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Impact of a Financial Transaction Tax on a Financial Market

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Abstract

Roman Šperka, Irena Szarowská: **Impact of a Financial Transaction Tax on a Financial Market**

The aim of this paper is to investigate the impact of financial transaction tax (FTT) on the stability of financial market. The paper presents an agent-based financial market model and simulations, in which agents follow technical and fundamental trading rules to determine their speculative investment positions. The model developed by Westerhoff (2009) was chosen for the implementation and it was extended by FTT and arising transaction costs. As FTT may be defined variously, assets are understood as a tax object in this paper. The model includes direct interactions between speculators due to which they may decide to change their trading behaviour and deals with a technical and fundamental strategy of market participants. Results suggest that the modified model has a tendency to stabilize itself in a long-term if the fundamental trading rules overbear the technical trading method. This could be used, when the bubbles and the crashes occur in a financial market. Assets price would be stabilized, because its value targets near the fundamental value and the volatility would be also minimized. Substantial is setting the FTT at a low rate for market stabilization. If FTT and consequent transaction costs are too high, the financial system destabilizes and the price grows without limit.

Key words

financial transaction tax, agent-based model, financial market, technical and fundamental analysis, simulation

JEL: G12, G14, G18, C63, C88

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Introduction

The need for a financial transaction tax (FTT) has attracted rising attention by the financial crisis in 2008 although ideas about introducing a new tax on financial sector have been debated at various times over the last thirty years. Due to different impacts of the crisis on individual countries, consensus has not been achieved yet, albeit Keynes (1936) proposed FTT for the stock market and Tobin (1978 and 2001) recommended FTT for the foreign-exchange market. Schulmeister et al. (2008) describe a general FTT and Schulmeister (2014) points out reasons for introduction of FTT. First, the economic crisis was deepened by the instability of stock prices, exchange rates and commodity prices. This instability might be dampened by such a tax. Second, as a consequence of the crisis, the need for fiscal consolidation has tremendously increased. A FTT would provide governments with substantial revenues. Third, the dampening effects of a FTT on the real economy would be much smaller as compared to other tax measures like increasing the VAT. Szarowská (2014) notes that the main expectation is that a new FTT could dissuade harmful speculation by financial markets and its revenues would appear to be a fair way of recovering the costs of the crisis.

On the other hand, Rieger (2014) presents ideas of opponents like a high trading volume observable on financial markets does not cause price volatility and is in fact stabilizing. He argues that the introduction of a FTT would lower liquidity and therefore trades do have a larger impact on prices which in turn implies that the volatility increases. Thus, from the point of view of opponents, FTT could destabilize financial markets.

The aim of this paper is to investigate the impact of FTT on the stability of financial market. As FTT may be defined in different ways, assets are understood as a tax object in this paper. We follow the model developed by Westerhoff (2009) but we extended this model by FTT and consequential transaction costs influence. Agent-based model was implemented and managed as a simulation in netLogo development platform to provide the research basis for simulation experiments. There are virtual market participants trading with one type of asset involved in the model in the form of intelligent agents.

This paper is structured as follows. Section 1 briefly summarizes the main facts about FTT, its relationship with transaction costs and financial sector stability and introduces the agent-based methods for modelling and simulation. In Section 2 the original agent-based model and its extension is presented. Section 3 presents the simulation results.

1. Theoretical Background

This section introduces a short literature review and theoretical basis of concepts used in this paper.

1.1. Financial Transaction Taxation, Transaction Costs and Financial Sector Stability

The transaction costs on the financial market are mainly the costs of the obtaining and the interpreting of the information, the time required for decision making, various types of fees, etc. Transaction costs according to Burian (2010) are often viewed as negative phenomena, but there are cases where the increase in the transaction costs can be viewed positively and can contribute to the stability of the market. The increase in the transaction costs may also occur in the form of non-market regulation such as the taxes. Tobin (1978) suggested that all short-term transactions at foreign-exchange market should be taxed at a low fixed rate (the proposal was later identified as the so-called Tobin tax) because currency speculation can lead to the sudden withdrawal of the currency from the circulation in order to artificially increase the price. The results according to Tobin would avoid short-term currency speculation and stabilize the market.

