

# Providing an optimal model of financial transaction tax (FTT) with interpretive structural modeling (ISM)

Ahmadreza Babae<sup>a</sup>, Khosro Faghani Makrani<sup>a,\*</sup>, Mohammad Reza Shahab<sup>b</sup>

<sup>a</sup>Department of Accounting, Semnan Branch, Islamic Azad University, Semnan, Iran

<sup>b</sup>Department of Economic, Semnan Branch, Islamic Azad University, Semnan, Iran

---

## Abstract

The idea of receiving tax from cash or bank transactions (BTT) (not new) has been used many times in different economic and political fields during the decades since the introduction of financial transaction tax (FTT). This study examines the provision of the optimal model of financial transaction tax (FTT) with an interpretive structural model (ISM). The method of the current research is practical in terms of its purpose and it is mixed (qualitative-quantitative) in terms of data collection. The qualitative research method was qualitative content analysis with an inductive approach. The participants in the qualitative part of the research were experts in the tax field, and 12 people were interviewed using the theoretical snowball sampling method. The estimation of the desired sample size was done based on the theoretical saturation of the data. The data collection tool in the qualitative part was a semi-structured interview. The triangulation method and Christiansen angle technique were used to check the validity of the qualitative part. At first, research components were identified through literature and semi-structured interviews with experts. The interviews were coded with three coding methods, open, central and selective, and finally, fifteen components were identified and in the quantitative part, an interpretive structural model was created using MATLAB software to provide an optimal model for financial transaction tax. After that, the position of the identified components was determined using Mikmak software based on influence and dependence. The results show that the structural interpretation model of the study can be presented in five levels. Micmac analysis also showed that the components of the optimal tax pattern are divided into the group of dual, regulatory, independent, leveraged and influential variables. The findings show that the optimal tax model is an unstable system.

Keywords: tax collection, financial transaction tax (FTT), interpretive structural model, Micmac analysis  
2020 MSC: 91G15

---

## 1 Introduction

Regarding taxing bank transactions, the method that exists in some countries and is also proposed by some domestic experts is to levy tax on bank transactions as a new tax base along with other taxes, which affects Production, inflation and equity and will cause double taxation of companies, while in this research we are looking for the replacement and use of bank transactions (cash income) to collect taxes instead of accrual profits and losses. In this research, instead of tax collection based on accrual interest, we are focused on Modi's receipts (cash) in order to simplify tax collection in this way and create transparency, as well as reduce collection costs. In fact, instead of collecting taxes from the

---

\*Corresponding author

Email addresses: [babaie.ahmad@yahoo.com](mailto:babaie.ahmad@yahoo.com) (Ahmadreza Babae), [kh.faghani@iaau.ac.ir](mailto:kh.faghani@iaau.ac.ir) (Khosro Faghani Makrani), [mrshahab38@yahoo.com](mailto:mrshahab38@yahoo.com) (Mohammad Reza Shahab)

accrual interest basis, we move to the cash basis (receipts of legal entities). Tax collection in the current conditions of the country has created problems such as the late determination of taxes, the long way of receiving them, the costs of human resources and the opportunity to escape. In this model, we seek to simplify the tax collection process and eliminate the previous problems and realize the government's tax revenues.

## 2 Theoretical foundations

### 2.1 Objectives of financial transaction tax

The Financial Transaction Tax (FTT) has been discussed mainly under two perspectives: First, as a way to contribute to the financial sector's government revenue. Second, taxation is often related to the possibility of reducing short-term speculative financial activities, thus possibly helping to reduce market inefficiencies and market failures. Given the significant potential revenue that FTT can generate, the first of these goals appears to be achievable. In addition, the exact amount of this potential income depends on the extent of the tax base and territory. The second objective is still under test due to the uncertainty of the results obtained from the empirical analysis of how and in which direction an FTT affects market volatility and therefore whether it can help reduce market volatility [29].

