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Some Criticism of the Tobin Tax

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Some Criticism of the Tobin Tax

Markus Haberer*

January 2003

Abstract

High volatility and enormous international capital flows are negative effects of the globalization of financial markets that can lead to financial crises like those of the 1990s. The Tobin tax often has been put forward as a measure to diminish globalization risks since it is claimed to discourage short-term speculation. The arguments of the proponents of this transactions tax are based on the assumption that (i) short-term trading is destabilizing and speculative and causes the volatility to increase, (ii) the Tobin tax does discourage this speculation and (iii) the Tobin tax causes market participants to orientate more by macroeconomic fundamentals. This paper suggests that these assumptions are quite questionable. Moreover, a Tobin tax of a sensible rate would be too small to protect countries from currency fires and would generate only little monetary autonomy. In addition to theoretical economic doubts there arise some political problems, which can make the tax to become infeasible.

Keywords: Globalization; International Financial Markets; Tobin Tax; Transactions Tax;

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1. Introduction

Today there is a worldwide academic and political discussion about chances and risks of globalization¹. Especially globalization of financial markets cuts both ways: On the one hand, financial markets with lower transaction costs and higher liquidity enhance the allocation of scarce capital and support trade in goods and services. Moreover, international asset diversification and hedging opportunities lower risks, and free international financial markets are the doors to foreign capital, especially for emerging economies with low domestic savings. Thus, international financial markets raise efficiency and profits due to international division of labor.² Economic growth in emerging countries is not only enhanced by the availability of foreign capital but also by developing local financial centers that become bridges to international business.³ On the other hand, low transaction costs encourage speculation, which is said to destabilize markets, especially speculation on foreign exchange rates.⁴ High fluctuations of asset prices and exchange rates are a source of uncertainty for the real sector and cause misallocation. Hedging those risks is costly and in some cases not possible. Another crucial point against free financial markets is the loss of independence of economic policy.⁵ Under free convertibility of the currency and free capital markets, autonomous economic policy is only possible with free floating exchange rates but not with fixed ones ('impossible trinity'). Therefore, if a country's objective is currency stability,⁶ it will have to give up the independence of its economic policy. It is no longer possible to care only about domestic data. External conditions have to be considered as well. Thus, governments lose their sovereignty over financial markets.⁷ Globalization of financial markets has been raising global foreign exchange transactions far faster than the growth of official reserves. In the 1980s, daily turnover was about 600 billion US-Dollar and exceeded 1,5 trillion US-Dollar before establishing the Euro. Today, daily transactions in the foreign exchange (forex) market are about 1.2 trillion US-Dollar (BIS (2001))⁸. Speculative runs can now swamp the financial resources that central banks can mobilize to counter such runs.⁹

¹ See for example Stiglitz (2002), Deutscher Bundestag (2002) and Grefe/Greffrath/Schumann (2002).

² Bundesverband Deutscher Banken (1998), p.6f; Greenspan (1998), p.245f.

³ See Sassen (1999).

⁴ See Horn (1995).

⁵ See Sauernheimer (1997), p.80.

⁶ Currency stability is desirable and often regarded as a public good.

⁷ Deutscher Bundestag (2002), p.73.

⁸ Especially due to the Euro, foreign exchange transactions are lower in 2001 than they were in 1998; see BIS (2001), p.44f.

⁹ Felix (1995) and Felix (1996); these articles are for good overview and to obtain a general idea of the problem and the Tobin Tax as a solution.

The question arises whether it were not better to regulate or to restrict international financial markets.¹⁰ In December 1999, the German Parliament set up a commission with the task to examine chances and risks of globalization. After two and a half years, the commission handed over a workout of more than 600 pages in June 2002. It calls for regulations of international financial markets, since these markets bear some systematic risks due to huge volume of transactions and high capital mobility. The suggestion is to implement a transactions tax on all foreign exchange transactions – the so-called Tobin tax. The idea of taxing foreign exchange transactions goes back to the proposal of James Tobin in 1978, but it has come into mind not until the financial crises of some emerging countries in the 1990s. The German Parliament is not the first one dealing with that issue. As the first country in Europe the French Parliament has instituted the Tobin tax in November 2001, but only on condition that all the other 14 European Union member nations agree to do the same. Canada passed a similar resolution in 1999, making its introduction conditional on widespread adoption.¹¹

This paper provides a critical view about the Tobin tax according to its concept as such, its efficacy and the feasibility.

Chapter 2 firstly offers some backgrounds before the suitability of this transactions tax is discussed. Our conceptual framework is an arbitrage model with its extensions (chapter 2.3) and a macroeconomic model in chapter 2.4. Most arguments of proponents of the Tobin tax are based on the assumption that short-term transactions are always speculative and destabilizing. Thus, this transactions tax, which discourages short-term trading, can contribute to stabilizing international financial markets. We find out in chapter 2.5 that the Tobin tax may not function as it is supposed to. Chapter 3 examines whether the tax would be sufficient to prevent currency crises and to enhance monetary autonomy. The Tobin tax seems not to be a measure, which diminishes these globalization risks effectively. Most doubts arise on the feasibility of the Tobin tax, which requires international agreement and coordination of national tax authorities (4). Chapter 5 summarizes and concludes.

¹⁰ Bird/Rajan (2000) distinguish restraints on capital movements between capital controls (capital account transactions per se) and exchange controls (foreign currency transactions).

¹¹ Fleming (2001).

2. Is the Tobin Tax Desirable?

With some historical notes and the distinction between two theories of speculation, this chapter firstly gives some essential basics for understanding the most important scientific contributions to the Tobin tax discussion. In chapter 2.3 and 2.4, the extensions of two standard models detect some weaknesses in the generalization of these models. Moreover, these approaches and the argumentation involved are based on questionable assumptions and unclear conclusions, which are stated and defeated in 2.5. The resulting query is whether the Tobin tax concept besides its problems of its efficacy (chapter 3) and its feasibility (chapter 4) makes good economic sense at all.

2.1 Some Historical Notes¹²

Aware of the problems that arise with free financial markets and floating exchange rates after abolition of the Bretton-Woods-System - namely excessive exchange rate volatility and dependency of the macroeconomic and monetary policy - James Tobin expressed his idea of a transactions tax in his Janeway Lectures at Princeton in 1972.¹³ The aim was to throw some sand in the wheels of super-efficient international financial markets when doubts about the ‘markets-always-know-best’ proposition rose. The idea fell like a stone in a deep well – to say it in Tobin’s words – and so he tried it again in 1978.¹⁴ But at that time nobody thought about limiting international financial markets just after abolishing the Bretton-Woods-System of pegged exchange rates. This seemed to be a step back, and exchange rate volatility was not regarded as a serious problem. Not until the 1990s when first financial crises occurred in emerging markets and international projects like those of the United Nations against poverty had to be financed, one remembered the Tobin tax (Tobin (1996)). From that moment on a worldwide political and academic discussion about the Tobin tax started. A very often-cited book is that of ul Haq/Kaul/Grunberg (1996) that summarizes all issues on the Tobin tax.¹⁵

¹² For this whole chapter see Tobin (1978), Tobin (1996) and Tobin (1996a).

¹³ Published 1974, see Tobin (1974).

¹⁴ Tobin (1978).

¹⁵ About this reader see Raffer (1998), Smith (1997) and Stotsky (1997).

Starting point is financial speculation especially on exchange rate movements that John Maynard Keynes already described as harmful for the functioning of financial markets in his famous ‘General Theory’ from 1936. Both fixed and floating exchange rate regimes are vulnerable to speculation, and hence a transaction tax might help to curb speculation. James Tobin has two main objectives: First, he wants the exchange rate to reflect fundamental data rather than speculators’ expectations. In other words, excessive volatility has to be small. Second, the tax should give authorities more autonomy of national macroeconomic and monetary policy. Tax revenue is just a by-product. However, this last point is often the argument of proponents of the Tobin tax and critics of globalization, neglecting that this is no aim of the tax. We will not examine the revenue raising function of the Tobin tax in this work.