The question whether new taxes should be levied on the financial sector to complement regulation and bank levies has been a topic since the beginning of the economic crisis. Generally, the concept of FTT is based on application of a tax to all financial transactions in particular those carried out on organized markets such as the trade of equity, bonds, derivatives, currencies, etc. It would be levied at a relatively low statutory rate and would apply each time the underlying asset was traded. The tax collection or the legal tax incidence should be – as far as possible – via the trading system which executes the transfer.

Although the FTT is connected and understood as a Tobin tax in most cases, several different tax instruments are referred to generally as "financial transaction taxes." Matheson (2011) defines a securities transactions tax (STT) as a tax on trades in all or certain types of securities (equity, debt and their derivatives). A currency transaction tax (CTT) is a securities transactions tax imposed specifically on foreign exchange transactions and possibly also their derivatives: currency futures, options and swaps. It is often used as a pecuniary foreign exchange control in lieu of administrative and regulatory measures. A capital levy or registration tax is imposed on increases in business capital in the form of capital contributions, loans and/or issuance of stocks and bonds. It may encompass all forms of business capital or be limited to a particular type of capital (e.g., debt or equity) or form of business, such as corporations or partnerships. A registration tax may also be charged to individuals on bank loans and/or mortgages. A bank transaction tax (BTT) is a tax on deposits and/or withdrawals from bank accounts. Most commonly seen in Latin American and Asia, BTTs are usually imposed on an ad valorem basis as a percentage of the deposit or withdrawal. BTTs effectively tax purchases of goods and services, investment products and factor payments paid for with funds intermediated by banks. Shaviro (2012) summarizes a history of the FTT.

The motivation for the FTT is based on two claims about the tax. Firstly, it is seen to improve the functioning of financial markets through curbing harmful short-term speculation and reducing volatility by making it less profitable. Secondly, it is expected to raise significant amounts of revenue even if the tax rate is very low (for details look at Nerudová and Dvořáková, 2014).

As was already noted, there are several types of FTTs and each has its own purpose. Some FTT types have been implemented, while some are only proposals. Griffith-Jones and Persaud (2012) state that there were 40 countries that had FTT in operation, raising $38 billion (€29bn) in 2011. Supporting arguments for its adoption include progressivity and ease of implementation. But as Matheson (2011) notes, revenue experience from securities transaction taxes over the past two decades has varied widely.

Currently, there is a growing number of empirical studies analysing the possibility of using FTT to regulate the financial market and to enhance a financial sector stability. In line with European Commission ´s expectation (2010), FTT should heighten the efficiency and stability of financial markets and reduce their volatility and the harmful effects of excessive risk-taking which can create negative externalities for the rest of the economy. Unfortunately, Habermeier and Kirilenko (2001) conclude that in most circumstances, transaction taxes or their equivalents like capital controls can have negative effects on price discovery, volatility, and liquidity and lead to a reduction in market efficiency.

Phylaktis and Aristidou (2007) examine the effects of security transaction tax on volatility. Table 1 shows results of earlier empirical studies based on different market samples and periods. Authors focus on whether the tax has a greater effect on highly traded stocks since it penalises entering and exiting the market, and on whether it depends on the state of the stock market. Their results highlight that effects are stronger for highly traded stocks and during bull periods but volatility increases instead of falling as intended by the proponents of transaction taxes.

Tab. 1: Volatility effects of transaction taxes

Author	Sample (Market)	Sign of effect
Roll (1989)	23 countries	Zero
Umlauf (1993)	Sweden	Positive
Jones and Seguin (1997)	U.S.A.	Positive
Saporta and Kan (1997)	United Kingdom	Zero
Hu (1998)	Hong Kong, Japan, Korea, Taiwan	Zero
Green, Maggioni and Murinde (2000)	United Kingdom	Positive
Hau (2003)	France	Positive

Source: Phylaktis and Aristidou (2007)

Schäfer (2012) argues that FTT complements financial market regulation. With FTT governments have an additional instrument to influence trading activity. FTT can reduce regulatory arbitrage, flash trading, overactive portfolio management, excessive leverage and speculative transactions of financial institutions. If contrary to expectations harmful transactions will not be curbed, FFT generates at least large tax revenues that can contribute to cover the costs of the financial crisis.

Rieger (2014) studies the impact of a financial transactions tax on the trading volume and asset price volatility in a model with heterogeneous beliefs. He studies a tax on bond and asset purchases. The simulated model shows that the introduction of a transaction tax results in a lower trading volume and therefore in less liquid financial markets because of the decreased liquidity the volatility of the stock market increases.