### 2.2 Tax on financial transactions as a means of increasing revenue

First and foremost, the FTT aims to raise significant additional revenue that can be used, for example, to finance additional activities and initiatives of governments and international organizations, replacing countries' national aid to international organizations providing goods. International public. This topic has been taken into consideration many times in the discussions related to the financial needs of governments and international organizations in the last decade. Therefore, the tax on financial transactions can also be considered as a tax on the consumption of financial services, especially since these are often exempt from value-added tax [6].

The discussion about the pros and cons of the tax and the design of its implementation is accompanied by the studies of estimating the possible revenues of the tax on financial transactions. These estimates arrive at significant returns from FTT that are already expected under relatively conservative assumptions about tax avoidance and evasion activities. A recurring theme since the global financial crisis is the urgent need to mobilize more financial resources to fund the provision of global public goods and ensure the ability to deliver on a number of global initiatives, including the fight against climate change. Widespread environmental commitments or financial gaps in development aid. Global challenges should best be solved at the global level, as their scale makes effective action by a single country impossible. Accordingly, as stated in the United Nations Sustainable Development Goals agenda, more global financial resources are needed. Many of today's global problems, such as climate change and financing development needs, present an even more serious collective action problem than the provision of national public goods, as the many stakeholders involved, including national governments, try to Maximize their national interests first and often prevent effective global solutions. This lack of contribution to global public goods and solving global challenges has been considered a problem of global solidarity (Report of the Committee of Experts to the Special Group on International Financial Transactions and Development, 2010).

As the report of the Committee of Experts to the Broker on International Financial Transactions and Development notes: "Based on these principles, it can be argued that the main beneficiaries of more balanced globalization should participate in meeting the financial needs of global challenges that, if not processing, can seriously disrupt the effective functioning of transnational economic activity. In the EU context, taxation is often proposed as a personal source of sustainability-based taxation for the EU budget, as originally proposed by the [15]. Alternatively, taxation is discussed as an innovative source of financing for development (e.g. [15]). Most importantly, the fulfillment of these promises through global cooperation mechanisms and institutions can be an effective way to restore confidence in this field. Financial activities have been one of the main beneficiaries of globalization and economic growth in the last three decades. However, there is common sense that the financial sector has not contributed effectively and proportionately to the funding of important public policy objectives. This is why since the financial crisis, there have been calls to address this funding gap further. Finance has been essential to globalization and global growth, but it has also often been accompanied by increased macroeconomic instability. To limit the current backlash of public opinion against globalization, the financial sector must decisively contribute to the equitable distribution of its profits for public goods and public welfare. A tax on financial transactions can be considered as a tool for the financial sector to pay its fair share of government revenues in general and to finance the budget costs of the recent financial crisis in particular (e.g. International Monetary Fund, 2010). Accordingly, the revenue of an FTT can be transferred to national budgets either to contribute to fiscal consolidation to reduce public deficits and debt resulting from bank bailouts or to reduce

other taxes more distortive than the FTT. Alternatively, this income can be used to replace or reduce the national contributions of member countries to the budget of international organizations. While, of course, the type and type of public goods, and global public goods needed for more balanced global growth and development should be discussed, but in any case, their provision requires additional financial resources.

### 2.3 Correcting the inefficiency of financial markets

In addition to the purpose of raising revenue, the second main purpose of the FTT is to act as a corrective tax to limit significant market failures. Financial market vulnerabilities exist in various manifestations and are partly explained by specific frictions and market failures [21, 42], which often result from behavioral biases such as herd behavior. Some developments in the financial sector in the decades before the global financial crisis have made the entire financial system susceptible to serious and painful crises [9]. Various failures have contributed to the crisis - such as excessive risk-taking. Focus on individual, rather than systemic risk. Darkness of positions in financial derivatives that create negative and risky products and work on important banking institutions [1]. In such an environment, systemically important financial institutions play an essential role in the efficient functioning of the market - to the extent that their failure contaminates and endangers the entire system. Not only is risk concentrated, it is also contagious [42]. In addition, the complexity and possible weakness of the system leads to the fact that complete and correct information is not always available and reduces the resilience of the system against shocks [17]. The interconnectedness between banks and other financial institutions may lead to significant spillover effects, meaning that a small shock has domino consequences for the entire system. While this phenomenon has been known since the implementation of the banking model [12], some researchers [17, 13, 26] have highlighted its importance.