According to his proposal of the 70s, the Tobin tax should be levied on all spot transactions on the foreign exchange market. Thus, the ad-valorem tax has to be paid twice – when purchasing and selling the foreign currency. The expected effect is that short-term round trips are penalized because the tax has to be financed within shorter periods. Commodity trade and long-term capital investments are said to be affected negligibly. The tax rate is constant and at a level of 0.1 to 1 per cent. Thus, a 0.1 per cent tax costs 0.2 per cent each round trip for the investor. That is 48 per cent a year if transacted every business day (240 days), 10 per cent if every week and 2.4 per cent if every month (Tobin (1996)). Frankel (1996) shows that the Tobin tax penalizes short-term investments more the shorter the horizon.¹⁶ To minimize the incentives to evade the tax or to alter the foreign exchange market structure from a decentralized dealer-driven market to one that is centralized and customer driven, the most appropriate rate of taxation ranges between 0.1 and 0.25 per cent. Due to increased volume in derivative transactions and new derivative instruments since his first proposal, a Tobin tax limited to spot transactions will lead to a tax-saving reallocation of financial transactions from traditional spot transactions to derivative instruments.¹⁷ All forwards, futures, swaps and options are to be taxed because of these alternative ways through which a speculator can go long or short of a currency without going himself through the spot market (Goodhart (1996); Bird/Rajan (2000)).

¹⁶ In chapter 2.3 we will refer to it in detail.

¹⁷ See Garber/Taylor (1995), p.179f.

2.2 Two Theories of Speculation

One of the most cited papers when discussing the Tobin tax is that of Eichengreen/Tobin/Wyplosz (1995) in which the authors revive Tobin's old arguments for putting grains of sand in the wheels of financial markets. Their idea is that financial market regulations like a Tobin tax or deposit requirements can raise welfare when these markets are responsible for shocks on labor and commodity markets. The Tobin tax as well as deposit requirements are measures in a second-best world¹⁸ to diminish these shocks - namely excessive volatility, and are aimed at discouraging speculative short-term investments. The question arises whether speculative behavior is destabilizing or not.

To distinguish very roughly there are two theories of speculation. One goes back to Milton Friedman (1953), who argues that speculation must be stabilizing because arbitrageurs are buying low and selling high. This leads to an approximation to the fundamental value and drives the market down to its warranted price. Speculators that buy high and sell low go out of the market. Nevertheless, the problem is that this model requires speculators that have an accurate estimate of the equilibrium price.¹⁹ Then they expect the price to fall when it is above equilibrium and vice versa. But for the case that this equilibrium does not exist or cannot be seen by the market participants, it might be rational to guess that the price will move up further.

Keynes (1936) describes the speculative behavior as a "beauty contest". The goal of the rent-seeking speculators is not to estimate the intrinsic market value but to beat the market – or how Keynes would have said – to 'anticipate what average opinion expects the average opinion to be' and to 'guess better than the crowd how the crowd will behave' (from Arestis/Sawyer (1997), p.757).

Without mentioning it, Dornbusch/Frankel (1987) agree with Keynes. Speculative bubbles sometimes far away from fundamentals can be rational not to lose money. Moreover, chartists often perform better especially in the short run than speculators whose trading decision are based on fundamental data. Therefore, short-term oriented chartists

¹⁸ The first-best case would be one single worldwide currency. This proposition is quite old (see Dimand/Dore (2000), p.523f.) and often discussed but not realistic in the near future.

¹⁹ One great advantage of the Tobin tax is that you do not have to know the fundamental value of the exchange rate. By discouraging short-term speculation, the fundamental equilibrium is said to find itself. Therefore the Tobin tax is superior to other alternatives of limiting international financial markets (Menkhoff/Michaelis (1995)).

dominate and destabilize international financial markets.²⁰ Frankel (1996) refers to survey data²¹ showing that bandwagon effects will occur, if trade is based on extrapolative expectations of short horizons. At longer horizons, speculation seems to be stabilizing. Based on these assumptions a Tobin tax that discourages short-term trading can help stabilize the foreign exchange market.

2.3 A Model That Shows How the Tobin Tax Functions

In the following, we will derive a condition for the Tobin tax burden dependent on the investment duration. In the standard model without implementing expectations, the expected inverse relationship between the tax burden and the holding period can be generalized. However, extending the model with expected returns due to exchange rate movements this desirable result holds only in periods of capital inflow.

2.3.1 After-Tax Return Parity Condition

This approach is based on that of Frankel (1996) who demonstrates the characteristic of the Tobin tax by setting an arbitrage condition in which after-tax returns in the domestic country must equal those in a foreign country. In his often-cited paper the Tobin tax is modeled such that only the principal is taxed twice. Since it may be difficult or even impossible to distinguish between the principal and interest earnings when pulling back the invested money, it seems to be more sensible to tax both the principal and interest earnings. Let i^A be the nominal interest rate in the home country A and i^B the foreign country nominal interest rate, y is the duration of investment measured as the number of years and t is the Tobin tax levied on each currency transaction. Assumed that both the principal and interest earnings are subject to the tax and arbitrage condition holds, after-tax returns must be equal for whether the investment takes place in the domestic country or in the foreign country:

$$(2.1) \quad (1 + i^B y)(1 - t)^2 = 1 + i^A y.$$

²⁰ See Dornbusch/Frankel (1987) and Frankel (1996) in their conclusion.

²¹ See Frankel (1993).

Solving for the foreign rate of return gives:

$$(2.2) \quad i^B = \frac{i^A}{(1-t)^2} + \frac{1}{y} \cdot \frac{t(2-t)}{(1-t)^2}.$$

As we can see from the second term of the right-hand side, the burden of the Tobin tax is inversely related to the duration of the foreign investment since the longer the investment-duration the lower the required foreign rate of return. To show it mathematically we take the first derivative of equation (2.2) with respect to the duration y :

$$(2.3) \quad \frac{\partial i^B}{\partial y} = -\frac{1}{y^2} \cdot \frac{t(2-t)}{(1-t)^2} < 0.$$

In this framework, short-term speculative investments are always discouraged by the Tobin tax.

2.3.2 A More Comprehensive Approach

The shortcoming of the Frankel model as well as the model above is, that the investment decision, normally based on expected upward or downward moves of the exchange rate, is not modeled. As we will see, expectations are the clue of the story.

To model it more comprehensively²², we can write:

$$(2.4) \quad (1+i^B y)(1-t)^2 \cdot \frac{E^{t+1}}{E^t} = 1+i^A y,$$

where E^t is the spot exchange rate (domestic currency unit per unit of foreign currency) and E^{t+1} the expected exchange rate. Solving for the required rate of return abroad,

$$(2.5) \quad i^B = \frac{i^A}{(1-t)^2} \cdot \frac{E^t}{E^{t+1}} + \frac{1}{y} \cdot \frac{1}{(1-t)^2} \cdot \frac{E^t}{E^{t+1}} - \frac{1}{y}.$$

²² See Rajan (2001), p.10ff. and Bird/Rajan (2001), p.31ff.

For the case in which the investor expects neither gain nor loss due to exchange rate movements, that is E^{t+1} equals E^t , we get the same result as above shown in equation (2.2) and (2.3). But there is no doubt about that expected exchange rate movements are the reasons the speculate on currencies. Thus, the implicit assumption that E^{t+1} equals E^t is very restrictive and neglects totally the speculator's motivation.

The first derivative of equation (2.5) with respect to the duration y yields

$$(2.6) \quad \frac{\partial i^B}{\partial y} = -\frac{1}{y^2} \cdot \frac{1}{(1-t)^2} \cdot \frac{E^t}{E^{t+1}} + \frac{1}{y^2}.$$

Thus, in this more general case the equation

$$(2.7) \quad \frac{E^{t+1}}{E^t} < \frac{1}{(1-t)^2}$$

will have to hold, if the burden of the Tobin tax should be inversely related to the duration of the foreign investment. In periods of capital inflow when investors assume the foreign exchange rate to appreciate, condition (2.7) holds and therefore short-term investments face a higher Tobin tax burden. More critical are periods of capital outflow. In this case, expected depreciation of the domestic currency might be too large to satisfy condition (2.7). A Tobin tax of 1 per cent implies that the expected depreciation of the currency must not be larger than approximately 2 per cent. In currency crises when depreciations of more than 20 per cent are expected, even a Tobin tax of 10 per cent is not able to hinder the vicious effect of discouraging long-term investments since equation (2.7) is not satisfied.