Schulmeister (2014 and 2015) summarises the main arguments in favour and against FTT and provides empirical evidence about the movements of the most important asset prices. It is shown that their long swings result from the accumulation of extremely short-term price runs over time. Therefore a (very) small FTT – between 0.1 and 0.01 percent – would mitigate price volatility not only over the short run but also over the long run. Next, he combines empirical results with the analysis of technical trading systems and formulates the hypothesis about trading behaviour and asset price dynamics ("Bull-Bear-Hypothesis"). On the one hand, asset trading has become progressively more short-term oriented ("faster"), on the other hand, also the phenomenon of long-term trends ("bulls" and "bears") has become more pronounced. This coincidence can be explained by the fact that long-term trends are the result of the accumulation of very short-term price runs which are exploited and strengthened by the use of ever "faster" trading systems. Based on the results of his research, the FTT should be levied on all transactions with any type of financial asset. The "faster" an asset is traded and the riskier it is, the more will the FTT increase transactions costs. At the same time, holding a financial asset will not be burdened by the FTT. Hence, FTT with a uniform rate will specifically dampen very short-term speculation in derivatives because the effective tax burden relative to the cash (margin) requirement rises with the leverage factor.

Finally, Szołno-Koguc and Twarowska (2014) contest the hypothesis that FTT reduces the scale of market speculation as it is not confirmed by the results of empirical studies. To prove this hypothesis the proponents of this tax carry out simulation studies based on econometric models. Regardless of the test method, the analytical results are inconclusive. The doubts concern not only whether a FTT affects the scale of market speculation and price volatility of financial instruments, but also whether the impact is positive or negative.

1.2. Agents and Agent-based Models

The roots of presented research lay in the computational social science, which involves the use of agent-based modelling and simulation (ABMS) to study complex social systems (Kaegi, 2009; Epstein and Axtell, 1996). ABMS is a core technique used to study financial system in this paper. ABMS consists of a set of agents and a framework for simulating their decisions and interactions. Although many traits are shared, ABMS is differentiated by its focus on finding the set of basic decision rules and behavioural interactions that can produce the complex results experienced in the real world (Sallach and Macal, 2001). ABMS tools are designed to simulate the interactions of large numbers of individuals so as to study the macro-scale consequences of these interactions (Tesfatsion, 2001).

Intelligent agent technology used in this paper has deeper history in economic theory, mainly in the ideas of Hayek (1949) and Simon (1955). Hayek (1949) claims that the economic system should be studied from bottom. He stresses the need to look at the market economy as to a decentralized system consisting of mutually influencing individuals (the same goes for financial markets). This approach builds a contrast with the assumption of perfect information, which is used in traditional equilibrium analysis. In the theory of complex systems, where ABMS belongs, is this idea the primary principle (Macal and North, 2006). Agents, unlike classical equilibrium approach have not perfect information about all processes in the system.

The market participants in multi-agent model use technical and fundamental analysis to assess financial markets. Multi-agent financial market models have a strong empirical foundation. This paper uses and extends the original model developed by Westerhoff (2009). This model recombines the basics from three known agent-based financial market models.

In the first model, Brock (1997 and 1998) chooses a continuum of financial market participants endogenously between different trading rules. The agents are rational in the sense that they tend to pick trading rules which have performed well in the recent past, thereby displaying some kind of learning behaviour. The performance of the trading rules may be measured as a weighted average of past realized profits, and the relative importance of the trading rules is derived via a discrete choice model. Contributions developed in this manner are often analytically tractable. Moreover, numerical investigations reveal that complex endogenous dynamics may emerge due to an ongoing evolutionary competition between trading rules. In such a setting, agents interact only indirectly with each other: their orders have an impact on the price formation which, in turn, affects the performance of the trading rules and thus the agents' selection of rules. Put differently, an agent is not directly affected by the actions of others.

Kirman (1991 and 1993) introduces an influential opinion formation model with interactions between a fixed numbers of agents. Agents may hold one of two views. In each time step, two agents may meet at random, and there is a fixed probability that one agent may convince the other agent to follow his opinion. In addition, there is also a small probability that an agent changes his opinion independently. A key finding of this model is that direct interactions between heterogeneous agents may lead to substantial opinion swings. Applied to a financial market setting, one may therefore observe periods where either destabilizing technical traders or stabilizing fundamental traders drive the market dynamics. Agents may change rules due to direct interactions with other agents but the switching probabilities are independent of the performance of the rules.