**Tax avoidance** The independent variable of this research is tax avoidance (TaxAgg), which is measured using the ratio of the difference between the definite taxable profit (which is extracted from Modian's final tax form) and the taxable profit stated in the profit and loss statement to the total assets. and is obtained through relation 2.1

$$TaxAgg_{(i,t)} = TAXINC_{(i,t)} / ACCINC_{(i,t)}. \tag{2.1}$$

In this regard:

- TaxAgg: the difference between the definite taxable profit and the taxable profit expressed by the company at the end of the financial year ( $t$ ).
- ACCINC: The taxable profit of company  $i$  at the end of the fiscal year ( $i, t$ ).
- $TAXINC_{i,t}$ : Fixed profit subject to tax of company  $i$  at the end of the financial year ( $i, t$ ).

#### Tax revenue effects

$$LPTX = \beta_1 + \beta_2 LINR + \beta_3 LPPTX + \beta_4 LGTR + \beta_5 LGSE + U$$

where:

- PTX: total stock price index,
- INR: interest rate (bank interest rate (five years)),
- PPX: producer price index (base year: 1371),
- GTR: government tax revenue,
- GSE: government construction payments,
- U: sentences the residual of the model
- L: the sign of the logarithm

In this method, a two-stage method can be used to estimate the long-term equation: in the first stage, the existence of a long-term equation between the variables under investigation is tested. For this purpose, the dynamic self-explanatory model is estimated with wide intervals. In this model, if the sum of the estimated coefficients related to the intervals of the dependent variable is smaller than one, the dynamic pattern tends towards long-term equilibrium.

Therefore, for the convergence test, it is necessary to test the statistical assumptions according to relations 3.1 and 3.2. Also, the statistical quantity required to perform the convergence test is calculated according to equation 2.1.

$$\begin{aligned} H_0 &= \sum_{i=1}^m \beta_i - 1 \geq 0 \\ H_1 &= \sum_{i=1}^m \beta_i - 1 < 0 \\ t &= \frac{\sum_{i=1}^m \beta_i - 1}{\sum_{i=1}^m Se(\hat{\beta})} \end{aligned} \quad (2.2)$$

By comparing the quantity of computational t-statistics and the critical quantity at the desired level of confidence, it is possible to understand the existence or non-existence of a long-term equation between the model variables. In this study, the t-test provided by Banerjee, Duraldo and Muster was used to test the long-term equation.

### 3 Effective tax rate and profit-sharing policy

In this research, the Tobit econometric model has been used to investigate the effect of the effective tax rate on the profit-sharing policy. The Tobit model is a statistical model for panel data that was created by James Tobin in 1958 to describe the equation between a non-negative dependent variable such as  $Y$  and independent variables  $X$ . There is an invisible variable like  $Y$  in the model, which is linearly dependent on the  $X$  variable. Therefore, we have the following equation.

$$Y_{it}^* = \alpha + \beta_i X_{it} + \varepsilon_{it}. \quad (3.1)$$

The  $Y$  variable is equal to the unobservable variable. Wherever this variable is greater than zero, otherwise it is equal to zero.

$$\begin{cases} Y_{it}^* = 0 & \text{if } Y_{it}^* \leq 0 \\ Y_{it}^* \neq 0 & \text{if } Y_{it}^* > 0. \end{cases} \quad (3.2)$$

The model used to test the research hypothesis is as follows.

$$Div_a^* = \alpha + \beta_1 ERT_{it} + \beta_2 ERT_{it-1} + \beta_3 ROA_{it} + \beta_4 LEV_{it} + \beta_5 Size_{it}, \quad (3.3)$$

where:  $DIV$  is the latent variable of dividend distribution which:

$$\begin{cases} Div_a^* = 0 & \text{if } Div_a^* \leq 0 \\ Div_a^* \neq 0 & \text{if } Div_a^* > 0 \end{cases} \quad (3.4)$$