The model yields two results: First, it is only in periods of capital inflow that the Tobin tax can reach its objective in stabilizing foreign exchange markets by discouraging short-term speculation. Second, in periods of panic the Tobin tax has a 'perverse' effect since real investments of longer horizons face higher tax burdens. The conclusion is clear-cut: The Tobin tax is not a measure to manage crises and - if at all - should be applied counter-cyclically as crises prevention.

2.4 A Model in Which a Reduction in Short-Term Speculation is Stabilizing

After having discussed the microeconomic approach based on an investor's arbitrage calculus in the preceding chapter we now turn to a macroeconomic model. As we will see a reduction in short-term speculation and higher responsiveness of long-term investors to their expectation reduce the volatility of the spot exchange rate. However, incorporating the long-term equilibrium exchange rate through the purchasing power parity (PPP) leads to the result that independence of macroeconomic policy goes hand in hand with higher exchange rate variability, and that volatility increases over time.

2.4.1 A Macroeconomic Model²³

Consider again a world of two countries, A (domestic) and B (foreign). Let E^t be the spot exchange rate between the two currencies, m the supply of domestic assets relative to foreign assets and d the relative demand for domestic assets. E^t , m and d are in log form. We then can write

$$(2.8) \quad E^t = m - d + u,$$

when the exchange rate is determined by the ratio of the relative supply to the relative demand for domestic assets; and u is an unknown error term. Imagine a fraction of w long-term investors i whose investment decisions are based on economic fundamentals, and a fraction of $(1-w)$ market participants s that engage in short-term speculation (chartists). We can rewrite the demand

$$(2.9) \quad d = wd^i + (1-w) \cdot d^s.$$

The long-term investors i (often called "fundamentalists") expect the exchange rate to converge to equilibrium while speculators have extrapolative forecasts. That is to say, they expect the exchange rate to diverge from equilibrium and thus creating a bubble not to lose money. \bar{E} denotes the exchange rate equilibrium, q is the investors' rate of

²³ Frankel (1996), p.71f.

expected convergence and v is the chartists' expected rate of divergence of the spot rate from the long run equilibrium.

Then the expected depreciations (exp dep) of the two market participants can be written as

$$(2.10a) \text{ exp dep}^i = -q \cdot (E^t - \bar{E})$$

and

$$(2.10b) \text{ exp dep}^s = v \cdot (E^t - \bar{E}).$$

Assume that f^i and f^s are the demand elasticities of the two market participants for foreign assets with respect to their corresponding expectations. Accordingly, we may rewrite the relative demand for domestic assets d as follows:

$$(2.11) d = wf^i q \cdot (E^t - \bar{E}) - (1 - w) \cdot f^s v \cdot (E^t - \bar{E}).$$

Solving for the spot rate, we obtain

$$(2.12) E^t = \alpha \cdot [m - (1 - w) \cdot f^s v \bar{E} + wf^i q \bar{E} + u],$$

where

$$(2.13) \alpha = \frac{1}{1 - (1 - w) \cdot f^s v + wf^i q}.$$

From (2.12), the variance (Var) of the spot rate is

$$(2.14) \text{ Var}(E^t) = \alpha^2 \cdot \text{Var}(m + u).$$

Now, it is easy to see, that

$$(2.15) \frac{\partial \text{Var}(E^t)}{\partial w} < 0.$$

The variability of the spot exchange rate decreases with increasing proportion of long-term investors.

Deriving (2.14) with respect to the responsiveness of the two market participants, we get

$$(2.16) \quad \frac{\partial \text{Var}(E^t)}{\partial f^i} < 0 \quad \text{and} \quad \frac{\partial \text{Var}(E^t)}{\partial f^s} > 0.$$

The more sensitive or responsive the speculators are to their expectations the higher the volatility of the foreign exchange rate. In response, the higher the responsiveness of investors to their expectation the lower the volatility of the spot exchange rate.

This means a Tobin tax, which discourages short-term speculation or makes all market participants orientate more by macro fundamentals would result in a lower volatility of the spot exchange rate.

2.4.2 Extending the Model²⁴

In the model, the long-term equilibrium exchange rate \bar{E} is assumed exogenous. However, referring to economic literature²⁵ the Purchasing Power Parity can be taken for granted to hold for the long run. Therefore, we can assume that \bar{E} is determined by PPP:

$$(2.17) \quad \bar{E} = p^A - p^B,$$

where p^A and p^B refer to the price levels in the home and in the foreign country.²⁶ We can now rewrite (2.12) obtaining

$$(2.18) \quad E^t = \alpha \cdot \left\{ m + [wf^i q - (1-w) \cdot f^s v] \cdot (p^A - p^B) + u \right\}.$$

²⁴ Bird/Rajan (1999), p.8ff. and Bird/Rajan (2001), p.28ff.

²⁵ See for example Mishkin (2000).

²⁶ Remember that all variables are in log form.

The variance then is

$$(2.19) \quad \text{Var}(E^t) \cdot \alpha^2 = \text{Var}(m) + (1-d)^2 \cdot \text{Var}(p^A) + \text{Var}(p^B) + \text{Var}(u) \\ - 2 \cdot (1-d) \cdot [\text{Cov}(m, p^A) - \text{Cov}(m, p^B)] + (1-d) \cdot \text{Cov}(p^A, p^B)$$

if the disturbance term u is assumed to be uncorrelated with prices and relative asset supply. Ignoring the covariances, Bird and Rajan conclude an increase in the variability of the exchange rate by endogenizing \bar{E} compared to a situation where it is treated exogenous and constant. In the case of largely independent macroeconomic policies and flexible exchange rates,²⁷ $\text{Cov}(p^A, p^B)$ is close to zero and the volatility of the foreign exchange rate is higher. In other words, the costs of policy independence are high exchange rate variability. Another finding is that volatility increases over time. The proportion of speculators rises because of higher uncertainty about fundamentals due to higher volatility of the exchange rate. To say it in words of Bird/Rajan there may be a vicious cycle or self-fulfilling prophecy in which speculation and variability feed on each other in the short term.

2.5 Questionable Assumptions and Conclusions

Proponents of the Tobin tax may argue in line with Frankel: Short-term trading is speculative and is the cause for excessive volatility. Therefore, a Tobin tax, which is more burdensome for speculators, especially extrapolating chartists, stabilizes the foreign exchange rate because the fraction of long-term investors orientated by fundamentals increases. This argument is based on three assumptions: First, short-term trading is destabilizing and speculative and causes the volatility to increase. Second, the Tobin tax really discourages this speculation. Third, the Tobin tax causes the market participants to orientate more by macroeconomic fundamentals.²⁸ In the following, we will examine these three assumptions and will find out that they are quite questionable.

²⁷ The opposite would be highly correlated price levels when one country pegs its exchange rate to the other.

²⁸ The third assumption seems to be similar to the second but the idea is to distinguish between speculators that go out of the market (higher w in our model) and speculators that stay in the market but with lower responsiveness to their extrapolating expectations (lower $f^s v$) or with higher responsiveness to their expectation that the exchange rate will converge (higher $f^i q$).