The models of Lux (1998) and Lux and Marchesi (1999) also focus on the case of a limited number of agents. Within this approach, an agent may either be an optimistic or a pessimistic technical trader or a fundamental trader. The probability that agents switch from having an optimistic technical attitude to a pessimistic one (and vice versa) depends on the majority opinion among the technical traders and the current price trend. For instance, if the majority of technical traders are optimistic and if prices are going up, the probability that pessimistic technical traders turn into optimistic technical traders is relatively high. The probability that technical traders (either being optimistic or pessimistic) switch to fundamental trading (and vice versa) depends on the relative profitability of the rules. However, a comparison of the performance of the trading rules is modelled in an asymmetric manner. While the attractiveness of technical analysis depends on realized profits, the popularity of fundamental analysis is given by expected future profit opportunities. This class of models is quite good at replicating several universal features of asset price dynamics.

The Westerhoff´s model (2009) recombines key ingredients of the three aforementioned approaches to come with a simple model that is able to match the stylized facts of financial markets. Direct interactions between a numbers of agents is considered. To avoid asymmetric profit measures a fitness function is defined. The attractiveness of a rule is approximated by a weighted average of current and past myopic profits.

2. Methodology

Simulation of financial markets is a new fast growing research area with two primary motivations. Firstly, the need to provide a development platform for the ever increasing automation of financial markets. Secondly, the inability of traditional computational mathematics to predict market patterns that result from the choices made by interacting investors in a market.

The agent-based model simulating the financial market developed by Westerhoff (2009) was chosen for the implementation. Two base types of traders are represented by agents:

- **Fundamental traders**, whose reactions are based on the fundamental analysis. They believe that asset prices in long term approximate their fundamental price. They buy assets when the price is under the fundamental value.
- **Technical traders**, who decide using technical analysis. They believe that prices tend to move in trends and by their extrapolating there comes the positive feedback, which can cause the instability.

Price changes reflect current demand excess. This excess expresses the amount of orders submitted by technical and fundamental traders each turn and the rate between their orders evolves in a time. Agents regularly meet and discuss their trading performance. One agent can be persuaded by the other one to change its trading method. If its rules relative success is less than the others one. Communication is a direct talk between an agent and others. The agents meet randomly and there is no special relationship between them. The success of rules is represented by a current and past profitability. To emphasize, the model assumes the ability of traders to define the fundamental value of assets and their rational behaviour.

The price reflects the relation between assets that have been bought and sold in a turn (trading period), and the price change caused by these orders. This can be formalized as a simple log-linear price impact function:

$$P_{t+1} = P_t + a\left(W_t^C D_t^C + W_t^F D_t^F\right) + \alpha_t \tag{1}$$

Where *a* is a coefficient of a positive price change, D^C are the orders generated by technical agents, while D^F are the orders of fundamental traders. W^C and W^F are weights of agents using the technical, respectively the fundamental rules. The weights reflect the current ratio between the technical and fundamental agents. The α coefficient brings the randomness to Equation 1, since this model is a single representation of a real financial market. It is an independently distributed random variable with zero average and a constant standard deviation σ^{α}.

As mentioned earlier, the technical analysis extrapolates the price trends, which means when the prices grow, trading agents buy the assets. So, the formalization for technical order rules can be like this:

$$D_t^C = b\left(P_t - P_{t-1}\right) + \beta_t \tag{2}$$

The reaction parameter *b* has a positive influence and represents the agent's sensitivity to price changes. The difference in brackets reflects the trend and β is a parameter from the normal distribution with a zero average and a constant standard deviation σ^{β}.

The theory of fundamental analysis argues that the asset prices can differ from the fundamental price in a short term. However, the theory assumes that the asset prices converge to the fundamental value in a long run. Because the fundamental analysis suggests to buy (or to sell) the assets when the actual prices is under (or above) the fundamental value, the fundamental business rules can be formalized as follows:

$$D_t^F = c\left(F_t - P_t\right) + \gamma_t \tag{3}$$

Where *c* is the parameter of a positive reaction, and the parameter *F* is a fundamental value. In our case, we keep this value constant to simplify the implementation as much as possible (in our implementation *F=0*). Parameter γ is a random variable with a normal distribution, zero average and a constant standard deviation σ^{γ}.

