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# A General Financial Transaction Tax: Financing Development and Enhancing Financial Stability

Paper presented at the Meeting of the UN Economic and Social Council in New York on April 14, 2008

## 1. The concept of a general financial transaction tax

The past 30 years have witnessed a somewhat contradictory development of trading volume and price dynamics in financial markets on the one hand, and the use of transaction taxes in practice on the other. Financial innovations, in particular derivative instruments of all kinds, have contributed to a spectacular rise in turnover in all asset markets. Unsurprisingly, asset prices, including exchange rates, stock prices, and commodity prices (especially for crude oil) have undergone wide swings lasting several years. However, economic policy has not attempted to mitigate these price swings, e.g., by means of transaction taxes (as proposed by *Keynes*, 1936, for stock trading and by *Tobin*, 1978, for currency trading). In fact, many of these taxes have been abolished over the past 20 years.

The instability of financial markets together with their global interdependence and the related crises in the 1990s have re-ignited the debate over the pros and cons of a currency transaction tax (*Haq – Kaul – Grunberg*, 1996; *Jetin – Denys*, 2005). The ensuing discussion led to new and more elaborate proposals on how to implement a Tobin tax in practice (*Spahn*, 2002; *Jetin – Denys*, 2005). In recent years, official political bodies in the EU like the national parliaments in Belgium, France and Austria declared their support for such a tax.

An important motive for proposing a Tobin tax or a general financial transaction tax (FTT) concerns the use of its revenues. Given the enormous trading volume in financial markets, the revenues of a FTT would be substantial even at very low tax rates. These revenues could be used to finance development aid and other supranational projects or institutions.

The boom in trading volumes of all types in financial markets and the wide fluctuations of asset prices motivated the Austrian Institute of Economic Research (WIFO) to consider the pros and cons of a general and uniform FTT. Such a tax would be imposed on transactions of all kinds of financial assets, and, hence, would not be restricted to specific markets like the original proposal by Keynes (stock market), the Tobin tax (foreign exchange market) or securities taxes implemented in the past (stamp duties, stock exchange transaction taxes).

The present paper summarizes the results of this study (*Schulmeister – Schratzenstaller – Picek, 2008*).

Conceptually, a general FTT seems "prima facie" more attractive than a specific transaction tax for at least three reasons. First, a general tax does not discriminate against specific types of markets, and it prevents tax avoidance by substituting taxed by untaxed transactions. Second, due to the enormous volume of the tax base the tax rate could be very small and yet, the tax receipts might be considerable. Third, such a tax could be implemented in a stepwise fashion so that (a group of) countries willing to impose it would start with domestic markets, which can be taxed at almost no administrative costs (e.g., it is easier to levy a rather miniscule tax of 0.01% on spot and derivatives transactions on organized exchanges as compared to transactions in a dealership market like the global foreign exchange market).

## **2. Excessive liquidity and price volatility in financial markets – how a general FTT can mitigate these problems**

The main observations about transactions volumes and price dynamics in financial markets can be summarized as follows:

- Observation 1: There is a remarkable discrepancy between the levels of financial transactions and the levels of the "underlying" transactions in the "real world". E.g., the volume of foreign exchange transactions is almost 70 times higher than world trade of goods and services. In Germany, the UK and the US, the volume of stock trading is almost 100 times bigger than business investment, and the trading volume of interest rate securities is even several 100 times greater than overall investment (figures 1 and 2).
- Observation 2: For all types of assets, these discrepancies have risen tremendously since the late 1990s. In other words, financial transactions have expanded several times faster than transactions in the "underlying" markets for goods and services ("real-world-transactions"). Trading volumes of interest rate securities grew by far the most, followed by stock trading and, with some distance, by foreign exchange trading (figures 1 and 2).
- Observation 3: Trading in derivatives markets has expanded significantly stronger than trading in spot markets, this holds true for any kind of asset/instrument. In the world economy, derivatives trading volume is roughly 50 times higher than world GDP, whereas spot trading amounts to "only" 7.5 times world GDP (figures 1 and 2).
- Observation 4: Asset prices like exchange rates, stock prices or crude oil prices fluctuate in a sequence of long-term upward trends ("bull markets") and downward trends ("bear markets") around its fundamental equilibrium (figures 3 to 5).
- Observation 5: These trends are the result of the accumulation of extremely short-term runs (on the basis of intraday data) which last longer in one direction than the counter-movements. When the market is "bullish", upward runs last longer than downward runs, when the market is "bearish", the opposite is the case (figures 6 and 7).