2.5.1 Is Short-Term Investment Always Speculative And Destabilizing?

Bird/Rajan (1999) provide a summary of the literature about market participants. The main result is that there exist two kinds of participants: On the one hand there are investors who make use of conventional macroeconomic exchange rate theories, the so called ‘fundamentalists’, on the other hand there are speculators who engage in extrapolating analytical techniques, the so called chartists. The surveys finds out the chartists to dominate the forex market in the short run, both according to number and to performance. As we have already assumed in our model the chartists are trend-chasers. That means they buy when the currency appreciates and sell when the currency depreciates since they extrapolate past exchange rate movements into the future. They do not observe macroeconomic fundamentals. Real investors (to avoid the expression ‘fundamentalists’) become more important in the long run. They do observe macroeconomic data and compare the spot exchange rate with an equilibrium exchange rate based on these fundamentals. Thus, they sell when the currency appreciates and seems to be above equilibrium and they buy when the currency seems to be undervalued. These speculators á la Friedman behave as arbitrageurs and help to stabilize the foreign exchange rate. Summers/Summers (1989) bring it to the point.²⁹ Real investors (based on fundamentals) have negative feedback and reduce volatility by bringing back the price (exchange rate) to equilibrium. There is no need to trade frequently; therefore, this stabilizing ‘value investing’ occurs in the long run. Speculation involves positive feedback and tends to increase volatility. This destabilizing behavior goes with short-term horizons.

However, there are some counter-arguments to this view: Assumed it is true that short-term trading is speculative and causes the volatility to increase. Liberalization and deregulation of the international financial markets and the possibility to buy and sell every second world wide due to modern information and communication technology tend to increase the number of short-term speculators. Therefore, exchange rate volatility must have risen over the last twenty years. De Grauwe (2000) shows that there is no evidence for increased exchange rate volatility. In a former work, he examined the mean average monthly changes and the standard deviations of the four big currencies namely US-Dollar, Yen, Pound and Deutsche Mark over last three decades from 1973 until 1996. The result is that there is nearly no difference in the degree of variability of the ex-

²⁹ Note that Summers and Summers focus on the security market, but most of their findings hold for the foreign exchange market as well.

change rates, even a small decline of volatility in the 1990s compared to the 1980s.³⁰ De Grauwe concludes the assumption that short-term trades are speculative and thus destabilizing, to be false. Up to 70 per cent of the exchange rate volume, short-term transactions inclusive are interdealer and can be explained by hedging strategies and not speculation. Lyons (2001) calls the passing of unwanted positions from dealer to dealer following an initial customer trade ‘hot potato trading’ to which we will refer in the next chapter. As we will see a Tobin tax would thus be burdensome to desirable transactions. Further arguments can be found in Dooley (1996). There seems to be no evidence that speculators engage only in short-term investments. Truly, their forecasts are based on short horizons but this does not say anything about their time period in which they are long or short of a currency. There is no rule saying to trade frequently. Moreover, direct investments are not always of long-term character. The easiest hedge of a direct investment in a foreign country is to take a local bank loan there. In the case of panic, one can run off the country leaving behind the investment project and the loan without losing much. Direct investors and international holders of long-term capital do not necessarily hold their positions longer than those of short-term capital. On the contrary, they might be the first pulling out their capital when the atmosphere changes. If real investment and short-term capital do not differ from each other according to time series behavior, a Tobin tax will not have any effect to the composition of capital flows.

To argue the other way round there is no evidence that short-term projects tend to be less desirable than long-term projects. A transaction tax would increase transaction costs with the aim to discourage short-term trading in order to diminish market volatility. The conclusion is that markets with high transaction costs are less volatile than international financial markets, especially the foreign exchange market. Yet, the markets for housing or land, for instance, with high transaction costs are not more volatile than international financial markets.

³⁰ This finding stands in contrast to what BIS (2001a, p.99) suggests, probably due to different methods in determining volatility and new data. Volatility among Dollar, Yen and Euro exchange rates increased in the last two decades except for the Euro/Dollar market. In BIS (2002, p.91) 23 currencies are examined according to exchange rate volatility in 1995/1996 and 1999-2002. Over all with only few exceptions, volatility has increased.

2.5.2 Does a Tobin Tax Really Discourage Destabilizing Speculation (Only)?

The idea of the Tobin tax is to diminish volatility by discouraging short-term speculation that is said to be destabilizing. In the previous chapter, we have already found out that it is not clear-cut whether these transactions really contribute to higher volatility. Nevertheless, assume short-term transactions to be destabilizing. Then, is a Tobin tax in fact burdensome to speculation or does it discourage desirable transactions as well?

The argument proponents of the Tobin tax put forward is the inverse relation between tax burden and duration of the foreign investment as we have shown in chapter 2.3.1. Yet, we already know some restrictions when we extend the model by modeling expectations on future exchange rates. In the case of capital outflow, a contrary effect occurs that stands in sharp contrast to what Tobin (1978) and Frankel (1996)³¹ suggest.

Davidson (1997) doubts whether it makes sense at all to model the Tobin tax burden depending on the holding period, since the Tobin tax, like all transactions costs, is independent of the round trip time interval. Therefore, he compares situations with and without a Tobin tax in which investors have to decide whether to buy or to sell and he determines the tax rate that way (we will come to this in detail later).

Dooley (1996) points out that the costs of taxing international currency transactions might be higher than its benefits. He refers to Kupiec (1995) who examined a transactions tax levy in a framework in which noise-traders cause the asset prices to behave more volatile. On the one hand, transactions taxes reduce asset price volatility, on the other hand they cause the asset prices to fall due to cumulated and discounted taxes that are expected in the future. It is shown that the costs are higher than the benefits. According to foreign exchange markets, the paper suggests the Tobin tax not to be desirable.

Now let us refer to what we have already mentioned above. About two-third of total foreign exchange volume is amongst dealers and can be explained by hot potato trading. Hot potato trading is the search process for a counterparty, which is willing to accept a new currency position. Every currency dealer wants to restore the old equilibrium according to his risk-aversion when he is too long or too short of a currency due to a customer order. Thus, the passing of unwanted positions is a consequence of dealers' risk management. Lyons (1997) suggests that hot potato trading is consistent with a dealer's optimizing behavior. Assume there are many risk-averse currency dealers that are stay-

³¹ Just like Summers/Summers (1989) and Stiglitz (1989) according to security markets.

ing in their portfolio equilibrium. Now, one of them gets out of balance due to a customer sale of 10 million in foreign currency. Willing to carry only 10 per cent of this initial order, he searches for another dealer wanting to buy 9 million. Every dealer in the chain just wants to hold 10 per cent. Consequently, the initial volume of 10 million of foreign currency leads to an overall interdealer trade of 90 million. Thus, this very simple model shows that 90 per cent of total market volume is amongst dealers in order to hedge risks. Lyons (2001) states that 90 per cent is fairly too high but hot potato trading amounting up to 70 per cent of total market volume is realistic. There are two main effects: First, the price decline of the foreign currency will be smaller, if many dealers carry only a fraction of the initial order instead of one dealer who is willing to hold all. This stems from the (realistic) assumption that dealers are risk averse and thus have concave utility functions. Higher positions will only be carried, if a higher risk premium is paid. Second, total risk is shared amongst many dealers and therefore can be spread around more efficiently. A tax levy on each trade causes this search for risk spreading to become more expensive and consequently ends up with higher risks in the foreign exchange market and higher volatility.³²

Moreover, a Tobin tax would be more burdensome to the initial order based on real trade and followed by a chain of, for instance, 4 dealers than to pure speculation. Assumed that the Tobin tax is at a rate of 0,5 per cent and every dealer carries 5 per cent, the hot potato trading would be taxed as follows:

$$\begin{aligned}
 \text{total tax burden} &= 0.5\% \cdot (1 + 0.95 + 0.95^2 + 0.95^3) \\
 (2.20) \qquad \qquad &= 0.5\% \cdot 3.71 \\
 &= 1.85\% .
 \end{aligned}$$

As we can see, the tax burden of the hedging chain is 3.71 times higher than for a pure speculative transaction. Thus, the Tobin tax does not discourage destabilizing speculation but risk-lowering hedging.