$B$ : regression coefficient

$f$ : except for the regression error

$Div$ : a measure of the company's dividend policy, which is equal to the ratio of dividend to net sales

$ERT$ : Effective tax rate, which is equal to the ratio of performance tax expense to net profit before tax

$DIV_{it-1}$ : Dividend policy of the previous year of the company

$ROA$ : Return on assets, which is equal to the ratio of net profit to total assets

$LEV$ : financial leverage, which is equal to the ratio of liabilities to total assets

$SIZE$ : Company size variable, which is equal to the natural logarithm of the company's net sales

Profit declaration speed and effective tax rate

$$\text{Tax Avoidance Proxy}(i, t) = \beta_0 + \beta_1 IIQ_{i,t} + \beta_2 SIZE + \beta_3 PPE + \beta_4 \Delta PPE + \quad (3.5)$$

$$\beta_5 \text{Leverage} + \beta_6 \text{Intangibles} + \beta_7 ROA + \beta_8 \text{MTB} + \beta_9 \text{Sales Growth} + \beta_{10} \text{Volatility} + \quad (3.6)$$

$$\beta_{11} \text{Age} + \beta_k \text{INDUSTRY FIXED EFFECTS} + \beta_j \text{YEAR FIXED EFFECTS} + \varepsilon \quad (3.7)$$

Effective cash tax rate: It represents the effective cash tax rate and is equal to the tax paid  $i$  in year  $t - 1$  divided by the pre-tax profit of company  $i$  in year  $t$ .

Effective book tax rate: It represents the effective book tax rate and is equal to the tax expense of company  $i$  in year  $t$  divided by the pre-tax profit of company  $i$  in year  $t$ . ([31]).

The first variable used to measure the quality of internal information is the speed of profit announcement. The quality accounting systems have the ability to quickly obtain information from different parts of the organization and integrate it, leading to an increase in the speed of closing accounts at the end of the financial year. Also, by eliminating doing things manually, it leads to an increase in accuracy, reduction of information duplication and rework in different parts of the organization for reporting. Quality accounting systems reduce the time between the end of the financial year and the declaration of profit. The profit announcement speed is equal to:

$$\text{profit annocmnet} = \frac{\text{the number of days between the end of facial year and the data profit annocmnet}}{365} * -1 \quad (3.8)$$

### Tax reporting and information transparency

In this research, model number (8) has been used to test tax reporting and information transparency. This pattern is as follows.

$$AQ_{it} = \beta_0 + \beta_1 T\text{Avoid}_{it} + \beta_2 \text{Size} + \beta_3 \text{lev}_{it} + \beta_4 \text{Age}_{it} \quad (3.9)$$

In this model, AQ represents the quality of accruals of company  $i$  in year  $t$ .

2. In order to obtain accruals residuals from Kasnik model 1, higher order information (1999) has been used, for this purpose, model number (9) is used:

$$ACCR_{it} = \alpha_0 + \alpha_1 [\Delta REV_{it} - \Delta REC_{it} + \Delta INV_{it}] + \alpha_2 PPE_{it} + \alpha_3 \Delta CFO_{it} + \varepsilon_{it} \quad (3.10)$$

In this regard, accrual items ( $ACCR_{it}$ ) are calculated as follows.

$$ACCR_{it} = EARN_{it} - CFO_{it} \quad (3.11)$$

In this regard,  $EARN_{it}$  is the profit from operating activities and CFO it is the cash flow from operating activities.

- $\Delta REV_{it}$ : Expressing the change in income from year  $t - 1$  to year  $t$ .
- $\Delta REC_{it}$ : change in accounts receivable from year  $t - 1$  to  $t$ .
- $\Delta INV_{it}$ : change in inventory from year  $t - 1$  to  $t$ .
- $\Delta PPE_{it}$ : gross property, machinery and equipment
- $\Delta CFO_{it}$ : change in operating cash flow payment Avoidance

According [14], the effective tax rate was used as follows.

$$ETR = \frac{\text{total tax expence}_{it}}{\text{pre tax income}_{it}} \quad (3.12)$$