These observations suggest that financial markets are characterized by excessive liquidity and by excessive long-run volatility of prices (i.e., strong and persistent deviations from their fundamental equilibria). This can be concluded from the empirical evidence for the following reasons:

- Price expectations of market participants must be (very) heterogeneous and must have become progressively more so because otherwise trading (opportunities) had not risen so much faster than transactions in the "underlying" goods markets (observations 1 – 3).
- The spectacular rise of derivatives trading cannot be caused primarily by hedging activities because the volume of derivatives transactions is just much too big to be accounted for by hedging (observation 3).
- As a consequence, the greatest part of derivatives transactions has to be attributed to speculative trades between actors with heterogeneous price expectations.
- The pattern of asset price dynamics as a sequence of very short-term runs which accumulate to "bull markets" or "bear markets" and, hence, to long swings around the fundamental equilibrium suggests that the cumulative effects of increasingly short-term transactions are rather destabilizing than stabilizing (figures 6 and 7).

This evaluation of the empirical evidence suggests that asset markets are characterized by excessive liquidity and excessive price volatility leading to large and persistent deviations from their fundamental equilibria. The growing importance of technical trading systems in financial markets contributes significantly to the volatility of asset prices over the short run as well as over the long run.

A general FTT would render transactions the more costly the shorter is their time horizon. Hence, it would tend to dampen technical trading, which is increasingly based on intraday price data. At the same time, technical trading strengthens price runs which in turn accumulate to medium-term trends that involve growing departures from long-run fundamental levels. As a consequence, a FTT would be expected to reduce excessive liquidity stemming from transactions which are very short-term oriented and that can be destabilizing at the same time.

Since an FTT increases transaction costs the more the lower they are (before tax), it will generally hamper derivatives trading to a greater extent than spot trading. Since spot transactions are more long-term oriented and, hence, based to a larger extent on fundamentals than (speculative) derivatives transactions (such an assumption seems plausible at least with respect to stocks and interest rate securities) one can presume that an FTT will hamper primarily short-term, non-fundamental transactions. At the same time, derivatives transactions for hedging purposes would not be affected by a low FTT (between 0.1% and 0.01%) since one usually needs just one transaction for hedging an open position stemming from "real-world-transactions" (e.g., future export earnings in foreign currency).

#### **4. The revenue potential of a general financial transaction tax**

The study estimates the potential revenues of a general FTT for three tax rates, namely, 0.1%, 0.05%, and 0.01%. The calculation assumes that the tax base is the notional value of the respective transaction. This design implies that the tax burden, relative to the cash invested to acquire a certain instrument, grows as transaction costs fall and the leverage effect rises. Such an FTT will hamper specifically those transactions that involve high leverage and, hence, a high risk (chance) of great losses (profits).

The revenue estimates are based on the assumption that transaction volumes will be reduced by the introduction of an FTT. The size of this reduction effect depends on the tax rate, the pre-tax transaction costs and the leverage in the case of derivatives instruments. For each tax rate and type of instrument, a low, medium and high "transactions-reduction-scenario" (TRS) is specified.

Tables 1 and 2 present the estimated revenues of a general FTT for the world economy as a whole as well as for the main regions. In the case of the medium TRS overall tax revenues would amount to 1.52% of world GDP at a tax rate of 0.1%, and to 0.49% at a tax rate of 0.01%. In North America and Europe tax revenues would be similar in size (relative to nominal GDP), in the Asian-pacific region FTT revenues would be lower by roughly one third than in North America and Europe. In the rest of the world revenues would be negligible.

It is interesting to note that the estimated revenues of a general FTT at the low rate of 0.01% come close to the hypothetical revenues from a VAT on financial services. In Europe, e.g., FTT revenues at a rate of 0.01% are estimated to lie between 0.59% and 0.78% of GDP (table 1 and 2). If financial services were not exempt from VAT the latter would yield roughly 0.7% of GDP (this estimate implies a share of the financial sector in overall value added of 3.5% and an average VAT rate of 20% – see *Huizinga, 2002*). Hence, the introduction of a general FTT would roughly compensate for the – distorting – exemption of financial services from VAT. In addition, a general FTT would affect the (relative) profitability of different types of activities within the financial sector. Financing, insurance and risk transformation would practically remain unaffected by a FTT whereas short-term trading would become more costly (in particular derivatives transactions).

