

What Bankers Know, or Ought to Know, about Foreign Exchange Theory

My article "The Relations between Practice and Theory of Forward Exchange", appearing in the *Banca Nazionale del Lavoro Quarterly Review* of September 1962, criticizes the strong prejudice against foreign exchange theory prevailing in banking circles concerned with foreign exchange operations. Although that article is confined to forward exchange, my observations apply equally to general foreign exchange theory — that is, theory primarily concerned with explaining trends in spot exchange rates. As I pointed out in my article, many bankers firmly believe that foreign exchange dealers and senior bank officials ultimately responsible for their operations must rely exclusively on practical experience, common sense and intuition, and must avoid at all costs being "contaminated" by any theoretical knowledge. It would be perhaps exaggeration to say that a foreign exchange dealer who happens to be interested in learned books and articles on theoretical aspects of his subject has to take care not to be caught by his chiefs or colleagues at reading such material. On the contrary, some bankers are even known to have actually bought such books for the use of their staffs. But senior foreign exchange dealers of the old school are still inclined to shake their heads in disapproval of their juniors' ambition to learn more about foreign exchange theory.

The first step towards breaking down this attitude is to make bankers realize that their prejudice against foreign exchange theory is not based on old-established tradition but is of comparatively recent origin. They may be unaware that, throughout the long history of foreign exchange theory in past centuries (1), many bankers

(1) In my *History of Foreign Exchange* (London, 1962), I trace the origins of foreign exchange in Babylonia to around 2000 B.C., so that the practice must have been in operation for something like 4000 years. The existence of foreign exchange theory, on the other hand, can only be traced during the last 600 years.

engaged in practical foreign exchange operations were not only aware of theoretical rules but in many instances actually formulated them, making thereby important contributions towards the progress of foreign exchange theory. So far from deliberately abstaining from studying it, they had an important share in building up that very set of doctrines which their successors are now inclined to treat with contempt.

It was not until more recent times that bankers came to develop inhibitions against familiarizing themselves with theoretical aspects of their special subjects. This is one of the reasons why the development of forward exchange theory which, properly speaking, only began after World War I, was left all along, and is still being left, almost entirely to theoretical economists with no experience in practical operations. And this is why the foreign exchange controversies of the inter-war and post-war periods were fought out, and are still being fought out, almost entirely between academic economists, with very little assistance from practical bankers.

Perhaps it will help contemporary bankers in overcoming their prejudices if I quoted a few concrete instances of valuable contributions made by their forerunners to the progress of foreign exchange theory. It is true, the large majority of exchangers and merchant bankers dealing in foreign exchanges during past centuries were unable or unwilling to publicize their experience, possibly for fear of giving away business secrets, or of putting ideas into the heads of the authorities. Or perhaps they were not endowed with the faculty of expressing themselves articulately on the subject, even though they had known it very thoroughly. Nevertheless, when studying the history of foreign exchange theory, every now and again we come across some important contribution by a practical specialist. Evidence of their active interest in theory is contained in business archives or official dispatches, in reports of official committees of which they had been members or before which they had given evidence, in contemporary guides on foreign exchange for the use of merchants, and even in pamphlets or books written by bankers on the broader aspects of their subject.

Medieval literature on such foreign exchange theory as had existed was dominated by scholastic writers, but it was a practical foreign exchange operator, Richard Aylesbury, to whom credit is due for the first indication, in the year 1281, of a balance of payments theory of foreign exchange, in his evidence given before a Royal

Commission (2). But apart from this isolated instance, medieval foreign exchange theory was essentially Italian. Two Italian authors of guidebooks for merchants, Pegolotti (3) and Uzzano (4), writing in the 14th and 15th centuries on the basis of their practical experience in banking, made some interesting observations about the effect of scarcity and ease of money supply on exchange rates. That they put forward diametrically opposite theories only goes to show that the habit of writers on foreign exchange to disagree is not confined to academic writers, and that it is as old as foreign exchange theory itself.

Another former foreign exchange dealer of the 15th century, Fra Santi Rucellai, who gave up his occupation and took Holy orders when he was nearly sixty, made it plain in his writings that medieval exchange rates had concealed interest charges. Although this generally-practised circumvention of the Church Law against usury was denounced again and again by many ecclesiastic writers throughout the Middle Ages, in the absence of practical experience they could merely voice vague suspicions. Rucellai on the other hand was able to denounce his former colleagues — being a true disciple of Savonarola, he threatened them with the eternal damnation of their souls unless they changed their occupation — on the basis of evidence obtained through his first-hand practical experience of a lifetime (5). He made a valiant effort to liberate foreign exchange theory from the misleading explanations put forward by defenders of the prevailing practice who had elaborated some most ingenious theories in order to conceal the fact that exchange rates had included interest charges.