Davidson (1997) argues similar but concludes differently. More roughly than in (2.20) one can say that the tax burden is 4 times higher for international trade transaction followed by hot potato trading than for short-term speculative transactions without hedging. This means that a Tobin tax of 0,5 per cent is equivalent to a 2 per cent tax on all foreign trade in goods and services, whereas speculation is taxed at a rate of 0,5 per

³² De Grauwe (2000), p.395.

cent. This is exactly the opposite of Tobin's intention. Moreover, the multiplier effect of the Tobin tax due to hot potato trading can lead to wider bid ask spreads. This must be taken into account and therefore the tax rate has to be only a fraction of what the original proposal suggests. Goodhart (1996) suspects the markets to become thinner because buyers as well as sellers go out of the market. It therefore takes longer for the market maker to match sell and buy orders, what means higher risks and longer periods in which the money is tied up. This makes markets more expensive and more volatile. For Palley (2001) this seems to be an unlikely outcome since the Tobin tax is to be levied at a low rate, and the transaction volume of the foreign exchange market is that enormous. Moreover, a Tobin tax contributes only little to higher transactions costs and international financial markets were not thinner when transactions costs were higher before the technological revolution.

In the original proposal, Tobin suggests to tax foreign exchange transactions on the spot market only. For a speculator who bets on a 10 per cent appreciation of the US-Dollar it would then be rational to go through the derivative markets instead of the spot market. He would swap a German Government bond for a U.S. Treasury security in order to be long in US-Dollars. At the time of maturity, only net profits are transferred. So, if the US-Dollar in fact appreciates by 10 per cent, only these 10 per cent net profit will go through the spot market and will be taxed. Assume a Tobin tax of 1 per cent, the tax burden for this speculation is 0.1 per cent. In contrast, investors that go through the spot market are forced to pay the tax twice to the total volume and not only to net profits. The tax burden for a round trip then is 2.1 times 1 per cent or 2.1 per cent. Exporters and importers have to go through the spot market as well but only once (there is no round trip) and pay 1 per cent. We see again that the Tobin tax does not discourage short-term speculation. Most proponents of the Tobin tax are aware of the necessity to tax derivatives, too. But taxing only the foreign exchange segment of the derivative markets would not be sufficient since the international financial markets are linked together through derivatives. Efficient measures to avoid any distortions would end up in regulations that would be a step back of 20 years (De Grauwe (2000)). Eichengreen/Wyplosz (1996) do not find it necessary to levy the Tobin tax to derivatives. Their counterargument runs as follows: In the chain of hot potato trading that was initiated for instance by a customer forward, there will be a dealer who seeks to close his open position through a purchase on the spot market. The authors conclude that in this way the initial forward is taxed either. Yet, this seems to be unrealistic since there is no

evidence that one dealer closes his position on the spot market when he can pass the hot potato to anyone else. Moreover, Eichengreen/Wyplosz (1996) as well as Grözinger (2001) assume that every dealer passes the whole amount and not only a fraction of the initial order. If every dealer carries a fraction, the volume of hot potato trade will decline gradually without underlying taxation. Finally, it can hardly be the objective of the tax to raise the burden to the customer order and the following hedging. The aim is to discourage speculation if it was destabilizing. A speculator that trades with derivatives is not affected by a Tobin tax levied on a spot transaction to close an open position at the end of a hot potato chain. Goodhart (1996) and Garber/Taylor (1995) regard it as a must to tax derivatives. In addition, small amounts have to be exempted from the tax in order to avoid deadweight costs when for example travelers need some foreign cash. Otherwise, the tax burden would fall on tourists, exporters and importers while traders of ‘hot money’ are able to avoid the tax.

2.5.3 Does a Tobin Tax Make the Market Participants Orientate More by Fundamentals?

General results of economic theory show that the group of market participants is heterogeneous. To distinguish very roughly there are those whose expectations are based on macroeconomic data – or to speak for all financial markets – on fundamentals, and those who anticipate the reaction of the other traders due to new information – the so called noise-trader who seek to gauge market psychology. The way to show that a transactions tax make market participants model more on fundamentals is to illustrate that the tax has more impact on noise-traders so that real investors (‘fundamentalists’) will dominate the market. We have already demonstrated above the most common attempt that, however, is based on questionable assumptions and uncertain consequences.

Stiglitz (1989) argues differently: Suppose there are four different categories of market participants. Highly informed individuals with insider information, basically informed traders that perform on the market average, the real investors that orientate by fundamentals, and the noise-traders as explained above. A transactions tax – and focusing on the foreign exchange market – the Tobin tax would have no impact on the insider and hardly any impact on the basically informed individuals and real investors. But there is likely an effect on noise-traders. Ex ante they are sure to beat the average but since the market casino is a zero-sum game at least half of them are wrong. Therefore, ex post

they would be better off not to have gambled. A transactions tax could stop the fools from gambling and diminish losses. However, this argument is not persuasive. First, Stiglitz's effort is also based on the assumption that noise-trading as a kind of speculation has short-term character and is destabilizing and that a transactions tax discourages exactly this speculation. Above, we find out that this is open to discussion. Second, the belief to be smarter than the average of all market participants is based - once again - on expectations. It is clear that a Tobin tax of some basis points cannot stop a speculator from trading when he expects good profits even foolishly. Third, there is no reason to intervene in the market just because some gamblers lose money. Since it is a zero-sum game, the amount that a fool loses will win another speculator – just a redistribution of money. The case for a tax levy would be negative external effects on desirable trades and, to which we come next, excessive waste of resources that are not productive.

In general, businesses like investment banks acting on international financial markets attract a lot of talented human capital – for Summers/Summers (1989) too much human capital that is not creating wealth. International financial markets as we have today waste too much private resources to operate and government resources to police. A comparison of the income of corporations noted at the New York Stock Exchange (NYSE) and the income of member firms of the NYSE suggests that one-fourth of total corporation profit is spent for financial engineering, costs of information and other non direct payments included.

It is clear that investments on international financial markets are a zero-sum game. That is, speculators seek in acquiring information to win against other market participants. Normally however, this information does not affect production decisions or the real value of a currency, to speak for foreign exchange markets, but only the price of the asset or currency. As a result, there are only private but no additional social gains when this information is the basis for trading. What takes place is an excessive investment in gathering information in order to be ahead of the other traders. The motivation is that the 'winner takes it all', and thus speculator's goal is to get the information first. But if everybody in the market invests that much in acquiring information nobody will have any competitive advantage. It is rational to invest as long as the marginal private return equals the marginal costs, which is equal, the opportunity costs or the return elsewhere without information costs. Stiglitz (1989) concludes that the net marginal social return is negative since their private return is more than the social return as mentioned above. This rent-seeking makes everybody worse off due to excessive expenditures on gather-

ing information in this Keynesian beauty-contest. One may then think that prices contain all information. Yet, most of the information does not go back to fundamental data but are short-term pseudo signals that are incorporated psychologically. A transactions tax like the Tobin tax with much higher impact on short-term investment seems to be good policy against wasting resources that otherwise could be productive and creating wealth. Moreover, traders that remain in the market do no longer base their expectations on short-term pseudo signals but on long-term fundamental data making the market less volatile and the price containing useful information. But this analysis is not more than another reason for limiting international financial markets and does not offer any evidence that the Tobin tax reaches its purposes since its function of discouraging short-term speculation is questionable.

Furthermore, Davidson (1998) detects some inconsistency in Stiglitz's arguments. On the one hand, transactions taxes enhance efficiency in financial markets, on the other hand transactions taxes levied on goods markets are not desirable. Stiglitz's only explanation of the excessive volatility of the international financial markets is the irrational behavior of fools, which are born every minute. The counter-argument is that in financial markets there exist fools since decades in which they are not being pushed out of the market in the sense of a Darwinian process. So even in the long run there are fools affecting market prices; and there is no evidence that pervasive irrationality does not exist in all product markets. Davidson (1998) argues that expectations matter and cause individuals to speculate. Therefore, a Tobin tax cannot be efficient but a creditable market maker with a great buffer stock who guarantees an unchanging spot market price over time. Those who speculate then are in fact fools and will lose.

