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WORKING PAPER

THE FEASIBILITY OF AN INTERNATIONAL "TOBIN TAX"

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Summary

Professor James Tobin first suggested a tax to "throw some sand in the wheels of speculation" in 1972. His proposal was for a charge of between 0.1% and 1% on the conversion of one currency into another. This would be too low to discourage long-term investment; but would represent a substantial annual rate on transactions which involved buying and selling a currency within a single day, week or month.

The tax would have three main purposes:

- to reduce exchange-rate volatility by reducing currency speculation;
- to raise revenue for international organisations; and
- to make national economic policies less vulnerable to external shocks.

Reducing exchange-rate volatility

The most obvious way to stop speculation in foreign exchange markets is to abolish separate currencies, as within the EU. Short of a world currency, however, various "second best" solutions exist: direct controls on changing currencies and on the movement of capital; special deposit requirements for financial institutions; and transaction or other taxes.

There are nevertheless serious problems in introducing any such measures. For example:

- The free movement of capital has had a generally beneficial effect on the world economy. Steps to limit it must avoid throwing out the babies of productive investment, and operations like genuine "hedging" which assist the growth of trade and are generally stabilising, with the bath-water of *de*-stabilising speculation.

- Unilateral measures can prove more damaging than the exchange-rate instability they are designed to cure. Rigid controls can cut a country off from economic reality, and make it increasingly uncompetitive. Special deposits or taxes can easily be avoided - financial services (an increasingly important part of a modern economy) will simply move to other centres.

A Tobin Tax would avoid the second of these problems if it were introduced, by international agreement, in all the world's major financial centres. The danger of "opt-outs" might be limited, for example, by making its introduction a condition of access to the IMF, and if the major centres levied the tax on any transfers to small, non-participating centres.

However, distinguishing between beneficial, stabilising transactions, and those that are speculative and *de*-stabilising, presents greater problems. Although only 5% of the estimated $1 to $1.5 trillion

of international exchange transactions each day is directly related to trade in goods and services, much of the remainder is indirectly important to it: insurance, hedging, the integration of markets through arbitrage, etc.

On the other hand, ordinary traders in goods and services can also indulge in pure speculation. Professor Tobin has also himself made the important observation that many non-speculative, stabilising transactions would become unnecessary if exchange-rate volatility were to be reduced.

Would a Tobin Tax achieve this objective?

A 1% tax rate would be levied on each leg of a speculative "round trip". Depending on the method of calculation, this would amount to an annual tax rate on a one-week operation of 104% or 181%. However, even these additional costs would not deter a speculator if the expected fall in the parity of a target currency over that week were large enough: e.g. over 4% with a probability of 0.5%. Where parities were widely felt to be misaligned - as in the case of the ERM in 1992 - a Tobin Tax could have only a very marginal deterrent effect.

Defining the precise scope of the tax would also be difficult. Exemptions would have to apply to certain transactions - for example those carried out by Central Banks. Professor Tobin also proposed exempting transactions within "currency areas", though defining these in terms of anything short of permanently fixed exchange rates would encourage exactly the kind of operations the tax is designed to prevent. The treatment of netting arrangements in inter-bank operations would also pose problems.

Professor Tobin's original proposal was for a tax on cash transactions. Levying it on small currency-conversions by tourists, small businesses, etc., however, would be unpopular and almost certainly damaging to trade. On the other hand, speculators could easily evade the tax by moving into cash-substitutes: Treasury Bills, swaps in the commodity markets, the futures markets and other financial derivatives. If the tax were extended to trading is these, new financial products would probably be devised to fall outside the scope of the tax. Those levying it would, like Alice and the Red Queen, have to run faster and faster to stay in the same place.

Revenue-raising

A Tobin Tax of only 0.1% would raise, it has been calculated, something over $50 billion a year in revenue - even assuming that the number of current foreign exchange transactions fell by half, that 20% were exempt and that another 20% of the tax was evaded. This is over double the total now spent on stabilisation programmes, development and humanitarian aid, peace-keeping operations and other activities by the UN and its agencies.

Even assuming, as Professor Tobin has advocated, that poor and small countries would keep all the revenue they raised through the tax, massive new funds would become available for financial stabilisation and development at world level.

In this context, the main problems with a Tobin Tax are political. Countries at present show little willingness to devote resources on this scale to development aid or similar purposes. Those international bodies entrusted with the administration and allocation of such large sums would also face formidable difficulties of financial control, particularly in avoiding moral hazard and fraud.

Reducing vulnerability to external shocks

The free movement of capital on an international scale has reduced the ability of national economies to conduct monetary and other economic policies on the basis of purely domestic criteria. Speculative pressure on an exchange rate, for example, can result in interest rates higher than is warranted by internal monetary conditions, with a damaging effect on economic growth and employment. In so far as a Tobin Tax would reduce both speculation and general exchange-rate volatility, it could therefore have a beneficial effect on the real economy of many countries.

It can also be argued, however, that an over-valued currency invites speculation; and that defending it has a cost in terms of lost reserves and high interest rates. A system of floating exchange-rates makes the build-up of massive speculative positions impossible. Those who support this view suggest, in addition, that exposure to international exchange and financial markets exerts a valuable discipline on national governments, which might otherwise be tempted to follow inflationary policies.

Even floating exchange rates, however, are not cost-less - traders are obliged to hedge against exchange-rate movements; and the fact that a Tobin Tax might enlarge voters' chances of making a wrong choice of government is not necessarily an argument against it.

Conclusions

A Tobin Tax would be very much a "second best" solution to currency speculation - within the European Union, for example, no-one has seriously suggested it as an alternative to Economic and Monetary Union.

At the low rates which have been proposed it would represent a significant extra cost to speculators, while affecting capital investment only marginally. On the other hand, it would not have prevented the ERM crises of 1992 and after, or that of the Mexican peso in 1995 or of the S.E. Asian currencies in 1997. Problems of international supervision and the ease of evasion also cast doubt on whether it could ever be a really effective deterrent.

As a source of revenue for measures of international financial stabilisation, and for development, humanitarian aid, peace-keeping, etc, however, it has great attractions. Even very low rates would raise very large sums.

In so far as it reduced exchange-rate volatility, in might also give governments more freedom of manoeuvre in the conduct of economic policy - though whether this would be a good thing is a matter for debate.

The Tobin Tax proposal cannot, however, be seen in isolation from more general developments at international level, and in particular the search for "a new global financial architecture". Without such an architecture the tax would not anyway be feasible. With it, the tax might be seen as an attractive "market-orientated" alternative to controls on capital movements.

CONTENTS

I. Introduction

The first formal proposal for a tax on spot transactions involving the conversion of one currency into another was made by the US Nobel prize-winning economist, Professor James Tobin, in a lecture at Princeton University in 1972[1]. He further developed the concept in his Presidential Address to the Eastern Economic Association in 1978, which was subsequently published in the *Eastern Economic Journal*[2].