#### **5. Feasibility a general financial transaction tax**

A FTT should not tax those transactions which are simply the financial equivalent to "real-world-transactions" like payments related to transactions in the goods or labor markets. Following a pragmatic approach in line with this reasoning, we would propose to make the following transactions subject to a general and uniform FTT:

- All spot and derivatives transactions on organized exchanges, e.g., trades of stocks and interest rate securities, as well as trades of futures and options related to stocks, interest rate securities, currencies and commodities.

- Those "over-the-counter" (OTC)-transactions which are directly related to asset prices, in particular to exchange rates and interest rates, e.g., spot currency transactions as well as trades of foreign exchange derivatives and (single currency) interest rate derivatives.

The first group of transactions is clearly defined. The second group covers all transactions reported by the "Triennial Central Bank Survey" plus OTC spot transactions of interest rate securities and stocks. Since the latter two types of transactions are quantitatively not important it would be sufficient to tax all transactions covered by the BIS survey. For a detailed definition of all these transactions see *BIS, 2007*.

This proposal implies that all transactions between customers (households and enterprises) and financial institutions (in particular banks, but also insurance companies or brokerage firms) would not be subject to the FTT. E.g., if a private person gives an order to her broker to buy or sell stocks or a futures contract only the transaction on the exchange would be taxed (i.e., the respective settlement payments) but not the payment between the customer and the broker.

Taxes on all transactions are collected by the exchanges themselves. At the same time, the exchanges debit the buyer and the seller of each transaction with 50% of the tax. The whole procedure should be easily organized due to the electronic settlement systems used on all important exchanges (the same is true for the collection of the tax on OTC transactions).

A general taxation of financial asset transactions in all major economies can only be the final stage in the process of implementing an FTT. The first stage could be the implementation of a tax levied only on spot and derivatives transactions on organized exchanges in some major EU economies. In fact, it would be sufficient if only the UK and Germany implemented such a tax (almost 99% of all spot and derivatives transactions on exchanges in the EU are carried out in these two countries).

This extreme concentration of transactions on exchanges in Europe (only 6% are spot transactions, 94% refer to futures and options) clearly shows that network externalities of well-established market places are the most important factor for their success. This in turn implies that an FTT of 0.05% or even only 0.01% will not induce any considerable "emigration" of transactions.

This presumption is confirmed by the success of the British "stamp duty" on stock transactions (as documented in this Schulmeister – Schratzenstaller – Picek, 2008). Even the comparatively high tax rate of 0.5% has obviously not done any harm to the attractiveness of the London stock exchange. At the same time, the revenues from the "stamp duty" are substantial, amounting to 0.7% of total tax receipts.

Based on the experience with an FTT levied only on transactions on organized exchanges one could include in the second stage all OTC transactions within the Euro area which involve no other currencies, i.e., primarily euro interest rate derivatives. The third stage would then include also spot and derivatives transactions in the foreign exchange market.

Due to network externalities, financial asset transactions are highly concentrated in certain markets. The same would be true for the potential revenues of an FTT. E.g., if an FTT would be implemented in "stage 1" on all transactions on exchanges in the EU27, almost all revenues would stem from transactions on the London and Frankfurt market places. However, the tax will effectively be paid by all actors who make use of the exchanges in London and Frankfurt. If one assumes that trading activities are roughly proportionate to the overall economic performance (i.e., nominal GDP) then an FTT might well be in line with the principle of a fair sharing of the tax burden.