If we say that *N* is a total number of agents and *K* is a number of technical traders, then we define the weight of technical traders as follows:

$$W_t^C = K_t / N \tag{4}$$

And the weight of fundamental traders:

$$W_t^F = \left(N - K_t\right) / N \tag{5}$$

The number of technical and fundamental traders is set out as follows. Analogically to Kirman (1991 and 1993), we consider that two traders randomly meet at each time step. The probability that the first trader adopts the view of the second trader is (*1-δ*). In addition, there is a small probability *ε* that the trader changes his mind independently of the others. Contrary to Kirman (1991 and 1993), we say that the probability of changing the view of the trader is asymmetric and depends on the current and past profitability of the rules. This is indicated by the attractiveness variables A^C and A^F defined after. The assumption is that the technical trading rules generated higher profits previously than the rules used by the fundamental traders. Then it is likely that a technical trader persuades the fundamental trader, than vice-versa. Analogously, when the fundamental rules are evaluated as more profitable than the technical rules, the chance of a successful meeting of a fundamental trader with a technical trader is higher. Therefore, we define the probability *K* as follows:

$$K_t = (K_{t-1} + 1) \text{ with probability } p_{t-1}^{+} = \frac{N - K_{t-1}}{N}\left(\varepsilon + (1-\sigma)_{t-1}^{F \to C} \frac{K_{t-1}}{N-1}\right),$$
$$K_t = (K_{t-1} - 1) \text{ with probability } p_{t-1}^{-} = \frac{K_{t-1}}{N}\left(\varepsilon + (1-\sigma)_{t-1}^{C \to F} \frac{N - K_{t-1}}{N-1}\right), \quad (6)$$
$$K_t = K_{t-1} \text{ with probability } 1 - p_{t-1}^{+} - p_{t-1}^{-}.$$

Where the probability that fundamental agent becomes technical one is:

$$\left(1-\delta_{t-1}^{F \to C}\right) = 0{,}5 + \lambda \text{ for } A_t^C \rangle A_t^F,$$
$$\left(1-\delta_{t-1}^{F \to C}\right) = 0{,}5 - \lambda \text{ otherwise.} \quad (7)$$

Respectively, that technical agent becomes fundamental one is:

$$\left(1-\delta_{t-1}^{C \to F}\right) = 0{,}5 - \lambda \text{ for } A_t^C \rangle A_t^F,$$
$$\left(1-\delta_{t-1}^{C \to F}\right) = 0{,}5 + \lambda \text{ otherwise.} \quad (8)$$

A success (fitness of the rule) is represented by past profitability of rules, which are formalized as:

$$A_t^C = (\exp[P_t] - \exp[P_{t-1}])D_{t-2}^C + dA_{t-1}^C \quad (9)$$

for the technical rules, and:

$$A_t^F = (\exp[P_t] - \exp[P_{t-1}])D_{t-2}^F + dA_{t-1}^F \quad (10)$$

for the fundamental rules. Agents use the most recent performance (at the end of A^C formula resp. A^F). And the orders submitted in a *t-2* period are executed at prices started in *t-1* period. The profits are calculated accordingly. Agents have memory, which is represented by the *d* parameter ($0 \le d \le 1$). If $d = 0$ then the agent has no memory. With higher value of *d* parameter the influence of profits on the rule fitness rises.

The stability of financial market is measured by price volatility (more stable the market is, much less are price differences in a time). The entrance of transaction costs in the form of FTT will have direct impact on the asset price. The original model was changed to adopt this aspect into the calculated price.

$$P_{t+1} = P_t + a\left(W_t^C D_t^C + W_t^F D_t^F\right) + FTT + \alpha_t \quad (11)$$

Where *FTT* is a value of the transaction costs, which is constant during the simulation experiments. Because the tax is out-of-trade factor, all agents will be affected in the same way. Generally, there can be different transaction costs than taxes, e.g., the costs of obtaining the information. We expect that the FTT increase should have the following results:

- The price increase will stimulate the technical rules usage. Its influence on the expected future profit opportunities (as the fundamental value of the asset) is irrelevant. They depend on the company state, rather than on transaction costs.