Since then, the introduction of what has become known as a "Tobin Tax" has at regular intervals figured on the political agenda. The idea of "throwing some sand in the well-greased wheels of international finance" has had a special appeal at times of turbulence on world financial markets.

A Tobin Tax would be levied on foreign exchange transactions at a uniform, but low, *ad valorem* rate. Prof. Tobin himself suggested rates of 0.2%, 0.5% and 1%. Current French Prime Minister Lionel Jospin suggested 0.1% in 1995, "*qui ne pénaliserait pas les investissements à dix ans mais les placements à dix jours*"[3].

Were the transaction the consequence of long-term investment, indeed, such a levy would constitute a negligible extra cost to the total project. However, were the transaction to be a short-term speculation, involving movements in and out of a particular currency in a matter of weeks, days or hours, it could constitute a significant charge, and *"increase the risk of foreign exchange loss"*[4].

A Tobin Tax would serve a number of objectives:

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[1] Published in "The New Economics: One Decade Older" by James Tobin, *Princeton University Press,* 1972, pp.88-93.

[2] "A proposal for international monetary reform", *Eastern Economic Journal, 4,* 1978.

[3] "which would not penalise ten-year investment, but would penalise ten-day transactions" (from "*1995-2000, Propositions pour la France*" by Lionel Jospin).

[4] Tobin, 1972.

- In so far as short-term, speculative transactions have a *de*stabilising effect on currency markets (see next section), a fall in the volume of such transactions would reduce exchange-rate volatility. This, in turn, would improve the financial climate for "real" trade in goods and services.

- The tax would also serve to put a "fiscal buffer" between economies. A government whose exchange rate was under threat would need to raise short-term interest rates by less in order to defend a particular parity than would otherwise be the case. The potentially damaging effect on growth and employment would consequently be reduced.
- The tax would also, of course, raise revenue - perhaps some $360,000,000,000 a year world-wide, based on a 0.5% rate and $1 trillion foreign exchange market turnover during each of 240 trading days[1]. Prof. Tobin's suggestion was that this should be paid into a central fund controlled by the IMF or the World Bank, so providing considerable extra resources for international stability programmes.

The levying of a Tobin Tax would also, however, present some daunting problems.

- There would need to be agreement on its application in every financial centre in the world - otherwise foreign exchange markets would move to "tax-free" jurisdictions. The problems of introducing a withholding tax on interest even within the EU alone do not augur well for the chances of such an international agreement.

- Levying the tax on an estimated $1 to 1.5 trillion turnover *a day* would be a massive administrative task, even if the effect of the tax was to reduce the total. Turnover in the foreign exchanges in a month is roughly equivalent to the value of world-wide trade in a year.

- There would also be considerable problems in defining:
  - *the tax base* (would market interventions by central banks, or transaction between other governmental or international bodies, be covered? Would it also cover "beneficial" trading by market makers, or financial intermediaries providing stabilising liquidity?); and
  - *taxable transactions* (a tax on foreign currency transactions alone could be avoided through the derivatives markets).

- It is not even certain that a Tobin Tax would increase exchange-rate stability. When a currency was under attack by speculators, the cost of the tax would almost certainly already have been discounted, possibly resulting in greater, rather than lower, volatility. A Tobin Tax would have had little effect in preventing the fall of the Mexican peso in early 1995, for example, nor that of the S.E. Asian currencies in 1997.

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[1] Estimate by David Felix in "The Tobin Tax Proposal", *Futures, Vol. 27*, pp.195-208, Elsevir Science Ltd., 1995.

Discussions in the European Parliament

The European Parliament's Subcommittee on Monetary Affairs last held in-depth discussions on the Tobin Tax and related issues on 6 October, 1993. A public hearing on *International Monetary Cooperation within the Framework of the Easing of Restrictions on Capital Markets* considered, among other contributions, seven papers from outside experts, together with a paper from Sub-Committee Chairman, Christa Randzio-Plath. These were subsequently published by the Directorate-General for Research (Economic Series W-12/rev., January 1994).

Some of these papers made reference to the Tobin Tax proposals, though most only briefly. As in the case of the paper presented by the Chair, a tax was seen as one of two possible mechanisms to limit speculation, the other being to require purchasers of foreign currency against domestic currency to place a certain percentage of those purchases in the form of non-interest-bearing deposits with the appropriate central bank. Unlike the Tobin Tax, there has been some practical experience of this latter mechanism: it was, for example, used by the Spanish Government during the September 1992 EMS crisis.

The experts were heavily against either a tax or special deposits, which were seen as a form of re-introduced control on capital movements. This, as the executive summary noted,

> *"would penalize the development of the financial markets, which represented a significant share of the most highly developed European states' GDP. This would also represent a step backwards in terms of the achievement of the Single Market..."*

Some of the spontaneous contributions during the hearing, however, were less hostile to limited restrictions on capital movements. A number considered that solutions might be sought to the practical problems of introducing a Tobin Tax. The broad conclusions of the hearing were that much stronger international cooperation in the economic and monetary field was required:

> *"The stability of the world economy could be improved by international cooperation, specifically by the creation of a global monetary system, a global supervision framework, a global taxation system and a global trade rationalisation agreement"*[1].

In such a context, it is indeed possible that a Tobin Tax would become feasible.

[1] Paper by Michael Massourakis, Greek Council of Economic Advisors.

II. Options for Reducing Volatility

A Tobin Tax, however, is only one of several possible mechanisms for combatting instability in international currency markets. Of these, the most far-reaching would clearly be the general re-imposition of restrictions on capital movements, putting sharply into reverse the recent globalisation of financial markets.

Advocates of such a policy certainly exist. The more generally held view, however, is that removing restrictions on flows of capital has had an overall beneficial effect on the international economy, and that a general return to exchange controls, inconvertibility of currencies and similar devices would plunge the world into deep recession. The aim of more sophisticated proposals - such as the Tobin Tax itself - is therefore to maintain the free movement of capital for productive, wealth-creating purposes, while limiting speculative and destabilising movements.

Is it possible, however, to make such a distinction?

Trade, insurance, arbitrage and speculation

The value of international exchange transactions is generally estimated at between $1 and 1.5 trillion each day; and, of this sum, a mere 5% is directly related to settlements for traded goods and services. Over half the transactions are turned around within a week.

Not all the remaining 95% of transactions, however, can be classified as "unproductive speculation". Many are for insurance purposes, including forward currency operations to hedge against possible movements in exchange rates between the conclusion of a contract and final settlement. These transactions are also important for the development of real international trade.

A substantial proportion of currency transactions are also for the purpose of arbitrage. Although such operations are not directly connected to the “real” economy, they can be important in eliminating variations in prices - including interest and exchange rates - between different markets, and hence in enabling the global economy as a whole to operate more efficiently. The effect is to reduce rather than increase exchange-rate volatility.

However, the distinction between stabilising arbitrage and destabilising speculation is not a clear one.

On the one hand, transactions which at first sight may appear to be speculative may in fact be important for the stability and efficiency of financial markets: for example, traders' hedging operations and the operations of market-makers.