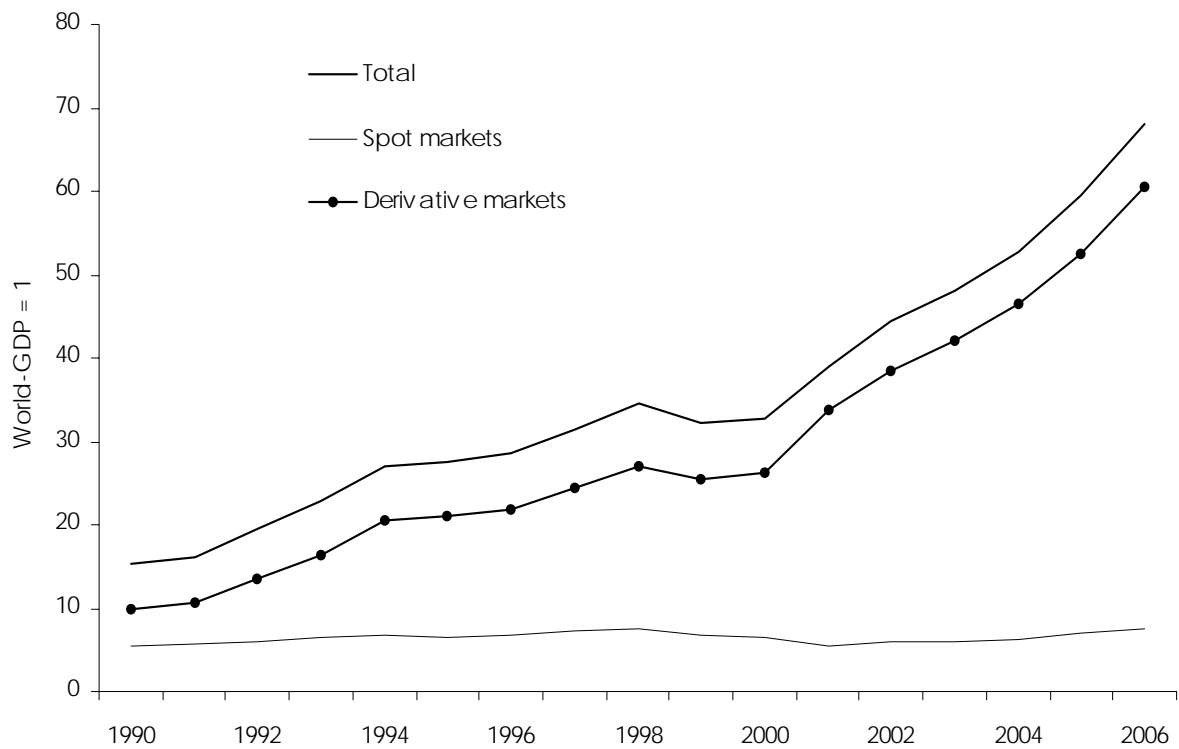
Of course, for providing such efficient market places as London and Frankfurt, the UK and Germany should get some fixed share of tax revenues. However, the other (main) part of the revenues could be used to finance supranational projects like development aid.

## References

- Bank for International Settlements, Triennial Central Bank Survey - Foreign Exchange and Derivatives Market Activities in 2007, Basel, December 2007, ([www.bis.org/publ/rpfx07t.pdf](http://www.bis.org/publ/rpfx07t.pdf)).
- Haq, M., Kaul, I., Grunberg, I. (eds.), The Tobin Tax: Coping with Financial Volatility, Oxford University Press, New York-Oxford, 1996.
- Huizinga, H., "A European VAT on financial services?", Economic Policy, October 2002, pp. 499-534.
- Keynes, J. M., The General of Employment, Interest and Money, MacMillan, London, 1936.
- Schulmeister, St., Aktienkursdynamik und Realkapitalbildung in den USA und Deutschland, WIFO, Wien, 2003, (<http://stephan.schulmeister.wifo.ac.at/>).
- Schulmeister, St., Purchasing Power Parities, Exchange Rates and International Price Competitiveness, WIFO, Wien, 2005, (<http://stephan.schulmeister.wifo.ac.at/>).
- Schulmeister, S., Schratzenstaller, M., Picek, O., A General Financial Transaction Tax – Motives, Revenues, Feasibility and Effects, Study of the Austrian Institute of Economic Research (WIFO) commissioned by Ökosoziales Forum Österreich and co-financed by the Ministry of Finance and the Ministry of Economics and Labour, Vienna, April 2008, ([http://www.wifo.ac.at/www/jsp/index.jsp?fid=23923&id=31819&typeid=8&display\\_mode=2](http://www.wifo.ac.at/www/jsp/index.jsp?fid=23923&id=31819&typeid=8&display_mode=2)).
- Spahn, P. B., On the feasibility of a tax on foreign exchange transactions, Report to the Federal Ministry for Economic Cooperation and Development, Bonn, February 2002.
- Tobin, J., "Proposal for International Monetary Reform", Eastern Economic Journal, 1978, 4, pp.153-159.