- In a short time, the price growth will attract technical traders. But after realizing of profits, the price will fall down and the fundamental traders will start to dominate. This will lead to the market stabilization (the volatility of price is lower).

3. Results and Discussion

On the basis of Westerhoff ´s model (2009) an agent-based model was implemented and managed as a simulation in netLogo development platform to provide the research basis for simulation experiments. There are virtual market participants trading with one type of asset involved in the model in the form of intelligent agents. Agents follow technical and fundamental trading rules to determine their speculative investment positions. We consider direct interactions between speculators due to which they may decide to change their trading behavior (Šperka and Spišák, 2012; Šperka and Spišák, 2013). To be more accurate, 20 simulations were processed. The averaged values are plotted in the result graphs.

3.1. Original Model Results

Parameterization of the model was used from original parameterization made by Westerhoff (2009). Nevertheless, the number of agents (N) was set to 10.000 to obtain more relevant results.

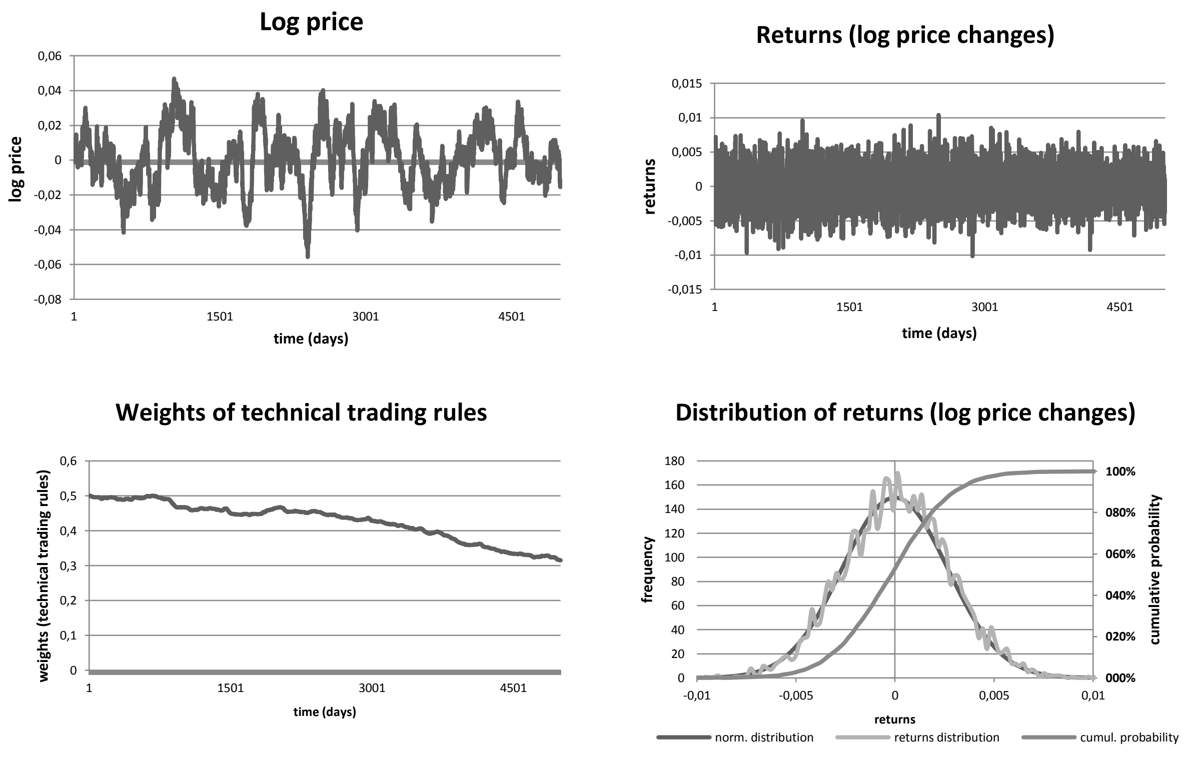

Fig. 1: Simulation results – original model
(Source: Own)

The parameters are:

$$a = 1, b = 0.05, c = 0.02, d = 0.95, \lambda = 0.45, \varepsilon = 0.1, \sigma^{\alpha} = 0.0025, \sigma^{\beta} = 0.025, \text{ and } \sigma^{\gamma} = 0.0025 \tag{12}$$

With these parameters the model is calibrated to the daily data. Number of turns, resp. time steps is 5.000 days, which presents more than 13 and a half of year. Westerhoff (2009) found that growing number of agents reduces the model dynamicity and the volatility of price, while agents behaviour is tending to be fundamental. This can be reduced by adding more communication turns. We have decided to give opportunity to talk to 1% of agents, which has positive influence on the model dynamicity.