Sir Thomas Gresham, who was one of the outstanding practical foreign exchange operators of the 16th century, made several important contributions to foreign exchange theory (6), including the discovery of the operation of specie points. The theory for which his name will ever live is Gresham's Law, according to which "bad

(2) EINZIG, *op. cit.*, p. 96.

(3) FRANCESCO BALDUCCI PEGOLOTTI, *La Pratica della Mercatura* (c. 1340). Ed. A. Evans, Cambridge, Mass.

(4) GIOVANNI DI ANTONIO DA UZZANO, *La pratica della mercatura*, 1442. Ed. G. F. Pagnini, Lisbon & Lucca, 1765-66.

(5) RAYMOND DE ROOVER, *L'évolution de la lettre de change, XIV^e-XVIII^e siècles*. Paris, 1953, pp. 198-9.

(6) RAYMOND DE ROOVER, *Gresham on Foreign Exchange*. Cambridge, Mass., 1949.

money drives out good money". Gresham himself was aware that the law named after himself was gross oversimplification as far as its application to international movements of specie was concerned, because its validity depended on whether the exchange was overvalued or undervalued compared with the relative metallic value of the national coinages.

This more advanced theoretical rule was made clear towards the close of the 16th century by Bernardo Davanzati, undoubtedly the greatest name among the pioneers of foreign exchange theory (7). He was a Florentine merchant banker with ample practical experience in foreign exchange dealings in Florence and at the quarterly fairs of Lyons. His many contributions to foreign exchange theory included among others the first attempt to process-analysis regarding the operation of the market mechanism in the foreign exchange market. He explained the operation of the specie point mechanism much more lucidly than Gresham.

During the course of the famous controversy between the three "M"s, Malynes, Misselden and Mun, in the early 17th century, only the first named had had the advantage of practical experience in foreign exchange dealing. The fact that in spite of this he got the worst of the argument shows that experience does not itself necessarily safeguard writers on foreign exchange theory against reaching fallacious conclusions. Indeed, some much more recent instances could be quoted to show that when a practical banker develops a bias in favour of a foreign exchange theory he is apt to be fully as dogmatic as any academic economist.

Later, towards the middle of the 17th century, Henry Robinson put forward the rudiments of the elasticity theory of foreign exchange which has become the prevailing fashion in our day. This practical banker forestalled his distinguished academic namesake, Mrs. Joan Robinson, by almost exactly three centuries, by pointing out that an undervaluation of the exchange need not necessarily stimulate exports, because "all other Nations now almost make cloth of their own (8).

At the beginning of the 16th century John Law, having gained practical experience in foreign exchange operations as a banker in

(7) BERNARDO DAVANZATI, *La notizia dei cambi*. Ed. Custodi, Milan, 1804.

(8) HENRY ROBINSON, *England's Safety in Trade Encrease*. London, 1641. Ed. Wm. A. Shaw, *Select Tracts and Documents, Illustrations of English Monetary History, 1626-1730*. London, 1896, pp. 63-4.

Amsterdam during the 1690s, expressed his theoretical views in a book first published in 1705. He produced, among others, a very articulate explanation of the effect of exchange depreciation on the terms of trade. His contemporary, Richard Cantillon, a banker with much experience in foreign exchange dealing in Paris during the hectic days of John Law's experiment in 1720, laid down the rule that a depreciation of the exchange is apt to correct itself automatically through its effect on imports and exports (9). Another leading 18th century French writer on foreign exchange theory, Dutot (10), was a cashier of the Compagnie des Indes, an enterprise that had survived its founder, John Law. It seems likely, even in the absence of concrete evidence to that effect, that in his capacity of cashier of an institution actively engaged in foreign trade he had gained much practical experience in foreign exchange dealings.

During the bullionist controversy of the Napoleonic Wars quite a number of bankers contributed towards the emergence of the purchasing power parity theory. Indeed, it was a practical banker, Walter Boyd, who fired the first shot in 1801. Others with practical experience in foreign exchange taking part in the controversy included Henry Thornton, John Wheatley, Sir Francis Baring, Charles Bosanquet, Aaron A. Goldsmid, and, later, George Warde Norman, (Montagu Norman's ancestor) (11), to mention only a few. Books, pamphlets, articles and evidence before the Bullion Committee and other Parliamentary Committees are not only a goldmine of information on contemporary practices but also disclose the active interest taken by bankers in theoretical questions.