On the other hand, what may at first sight seem to be stabilising operations of this kind may in fact be pure speculation. Not only financial institutions, but businesses of any kind can indulge in short-term currency speculation to boost profits. Whether day-to-day operations on the foreign exchange markets constitute legitimate hedging or unrelated speculation may be fully known only to a company's finance department.

This makes the task of penalising short-term speculation alone extremely difficult. Although limiting measures like a Tobin Tax to spot markets might enable some legitimate long-term hedging to escape, a fundamental dilemma would remain: either the measures would be so restricted in scope as to have little effect in reducing exchange rate volatility; or there would be the danger of throwing out, with the speculative bathwater, the baby of legitimate commerce.

The problem is compounded by the growing complexity of international financial operations. For example, a simple tax on short-term currency transactions on the spot markets could easily be evaded by speculators through trades on the markets in financial derivatives like futures, options and financial swaps. One effect of such markets is to enable what appears to be "long trading" in investment products to become, in effect, "short trading" in cash. Yet applying the tax to all trades in derivatives could result in a dramatic contraction of those markets, considerably curtailing the flexibility of the international financial system.

These difficulties, however, do not necessarily destroy the case for a transactions tax. Professor Tobin has himself observed[1] that stabilising operations like hedging and arbitrage have become necessary precisely as a result of high exchange-rate volatility - in other words, they are "second best" solutions. Were a tax to reduce that volatility, fewer human and physical resources would be drawn into short-term defensive operations at the expense of real capital formation.[2] Fixed rates, direct controls and deposits

[1] "On the efficiency of the financial system", *Lloyd's Bank Review,* July 1994.

[2] This point forms part of a much more general critique of "efficient market" theory. What can appear as rational strategies for individual players can produce irrational aggregate results, as in the case of financial "bubbles".

The critique also holds that markets do not necessarily tend towards equilibrium, but can be characterised by rising volatility. (One often-cited example is the market in pig-meat, where each cycle produces an "expanding spiders' web" graph of spiralling swings in price and quantity). Market players tend to operate without full information, which can lead to excesses of either optimism or pessimism.

Finally, public authority intervention, designed to correct imperfections in the operation of markets, can have the perverse result of increasing instability - also as a result of deficient information, and of the time-lags involved between the action taken and the practical impact upon the economy. In such cases "market failure" can be exacerbated by "government failure".

Although experiments have been made with various forms of taxation as a means of reducing exchange-rate volatility (see next section), governments have generally preferred more direct measures.

Fixed exchange rates

Exchange-rate volatility can most obviously be eliminated by eliminating exchange rates themselves. Within the European Union, precisely this is being achieved through Economic and Monetary Union.

Failing the creation of a single global currency, volatility may also be reduced through systems of fixed exchange rates and currency boards; or - more modestly - by fixed margins of fluctuation, as in the case of the EMS Exchange Rate Mechanism. However, there is always the danger that anything short of full currency union will only reduce short-term volatility at the price of increasing disguised disequilibrium. This, in turn, can then lead to eventual large, forced and "chaotic" realignments - as was notoriously the case in September 1992 in relation to the ERM. "*Attempts to peg the exchange rate can be defeated...by rational and self-fulfilling attacks*"[1].

Exchange and Capital Controls

Alternatively, the right to change one currency into another can be restricted through a presumption of inconvertibility; exchange regulations; and direct controls on the movement of capital. A rigid system of centralised foreign exchange rationing can be introduced, of the type once practised by Soviet bloc countries - a system which, however, can only be effective if at least all foreign trade and travel are similarly controlled. One obvious risk of such a policy is that the exchange rate of the currency concerned may eventually bear little relation to economic fundamentals; and the success of the policy is likely to depend upon economic and political insulation from the rest of the world.

Less draconian restrictions can involve such measures as limitations on the currency available for foreign travel and the charging of a "Dollar Premium" for capital transfers, etc.. Restrictions of this kind were regularly applied by the United Kingdom during the 1960s and 1970s in order to defend the external parity of Sterling. It might be observed that they caused considerable inconvenience and possible economic damage without noticeably achieving their objective.

Temporary restrictions on capital movements between Member States and third countries are still possible under Article 73c(2) of the Treaty. The Council may, acting by qualified majority,

[1] "Two cases for sand in the wheels of international finance" by Barry Eichengreen, James Tobin and Charles Wyplosz, *The Economic Journal 105,* January 1995, pp. 162-172.

"*adopt measures on the movement of capital to or from third countries involving direct investment - including investment in real estate - establishment, the provision of financial services or the admission of securities to capital markets".*

The Article adds, however, that unanimity will be required

"for measures....which constitute a step back in Community law as regards the liberalization of the movement of capital to or from third countries".

Deposit requirements

Various governments whose currencies have been subject to speculative attack have responded by introducing special deposit requirements for currency trades. An amount of national currency proportional to the net positions in foreign currency must be deposited, interest free, with the national central bank, creating a financial penalty equal to the interest foregone. In times of speculative pressure the interest rate - and hence the penalty - is likely to rise.

One example of such a measure - and of the difficulties involved in its application - is provided by the actions of the Bank of Spain during the currency crises in 1992. A Circular issued by the Bank on 22 September required Spanish banks to make a one-year, non- interest-bearing deposit

"matching the equivalent peseta value of increments in relation to the figures at the close of business on September 18, in long foreign currency positions against pesetas, a deposit with the same characteristics for the increments in loans and deposits of non-residents denominated in pesetas, and a reserve requirement ratio of 100% on the increments in peseta-denominated liabilities of banks (national and foreign) with their branches, subsidiaries and parent companies".[1]

It soon became apparent, however, that a measure aimed at speculation was actually damaging financial operations and risk-hedging associated with Spain's foreign trade. A second, more targeted replacement circular was then issued on October 5 requiring

"a non-interest-bearing deposit for a term of one year for the increment in same-day and one-day value ('tom-next') net sales of pesetas to non-residents, and for the increment in the forward sales of foreign currency against pesetas to non-residents".[2]

The usefulness of even this action has, however, been questioned.

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[1] "Sand in the Wheels of Foreign Exchange Markets: a Sceptical Note" by Peter Garber and Mark P.Taylor. *Economic Journal 105,* January 1995, pp.173-180.

[2] *ibid*

"Within a week of the imposition of the deposit requirement, the differential between domestic and off-shore interest rates on swaps in pesetas fell to levels too low to deter speculation. Spanish banks had apparently sent pesetas to their London subsidiaries to circumvent the deposit requirements".[1]

The "wedge" between the internal and external swap rates was a maximum of 0.11% on a weekly basis for the one-week swap.

"For speculators expecting an imminent devaluation...of some 5% or so, this could hardly have been more than a minor inconvenience..."[2]

Taxes

As in many other fields, John Maynard Keynes had already in 1936 drawn attention to the possible role of transaction taxes in favouring long-term investment over short-term speculation. In the context of stock-market pricing, he observed that such a tax would deter those whose objective was trading profit, but not those who were more interested in fundamentals.