The price values can be seen in Figure 1, 2 and 3 on the top left position. Top right graph represents changes of the asset price in a time. The bottom left graph shows the weights of technical trading rules (in a long time there is a tendency to prefer fundamental rather than technical trading rules in Figure 1). Bottom right graph includes the distribution of returns (which are log price changes) compared with the normal distribution. In Figure 1 the asset prices oscillate in narrow interval. The same goes to the volatility. The distribution of returns follows almost ideally the normal distribution curve. This situation is similar to the real financial market as it appears to the current world.

3.2. Extended Model Results

In a new set of simulation experiments all parameters remained the same, except from newly added FTT costs. The *FTT* parameter is a constant value equal to *0.015*. From the following graphs in Figure 2 is possible to explore that the FTT costs have a significant influence on the model.

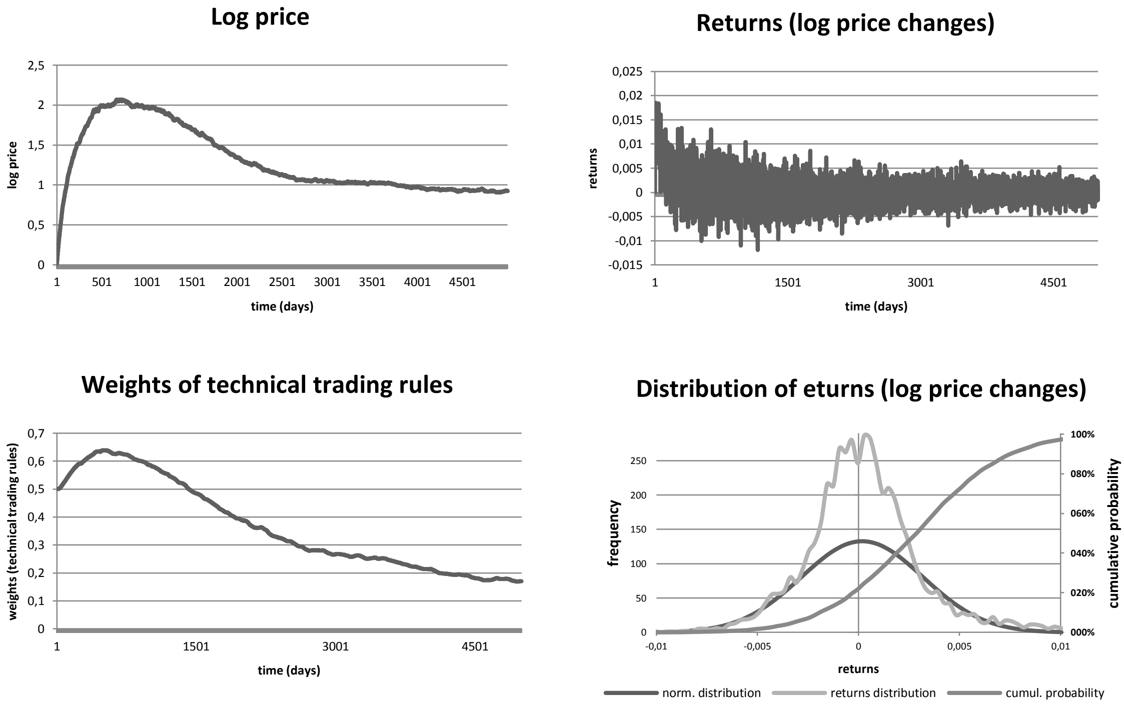

Fig. 2: Simulation results – FTT and consequent costs at 0.015
(Source: Own)

The price grows in a short time, but in a longer term the price falls down. The technical weights evolution is similar. In a short time the price grows, but after some time it starts to decline. The reason for this reaction is that the agents prefer the fundamental strategy at this point. The market stabilizes with more fundamental traders. This knowledge is readable from the returns (volatility of price changes falls).