The greatest name among bankers who ever made use of practical experience in foreign exchange for furthering the progress of theory is that of Goschen. His *Theory of the Foreign Exchanges* is a classic which, to this day, is referred to with bated breath even by the purist academic writers of foreign exchange theory (12). It was thanks to him that theoretical economists had come to realize the full importance of interest rates among influences

(9) RICHARD CANTILLON, *Essai sur la nature du commerce en général*. Ed. Henry Higgs. London 1931, Chapter III.

(10) F. C. DUTOT, *Réflexions politiques sur les finances et le commerce*. Paris, 1738. Ed. Eugène Daire, Paris, 1843.

(11) Although Ricardo, the most prominent participant in the controversy, was a practical stockbroker, he had no experience in foreign exchange operations.

(12) GEORGE J. GOSCHEN, *The Theory of the Foreign Exchanges*, London, 1861.

affecting the exchanges. Apart from this and many other contributions of his book to foreign exchange theory, its great merit is that it consolidates earlier progress.

But by the middle of the 19th century bankers appeared to have developed an inhibition against displaying an active interest in foreign exchange theory. This at any rate is indicated by the fact that when the first edition of Goschen's book appeared in 1861 it was published anonymously, presumably because, as partner in the firm of merchant bankers Frühling & Goschen, he felt it would not add to his prestige as a banker if it became known that he was also a theoretician. Only after his book proved to be an outstanding success did he decide two years later to publish the second edition under his own name.

Towards the end of the 19th century Ottomar Haupt, a Paris banker, made some contributions to foreign exchange theory, even though most of his writings aimed at describing foreign exchange practices. In the early 20th century several Viennese and Budapest bankers took part in the controversy over theoretical aspects of the Austro-Hungarian Bank's forward exchange tactics (13).

During and after World War I, two German bankers, Alfred Lansburgh and Albert Hahn, took a very active hand in current theoretical controversies arising from the clash between supporters of the balance of payments theory and of the purchasing power parity theory. But in more recent times bankers who showed an interest in theory were concerned with general monetary theory rather than foreign exchange theory. In the meantime foreign exchange has become a more specialized branch of banking, and very few bankers, apart from those with experience in foreign exchange departments, have sufficient first-hand knowledge of foreign exchange dealing to be able to make original contributions to foreign exchange theory. The days when partners in merchant banking firms were themselves engaged in foreign exchange operations — in London only partners were allowed to attend the meetings at the Royal Exchange in the old days — are over.

Examples for contributions by practical foreign exchange dealers to foreign exchange theory could be multiplied, but the above selection should give an idea about the extent of active interest taken

(13) PAUL EINZIG, *A Dynamic Theory of Forward Exchange*. London, 1961, Chapter 34.

in theory by the forerunners of our generation of bankers in past centuries. It is only in more recent times that foreign exchange dealers, if writing at all on foreign exchange, came to confine their interest almost entirely to practical aspects of the subject. The revival of interest in theory shown by the younger generation of foreign exchange dealers during the post-war period may, therefore, be welcomed as a return to a state of affairs which, as we saw above, can look back upon ancient and respectable traditions.

However, if this attempt to persuade bankers to take an interest in foreign exchange theory were merely based on remote historical precedents it might not be sufficient to influence the attitude of the senior generation brought up in the creed of contempt for theory. I must put forward, therefore, a much more effective argument. It is my contention that foreign exchange operators — even those who are most emphatic in voicing their contempt for theories — do in fact follow theories without being conscious of it. In their everyday activities foreign exchange dealers are bound to base their views and decisions on what are in substance theoretical rules concerning the way in which various events and developments are liable to affect exchange movements. Most of the dealers may do so without being aware that they pursue this or that theory. Nor are most of them able to express those rules in a rigorous form that would pass for theory in the ordinarily accepted sense of that term. But I have no doubt that it would help them if they were able to do so, and if they were able to pursue such theories deliberately instead of pursuing them largely instinctively.

The following observations on the various theories that dealers follow consciously or otherwise are based on the innumerable conversations I had with a large number of foreign exchange dealers, spread over a period of nearly half a century. I have purposely chosen the simplest version of each theory, disregarding the wide variety of their possible interpretations.

A theory which everybody takes for granted — so much so that it is never, or hardly ever, mentioned in textbooks — is the simplest and oldest of foreign exchange theories, the metallist theory. According to this, exchange rates depend on the relative amount of gold represented by the monetary units of the currencies exchanged against each other. This rule is apt to be forgotten because under our post-war system none of the currencies is really convertible into gold by private holders. Nevertheless, the rule does apply to a wide

range of currencies, those of members of the International Monetary Fund, having fixed parities in relation to the dollar which in turn does represent a fixed quantity of gold.