Statistically, the relative deterrent effect can be illustrated by annualising the cost of any transaction. A 1% tax (see *Calculating equivalent annual tax rates* on page 16)

"represents an annualised cost of nearly 8,000% on a one-day shift, 180% over a week, 27% over a month, but only 0.2% over 10 years".[3]

However, any **unilaterally-imposed tax on foreign exchange transactions** would have the major drawback that it could be evaded even more easily than a system of special deposits. In consequence, the country imposing it would merely transfer business from its own financial institutions to foreign competitors, while speculation against its currency continued elsewhere. Garber and Taylor also point out that the economic effect of a unilateral tax is

"equivalent to nothing more than a widening of the band at the edge of which the domestic currency is weakest."[4]

A unilateral tax on foreign exchange transactions could also, however, form one element of a **general tax on financial operations**. In the United States, for example, there have been proposals

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[1] Eichengreen, Tobin and Wyplosz, *op.cit.*

[2] Garber and Taylor, *op.cit.*

[3] "The Unstable EMS" by B. Eichengreen and C. Wyplosz, *Brookings Papers on Economic Activity,* I 1993, pp.51-145.

[4] *op.cit.* p.175

for a Security Transfer Excise Tax (STET), falling on all transactions in equities, bonds, options and similar financial instruments. This would incidentally fall on transactions in US securities by foreigners, and hence on currency transactions.

Practical experience with such transaction taxes already exists. Professor Goodhart has recounted how, in 1994, he paid Brazil's general 0.25% bank transfer tax when drawing out some *reals* to meet expenses in Sao Paulo. On an amount of 290 reals he paid 0.72 *reals* tax.

> *"...Even the time and effort of writing out the tax form by the bank clerk cost more than the pittance paid over."*[1]

He concluded that it made no sense to tax transactions below a certain threshold, even if exemption opened up further possibilities of evasion.

Taxes might also be levied on uni-directional capital flows. In the 1960s the US levied an "interest rate equalisation tax" to discourage **capital outflows**; and Israel has in the past taxed **capital inflows**. These, however, had purposes other than discouraging speculation, and would have had little effect in doing so.

A number of alternatives to taxes on transactions exist. Germany and Switzerland have in the past levied taxes on **the capital value of foreign assets**. The effect, however, has been rather to encourage domestic long-term investment at the expense of investment abroad rather than to deter short-term speculation. Alternatively, the structure of national **capital gains taxes** might be coordinated at international level so that very short-term gains were taxed at prohibitively high levels. The chances of this happening are, however, extremely small, quite apart from the administrative problems of identifying the sources of capital gains[2].

Suggestions have also been advanced for a **Real Interest Rate Equalisation Tax**, levied on the basis of differences in *real* interest rates between national economies. The tax rate would be

> *"the discrepancy between the percentage change in the nominal exchange rate and the difference in inflation rates; that is, the deviation in international purchasing power parity (PPP)".*[3]

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[1] Prof. Charles A. Goodhart, *Journal of International and Comparative Economics 20,* 1996, p.91.

[2] See "The Tobin Tax and Exchange Rate Stability" by Paul Bernd Spahn, *Finance and Development,* June 1996.

[3] "Taxing International Short Term Capital Flows", by Rodney Schmidt, *Canadian Department of Finance,* 1995.

Assuming that speculation mostly occurred during misalignments between nominal exchange rates and PPP rates, but that such misalignments would only be temporary, such a tax would penalise short-term, but not long-term flows.

Most analyses of these, or other unilaterally-imposed taxes on foreign exchange transactions, nevertheless conclude that they would be "*almost completely ineffectual*"[1]. To have any chance of success, the tax would need to be multilateral, and "policed" by international agreement. In other words, it would need to be a "Tobin Tax".

[1] Garber and Taylor, *op.cit.*

III. The Operation of a Tobin Tax

The basic principles of the proposed Tobin Tax are relatively simple. A small *ad valorem* charge would be levied on every transaction involving the exchange of one currency for another. Professor Tobin's own original suggestion was for a rate of between 0.1% and 0.5%. Later he proposed as much as 1%; but most recently has suggested 0.2%. Other economists or politicians have proposed a variety of rates, some going as low as 0.01%.

A tax levied at this level would be of negligible importance for long-term portfolio or capital investment. A rate of 0.5%, for example, would add only 0.05% to the initial annualised exchange costs of a ten-year investment project.[1] By contrast, the tax would constitute an important extra charge on short-term transactions.

How the tax would work

Supposing, for example, that a speculator anticipated a rise in the Dollar against the Euro. He might enter a contract to sell, say, ©1 million for a week, receiving $1.1 million. If, over the week, the Dollar then rose to parity with the Euro, he would be able to sell the $1.1 for ©1.1 million, netting a ©100,000 (10%) profit.

No doubt this profit would incur some normal tax; but this would hardly constitute a deterrent to the speculation.

The Tobin Tax, however, would fall on the *gross* sums involved. At a rate of 0.5%, he would pay ©5,000 tax when purchasing Dollars, and another $5,500 (by then equal to ©5,500) on resale: total tax ©10,500, representing a tax of 10.5% on the realised profit.

Even when added to normal taxes payable, this would still hardly be a deterrent.

Supposing, however, that the anticipated currency movement did *not* take place, and that the $:© parity remained constant that week. The Tobin Tax would still be payable on the currency operations. In this case, the speculator would pay ©5,000 when buying Dollars, and another $5,100 at the end of the week: a charge of 1% on his capital. On a simple annualised basis (see page 18), this would amount to a tax rate of 52%.

Moreover, if the Euro actually *appreciated* against the Dollar - resulting in a loss on the speculation - the Tobin Tax (unlike any tax on profits) would still have to be paid.

[1] Though there would, of course, be another charge at the end of the period if the investment were then to be liquidated and the proceeds repatriated.

Calculating equivalent annual tax rates

A Tobin Tax on a one-day, one-week or one-month speculation, expressed as an annualised percentage rate, can be calculated in a number of ways.

The simplest - illustrated in Table 1 - is merely to assume that the same transaction is carried out every month, week or day of the year, and multiply the tax rate by two, for each leg of the buy/sell operation; and then by 12, 52 or 365 (Tobin's own original figures for one-day transactions, however, assumed only 240 trading days in the year). A 1% Tobin Tax on a one-month operation would thus equal an annualised rate of 24% (1% x 2 x 12).

One alternative method would be to assume a given starting sum, which is then used for monthly, weekly or daily operations over a year, the sum diminishing on each turn by the tax previously levied. By this method a speculator starting with $100, who made monthly trades without profit or loss, would have just over $78.5 left at the end of the year, representing an annualised tax rate of just under 21.5%. Weekly transactions would leave just over $35, an annualised tax rate of 65%, (as opposed to 104% by the first method). After 365 one-day trades a fraction over 6.5 cents would still be left, a tax rate of 99.4%, (as opposed to the 730% under the first method).