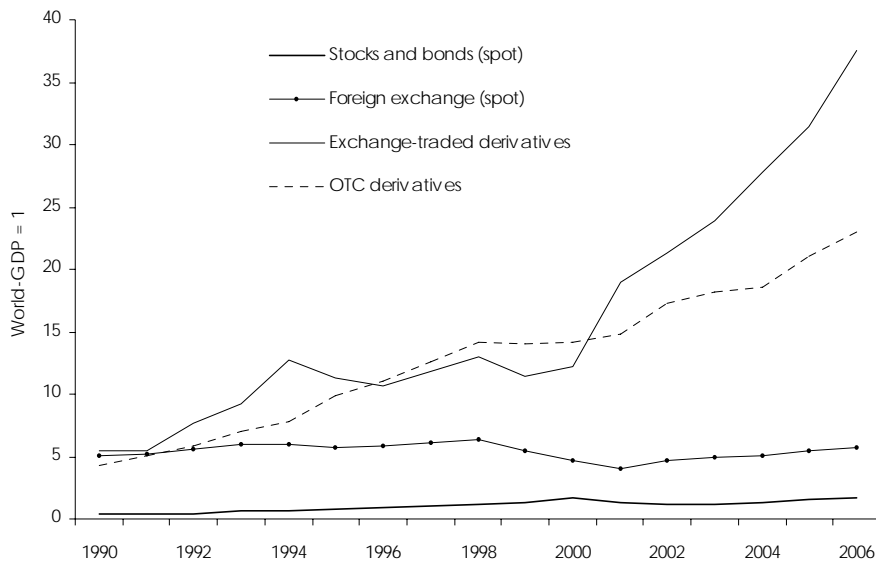
## Annex

Figure 1: Overall financial transactions in the world economy



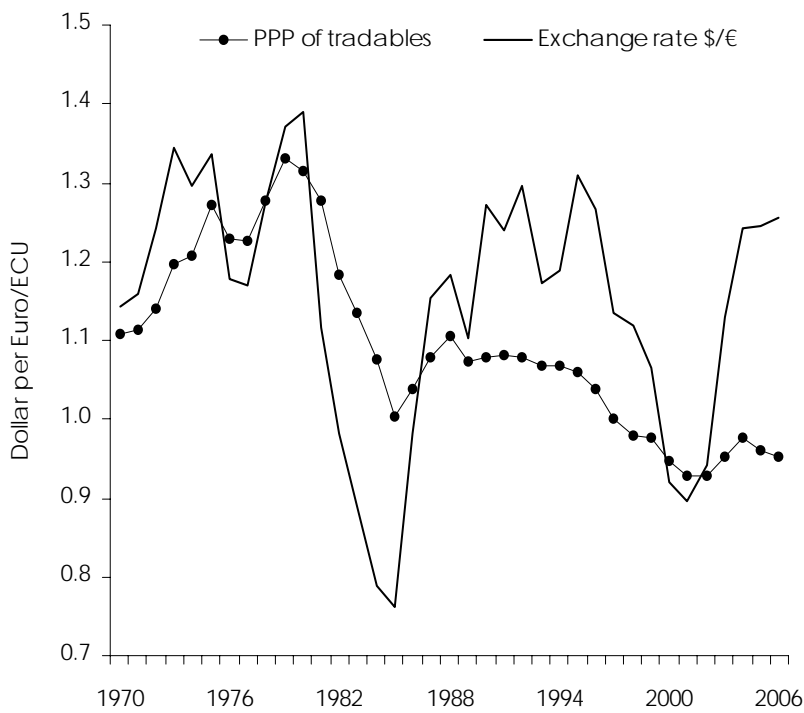
Source: BIS, WFE, OECD, OEF.

Figure 2: Financial transactions in the world economy by instruments



Source: BIS, WFE, OECD, OEF.