Some more evidence that market participants could orientate more by fundamentals by levying a Tobin tax offer Menkhoff/Michaelis (1993). A Tobin tax decreases the sensitivity of foreign exchange traders according to expected changes of exchange rates and hence causes them to adjust to fundamentals. In addition, a Tobin tax contributes to preventing the emergence of speculative bubbles and makes the bubbles happen to burst earlier than they would without a tax.

In summary signs are emerging, that a Tobin tax could make investors model more on fundamental data but there are some strong counter-arguments. It will be difficult to find out how market participants would react, if once a tax on foreign exchange transactions was levied.

But what we have learned from this chapter is that it is not clear-cut and really questionable whether the Tobin tax as proposed could be desirable since the assumptions the proposal is based on are not fulfilled obviously. Even the inverse relationship between holding period and tax burden – the whole point of the Tobin tax – does not hold generally.

3. Is a Small Tobin Tax Sufficient?

In the previous chapter, we have examined whether the Tobin tax is desirable according to its proponents' objective to stabilize international financial markets and to diminish globalization risks. The approach was more from the point of view of quality. In the following, we will turn our attention to quantitative issues. Are grains of sand in the wheels of international financial markets sufficient to establish stability when good speculative profits are expected or panic occurs? Can a small Tobin tax create enough governmental autonomy for national economic policy? The findings of this chapter will be that the Tobin tax is not sufficient a measure for preventing financial crises and cannot have the power to generate much monetary autonomy. On the contrary, the foolish trust in being protected from speculative attacks and exchange rate fluctuations could be dangerous.

3.1 The Tobin Tax and Crisis Prevention

In 2.5.2, we already mentioned Davidson's (1997) doubts whether it is sensible to determine the tax burden depending on the round trip interval since all transactions taxes normally are independent of the holding period. A more reasonable approach is the comparison of the two states with and without a Tobin tax levy. Assume that p^t is the price of a foreign asset today and p^{t+1} is the expected price for the next period denominated in a certain currency. To analyze the effect of expected exchange rates and not stock prices we suppose that changes of the asset prices reflect changes in exchange rates.

If $(p^{t+1} - p^t) > 0$, an appreciation of the currency will be expected; if $(p^{t+1} - p^t) < 0$, a depreciation will be expected. Moreover, q is the future expected income and c the carrying costs of holding the financial asset, opportunity costs included. Net earnings then

appear to be $(q - c)$. Let T be transactions costs for every purchase or sale. If no Tobin tax is levied, an investor will buy, if

$$(3.1) \quad (q - c) + (p^{t+1} - p^t) > 0,$$

and will sell, if

$$(3.2) \quad (q - c) + (p^{t+1} - p^t) < 0.$$

The easiest case one can imagine is when money as an asset is hold. There is no future net income ($q - c = 0$) and there occur no transactions costs ($T = 0$). Thus, a speculator will be a bull, if

$$(3.3) \quad \frac{p^{t+1}}{p^t} > 1,$$

and will be a bear, if

$$(3.4) \quad \frac{p^{t+1}}{p^t} < 1.$$

This is quite easy to see since the terms on the left-hand sides are the gross growth rates of the exchange rate.

In the following, the Tobin tax (t) is modeled. As we know, the Tobin tax is due twice on a round trip. Therefore, the investor will go long, if

$$(3.5) \quad (q - c) + (p^{t+1} - p^t) - t \cdot (p^{t+1} + p^t) > 0,$$

while he will go short, if

$$(3.6) \quad (q - c) + (p^{t+1} - p^t) - t \cdot (p^{t+1} + p^t) < 0.$$

Equivalently to the situation above where $q - c = 0$ and $T = 0$ the speculator will be bullish, if

$$(3.7) \quad \frac{p^{t+1}}{p^t} > \frac{1+t}{1-t},$$

and will be bearish, if

$$(3.8) \quad \frac{p^{t+1}}{p^t} < \frac{1+t}{1-t}.$$

Comparing now inequalities (3.7) and (3.8) with (3.3) and (3.4) we conclude that the expected change in the exchange rate in the world with a Tobin tax levy must not be $\{[(1+t)/(1-t)] - 1\} \times 100$ per cent greater than the maximum expected change in the no tax case not to induce bullishness or bearishness. For example without a Tobin tax there is no incentive to buy a currency due to transactions costs and negative net earnings although expected appreciation is 0.5 per cent. Then in the case of Tobin Tax at a rate of 1 per cent, expected appreciation must not be greater than $0.5 + 2.02 = 2.52$ per cent not to induce bullish behavior. The 1 per cent Tobin tax corresponds to a 104 per cent tax burden if traded every week (52 weeks a year). This sounds much and seems to be deterrent for every short-term speculation. But if one expects an additional appreciation of the exchange rate of 2.02 per cent independent from the time period, he will buy. So even a 1 per cent Tobin tax is very fine sand in the wheels of international financial markets and cannot diminish globalization risks like speculative attacks and financial crises. Davidson (1997) states that in the case of the Mexican tequila crisis in 1994/1995 the peso fell by about 60 per cent during weeks. That would have required a Tobin tax of more than 23 per cent! As a result, the speculator will trade as soon as there are expected overall capital gains or losses. A Tobin tax that does not tax these gains fully at a rate of 100 per cent on a round trip cannot deter speculation.³³

³³ In Davidson (1997) the author proposes a regulatory framework of international finance built upon an international money clearing unit (IMCU) as the only liquid asset allowed as reserves and a mechanism that puts the burden of adjustment in international finance on countries experiencing surplus in their trade balance. While De Angelis (1999-2000) agree with Davidson according to the shortcomings of the Tobin tax, the proposal is controversially discussed; see also Davidson (1999-2000).

3.2 The Tobin Tax and Monetary Autonomy

The restoration or maintenance of autonomy for national macroeconomic and monetary policy is the second objective of the Tobin tax. As James Tobin writes in his proposal of 1978, viable differentials of interest rates between economies are hard and costly to perpetuate due to massive movements of funds. That is, central banks and governments are no longer able to model on national economic requirements but have to orientate by external circumstances neglecting domestic issues like employment, output and price level. The idea is to reduce trading volume on international financial markets as a whole and in particular speculation. Central banks' market interventions become more effective and governments can concentrate on domestic policy issues.

There is another way to discuss this problem. The content of the 'impossible trinity' is that it is not possible to reach all of the three political goals simultaneously, namely international financial openness, monetary autonomy, and stability of nominal exchange rates. To establish financial openness and a stable currency for example in a fixed exchange rate regime the country has to give up monetary independence since stable exchange rates require central bank market interventions in order to cope with capital mobility. The national amount of money can no longer be adjusted to domestic conditions. The other way round the price for financial openness and monetary autonomy is flexible exchange rates that suffer from volatility. Some argue that a Tobin tax might cut down the openness of international financial markets a little so as to re-establish some monetary independence while exchange rates are fixed.³⁴

Frankel (1996) is skeptical whether a small Tobin Tax is a sufficient measure to sacrifice financial openness creating autonomy for national economic policy. In 1992 and 1993, when dealers speculated against the narrow bands of the European exchange rate system (ERM) a Tobin tax would not have been deterrent. The same holds for Mexico 1994 and Asia 1997. In Frankel's opinion, monetary autonomy goes hand in hand with large variability of the exchange rates.

By applying the interest parity conditions and by introducing the Tobin tax, it is possible to determine a maturity-dependent interest rate band in which the national interest rate can differ from the foreign interest rate without incentives to move money. It is assumed that the foreign interest rate i^B is fixed at a certain level, lets say of 10 per cent.

³⁴ See Buch/Heinrich/Pierdzioch (2001), p.19.