The figures used by Eichengreen and Wyplosz in their 1993 Brookings Paper, however, are based on compound rates arrived at by the formula:

$$1 + R = 1 + (2T/100)^P$$

where R is the annualised rate of interest, T is the tax rate on a one-way transaction, and P is the number of transactions in a year. For a tax rate of 1%, this produces the following annualised rates:

monthly	(12)	27%
weekly	(30)	181%
daily	(220)	7,980%

The figures used were based 30 trading weeks in the year, and 220 trading days.

All these methods of course assume that the sums changed at the beginning and end of the operation are the same - i.e. that exchange rates have remained constant over the period.

This brief illustration highlights two important points.

- First, the effective annualised rate of tax on the capital sum involved would rise in inverse proportion to the turn-around period. An operation involving the purchase and resale of foreign exchange in a one-year period would incur a total tax charge of 1% (0.5% x 2); over a one-month period of 12%; over a one-week period of 52%; and over one day of 240% (see Table 1).

- Secondly, the tax would not necessarily make all speculation unprofitable; but it would raise the degree of risk involved. A higher movement in parities would be needed to make a given operation profitable; and the penalties for making a wrong bet would be increased.

Table 1: Simple annualised effective Tobin Tax rates for differing turn-around periods, assuming constant exchange rates (see also "*Calculating equivalent annual tax rates*" p. 18)

Nominal Tax rate (%)	Effective Tax rate (annual %)					
	*1 day/ trading day**	*1 week*	*1 month*	*3 months*	*1 year*	*10 years*
0.01	7.3/4.8	1.04	0.24	0.08	0.02	0.002
0.05	36.5/24.0	5.2	1.2	0.4	0.1	0.01
0.1	73/48.0	10.4	2.4	0.8	0.2	0.02
0.15	109.5/72.0	15.6	3.6	1.2	0.3	0.03
0.2	148/96.0	20.8	4.8	1.6	0.4	0.04
0.25	182.5/120.0	26.0	6.0	2.0	0.5	0.05
0.5	365/240	52.0	12.0	4.0	1.0	0.1
1.0	730/480	104.0	24.0	8.0	2.0	0.2

* As formulated by Tobin, the annualised rate was calculated on the basis of what a round-trip would cost if carried out every day, on the basis of 240 trading days in the year.

The tax base

The difficulties of determining the tax base for any levy on currency transactions have already been mentioned.

Exemptions

The first problem would be the scope of exemptions from the tax. There would be little sense, for example, in levying the tax on **transactions carried out by national governments, central banks or official international organisations** (though it is not entirely beyond the bounds of possibility that some of these might be speculative - certain central banks have been known to use part of their foreign currency reserves in this way).

As noted by Professor Goodhart, it would also be sensible to exempt **small transactions**. Writing in 1996 - i.e. before the Single Currency - he observed that

> *"at a time when the costs of making relatively small retail-type trans-European bank transfers have come in for extremely bad publicity, and are widely regarded as representing a serious obstacle for small and medium companies entering into European trade outside their own countries, the idea of actually consciously adding to such costs seems somewhat bizarre".*[1]

All spot exchange transactions below a threshold of ecu 10,000, he suggested, should be exempt from any Tobin Tax. While conceding that this would open up the potential loophole *"whereby a speculator can simply split his deals into myriad small deals*", there would be costs involved in such operations which would to some extent act as a deterrent.

The original Tobin proposals also included possible global exemptions for **transactions within "currency areas"**. These could apply not just in obvious cases like currency conversions within EMU, but also to transactions between currencies which were formally tied through fixed exchange rate arrangements (for example, between the Hong Kong and US Dollars). The implications of exemptions of this kind, however, are not entirely clear. Exempting an area which applied anything short of permanently fixed exchange rates - for example, the former European Monetary System - would encourage exactly the kind of operations a Tobin Tax is designed to prevent.

A final question is whether **purely interbank operations** should be exempt. Prof. Goodhart has argued strongly that they should not. Some of the main speculators, he has observed[18], have probably been the banks themselves; and the definition of a bank "*is somewhat porous*". Professor Tobin himself has confirmed that the tax is intended to apply in this area.

The transactions covered

An even more difficult issue is to define the scope of transactions to which the Tobin Tax would apply. In principle, the tax would be levied only on spot currency conversions. The range of derivative financial products now available, however, make it easy for speculators to go long or short on a particular currency in alternative ways. Gerber and Taylor drew attention to one in their 1995 paper:

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[1] *op.cit.*

"If foreign exchange is defined as an exchange of one bank deposit for another in a different currency, gross trading in these claims will be effectively eliminated in favour of T-bill swaps in currencies with liquid (same day) T-bill markets. The swapped T-bills will be immediately sold for deposits. The foreign exchange market will shift to this form, no tax will be paid, and position taking will be unaffected".[1]

If this avenue is closed off by extending the coverage of the tax to Treasury bill transactions, trading will merely switch to other "cash-equivalent" derivatives. A Tobin Tax could therefore be evaded unless some way was found of applying it at least in the futures, options and swap markets.

In recent years there has already been a steady growth in derivatives markets compared to spot markets. In 1989 the spot market accounted for 58% of total activity. By 1992 it had fallen below 50%. By contrast the swap market had grown by 56% to account for 40% of total activity, almost all of it between banks. At the same time the outright forward and futures markets grew by 60% and the currency options market by 124%, though together they still only accounted for under 10% of the total in 1992. About two-thirds of forward and swap transactions had a maturity of under a week.

Some of the difficulties involved in applying the Tobin Tax to the derivatives markets have already been noted in a previous section ("Trade, insurance, arbitrage and speculation"). One further issue, to which Rodney Schmidt has drawn attention,[2] is the treatment of netting arrangements, which

"*by normally offsetting amounts owed, could significantly reduce the amount of currency actually exchanged in some transactions.*"

Even if levying the tax in the existing derivatives markets were found feasible, however, the problem would not be resolved. Once the tax was imposed, new financial products would be devised to escape it. Like Alice and the Red Queen running to keep in the same place, the bodies responsible for the tax would need to expand its scope into *"an ever-widening ring of securities and derivatives markets"*.[3]

Whether the procedures for reaching agreement between national governments, or even any international body, would be capable of operating with the necessary flexibility and speed in such circumstances is open to doubt.

Collecting the tax

It is generally agreed that a transaction tax on foreign exchange dealings imposed unilaterally, or by only a few national financial centres, would be ineffective because avoidable - transactions would

[1] *op.cit.*

[2] "Feasibility of the Tobin tax", *Canadian Department of Finance,* 1995.

[3] Garber and Taylor, *op.cit.*

quickly shift to those centres which did not impose the tax. Professor Tobin's therefore proposed a measure to be applied in concert by at least all the key currency countries. Governments would collect the tax on all payments within their jurisdiction that involved a spot currency exchange, whether these involved the home currency or not. A uniform rate would be agreed internationally.