Early money-changers must have always been aware of the metallist theory which emerged from their practical experience during the very earliest phase of exchange dealing. After all, originally coins were exchanged against each other according to their respective metal contents determined by their weight and fineness, and they were weighed and tested for each transaction. Later, as and when certain coins came to command sufficient confidence, they came to be exchanged by tale, but only because exchangers were prepared to accept the respective metallic contents of the coins at their face value. At a later stage of monetary evolution, the exchange value of paper currencies exchanged against each other or used in payment of foreign bills of exchange depended on their convertibility, or prospects of convertibility, into coins representing certain weights of gold or silver.

All this is now long-forgotten past history. Nevertheless, foreign exchange dealers accept even in our days the axiom that any change in metallic parities — which under the present system means in most instances I.M.F. parities — would necessarily bring about a corresponding change in exchange rates. Whenever they envisage a devaluation or a revaluation their operations are based on the expectations of changes in the relative quantities of gold that the currencies concerned represent. Even if spot rates are held stable, right to the moment of the change, at support point by official intervention, forward rates tend to allow for such anticipations to a large degree. The moment the change is announced exchange rates are adjusted to their new parities by dealers as a matter of course, without waiting for the actual operation of the market-mechanism to produce such an effect through a change in supply-demand relationship. From the moment of the change the rate at which supply and demand are supposed to balance is the new rate based on the new theoretical metal content of the monetary unit.

This brings us to the State theory of foreign exchange, according to which Governments are in a position to determine the value of their currency. This theory, as put forward by Knapp at the beginning of the century, was only meant to apply to the domestic value of the national monetary unit. Indeed, Knapp himself went

out of his way to emphasise that, since the Government's writ does not apply outside the frontiers of its country, the State's power to determine the value of money is confined to the domestic sphere (14). In reality the State has almost unlimited power to determine the external value of the currency by changing its parity in relation to gold or in relation to some currency which represents a definite quantity of gold. For instance, when in 1959 the French Government equated 100 old francs to one new franc foreign exchange dealers accepted the resulting new exchange rates immediately as a matter of course. Likewise, when in 1961 the D.mark was revalued by 5 per cent the announcement was automatically followed by a corresponding adjustment of exchange rates in the market.

The adjustment of the exchange rate need not be arithmetically perfect, because prior to the change its anticipation affects the rates, and after devaluation or revaluation any anticipation of further changes is liable to influence the dealers' attitude. What matters from the point of view with which we are here concerned is that the moment the change is announced dealers throughout the world take it for granted, in accordance with the metallist theory and the State theory, that the new parity would be the new equilibrium rate around which the actual exchange rates would fluctuate. Of course, in so far as a change in parity affects the balance of payments or the ratio between the price levels, the exchange rate towards which the currency will subsequently tend to gravitate in practice might differ from the new parities.

Deviations from the parities are explained by a number of theories, foremost among which are the supply and demand theory, the theory of the market mechanism, the quantity theory, the balance of trade theory, the purchasing power parity theory — which is concerned with "parities" only in the case of floating exchanges — the interest rate theory, the psychological theory, the speculation theory and the elasticity theory.

Of these theories the first named is by far the most familiar to foreign exchange dealers. Even the most junior amongst them is aware that a foreign exchange appreciates if buying orders exceed selling orders, and it depreciates if the reverse is the case. If a dealer

(14) G. F. KNAPP, *Staatliche Theorie des Geldes*. (3rd ed.), Munich and Leipzig, 1921, p. 202.

has to execute a substantial transaction he endeavours to time it and to stagger it in order to minimize the effect of the initiative he takes in bidding for a counterpart. If he is in a position to wait until a counterpart is provided through someone else's initiative, he is able to execute the transaction without having to move the rate against himself. Indeed, the initiative of the other party might even move the rate in his favour. But if he is in a hurry he has no choice but to take the initiative, in which case he has to offer a rate that attracts a counterpart. On days when there is one-sided pressure and a number of buying orders or selling orders appear in the market, the rate has to move appreciably in order to attract counterparts for all of them. All this is elementary practice, but at the same time it does follow a theory — that of supply and demand.