If the interest parity condition holds, after-tax returns in the foreign and in the domestic country will be equal. The following approach underlines best the results of De Grauwe (2000) who does not present any modeling framework. Let i^A be the domestic interest rate, t the Tobin tax and y the maturity in years, then the interest rate parity conditions (see equation 2.1) can be written as:

$$(3.9) \quad (1 + i^B y) \cdot (1 - t)^2 = 1 + i^A y.$$

Solving for the domestic interest rate i^A yields

$$(3.10) \quad i^A = \frac{(1 + i^B y) \cdot (1 - t)^2 - 1}{y}.$$

By fixing the foreign interest rate i^B at 10 per cent and the Tobin tax t at 0.1 per cent we get the domestic interest rate i^A dependent only on the maturity y :

$$(3.11) \quad i^A = \frac{(1 + 0.1y) \cdot 0.99^2 - 1}{y}.$$

The domestic interest rate i^A can be interpreted as the lower limit of a interest rate band in which national interest rates can be set independently. Obviously, the lower limit increases with longer maturities and approximates the foreign interest rate.

Equation (3.9) expresses a situation in which a local investor is indifferent between investing at home or in the foreign country. To get the upper limit of the interest rate band assume a foreigner who is indifferent between investing in his country (B) and in country A:

$$(3.12) \quad 1 + i^B y = (1 + i^A y) \cdot (1 - t)^2.$$

Solving for the domestic interest rate i^A yields

$$(3.13) \quad i^A = \frac{1 + i^B y}{(1 - t)^2} - 1,$$

or rather

$$(3.14) \quad i^A = \frac{\frac{1 + 0.1y}{0.99^2} - 1}{y}.$$

This upper bound decreases with longer maturity y but approximates to the foreign interest rate of 10 per cent, either. As a result, the free interest rate band is symmetric to the constant foreign interest rate, is broad for short maturities and becomes thinner for longer terms. In the very long run it vanishes. For example, while the band covers 3-month interest rates from 1.8 to 18.3 per cent it decreases from 8.8 to 11.2 per cent for a maturity of 2 years. In the 5-years run the band narrows to 9.4 – 10.6 per cent. The breadth of the band can be regarded as the degree of national autonomy of setting interest rates independently.

Jetin/De Brunhoff (2000) mistakenly calculate the degree of independence directly from equation (2.2) of the Frankel model, overlooking that in this model the domestic interest rate is fixed and that the interest rate parity condition is solved for the foreign return. The second and graver shortcoming is that the authors neglect the upper or the lower limit – which depends on the point of view. Therefore, they get the degree of freedom of setting interest rates nationally to be half as much. Nevertheless, national autonomy in setting short-term interest rates is quite sizeable. But to attract real investments and to police national economic issues the long-term interest rate matters. As we can see, at the long end the national interest rate is still determined by the foreign interest rate since the interest rate band disappears. The interest rate band may be wider for short maturities as we suggest above because we modeled the Tobin tax to be due only once. According to the Frankel model in 2.3.1, especially speculators with short horizon calculate to be charged the Tobin tax twice. But the result that national autonomy vanishes at the long end still remains.

For Arestis/Sawyer (1997) it seems to be straightforward that a Tobin tax of say 0.1 per cent cannot contribute to much difference of interest rates although the tax burden and hence the deterrent effect increases with shorter holding periods. The only argument for more monetary autonomy through a Tobin tax is that central bank interventions become more effective since official reserves increase relative to the volume of transactions. The economy may withstand more external shocks and runs on its currency hence creating more independence of monetary policy.

Finally, the belief of effective protection against speculative attacks when a Tobin tax is levied can be regarded as additional autonomy for national economic policies. But this attitude bears some risks especially when national authorities mistakenly consider the national economy to be secure from external financial attacks and crises. The upshot could be careless monetary and financial policy, and unfavorable economic developments could not be revised. The probability of financial crises would increase.³⁵

The conclusion is clear-cut: Even if the Tobin tax was desirable according to its concept, the expected increase in monetary and fiscal autonomy would not occur and it would not fulfill its task in preventing national financial crises because every sensible height of the tax rate would be too small.

4. Feasibility of the Tax

The results of the previous chapters suggest that from the theoretical point of view a Tobin Tax is not an efficient measure to stabilize foreign exchange markets and to contribute to national monetary autonomy. Besides the theoretical analysis, the question of whether a Tobin tax is feasible is equally important. Not only critics of the Tobin tax but also some of its proponents claim that it may not be feasible. Even James Tobin doubts.³⁶ The case of enforcement goes hand in hand with the question of how the Tobin tax might be avoided. There are two possible ways. One can switch the foreign exchange trade to jurisdictions where no transactions tax is imposed. Alternatively, one changes his product mix. The later possibility includes using established derivatives that are not subject to the tax or financial innovations that will be created to avoid the tax. Yet, this will not be examined in the following, since the recommendation is clear-cut: The tax base has to be as broad as possible not to create distortions on the foreign exchange markets and between other financial markets. This chapter concentrates on the first possibility of tax avoidance – the ‘jurisdictional shopping’. It will be worked out that the Tobin tax requires international agreement.

³⁵ See Nunnenkamp (2001), p.15.

³⁶ See Tobin (1978) or Frankel (1996).

4.1 How Foreign Exchange is Traded

The foreign exchange market is divided into two segments. In the wholesale market dealers trade amongst each other bilaterally. Through these pure interbank transactions, the prices for foreign currencies are quoted. In the retail market, dealers or banks respectively meet the customers' needs resulting from foreign trade or investments for example. Contrarily to most stock markets the foreign exchange market hence is decentralized and dealer-driven; contracts are over-the-counter (OTC) leading to a non-transparent nature of the market. The most sizeable markets within the foreign exchange market are the spot market and the market for swaps.

A foreign exchange transaction takes place on three different sites. The dealing site is where the dealers as trading partners are located. Dealers are staff of a bank. Normally dealers are situated in a dealing room in financial centers independent from the location of the bank's head office. The dealing room is like a subsidiary of the bank. The location where the deals are booked is called booking site. In many cases, it is the head office of the bank but also can vary. Every foreign exchange transaction at least has two settlement sites since two or more currencies are traded. A settlement site is where the bank balances are transferred between the parties. Assume two German banks, which trade Euros against US-Dollars. Then one settlement site is the European Central Bank in Frankfurt, the other one will be a bank in the USA if both banks have their dollar balance there or, if not, the Federal Reserve Bank (FED).³⁷

4.2 The Kenen-Proposal

The key question now becomes which of the three sites seems to be best for levying the Tobin tax. Kenen (1996) argues that the settlement sites are not suitable since too many gross transactions are netted before they are settled. Moreover, not all transactions that are settled are through the foreign exchange market and thus should not be subject to the tax. The shortcoming of taxing the transaction at the booking site is that the Tobin tax could easily be avoided by putting some computers in jurisdictions without a Tobin tax. All transactions would be booked there. Kenen suggests levying the Tobin tax on the dealing sites. For this case, two ways of collecting the tax can be distinguished. On the one hand, all forex transactions of all international dealing rooms of one bank could be

³⁷ See for example Kenen (1996).

taxed on a national basis, which means in the country of the bank's headquarter. On the other hand, all forex transactions taking place in one market place could be taxed there, no matter what the nationality of the bank is. Although collecting the tax on the national basis would deter tax avoidance, Kenen proposes to collect it on a market basis. The former way of collection would impose some extra costs of consolidating data on the banks and favors banks whose governments did not impose a Tobin tax. Moreover, countries with big foreign exchange markets but few local banks would have no incentive to levy a Tobin tax on a national basis. The plan suggests collecting the tax on the dealing site according to the paper trail between the trading parties with respect to the status of the counterparty. If the transaction is interdealer in the wholesale market, each dealer will be charged half the Tobin tax rate whereas in the retail market the tax is payable full. The tax burden for the bank and for the customer then depends on how the additional costs are shared.

4.3 Is the Tobin Tax Feasible?

Kenen's proposal sounds sensible but there remain some doubts whether the Tobin tax collected that way is really feasible and desirable. First, every dealer has to know the status of his counterparty since in the case of interdealer transactions every party carries only half the tax. This implies some additional costs since lists of dealers must be updated and applied every transaction. Second, transactions between two non-bank traders would be tax-free. Third, transactions between small currencies would be taxed twice since a vehicle currency like the US-Dollar is used. Exempting those trades would cause the tax collection to become more complicated and it is difficult to discover those transactions, which include in fact a vehicle currency.