## 4 Research background

Coleman et al. [7] investigated the Financial transaction costs reduce benefit take-up evidence from zero-premium health insurance plans in Colorado. With the passage of the American Recovery Plan Act of 2021, roughly 12 million Americans are eligible to purchase zero-premium Health Insurance Marketplace plans. Millions more are eligible for generously subsidized health plans with small, positive premiums. What difference does a premium of zero make, relative to a slightly positive premium? Using a regression discontinuity design and administrative data from Colorado, we find that zero-premium plans increase coverage, primarily by helping low-income households begin coverage sooner. The main mechanism is eliminating the transaction costs of having to make on-time payments to

begin coverage. Transaction costs may be a meaningful barrier to subsidized insurance coverage take-up, particularly for low-income families.

Dáivila et al. [10] investigated Optimal Financial Transaction Taxes. This paper characterizes the optimal transaction tax in an equilibrium model of financial markets. If investors hold heterogeneous beliefs unrelated to their fundamental trading motives and the planner calculates welfare using any single belief, a positive tax is optimal, regardless of the magnitude of fundamental trading. Under some conditions, the optimal tax is independent of the planner's belief. The optimal tax can be implemented by adjusting its value until total volume equals fundamental volume. Knowledge of (i) the share of nonfundamental trading volume and (ii) the semielasticity of trading volume to tax changes is sufficient to quantify the optimal tax.

Xuting Mao [41] investigated the Financial fraud detection using the related-party transaction knowledge graph. Financial fraud detection has gained constant attention from researchers, practitioners, and regulators. Because of its concealment and ease of manipulation, related-party transactions (RPTs) among firms have become a usual way to implement financial fraud. However, the traditional quantitative analysis methods regard each firm as an independent individual, failing to mine the intricate relation and transactions among related parties. A knowledge graph can mine valuable hidden knowledge from large-scale associated data as a new form of knowledge representation. Therefore, in this paper, the RPT knowledge graph is utilized to detect financial fraud, where the feature of the transaction's scale and category is obtained. The experiment on the Chinese listed companies from 2000 to 2019 shows that these features enhance financial fraud detection performance, suggesting that type, size, and frequency of RPTs may imply fraud. More details, the feature importance indicates that regulators should pay more attention to the loan-based RPTs and the total number of RPTs.

Wong et al. [39] study Policy Responses to an Overheated Housing Market: Credit Tightening Versus Transaction Taxes. Among Asian economies, Hong Kong has experienced the highest real growth in house prices since the 2010s. Two macroprudential measures, namely credit tightening (loan-to-value ratio cap) and transaction taxes (stamp duty), were introduced to cool down the overheated housing market. This study examines and compares their effectiveness based on a set of constant-quality house price indices. Through an error correction model, we find that credit tightening was able to curb house price growth in the high-price segment, while transaction taxes could not. An explanation is that the exemptions from transaction taxes for those with genuine housing needs could be abused by other market participants. It is easier for buyers to exploit the exemptions to get around the stamp duty than to manipulate the property valuation for mortgage lending. The implication is that the effectiveness of macroprudential measures hinges on whether compliance or exemption can be easily monitored and enforced.

Montalvo et al. [23] investigated transaction tax evasion - transactions in the housing market. This article considers mortgage transactions that evade real estate transfer taxes. They developed an observable measure of overvaluation that was inversely related to tax evasion and concluded that the tax authority could focus its audit efforts on undervaluation transactions. Their analysis confirms the predictions using a unique database for Spain, where directly: the actual payment, the value declared to the authority and the assessment are visible. They also state that individual characteristics (eg buyer education) and local characteristics (eg local levels of corruption and trust) explain part of the observed heterogeneity in defections.