Dealers are of course aware that when buyers exceed sellers the rate rises until it reaches a level at which buyers cease to consider it worth their while to buy, and at which it attracts adequate additional supply to the market, and that when sellers exceed buyers the exchange depreciates until it reaches a level at which holders cease to deem it worth while to sell and at which it attracts additional demand. The operation of the market-mechanism is substantially the same as in other markets, but owing to the very high degree of elasticity of both supply and demand in foreign exchanges, in the foreign exchange market it operates as near to perfection as in any market.

Even though foreign exchange dealers may know nothing about the theory of market mechanism — or, to be precise, they may be unaware of having any knowledge of that theory — they are perfectly familiar with its operation in practice. In fact, the market mechanism functions through them. It is they, and their clients operating in the market through their intermediary, who have to make up their minds when an upward or downward movement of an exchange must be considered to be "overdone". But here we are in a sphere in which theory merges into technique with no borderline between them. Whether a dealer is successful or unsuccessful depends very largely on his ability to judge when a movement has proceeded too far, or that a reaction bringing about a "technical" adjustment of the rate becomes due.

Dealers are aware that attempts by theoretical economists to establish arithmetical relationship between supply and demand and

exchange rates are utterly unrealistic. In their experience there are days when the market is able to absorb easily quite substantial buying or selling pressure with hardly any effect on the rates, while on other days the rate is affected quite considerably by a much smaller pressure. It depends on a multitude of factors that are liable to influence the willingness of dealers to provide a counterpart, according to the view they take on the position and the prospects, and according to the extent of their own resources and their own existing commitments. Apart from the nature of the relevant information they possess, and their evaluation of its significance, their reactions to the same facts differ according to their moods. More will be said about this when dealing with the psychological theory.

The quantity theory is in substance a more sophisticated version of the supply and demand theory. We saw above that from the 14th century onward foreign exchange dealers had been aware of the existence of relationship between the quantity of money available in the market for the purpose of acquiring foreign bills. In the 16th century Gresham was able to express this relationship very clearly: "The way to raise th'exchange for England... By making money scaunte (*i.e.* scarce) in Lumbard Strete" (15). Both he and other leading operators of his period acted on this theory from time to time by cornering the supply of money or releasing it, according to the way they wanted to influence exchange rates.

Foreign exchange dealers in their everyday work are only too familiar with a "quantity theory" in a much narrower sense. The volume of their own operations is largely influenced by the amount of funds placed at their disposal by their banks, plus the amount they are authorized to borrow through swap transactions or in the Euro-currency market. If all their available supplies of funds are already committed in arbitrage right to the authorized limits, and if other foreign exchange departments are similarly placed, they may have to forgo opportunities for profitable operations in spite of any temptation of wide profit margins. In such a situation a scarcity of funds causes exaggerated movements of the rates until they reach a level at which the temptation to take a hand becomes irresistible and dealers succeed in persuading the managements of their banks to allot more funds for their departments.

(15) RAYMOND DE ROOVER, *op. cit.*, p. 303.

In a much broader sense, the quantity of money that determines exchange rates is not that of the foreign exchange departments, or even that of the total liquid cash in the market, but the entire volume of currency and credit of the two countries concerned. In the course of the bullionist controversy during the Napoleonic Wars, and again in the course of the foreign exchange controversy during and after World War I, this version of the quantity theory of money became linked with the purchasing power parity theory of foreign exchange, which is concerned not with changes in the volume of funds in foreign exchange markets but with changes in the total monetary circulation in the countries concerned. More will be said about this when dealing with the bankers' attitude towards the purchasing power parity theory.

Before examining that theory we must deal with the more familiar balance of trade theory. If there is one theoretical rule with which all dealers are thoroughly familiar it is the age-old theory that an export surplus makes for an appreciation of the exchange concerned, while an import surplus makes for its depreciation. Foreign exchange dealers are well placed for ascertaining the operation of such influences, because these influences operate through their medium. They know when the big tobacco importing firms cover seasonal dollar requirements. They are familiar with the effects of large-scale operations by the international oil companies, and so on and so forth. Even though each foreign exchange department only covers a fraction of the total operations arising from imports and exports, the news about large transactions usually gets round the market long before balance of trade figures come to be published.

Foreign exchange dealers are indeed well aware that there is inevitably a time lag between changes in the balance of visible trade and the publication of the relevant figures, and a considerably longer time lag as far as invisible imports and exports are concerned. Nevertheless, they are often inclined to allow themselves to be influenced by the published trade figures, although they must be aware that those figures refer largely to a past period. If the trade returns of the United Kingdom for the past month show an increase in the adverse balance through an increase of imports, for instance, it inspires pessimism towards sterling in the market, although dealers must surely know that most of the demand for foreign exchange arising from the additional imports had already passed through their

hands — especially in so far as the imports consist mainly of raw materials which are paid for in cash — so that it could not possibly affect the future trend of sterling. In any case, since importers having to pay in foreign currencies at some later date and exporters having to receive foreign currencies at some later date usually cover the exchange risk, their transactions affect the exchange rate when they carry out the necessary forward exchange transaction and not when the goods are registered in the customs returns, or even when the actual payment for the goods is due.