However, the real problem is the requirement of international cooperation between tax authorities. If one country is not willing to impose a Tobin tax, there will be strong incentives for banks to move their dealing rooms there to avoid the tax. The winners of this tax competition could be offshore centers as tax havens like the Cayman Islands as a prominent example. Of course, migration to a tax-free location is costly and risky especially for the case that this tax haven does not have good infrastructure for exchange trading.³⁸ Moreover, if not all banks establish their dealing rooms in the tax-free jurisdiction simultaneously, one of them will be the first. Imposing a punishing tax at a high

³⁸ Griffith-Jones (1996).

rate on all transactions with this bank could hinder to avoid the tax that way. But the more banks have moved offshore the greater the network effect and the smaller the effect of punishment. Some argue that it would be sufficient, if all members of the G-7 countries, Singapore, Hong Kong and Switzerland agreed to impose the Tobin tax since nearly total volume of foreign exchange is traded therein. Palley (2001) states that holding expensive equity capital as required for the BIS standard has an equivalent effect as a Tobin tax. But experience suggests that there was no shift to jurisdictions where they are not applied. These standards are regarded as good housekeeping. Hence, the international enforcement of the Tobin tax as a standard is a matter of political will. However, one must not neglect the case of shifting to tax-free jurisdictions if only one country lures foreign banks by not imposing the tax. All the banks that are charged the Tobin tax might lose connection to the foreign exchange markets due to competitive advantages of those not being taxed. For the case that local banks can avoid the tax by shifting the dealing rooms to tax havens, the part of the bank located in the home country will be not more than a lender which finances the foreign exchange transactions of its offshore subsidiary.³⁹ And countries do have incentives not to impose the Tobin tax since banking and especially exchange trading is a highly paid job which yields positive spillover effects on other businesses and on society.⁴⁰

Proponents of the Tobin tax call for international cooperation of national authorities. Moreover, an international organization like the IMF or the Worldbank should coordinate the implementation and monitoring of the Tobin tax as well as the distribution of its revenues.⁴¹ Schmidt (2000) proposes to collect the Tobin tax on the settlement site since technological innovations which are designed to eliminate settlement risks make it now possible to detect taxable gross transactions before netted, no matter whether the payments were made onshore or offshore.

These proposals illustrate that imposing a Tobin tax involves besides economical also political and technical problem due to its feasibility. However, even if there existed a political will for imposing the tax and - against all odds - if there was global agreement on a uniform Tobin tax arrangement, a levy would not be desirable since the Tobin tax bears too many economic shortcomings.

³⁹ Garber (1996).

⁴⁰ See Kasa (1999).

⁴¹ Griffith-Jones (1996).

5. Summary and Conclusions

On the one hand, international financial markets are necessary for the functioning of all other markets especially for markets of internationally traded goods. On the other hand, super-efficient financial markets due to globalization can have deep impacts on national economies - for example, the loss of monetary autonomy, high volatility of the exchange rate that leads to uncertainty or herd behavior of the speculators causing currency attacks. A Tobin tax might be a compromise between totally free and strongly regulated international financial markets.

Chapter 2.1 describes the Tobin tax proposal. At a first sight the Tobin tax seems to be persuasive. It discourages short-term speculation that is said to destabilize whereas desirable investments face a much lower tax burden. But the functioning of the Tobin tax is not that clear-cut. Extending a Frankel model in chapter 2.3, which shows how the Tobin tax can function hints at the possibility of a contrary effect when the expected depreciation of the foreign currency is large. The Tobin tax proposal is based on the assumption that short-term trading is speculative and destabilizing. There are some theoretical and empirical counterarguments, above all the 'hot potato trading' as a hedging strategy amongst dealers when a customer order shifts a bank's portfolio out of balance (chapter 2.5). These trades are assumed to amount up to 70 per cent of total volume of the foreign exchange market. Taxing hot potato trading would be foolish since it lowers market risks and leads to lower prices. Moreover, real investments and trade in goods and services might be discriminated because there are some possibilities for 'hot money' to avoid the tax or at least to lower the tax burden. A strong reason for taxing speculation is excessive wasting of resources in order to get some informational lead over market competitors. But the success of the Tobin tax in discouraging this 'rent-seeking' depends on its questionable ability to deter short-term speculation.

Chapter 3 suggests that the Tobin tax is not an efficient measure to prevent currency crises since an additional transactions cost of some basis points will not be deterrent, if high returns are expected by attacking a currency. The ability of a Tobin tax to generate some monetary autonomy is quite poor especially for the long run. Since super-efficient international financial markets have negative external effects on the economy and on the monetary authority, the Tobin can be justified as a Pigouvian tax.⁴² However, as a measure to prevent currency crises, it must be imposed globally or at least amongst the

⁴² See Palley (1999) and Pierdzioch/Stadtmann (2000).

major financial markets (chapter 4). Thus, in addition to theoretical economic doubts about the Tobin tax there arise some political problems, which can make the Tobin tax to become infeasible.

There is not doubt about that financial crises must be prevented and that other globalization risks – namely national monetary dependency and market insecurity – have to be diminished. But before calling for any measure like the Tobin tax one has to detect the real causes. Surely, failures of international financial markets have contributed to many of today's problems, but are they really the initial cause? As the financial crises of the 1990s especially the Mexican Crisis 1994/95 and the East Asian Crises 1997/98 have shown, panic amongst exchange traders causes them to pull out their money what leads to a currency fire in that country.⁴³ Nevertheless, panic also has its causes. Moral hazard and adverse selection due to asymmetric information can be sources of destabilizing the economy as well as unexpected news about bad macroeconomic fundamentals or unstable policy (Mishkin (1998) and Siebert (1998)). According to crises of the 1990s, the dismantling of emerging markets was too fast a process since western industrialized countries called on emerging countries to open up their financial markets without being prepared for this challenge (Tobin (1998)). These markets did not obtain sophisticated bank sectors and bank supervision what led to moral hazard and systematic risk.

Protectionism on international financial markets would be a step back since its desirable functions of spreading risks and coordinating international division of labor would be partially lost. A Tobin tax is a political tool, which permanently controls international capital movements and does not distinguish between poor and highly sophisticated financial markets. As a measure to diminish globalization risks, it had to be imposed temporary and only on less sophisticated markets (De Grauwe (2000)). The theory of Guembel/Sussman (2001) suggests that highly sophisticated markets do not bear that much risks since there exist instruments for market participants to insure themselves in the case of high exchange rate fluctuations. They conclude that most emerging countries need not put sand in the wheels of financial markets because they have sand aplenty. It would be foolish to think the Tobin tax is a panacea ignoring the real causes of the globalization risks. In contrast, an expected Tobin tax levy itself could create panic (Bird/Rajan (2001)).

⁴³ See Aschinger (2001), p.24ff; De Grauwe (2000), p.397ff.

Although the concept of a Tobin tax has been discussed in many parliaments and there seems to be willingness also in Germany to tax foreign exchange transactions⁴⁴ not all official statements are enthusiastic. The Enquete Commission of the German Parliament (see BMF (2000)) claim that there are practical and political problems of imposing the Tobin tax and that its costs might be higher than its benefits. A study of the European Parliament (2000) is skeptical whether a Tobin tax would be effective and suggests the Tobin tax to be only a part of an internationally coordinated framework. The only argument for the Tobin tax that is really interesting for policy makers seems to be the revenue raising function that does not justify the levy.⁴⁵

Further research would be modeling the Tobin tax in a microeconomic framework with risk-averse investors and assets of different return and risk. A transactions tax might be able to dampen excessive international capital flow and speculation since it influences asset diversification decisions.

⁴⁴ See Deutscher Bundestag (2002).

⁴⁵ For Siebert (1998), Mishkin (1998) and Greenspan (1998) measures to diminish globalization risks efficiently would be stabilizing the banking sector through reforms and effective bank supervision, political transparency in economic affairs, setting realistic exchange rate targets as well as sustainable policy.

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