

transactions declined somewhat, to 22 per cent of the total, by 1989, the occasion of the Bank of England's second survey.⁶⁷

The single most dramatic EMS-related episode was of course in September 1992, when currency speculators, epitomized by George Soros, borrowed sterling to sell it forward for dollars and Deutschmarks, and forced the Bank of England, seeking to hold the sterling parity, to trade in the other direction. At the height of the crisis, on Wednesday September 16th, the Bank was buying more than £2 billion of sterling an hour, and more than £22 billion in the course of the day, in its doomed efforts to defend the parity.

The crisis had far-reaching implications. It forced the Bank of England to develop an alternative to its earlier policy of targeting the exchange rate. The new strategy, inflation targeting, served it well, but among its implications was that sterling now fluctuated against other European currencies, it not being possible to target inflation and the exchange rate at the same time. The resulting variability of the sterling/Deutschmark rate created speculative and hedging-related demands for currency transactions. As a result, trading in the Deutschmark became even more important than before. This sour experience with the EMS also reinforced British aversion to adopting the euro, which implied a future with a variable sterling-euro rate, something that would work in the same direction.⁶⁸

⁶⁷ The Bank of England's 1992 survey (Bank of England 1992), conducted in April (that is, before Danish failure to ratify the Maastricht Treaty in a first referendum and eruption of the crisis), already showed a slight increase in the share of turnover accounted for by the Deutschmark/dollar rate and sharper increases in the shares of turnover accounted for by the DM/sterling, DM/yen and DM/other rates, consistent with growing investor concern about the stability of the EMS.

⁶⁸ As an exercise in counterfactual history, one might ask whether, had Britain had an easier ride in the EMS and therefore adopted the euro, whether London would still have been the principal market for foreign exchange transactions involving the Single Currency. Any answer is, to coin a phrase, "speculative." The argument against would build on the observation that when sterling was a major international currency, British firms felt little need to hedge foreign currency exposures, and the market therefore developed elsewhere, on the European Continent, where producers felt this need. Similarly, when the dollar became the leading international currency, U.S. firms felt little need to hedge foreign currency exposures, so the market developed elsewhere, in this

In 2001, the first year following the advent of the euro when the Bank for International Settlements surveyed foreign exchange turnover, the dollar accounted for 92 per cent of total turnover on the London market, far exceeding sterling's 24 per cent.⁶⁹ As we have seen, London had long been the leading center for transactions involving the dollar, a status it retained. But now transactions involving the euro accounted for fully 41 per cent of turnover on the London market, also far surpassing sterling's share. Further indicative of London's role as the leading market for trading the single currency, London was the venue for 34 per cent of all trades involving the euro; New York's share in contrast, was a mere 16 per cent, followed by Frankfurt at 9 per cent.⁷⁰ For several decades, European banks had conducted much of their Eurocurrency foreign exchange business in London. Now this extended to their trades involving the euro itself.

9. Conclusion

London today is the leading center for foreign exchange transactions. According to the most recent (April 2019) survey of the Bank for International Settlements, the UK is the location of more than 43 per cent of turnover of foreign exchange instruments worldwide. Not even the United States, in second place with a 16.5 per cent share, comes close.

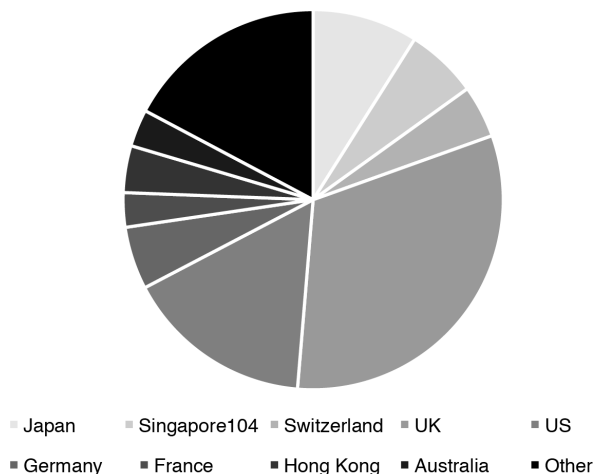
This was not always the case, however. While data comparable

case in London. In the counterfactual under consideration, British firms would have felt little need to hedge their exposures vis-à-vis the UK's most important trading partner, the rest of the EU. Since London would have not possessed a domestic installed base of euro-related transactions, the market would have developed elsewhere, say in New York. The argument for is that British firms would have still had a need to hedge their transactions with the U.S. and the rest of the world and that London would have had a head start on enabling them to do so.