Dealers are right in attaching importance to the balance of trade theory, but they must not confine their interest to grand totals. They must analyse the details of imports and exports and they must pay more attention to leads and lags. For instance, if increase in an adverse balance is due to purchases of manufactures of the kinds that are usually bought against medium- or long-term credits then it is advisable to expect a delayed effect. Bankers know that British exports consist mainly of manufactures, and that a large proportion of them are capital goods sold on a long-term credit basis, so that their increase could not possibly have affected sterling favourably during the month for which they were included in the customs returns.

Those who seek to apply the balance of trade theory in order to explain exchange movements must know a great deal about actual or customary terms of payments in the various lines of exports and imports in order to form an idea when they have affected, or are likely to affect, exchange rates. Since bankers know much more than economists about credit terms granted to exporters and importers in various lines, they are in a better position to form an idea about changes in leads and lags. This should assist bankers in the correct use of the balance of trade theory for interpreting or forecasting exchange rates.

Practical experience should enable bankers to avoid the fallacies into which several leading theoretical economists fell during the early inter-war period when, in an attempt to minimize the importance of the balance of payments as a factor influencing exchange rates, they arrived at the fallacious conclusion that the balance of payments could not possibly affect the exchange rate because "it must always balance". It is true that in a good foreign exchange market any one-sided buying or selling pressure is always offset through movements of short-term funds in the opposite sense, so that in the

balance of payments, as in balance sheets, the total debit and credit items must always equate each other. But the process entails a change in exchange rates.

Just as the fact that the two sides of a balance sheet must always equate does not mean that no firm could ever become insolvent, so the fact that the two sides of a balance of payments must always equate does not prevent a deficit from causing the exchange to depreciate, or a surplus from causing it to appreciate. Foreign exchange dealers, ever since the time of Davanzati, have been well aware that if there is an excess of demand for a currency that demand finds its counterpart as a result of a corresponding adjustment of the exchange rates. Economists, too, ought to have been aware of this elementary fact, since it is one of the basic economic laws, the law of market mechanism which even first-year students of economics have no excuse to ignore. Nevertheless the list of academic economists who ignored its application to foreign exchange in their argument that the balance of payments could not affect exchange rates because it must always necessarily balance would make impressive reading. A few hours spent in a dealer's room would have opened their eyes. The reason why economists fell into such a fallacy is explained by their over-enthusiastic support of the purchasing power parity theory, manifesting itself in an effort to minimize the importance of the balance of payments theory.

Although its origins can be traced to the 16th century and it figured prominently during the Napoleonic Wars, it was not until towards the end of World War I that the purchasing power parity theory became firmly established. Its substance is that exchange rates are determined by the ratio between the price levels in the countries concerned. This contention contains a great deal of truth — especially under a system of freely fluctuating inconvertible currencies — and bankers are right in allowing their opinions about the prospects of exchange rates to be influenced by the relative levels and trends of prices in the countries whose currencies are exchanged against each other. But this theory has more pitfalls for the unwary than any other foreign exchange theory. Operations based on its dogmatic interpretation inflicted heavy losses on many a banker and speculator in the early 'twenties, besides misleading Governments into adopting the wrong policies. The victims derived scant comfort from the fact that their number included the great Keynes himself.

Bankers are on safer ground with the interest rate theory of foreign exchange. They were familiar with it from medieval days, when interest was included in exchange rates and the latter were necessarily influenced both by the level of interest rates and by the length of maturities of the foreign bills. From the 18th century, and possibly even earlier, they must have been aware of the modern version of the theory under which differences in the levels of interest rates in various financial centres affect exchange rates through giving rise to transfers of funds from the centre with low interest rates to the centre with high interest rates. We already saw above that it was a practical banker, Goschen, who first expressed that theory in a comprehensive form. In our days foreign exchange dealers are always on the lookout for changes and prospects of changes in interest rates in foreign centres. When a Bank rate changes they are quick to adapt their forward quotations to the changed interest parities. Spot rates, too, respond to changes in interest rates.