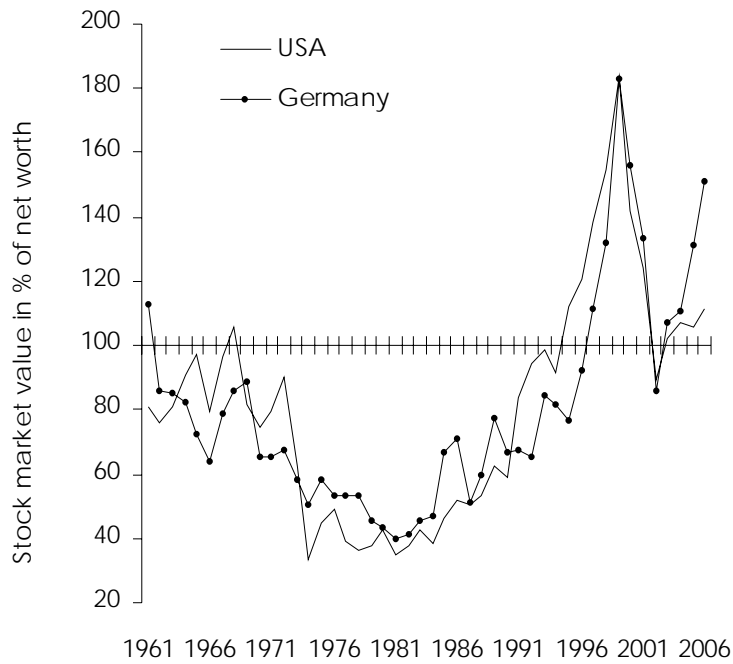
Figure 3: Dollar/euro exchange rate and purchasing power parity



Source: OECD, WIFO (Schulmeister, 2005).

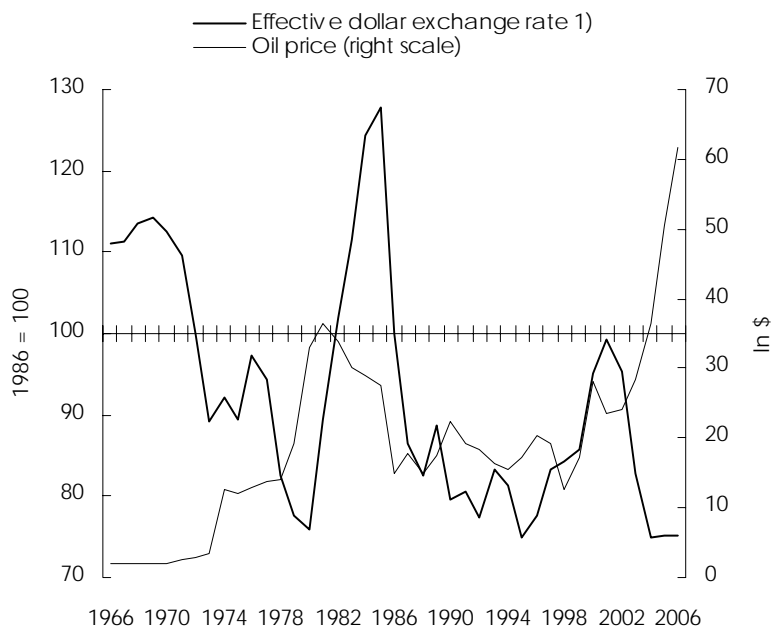


Figure 4: Stock market value and net worth of non-financial corporations



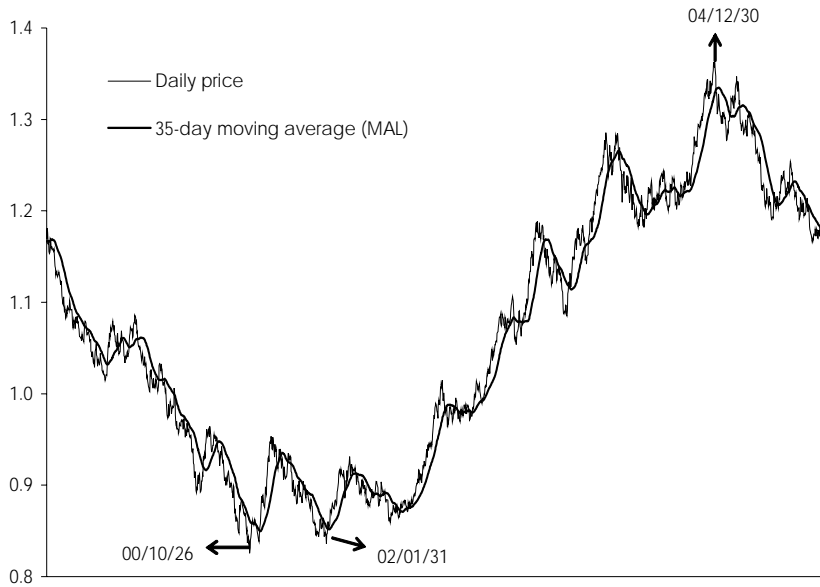
Source: Fed, Deutsche Bundesbank, WIFO (Schulmeister, 2003).