Ruan et al. [32] investigated the identification of suspected tax evasion groups based on related transactions in big data. In this paper, they proposed an Affiliate Interest Network (APIRN) for modeling affiliates, interest equations, and their characteristics to identify ATTEs. Then, ATTE behavioral patterns were identified through topological pattern abstraction from APIRN and BC-ATTEM theoretical inference. Based on the above, they also proposed a hybrid method, i.e. 3TI, to identify suspected ATTE groups through three steps: Diagnosing the difference in the tax rate drop, adapting the topological model and identifying the abnormality of the tax burden. Experiments based on two years of real tax data from a province in China show that 3TI can identify suspected ATTE groups with higher accuracy and better generality than existing works. In addition, they identified various interesting results and provide useful guidance for ATTE inspection based on their analysis of experimental results.

## 5 Research methodology

The method of the current research is practical in terms of its purpose and it is mixed (qualitative-quantitative) in terms of data collection. In the first stage, the components related to transactions were identified through a qualitative study. In this section, the method of qualitative content analysis with inductive approach was used. The participants of the qualitative part of the research are 12 experts and elites of the finance department and academic elites with high biological experience in this field, which were selected using a snowball sample and the panel was formed. The

estimation of the desired sample size was done based on the theoretical saturation of the data. Based on this, the interview reached theoretical saturation with 12 people, and another interview was conducted for more certainty. The research data collection tool was a semi-structured interview in the qualitative part. In order to comply with the principles of research ethics, during the interviews, the participants were asked to record their conversations, and after the end of the interview, the interview was carefully reviewed and returned to paper. To check validity in the qualitative part, triangulation method was used in the first place, in this regard, through gathering evidence from various sources, including various theories, various information sources, and validity experts, the validity was examined and confirmed. 2 participants were presented and the process of arriving at the codes, subcategories and main categories was explained to them, the findings of this work confirmed the general findings of the research. Also, Christiansen's angle technique was used to evaluate the validity and quality of the findings. In this regard, it was tried to make the breadth of information and the depth of information possible by continuous mental engagement with the data. To achieve this goal, after coding the data by the researcher, two people were asked to code some of the interviews to evaluate the accuracy and validity of the coding and the obtained categories, and finally the results of this section were similar. With the coding that was done in the previous step. In order to analyze the qualitative data, the theme analysis method, which is based on open coding, was used. At this stage, the data obtained from the interviews were carefully examined, the main unit of analysis for open coding was the concepts, the transcripts of the interviews were regularly reviewed to find the main categories, categories, and subcategories. The interview protocol was based on the CAR framework based on which the following three main questions should be answered

Context: What and how is the situation we are facing?

Action: What is the appropriate action for it?

Result: What is the result of the action? How does society benefit from its results?

Identifying the meaning unit (themes) started with open coding of definitions (114 codes). After that, the themes were formatted as patterns of higher levels as much as possible and provided the basis for explaining the pattern. Equations between themes were identified through the axial coding technique (60 codes). For core coding (checking concepts), we chose an open coding category and placed it as the main category or phenomenon in the center of the review process, and then related other categories to it. This made it possible to design the overall pattern. In selective coding, the interviews were coded according to the central category. Finally, in the theoretical coding stage, the categories were combined with each other in the form of Type Family, which is one of the 18 families of Glaser's theoretical codes [32]. In the quantitative part, the method of structural interpretive modeling is used, which is a systematic and structured method for understanding the equations between the variables of a complex system and analyzing the effect of one variable on other variables of that system. Since the judgment of a group of people determines whether there are equations between these variables or not, it is an interpretive method. On the other hand, because the basis of equations is a whole structure that is extracted from a complex set of variables, it is considered a structural method. It is also a kind of modeling technique because specific equations and general structure of variables are shown in a graph. Structural interpretive modeling is done in six steps, which are explained in the findings section.

## 6 Data analysis and findings

### 6.1 Structural modeling

First step: identifying the variables related to the problem. This step is done by reviewing past studies and getting experts' opinions, which are presented in Table 1.

As mentioned, the identified components of FTT implementation were determined through literature review and expert opinions. A total of 15 components were identified based on literature review and expert interviews, and the details and parameters of each of them are shown in Table 1.