As I pointed out in my article in the September 1962 issue of this *Review*, practical bankers do not accept the theory put forward by Keynes and others that in modern conditions Bank rate changes produce all their effect on forward rates and need not therefore give rise to international movements of short-term funds (16). While adjustments of forward rates are quick to follow changes in their interest parities, the adjustments are not necessarily arithmetically perfect or absolutely instantaneous, so that a certain amount of shifting of funds is liable to occur. What is much more important, changes in the Bank rate are apt to induce dealers to revise their views on the economic prospects of the country concerned, and their reassessment of the prospects is liable to modify the material effect of the change on spot as well as forward rates.

Practical bankers were aware of the interest parity theory of forward exchange many years before that theory came to be expressed by Keynes after the First World War. And a practical banker with extensive experience in foreign exchange dealing, W.W. Syrett, carried that theory further by attempting to link it with the purchasing power parity theory (17). This is one of the

(16) PAUL EINZIG, "The Relations between Practice and Theory of Forward Exchange". *Banca Nazionale del Lavoro Quarterly Review*, Sep. 1962, pp. 9-10.

(17) W. W. SYRETT, "The Theory of Forward Exchanges Restated". *The Banker*, June 1936.

infrequent instances in which a banker sought to contribute to the progress of foreign exchange theory in recent times.

A theory with which all dealers are undoubtedly familiar is the psychological theory, according to which all material factors produce their effects largely through the operation of the psychological factor, which factor modifies to a very large degree the effect of material factors. As I pointed out above, the extent to which an increase of supply or of demand affects exchange rates depends to a very large extent on the market's moods. The same amount of buying or selling orders may be absorbed on some days with the greatest ease with hardly any effect on the rates, while on other days it might trigger off a vicious spiral of self-aggravating movement of exchange rates.

Anticipations of changes of every kind are an essentially psychological factor. Even after an anticipation has materialized its effect on the rates is influenced by the view taken of the changed situation by thousands of dealers and, further removed, by hundreds of thousands or even millions of commercial and other customers concerned with foreign exchange.

The theory of leads and lags which was discovered by economists during the post-war period must have been familiar ground for bankers since time immemorial. They must have been aware that the timing of a pressure on an exchange rate depends very largely on the decisions of their commercial customers whether to cover their foreign exchange requirements well in advance or to defer the payment as long as possible. As I observed above, bankers are very favourably placed for interpreting trade figures in the light of their knowledge of payments terms customary in various industries engaged in foreign trade. They are in a fair position to judge the extent to which seasonal import requirements, for instance, are covered months ahead. They would be in a position to make valuable contributions to leads and lags theory on the basis of their practical experience and knowledge.

The two theories which are at present the most fashionable in academic circles are the elasticity theory of exchanges and the theory of flexible exchanges. The similarity of their names is entirely deceptive, for the latter theory is based on the negation of the former, even if the protagonists of the latter are not aware of this.

According to the elasticity theory — which, as I pointed out above, was first put forward in the 17th century by a practical

banker — the effect of an overvaluation or an undervaluation of exchange rates depends on the elasticity of supply in the exporting countries and on the elasticity of demand in the importing countries. This theory, as indeed any theory which casts doubt on the existence of rigid arithmetical relationship between cause and effect in the sphere of foreign exchange, is bound to meet with sympathetic response among practical bankers. Many of them would be in a position to provide concrete instances to illustrate the working of the elasticity theory. On the other hand, none of them is likely to share the attitude of those academic circles in which the elasticity theory has come to be regarded as the final word on foreign exchange theory, and indeed the sum total of foreign exchange theory. Teaching of foreign exchange theory in some universities is virtually confined nowadays to the teaching of the elasticity theory. This could best be compared with confining the teaching of grammar to the teaching of the irregular verbs. It is to be hoped that no practical banker would succumb to the prevailing fashion in this respect.

The enthusiasm of a surprisingly large number of academic economists for floating exchange rates is all the stranger as it is utterly inconsistent with their acceptance of the elasticity theory. The case in favour of flexible exchange rates is based on the assumption that if only exchange rates were allowed to find their "natural" level they would automatically correct any fundamental disequilibrium between price levels in the countries concerned and would eliminate their balance of payments deficit or surplus. Economists assume that on the *laissez faire* principle the collective wisdom of the multitude of dealers and their clients is bound to produce the pure equilibrium rate that would cure all imbalance.