Figure 5: Dollar exchange rate and oil price fluctuations



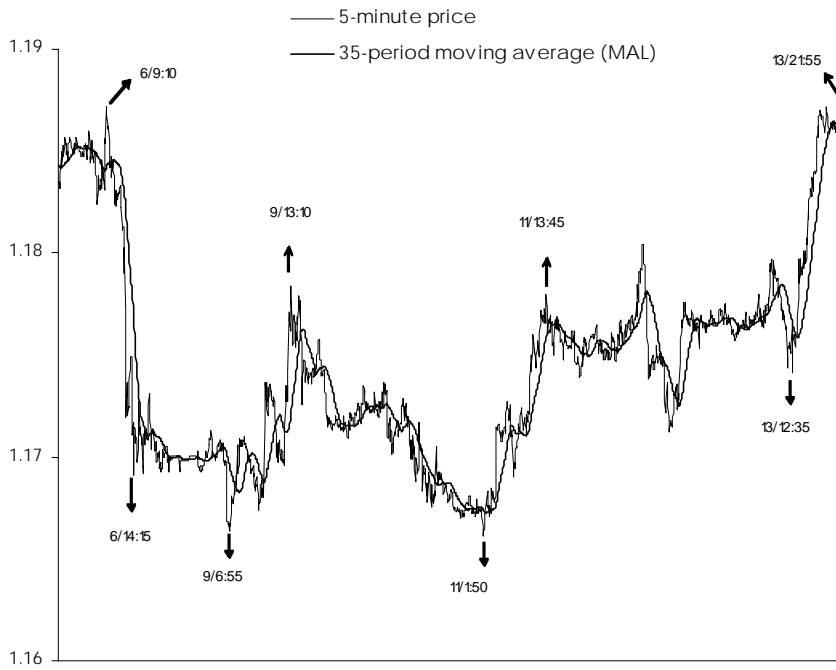
Source: OECD, IMF. - <sup>1</sup>) Vis-à-vis DM, French franc, British pound, yen (SDR weights).

Figure 6: Cycle of the dollar/euro exchange rate and technical trading signals 1999-2005



Source: Fed, WIFO.

Figure 7: Technical trading signals based on intraday dollar/euro exchange rates, June, 6-13, 2003



Source: Olsen Financial Technologies, WIFO.

Table 1: Hypothetical transaction tax receipts in the global economy  
In % of GDP

		World			Europe			North America			Asia and Pacific			Other		
		0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01
Tax rate																
Reduction in transaction volume																
Spot transactions on exchanges																
Stocks	Low	0.138	0.070	0.014	0.134	0.068	0.014	0.232	0.119	0.024	0.188	0.096	0.020	0.007	0.003	0.001
	Medium	0.130	0.069	0.014	0.127	0.067	0.014	0.220	0.116	0.024	0.178	0.094	0.020	0.006	0.003	0.001
	High	0.123	0.067	0.014	0.119	0.065	0.013	0.208	0.112	0.023	0.168	0.091	0.019	0.006	0.003	0.001
Bonds	Low	0.028	0.015	0.003	0.081	0.042	0.008	0.000	0.000	0.000	0.006	0.003	0.001	0.007	0.004	0.001
	Medium	0.028	0.014	0.003	0.079	0.040	0.008	0.000	0.000	0.000	0.006	0.003	0.001	0.007	0.004	0.001
	High	0.026	0.014	0.003	0.075	0.039	0.008	0.000	0.000	0.000	0.006	0.003	0.001	0.007	0.004	0.001
Total	Low	0.166	0.085	0.017	0.214	0.110	0.022	0.232	0.119	0.024	0.194	0.099	0.020	0.014	0.007	0.001
	Medium	0.158	0.083	0.017	0.206	0.107	0.022	0.220	0.116	0.024	0.184	0.097	0.020	0.014	0.007	0.001
	High	0.149	0.080	0.017	0.194	0.104	0.021	0.208	0.112	0.023	0.174	0.094	0.019	0.013	0.007	0.001
Derivatives transactions on exchanges																
Total	Low	1.165	0.770	0.304	1.175	0.779	0.309	2.279	1.510	0.598	0.784	0.505	0.191	0.037	0.024	0.009
	Medium	0.790	0.583	0.267	0.792	0.588	0.271	1.538	1.139	0.524	0.559	0.392	0.169	0.026	0.018	0.008
	High	0.415	0.311	0.229	0.410	0.307	0.232	0.797	0.598	0.450	0.334	0.250	0.146	0.015	0.011	0.007
OTC transactions																
Total	Low	0.862	0.575	0.230	1.667	1.111	0.445	0.604	0.403	0.161	1.142	0.762	0.305	0.037	0.024	0.010
	Medium	0.575	0.431	0.201	1.111	0.834	0.389	0.403	0.302	0.141	0.762	0.571	0.267	0.024	0.018	0.009
	High	0.287	0.216	0.172	0.556	0.417	0.333	0.201	0.151	0.121	0.381	0.286	0.228	0.012	0.009	0.007
All transactions																
	Low	2.193	1.430	0.551	3.057	2.000	0.776	3.115	2.031	0.784	2.121	1.365	0.516	0.088	0.056	0.020
	Medium	1.523	1.097	0.485	2.109	1.528	0.682	2.160	1.557	0.690	1.505	1.060	0.456	0.064	0.044	0.018
	High	0.852	0.607	0.418	1.160	0.828	0.587	1.206	0.861	0.594	0.888	0.630	0.394	0.040	0.027	0.016