One option would be to make the planning and implementation of the tax the direct responsibility of an international organisation such as the International Monetary Fund (IMF) or the Bank for International Settlements (BIS). It has been suggested that the problem of evasion *via* non-participating countries would be greatly reduced if applying the tax were a condition of IMF membership and of borrowing from it.[1] Professor Tobin himself has also suggested that those countries applying the tax, which would also generate most of the funds, could themselves levy the tax on transfers to those smaller centres which did not apply it.

Identifying the taxable transactions and actually collecting the tax would still present problems (similar, in some ways, to those involved in collecting a withholding tax on interest payments). Felix is of the opinion that collection should "*at least initially be quite manageable*" since the large international bank handling foreign exchange transactions are *"few in number, and are required to keep close records of their transactions for the bank regulators and tax authorities".*[2]

He concedes, however, that

> *"over time, evasive innovation could become more of a problem. Transnational companies could devise intrafirm accounting gimmicks to transfer funds, transactions could be shifted to offshore tax havens, etc. Would the tax loom large enough for these institutions to incur the cost and risk of such evasive activity on a substantial scale? 'Quien sabe'?".*

It would probably be necessary to effect collection through the agencies which handle foreign exchange settlements: the Society for Worldwide International Financial Transactions (SWIFT), and propriety networks like VISA. Standardised contracts like the International Foreign Exchange Master Agreement (IFEMA) could include provisions for tax payment. However

> *"collection by private clearing systems would be difficult to organise without an international supervisory body".*[3]

How much revenue?

Estimates of the amounts which would be raised by a Tobin Tax depend upon several variables:

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[1] See, for example, "Control Options for International Currency Speculation" by Jane Inch, *Halifax Initiative Coalition,* June 1996.

[2] *op.cit.* p.207

[3] Jane Inch, *op.cit.*

- the rate of the tax;
- the extent to which it achieved its desired effect of reducing short-term speculation;
- the extent to which certain transactions were exempt; and
- the amount of "leakage" to non-conforming financial centres and into non-taxable transactions.

Some "*'back of the envelope' calculations*" were made by David Felix in 1995, based on a figure for world-wide foreign exchange transactions of $1 trillion a day (see Table 2).. He assumed that 20% of these transactions would be exempt from the tax, and that a further 20% would evade it. Finally, he assumed a 50% fall in trading volume as a result of the tax at either a 0.5% or 1% rate, while nevertheless noting that the actual percentage fall would probably vary with the rate[1].

Table 2: Estimated revenues from a Tobin Tax

Taxable foreign exchange	Annual Tax receipts (10^9)	
	1% tax rate	*0.5% tax rate*
$1 trillion x 240 trading days = £240 trillion		
less 20% tax exemptions = $192 trillion		
less 20% evasion = $144 trillion		
less 50% reduction of trading volume		
= $72 trillion effective tax base	720	360

Source: "The Tobin Tax Proposal", David Felix, 1995.

Estimates of revenue, based on similar assumptions, have also been made by Rodney Schmidt[2], based on a tax rate of 0.1% and a turnover of $700 billion every trading day. His total revenue estimate came to $54 billion a year.

...and who would get it?

[1] Assuming that the 50% fall is the "benchmark" figure for a 1% tax, the receipts from lower rates would be unlikely to fall in direct proportion, since the percentage fall in trading volume would be lower. Hence Felix's calculated annual revenue of $360 billion from a rate of 0.5% - that is, half that from a 1% rate - is likely to be an underestimate, given his assumptions.

[2] "Feasibility of the Tobin tax", *op.cit.*

Although the principal purpose of a Tobin Tax would be to "throw sand in the wheels of speculation", it has also been seen as having other objectives.

> *"The motivation for the most recent surge in interest in the Tobin tax... is a non-economic one. This is its potential for generating revenue to finance international public programmes at a time when demand is exploding and funding increasingly difficult to obtain".*[1]

Two types of programme were specifically identified:

- the humanitarian and peace-keeping operations of the UN and its agencies; and
- operations to bring order to the international financial and trading systems, provided by the "Bretton Woods institutions".

The total annual budget of the United Nations, including all its agencies, the International Monetary Fund and the World Bank, currently comes to some $18 billion (with $2.5 billion of national contributions in arrears, $1.8 billion of it for peace-keeping operations). Even part of the proceeds from a Tobin Tax would therefore give such international programmes a large boost in funding.

In his original proposal, Prof. Tobin advocated that the proceeds of any Tobin Tax should be paid to either the IMF or to the World Bank. Later he proposed that the revenue should be divided between international organisations and the collecting national governments.

> *"But the formula for splitting revenues would be progressive. Poor and small countries would keep for themselves most or all of the revenues they collect. The purpose of requiring their adherence is to prevent them from undermining the system by not participating, not to collect major revenues when they do participate. The big financial powers would be the big sources of revenue for international purposes".*[2]

Felix's "*back of the envelope*" estimate was that 50% of the revenues would be kept by collecting governments, and 50% be distributed between the IMF, the World Bank and the United Nations.

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[1] "Feasibility of the Tobin Tax", *op.cit.*

[2] "A Currency Transactions Tax. Why and How", *Journal of International and Comparative Economics 20,* 1996, pp. 85-90.

IV. For and Against the Tobin Tax

As already outlined in the Introduction to this study, the principal objective of the Tobin Tax would be to reduce exchange-volatility by "throwing sand in the wheels of speculation". A tax rate of between 0.1% and 1% might be expected to discourage short-term, "speculative" exchange transactions, while affecting genuine investment only marginally.

How far are these realistic assumptions?

The deterrent effect

When converted to an annualised effective rate, the imposition of a small tax on short-term exchange operations certainly appears a significant deterrent. A 1% tax on each leg of a one week "round trip" speculation amounts to an annualised tax rate of over 100% (see Table 1). However, this does not mean that all speculation would be unprofitable. If the parity of the target currency fell by more than 2% during the week of the trade, there would still be a gain. From the point of view of the trader the annualised rate would be irrelevant.

The tax would, of course, eliminate speculation where only small parity changes were expected. A great deal of current inter-bank operations involving small margins would certainly be affected. However, the tax would be unlikely to have much effect on the massive position-taking in the markets which usually precipitates a major currency upheaval: for example, the events in the ERM of September 1992, the fall of the SE Asian currencies in 1997 or of the Brazilian *real* in 1999. In such cases a 0.1% or even a 1% tax is trivial by comparison with expected parity changes.

This point has been examined in a precise way by Kenen[1]. A 1% tax (2% on a round trip) might represent an annualised compound rate of 180% over a week. But

> *"suppose that market participants began to forecast a 4% devaluation of the lira, with probability 0.5%, before the end of that week. The expected gain on a bet against the lira will be 2%, which is, again, 180% on an annualised basis."*

Proponents of the Tobin Tax[2] have indeed conceded that it will have little deterrent effect on speculation where the markets perceive a fundamental misalignment of parities. In such cases, the gains from "inevitable near-term realignment" will far exceed any tax costs.

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[1] "Capital Controls, the EMS and EMU", by Peter B.Kenan, *The Economic Journal 105,* January 1995, pp. 181-192.