Flattering as this assumption may sound to dealers, I doubt if many of them would accept the conclusion based on it. They are only too well aware that there are disequilibrating as well as equilibrating exchange movements, and that in given circumstances the psychological effect of a market trend of exchange rates is apt to be distinctly self-aggravating. If an overvalued exchange is "allowed to find its true level", as likely as not the movement will become distinctly overdone. It is everyday experience of dealers to witness a selling pressure, once it has developed, become self-aggravating. The formerly overvalued exchange becomes undervalued. According to the theory on which the policy of flexible rates is based the market trend would then become reversed and

the rate would recover to its equilibrium level. In practice, as dealers have reason to know, in given circumstances an exaggerated movement is liable to proceed for quite a while before it becomes automatically reversed through setting in operation the market mechanism after having overcome the rigidities of supply or demand. In the meantime the exaggerated depreciation of the exchange tends to affect prices in the country concerned and, by shifting the purchasing power parities, it is liable thereby to provide subsequent justification for depreciation that was originally unjustified.

There may have been some excuse for believing in the flexibility theory before the revival and popularization of the elasticity theory. It had been assumed that any depreciation and undervaluation of an exchange rate carried its corrective by stimulating the exports and discouraging the imports of the countries concerned. We are indebted to the elasticity theory for making it clear that imports and exports need not respond to relatively moderate changes in exchange rates. If, for instance, imports consist of food and raw materials they are likely to remain largely unaffected by a depreciation of the national currency, unless it assumes exaggerated dimensions.

Bankers are no doubt familiar with such practical aspects of foreign exchange theory. Nevertheless, it must be tempting for them to welcome suggestions in favour of a system of floating exchange rates, not because they are dogmatic *laissez faire* economists, but because movements in exchange rates would provide more activity in foreign exchanges and wider profit margins. Rigidly pegged exchange rates, or even exchange rates whose fluctuations are kept within support points, necessarily limit opportunities for foreign exchange departments to work profitably. It is true, the risk of making losses is also reduced, as dealers are enabled to confine themselves to taking calculated risks. Bankers are surely aware that floating exchanges are almost certain to entail a return to currency chaos, with competitive depreciation races which would discard any pretence of aiming at equilibrium rates.

However, from the point of view of their efficiency as foreign exchange dealers, bankers could well afford to become wholehearted and even fanatical supporters of the theory of floating exchanges, because such an attitude would not affect their view on exchange rate prospects under the existing system of stable exchange parities. What matters is that they should avoid dogmatism in respect of

those other foreign exchange theories which do have a bearing on their views on exchanges in actually existing circumstances. Above all, foreign exchange dealers interested in theory must always bear in mind that no single theory can be relied upon for explaining all foreign exchange movements, let alone forecasting them, in all circumstances.

It is only human that economists, being naturally pleased with their discovery of a theory, should be tempted to over-emphasize facts that support it and to under-emphasize or disregard altogether facts that weaken it. Economists can afford to plump wholeheartedly for one particular theory. They do not risk their professional reputation in doing so. On the contrary, it is a fairly sure way for them to build up a reputation, since one-sided and exaggerated presentation of a theory, or a particular interpretation of a theory, with which their name comes to be associated precisely because of its exaggerated presentation, is more likely to gain for them immortality than would an impartial presentation of a synthesis trying to reconcile various theories.

Bankers can ill afford to follow their example. No matter how firmly they may be convinced that one particular theory is right they must — I repeat, *must* — always bear in mind that it only contains part of the truth and that other theories, too, contain parts of the truth. Unless they are able to retain absolute neutrality between the alternative theories, and unless they realise that each one in turn, or any combination of them, might account for exchange movements in given situations, it would be infinitely better for them to close their minds altogether to any theories and rely exclusively on their practical experience and instinct. One-sided support of a particular theory, so far from bringing them fame, might easily cost their banks a great deal of money.

It would be fascinating, if it were possible, to find out whether those bankers with practical experience in foreign exchange dealings who at one time or other had contributed in the past to foreign exchange theory had themselves been successful in their foreign exchange transactions. We know that this was so in the case of Gresham and of Cantillon, but we do not possess sufficient evidence to know whether their success had been due to any extent to their familiarity with theory. But even in the absence of information to that effect, it seems safe to assume that, in so far as they and other practical men who had contributed to theory had been suc-

cessful, it must have been due in the long run to their ability to avoid dogmatic one-sided views in support of any particular favourite theory they might have believed in. For brief periods operations inspired by dogmatism might have worked, but by basing their operations on some particular theory over a prolonged period sooner or later they would surely have been found to be wrong and would have lost their earlier gains.

The problem is to be able to know when each theory is valid and when it becomes expedient to shift the theoretical basis of foreign exchange operations. To that end banks must bear in mind all the alternative theories all the time and must keep an open mind about every one of them.

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