**The second step:** the formation of the structural self-interaction matrix (SSIM) is equationated to find the contextual equation between the selected components using the components obtained from the literature and interviews. The textual equation between obstacles is recorded based on their directional equation using expert input. The text equation for each component is developed based on the following four conditions with some symbols, and each symbol has a different interpretation, and based on this, Table 2 is obtained. The symbols are as follows:

Table 1: Identified components of FTT implementation

Sources	Component	
[19], [20] [1]	Reduce volatility	C1
[1]	Generating government revenue	C2
interview	Market liquidity	C3
[21, 22, 23]	Minimize avoidance opportunities	C4
[17] [2] [24]	Increase in transaction volume	C5
[1]	Controlling speculative transactions	C6
[25], [26], [27]	Provide Bank financing	C7
interview	Attention to Sharia issues and Islamic patterns	C8
[28]	No need for human resources	C9
[29]	Target cost reduction	C10
interview	Cultivation	C11
interview	Tax justice	C12
interview	Discover hidden incomes	C13
interview	Acceptance of FATF	C14
interview	Money Laundering	C15

Symbol  $V$ : It is a description of the effect of factor  $i$  on factor  $j$ ,

Symbol  $A$ : It is a description of the effect of factor  $j$  on factor  $i$ ,

Symbol  $x$ : interaction of  $i$  and  $j$ ,

symbol  $o$ : indicates no conflict between two factors.

Table 2: The structure of self-interaction matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C15	V	O	A	V	X	X	O	V	O	O	O	O	V	X	x
C14	A	A	O	A	A	A	O	O	O	O	O	O	A	x	
C13	O	X	O	X	O	A	O	V	O	O	V	X	x		
C12	A	A	A	X	A	A	O	X	O	O	X	x			
C11	O	A	O	A	O	A	O	X	O	A	x				
C10	X	A	A	V	O	V	O	V	V	X					
C9	O	O	O	O	O	O	O	O	x						
C8	A	A	O	A	A	A	O	x							
C7	O	O	A	O	V	O	x								
C6	A	A	A	X	X	x									
C5	A	A	X	V	x										
C4	A	A	A	x											
C3	A	O	x												
C2	O	x													
C1	x														

The third step: formation of the initial acquisition matrix (IRM) If the entry  $(i, j)$  in SSIM shows the symbol  $V$ , then we have  $(i, j) = 1$  and  $(j, i) = 0$  in the initial matrix. If the entry  $(i, j)$  in SSIM shows the symbol  $A$ , then in the initial matrix we have  $0 = (i, j)$  and  $1 = (j, i)$ . If the entry  $(i, j)$  in SSIM shows the symbol  $X$ , then in the initial matrix we have  $1 = (i, j)$  and  $1 = (j, i)$ . If the entry  $(i, j)$  in SSIM shows the symbol  $O$ , then in the initial matrix we have  $0 = (i, j)$  and  $0 = (j, i)$ . The SSIM matrix structure is drawn based on the above concepts:

Step 4: Create the final achievement matrix. Transferability should be controlled from the obtained matrix. Transferability among the components of sustainable human resource management is obtained as follows: if  $A$  is related to  $B$  and  $B$  is related to  $C$ , then  $A$  is also related to  $C$ . In this case transferability is indicated by  $+1$ . Table 4 shows the matrix after applying transferability.

### 7 The fifth step: Partitioning the surface

The surface division is done using the obtained final access matrix. To form the level partitioning table, we act in this way by writing down the inputs and outputs of each component and determining the common dimension between



Table 3: Forming the primary achievement matrix (IRM)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C15	0	0	1	0	1	1	0	1	0	0	0	0	0	1	1
C14	1	1	0	1	1	1	0	0	0	0	0	0	1	1	1
C13	0	1	0	1	0	1	0	0	0	0	0	1	1	0	1
C12	1	1	1	1	1	1	1	1	0	0	1	1	1	0	0
C11	0	1	0	1	0	1	0	1	0	1	1	1	1	0	0
C10	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0
C9	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
C8	1	1	0	1	1	1	0	1	0	1	1	1	0	0	0
C7	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0
C6	1	1	1	1	1	1	0	0	0	1	0	0	0	0	1
C5	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1
C4	1	1	1	1	1	1	0	0	0	1	0	1	1	0	1
C3	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0
C2	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
C1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1