[2] For example, Eichengreen, Tobin and Wyplosz, quoted in a footnote by Kenan.

This admission, however, also goes a long way towards conceding another important point: that most periods of turbulence in exchange markets are not so much the fault of "wicked speculators" as of governments or Central Banks, which allow misalignments to build up. In 1992, for example, a single trader, George Soros, sold some $10 billion of Sterling, and made a very large profit when the Pound then fell out of the ERM. Subsequent analysis[1] has shown, however, that the effects of German re-unification and other events had made a re-alignment of parities almost inevitable: if the authorities were unable to do it in an orderly way, the markets were going to do it anyway. Soros was betting on a probability approaching 1.

The operations of Soros and others in these events were nevertheless not exclusively reactive. By taking the market positions they did, they not only largely determined the timing of the Pound's fall, but almost certainly ensured that it fell further than a technical realignment would have warranted. In this sense, speculative activity *did* increase exchange-rate volatility. By mid-1993, for example, Sterling was significantly under-valued as a result of market "over-shoot", and did not recover to levels more in tune with fundamentals for some years.

Would a Tobin Tax have made any difference? It is hard to believe that Soros would have been much deterred, even by a 1% rate. It can indeed be argued that, far from reducing volatility, a tax might actually have increased it, since the cost would have had to be built into the market positions taken.

The effect on beneficial transactions

The second assumption behind the Tobin Tax is that it would have only a very marginal effect on legitimate - that is, non-speculative trading. This is clearly true in the case of long-term capital investment, where a 1% tax amounts to only 0.2% when annualised over 10 years, even assuming that the capital is eventually repatriated.

As an article in *The Economist*[2] (quoting Michael Dooley of the University of Santa Cruz) put it, however:

> *"speculators are not easily divided into mere day-trippers and those planning a longer stay. For example, direct investors in a country are often the keenest traders in its capital markets."*

Kenan and others have also drawn attention to the problem, already noted, of separating destabilising from stabilising transactions. Though a Tobin Tax might have little effect on

[1] See the Report for 1992 of the Committee of Central Bank Governors, *(April 1993)* and the report from the European Parliament (*PE 205.217, 1993*)

[2] Vol.340, Issue 7974 of July 1996.

speculation during periods of massive realignment (see above), it would clearly discourage bets on small exchange-rate changes. However, a high proportion of such operations have insurance as their primary purpose (see the earlier section on "Trade, insurance, arbitrage and speculation"). The tax might therefore reduce speculation, but at the cost of making normal trade in goods and services more expensive.

Goodhart observes that banks would generally pass on the cost of a Tobin Tax by widening their bid/ask spreads. Even very low tax rates would therefore deter speculation. On the other hand

> "*no one knows what the multiple involved in rebalancing interbank transactions actually is, and also... the sharply widening spreads would make the market thinner, more expensive and at any rate in the very short run more volatile than now.*"[1]

Whether the Tobin Tax as originally proposed would limit exchange-rate volatility, or increase it, is therefore not certain, at least in the short term.

One method of mitigating the damage to stabilising transactions, while retaining the deterrence to speculation, has been suggested by Spahn[2]. He proposes a "two-tier Tobin tax", consisting of:

- a permanent, underlying transaction tax, set at
  - a very low standard percentage on spot foreign exchange transactions (say 0.2%); and
  - a level half the standard rate (i.e. 0.1%) on derivative trades.
- an "exchange surcharge", to be levied only during periods of speculative trading.

Whenever the surcharge was activated, transaction costs would rise. Traders would then be given the right to re-contract, encouraging markets to smooth out large fluctuations. If this occurred, Spahn concludes, the threat of a surcharge would be sufficient, and it would seldom need to be activated.

A similar proposal for "a multilevel international tax" has recently been made by J.R.Breton[3]. The tax would be 0.1% in "normal times". It would be increased to between 1% and 10% when the specific currency under attack had been declared "in difficulty"; and would be levied at a rate between 10% and 50& "during times of crisis".

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[1] Goodhart, *op.cit.*

[2] In "The Tobin Tax and Exchange Rate Stability", 1996.

[3] "East Asian Economic Crisis: The Three Lessons", *Journal of World Affairs and New Technology,* April 1998.

This two-tier suggestion has, however, been strongly criticised as likely to be unworkable, and to have "*undesirable side-effects*"[1]. The basic transactions tax might not actually reduce exchange-rate volatility; a variable-rate surcharge would create uncertainty over prices in markets; and

> *"Given the complexity of the strategies underlying the use of derivatives, it would be impossible to establish one rate for derivatives and one for the underlying instruments that would yield exact tax equivalences. Markets would quickly figure this out."*

The tax as revenue-raiser

One argument for the Tobin Tax appears incontrovertible: even at every low rates, and even assuming a sharp fall in the volume of foreign exchange transactions, it would raise a huge amount of money. This, however, would raise the highly sensitive issue of distributing, or re-distributing, the revenue.

Were all the proceeds of the tax retained by the national governments collecting it, the effect would almost certainly be a shift of wealth to those countries having an important financial centre: i.e. to some of the richest countries in the world. This would be seen as clearly inequitable. For this reason, various mechanisms for redistribution have been advanced (see the earlier section on "...and who would get it?"). The most radical of these is clearly Tobin's original plan of allocating all revenues to the IMF and World Bank, which would revolutionise the role of these international bodies.

Are such developments politically realistic? There is no escaping the fact that a Tobin Tax would constitute a new cost for operators in the financial markets, which would be passed on, in the end, to the "real" economy: i.e. to consumers. Increasing the tax burden is never very popular.

It is true, of course, that any revenues retained by national governments could be used to reform their national tax systems. In particular, the sums received from a Tobin Tax would permit a shift from the taxation of labour to the taxation of capital - a primary objective of current taxation policy within the European Union.

Whether national governments are yet ready to make the massive sacrifice of fiscal sovereignty which Tobin's own proposal would involve is another matter. Neither the IMF nor the World Bank currently enjoys unqualified popularity. Nor does the international community yet seem willing to

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[1] See "Why a Two-Tier Tobin Tax Won't Work" by Janet G.Stotsky, *Finance and Development,* June 1996.

devote even a fraction of the sums which would be involved to development aid, or even to stabilisation.

There would also be certain less tangible problems. The knowledge that such large sums were available for financial "bail-outs" could create a moral hazard, both in the markets and for public authorities. Speculators would be encouraged to take greater risks, governments to run up debts and even to tolerate armed conflicts in the expectation that UN peace-keepers would eventually arrive.

Finally, the collection and distribution of Tobin Tax proceeds would bring with it the danger of both private and official corruption, creating the need for rigorous and complex international auditing procedures. Even the European Union has not yet completely resolved this difficulty.

The tax as "fiscal buffer"

The third major argument in favour of the Tobin Tax is that it would make national macro-economic policies less vulnerable to exchange-rate pressures. In effect, this would be a consequence of its deterrent effect on speculators.