We achieved different results with the last set of simulations. All the parameters remained the same; only the *FTT* was doubled and became the constant value equal to *0.03*. The higher value of FTT caused the model destabilization. Technical traders rules won in this case (*weight = 1*) and the price grows without limit. Figure 3 demonstrates the contradictory effect on the market – instead of the stabilization, the market started to be unstable.

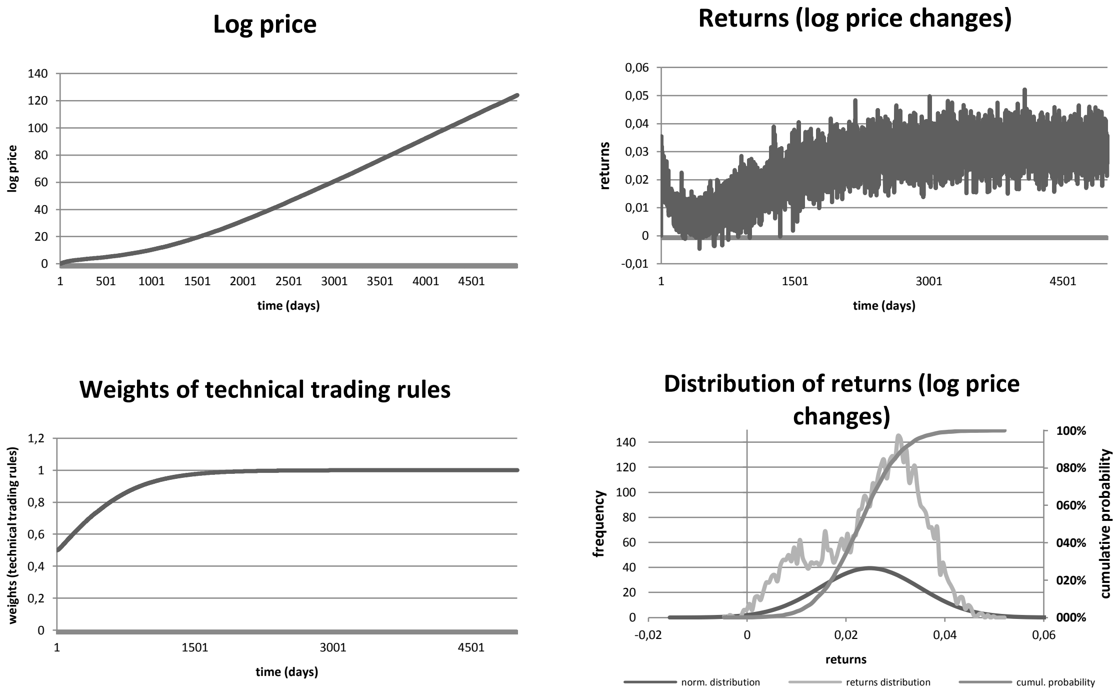

Fig. 3: Simulation results – FTT and consequent costs at 0.03
(Source: Own)

These results differ from conclusions of earlier studies but the variety is generated due to differences used in econometric models, country samples, observation periods and considered variables. Most of researchers have used ex-post data (Phylaktis and Aristidou, 2007; Schulmeister, 2014 and 2015; Rieger, 2014), but this research used a general agent-based approach.

Conclusion

The aim of this paper was to investigate the impact of a FTT on the stability of financial market. As FTT may be defined variously, assets are understood as a tax object in this paper. The agent-based financial model designed by Westerhoff (2009) was implemented and extended by a FTT and arising transaction costs. The model includes direct interactions between speculators due to which they may decide to change their trading behaviour and deals with a technical and fundamental strategy of market participants.

Our extended model has a tendency to stabilize itself in a long term if the fundamental trading rules overbear the technical trading method thanks to the FTT introduction. This could be used, when the bubbles and the crashes occur in a financial market. Asset price would be stabilized, because its value targets near the fundamental value. The volatility would be also minimized. By introducing a low FTT rate the asset price rises to the bubble, while the technical traders overtake the market. But the price starts to fall down according to the growth of a technical strategy after some time. In this moment volatility minimizes and the market stabilizes. Different results are achieved with a higher rate of FTT. If FTT and consequent costs are too high, the financial system destabilizes and the price grows without limit.

The model described in this paper explores the dependence market stability to the extent of FTT. However, the model should not be interpreted as a model only for the introduction of FTT, but as a general model of the transaction costs influence on the financial market.

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