⁶⁹ Circa 2001, 41 per cent of all transactions in London involved the euro, compared to sterling's 24 per cent, mentioned previously. Note that since two currencies are involved in each trade, the relevant percentages add up to 200 per cent.

⁷⁰ The remaining euro transactions were spread across diverse trading centers.

FIGURE 2
Forex Market Turnover (2001)



to those gathered by the BIS since the 1980s are not available for earlier decades, contemporaries and historians are united in the belief that London's preeminence as a foreign exchange trading center is of recent vintage. Before World War I, there was little demand and use of foreign currencies by British banks, firms and investors. The vast majority of their cross-border transactions were in sterling, reflecting the country's early industrial development and financial sway. Such foreign currency transactions as occurred were mainly in dollars, reflecting the historical importance of the American cotton trade. Thus, with the rise of dollar invoicing and settlement, reflecting the disruptions of World War I and Federal Reserve efforts to foster the use of dollar trade credit, London was positioned to join other previously more important currency trading centers as a venue for dollar transactions. This specialization in turn positioned it to become the leading center for Eurodollar deposits and related transactions starting in the 1950s. Building on this advantage, London then blossomed into the premier currency trading center following the removal of exchange control in 1979 and related regulatory encouragement.

London's current position is partly a reflection of this history: of the City's status as a financial center already in the 19th century, of the worldwide role of sterling, and of a distinctive demand for dollar credit. It is partly a reflection of the openness of the City – of the long-standing readiness of regulators and private financial associations to welcome competition from foreign financial firms, even in the period of otherwise tight controls in the 1950s and 1960s. It is partly a reflection of the facility with which market participants adopted new trading and communications technologies, which were developed locally, to a significant extent, again reflecting London's historic financial center status. Thus, the same factors that made for London's late start as a foreign exchange trading center contributed to its subsequent preeminence.

Just because London is the leading financial center today doesn't guarantee that it will remain so, of course. With the rise of China, London will have to develop the expertise and regulatory flexibility to actively trade the renminbi, which will account for a growing share of global cross-border payments over time. Currently, China's currency accounts for less than 2 per cent of transfers through SWIFT (the Society for Worldwide International Financial Transactions), a share far below China's weight in world trade and payments. This imbalance is a legacy of regulatory restrictions on the ability of Chinese residents to engage in cross-border transactions and on the ability of foreigners to access the currency. It is likely to fall away as those restrictions are relaxed and the Chinese authorities move ahead with internationalizing the currency. That the Bank of England has negotiated a swap agreement with the People's Bank of China, enabling it to access renminbi funds and provide renminbi liquidity to London dealers, suggests that the British authorities are aware of the need to cultivate this market, while also ensuring its stability. The fact that the UK and China have established direct interbank trading between the pound and renminbi, without the need to go through the dollar, points in the same direction. So too does regulatory authorization for the China Construction Bank to act as renminbi clearing bank in London.

That said, there are also challenges, for example the fact that many of China's leading commercial and financial partners, who are most likely to utilize the renminbi, are located in Asia, many time zones away.⁷¹ As of 2019, Hong Kong and China itself both surpassed the UK as venues for trading the renminbi, with Singapore close behind.⁷²

But it would be reckless to write off London as a leading foreign exchange trading center, given the advantages bequeathed by history. As the largest foreign exchange trading center, London has the most liquid markets. Liquidity is especially appealing to algorithmic traders, who account for a growing share of the total volume of transactions. Attracting such traders renders the market more liquid still, in the manner of a positive feedback loop. London also has a physical infrastructure of fiber-optic cabling and matching servers. It has a record of adopting new and novel computing and communications technologies. It has a population of seasoned currency traders to train their successors, and a rich ecosystem of legal, accounting and IT professionals. It has long welcomed the participation of foreign financiers and foreign financial institutions.

Brexit raises questions about these advantages. Will Britain post Brexit be as welcoming of and be as attractive a domicile for foreign financial professionals? Will EU regulation post Brexit allow European institutions to continue clearing foreign exchange derivatives at the London Clearing House? Will other players follow CME Group in moving their foreign-exchange forwards and swaps operations from London to Amsterdam?

Time will tell.

⁷¹ Evidence on the importance of time-zone differences for the geography of the foreign exchange market can be found in Eichengreen, Lafarguette and Mehl (2016).

⁷² The other way of seeing things is that London is now the leading center for renminbi trading by turnover outside of China proper. See Cheung, McCauley and Shu (2019) for some projections of how these shares might evolve in the future.

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