When a currency is under pressure in the foreign exchange markets, the authorities have a number of defensive measures at their disposal. The first is intervention by the central bank, or central banks, to defend the parity of the currency. The extent to which this will be successful depends upon the size of the foreign currency reserves which are available; the amount of "stand-by" credits that can be called upon; and the perceived determination of the authorities to stand firm.

The second defensive measure is to raise short-term interest rates. If this is to be successful, the rise has to be sufficient to offset any anticipated fall in the exchange rate; and, where a substantial fall is expected, the countervailing rate can be very high indeed. If the markets are to be convinced, annualised percentage rates in the tens or hundreds can be necessary. Such interest rates, even for only a short period, can be extremely damaging to the internal economy. They constitute a ferocious monetary squeeze, which can have a lasting effect on investment, growth and employment.

It can be objected that problems of this kind only arise if attempts are being made to defend an unrealistic parity. Either internal fiscal and other policies have to be adjusted accordingly; or the currency must be allowed to float. The second of these options - the one chosen by the UK on 16 September 1992 - is supported as a permanent solution by a large body of academic opinion.

Even floating exchange rates, however, are not cost-less. Although they are immune to massive speculative positions, they can be subject to both short-term and longer-term volatility, as has been the case with Sterling since 1992. The costs of hedging against exchange risk are increased, eroding traders' competitive positions. Interest-rate policy cannot be determined solely by the need for internal currency stability (as, for example, in the case of EMU), but must pay at least some regard to the exchange-rate consequences. High interest rates, for internal purposes, result in an appreciating exchange rate, which reduces the competitivity of exporters.

To the extent that the Tobin Tax would reduce exchange-rate pressures, therefore, it would increase the ability of national governments to concentrate on management of their internal economies.

It can nevertheless be argued that this would not necessarily be a good thing. In his comments on the Tobin proposals, Goodhart challenges many of the assumptions behind the "fiscal buffer" proposition. There is no evidence, he argues, that the effect of interest rate changes on exchange rates "*are so large or destabilising within a freely floating system that they seriously preclude national monetary autonomy*".[1] Moreover, the reactions of foreign exchange markets reveal those markets' assessment of a particular country's economic policies as a whole.

> "*Now such assessments can be wrong or biassed, the thermometer can give misleading readings, but trying to suppress the fluctuations of the mercury in the thermometer because it is from time to time misleading is not necessarily the best policy."*

The effect of insulating national economies from the forex markets, he adds, would be that governments would

> "*hold domestic real interest rates down, at the expense of worse potential future inflation. I do not want to remove the feet of government from being held to the fire of continuous market examination, imperfect though the latter is*".

Yet, colourful though Goodhart's language is, his critique overlooks one important consideration. Economists have the luxury of devising optimal solutions without putting them into practice. Politicians - or at any rate, democratic politicians - have to pay attention to public opinion as expressed through the ballot box. On a more theoretical level, the relative importance of market forces and political choice in determining economic policy is a fundamental issue of political philosophy.

To mirror Goodhart's formulation, the fact that a Tobin Tax might enlarge voters' chances of making wrong choices is not necessarily an argument against it.

Practicality

The final factor in an evaluation of the Tobin Tax is the extent to which is could be "policed" - or, put another way, how easily it could be evaded.

As already observed, a great deal would depend on whether the tax could be applied, at a uniform rate, in all international markets. Ways would have to be found of preventing the growth of forex tax havens, which could lead to "the Cayman Islands replacing London". Some possible answers have been outlined earlier (see "Collecting the tax").

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[1] *op.cit.*

A more serious problem would be the ease with which the tax base could evaporate, as trading shifted into cash-substitute markets. For example, if a tax were levied only on changing Dollars into Yen, and *vice versa*, trading would quickly shift into US and Japanese three-day Treasury bonds. If these transactions were taxed, trading could shift into the commodities markets: for example grain contracts denominated in Dollars against grain contracts in Yen. And if the tax were extended into these markets, speculation could move into the swapping of derivative financial instruments. Levying the tax would become a question of "Alice and the Red Queen" (see the earlier section, "The tax base").

In such circumstances, there would the danger that the only payers of the Tobin Tax would be ordinary traders in the markets for goods and services. Speculators would escape.

The conclusion reached at the European Parliament's Subcommittee on Monetary Affairs hearing in October 1993 is therefore critical. The introduction of a Tobin Tax would only be feasible as part of a much more general reform of the international monetary system, including a framework for the global supervision of financial markets. Although the precedents for such a major development - at least since the conclusion of the Bretton Woods agreement - are not good, recent events have placed at least some moves in that direction firmly on the political agenda.

Conclusions

Whatever the balance of these arguments for and against the Tobin Tax, it needs to be borne very firmly in mind that it is very much a "second best" solution.

Within the European Union's Single Market, for example, the answer to exchange-rate volatility has not been found in a tax on currency conversion - any proposal to introduce one would not have lasted long. It has been the creation of a Single Currency. This experience would suggest that the long-term answer at world level would be the similar development of a single international medium of exchange, perhaps based on a $:© basket, (in the same way the post-Bretton Woods system was based on the $ alone).

The question therefore arises: is introducing a Tobin Tax, as an interim measure, worth the effort involved?

Purely as an answer to exchange-rate volatility, the answer is probably: no. It is not proven that the effect in deterring de-stabilising speculation would out-weigh the damage to stabilising operations - although Professor Tobin's argument that exchange-rate hedging and similar insurance transactions are only necessary in the first place because of currency volatility, is an important one. Above all, however, the problems of international supervision and the ease of evasion cast doubt on whether it could ever be really effective. It can also be powerfully argued by economists like Professor Goodhart that freely floating exchange rates, though not a complete answer, limit the potential for speculation more effectively than could any tax.

As a source of revenue for international bodies and for development policy, however, the tax has great attractions. Given the shortage of funding for international public health and education, famine relief, refugee programmes and peacekeeping operations, as well as stabilising measures in financial markets, even a very low rate of tax would make a large difference.

Finally, whether the Tobin Tax would give governments more room for manoeuvre in the conduct of macro-economic policy; and whether, if it did, the results would be wholly beneficial, are matters of political as well as academic debate.

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The feasibility of a Tobin Tax, however, depends less on technical and economic factors than on political developments at international level. The search is now on for a "new global financial architecture", designed to mitigate some of the more disruptive effects of free capital movement. A "financial stability forum" has already been created by the Group of Seven to monitor events.

Within this context, the Tobin Tax is finding new supporters as a *"market-oriented approach to controlling speculator-driven currency volatility*"[1]. If a choice has to made between this, and the re-introduction of controls on capital movements - particularly if these are imposed unilaterally and piecemeal - the Tobin Tax appears an attractive option.

[1] See the letter to the *Financial Times* of Friday March 12, 1999, from Blaise Salmon, noting that the Canadian Parliament in debating and voting on a motion to introduce a Tobin Tax, and urging the Canadian Finance Minister to promote the initiative within G7.

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