Table 2: Hypothetical transaction tax receipts in the global economy in Bill. \$

		World			Europe			North America			Asia and Pacific			Other		
		0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01	0.1	0.05	0.01
Tax rate																
Reduction in transaction volume																
Spot transactions on exchanges																
Stocks	Low	66.3	33.9	7.0	20.3	10.4	2.1	33.7	17.2	3.5	11.5	5.9	1.2	0.8	0.4	0.1
	Medium	62.8	33.2	7.0	19.3	10.2	2.1	31.9	16.9	3.5	10.9	5.7	1.2	0.8	0.4	0.1
	High	59.4	32.1	6.6	18.2	9.8	2.0	30.2	16.3	3.4	10.3	5.6	1.1	0.7	0.4	0.1
Bonds	Low	13.6	7.0	1.4	12.3	6.3	1.3	0.0	0.0	0.0	0.4	0.2	0.0	0.9	0.5	0.1
	Medium	13.3	6.8	1.4	12.1	6.2	1.3	0.0	0.0	0.0	0.4	0.2	0.0	0.9	0.5	0.1
	High	12.6	6.6	1.4	11.4	6.0	1.2	0.0	0.0	0.0	0.4	0.2	0.0	0.9	0.4	0.1
Total	Low	80.0	40.9	8.4	32.7	16.7	3.4	33.7	17.2	3.5	11.9	6.1	1.2	1.7	0.9	0.2
	Medium	76.2	40.0	8.4	31.3	16.3	3.4	31.9	16.9	3.5	11.2	5.9	1.2	1.7	0.9	0.2
	High	72.0	38.7	8.0	29.6	15.8	3.3	30.2	16.3	3.4	10.6	5.7	1.2	1.6	0.8	0.2
Derivatives transactions on exchanges																
Total	Low	562.3	371.6	146.7	179.0	118.6	47.0	330.8	219.1	86.8	47.9	30.9	11.7	4.6	3.0	1.1
	Medium	381.3	281.1	128.6	120.7	89.5	41.2	223.2	165.4	76.1	34.2	24.0	10.3	3.2	2.3	1.0
	High	200.4	150.3	110.5	62.4	46.8	35.4	115.7	86.8	65.3	20.4	15.3	8.9	1.8	1.4	0.9
OTC transactions																
Total	Low	415.9	277.3	110.9	253.9	169.3	67.7	87.6	58.4	23.4	69.8	46.6	18.6	4.5	3.0	1.2
	Medium	277.3	208.0	97.1	169.3	127.0	59.2	58.4	43.8	20.4	46.6	34.9	16.3	3.0	2.3	1.1
	High	138.6	104.0	83.2	84.6	63.5	50.8	29.2	21.9	17.5	23.3	17.5	14.0	1.5	1.1	0.9
All transactions																
Total	Low	1058.1	689.8	266.0	465.5	304.6	118.2	452.1	294.8	113.8	129.7	83.5	31.6	10.9	6.9	2.5
	Medium	734.8	529.1	234.0	321.3	232.8	103.9	313.6	226.1	100.1	92.0	64.8	27.8	7.9	5.4	2.2
	High	411.0	293.0	201.7	176.7	126.1	89.4	175.1	125.0	86.2	54.3	38.5	24.1	4.9	3.4	1.9