Table 4: The final achievement matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	Driving Power
C15	0	0	1	0	1	1	0	1	0	1+	0	0	0	1	1	7
C14	1	1	1+	1	1	1	0	1+	0	1+	0	1+	1	1	1	12
C13	0	1	0	0	0	1	0	0	0	0	0	1	1	0	1	5
C12	1	1	1	0	1	1	1	1	0	0	1	1	1	0	0	10
C11	0	1	1+	1	0	1	0	0	0	1	1	1	1	0	0	8
C10	0	1	1	1	1	0	0	0	0	1	1+	1+	0	0	0	7
C9	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
C8	0	1	1+	1	1	1	0	1	0	1	1	0	0	0	0	8
C7	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	3
C6	1	1	1	0	1	1	0	1	0	1	0	0	0	0	1	8
C5	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1	7
C4	0	1	1	1	1	1	1+	1+	1+	1	0	1	1	0	1	12
C3	1	1+	1	0	1	0	0	0	0	0	0	0	0	0	0	4
C2	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	5
C1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	6
Dependence Power	6	11	11	5	9	9	4	6	2	9	4	6	7	2	7	

the two. The number of common ones is the desired level. Table 5 shows this process.

### 8 The last step: Drawing a pattern based on ISM

The diagram is drawn based on the result of surface partitioning (Table 5), and the mutual equation between the components of FTT implementation is obtained. This model is shown in Figure 1

The ranking is based on the power of influence and dependence of each component that the power of dependence and power of influence can be calculated with the sum of the values shown in the row and column of each component (Table 4). Dependency power and influence power along with their ratio and rank are shown in Table 6.

**MICMAC analysis findings** MICMAC analysis is based on the principle of matrix interactions [37]. MICMAC analysis is used to cluster the components of the optimal model of collecting tax revenues from legal entities based on their nature [3]. All the components of the research were examined by experts in the form of the variable effects panel, the insertion and the effect of each variable of the vertical column on the horizontal column and are evaluated with a range of 0 to 3.

Table 5: Partitioning result

level	Subscribers	Inputs	Outputs	Components
5	4, 5, 6, 14, 15	1, 4, 5, 6, 13, 14, and 15	3.4.5.6.10.14.15	C15
3	6, 14, and 15	6, 14, and 15	1, 2, 3, 4, 5, 6, 8, 10, 12, 13, 14, 15	C14
5	2, 4, 6, 12, 13	2, 4, 6, 7, 8, 11, 12, 13, and 14	2, 4, 6, 12, 13, and 15	C13
4	4, 11, 12, and 13	4, 10, 11, 12, 13, and 14	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, and 13	C12
4	8, 10, 11, and 12	8, 10, 11, and 12	2, 3, 4, 6, 8, 10, 11, 12, and 13	C11
3	4, 10, and 11	1, 4, 6, 8, 9, 10, 11, 14, 15	2, 3, 4, 5, 10, 11, and 12	C10
1	9	9 and 4	9 and 10	C9
3	4, 6, and 8	4, 6, 8, 12, 14, 15	2, 3, 4, 5, 6, 8, and 10	C8
2	4 and 7	4, 5, 7, and 12	3, 4, 7, and 13	C7
4	5, 6, 8, and 15	4, 5, 6, 8, 11, 12, 13, 14, and 15	1, 2, 3, 5, 6, 8, 10, 15	C6
4	3, 5, 6, and 15	3, 4, 5, 6, 8, 10, 12, 14, and 15	1, 2, 3, 5, 6, 7, 15	C5
2	4 and 8	4, 8, 10, 11, and 14	2, 3, 4, 5, 6, 7, 8, 9, 12, 13, and 15	C4
1	3	3, 4, 5, 6, 7, 8, 10, 11, 14, 15	1, 2, and 3	C3
2	2 and 13	2, 3, 4, 5, 6, 8, 10, 11, 12, 13, and 14	2 and 13	C2
1	1	1, 3, 5, 6, 12, 14	1, 9, and 15	C1

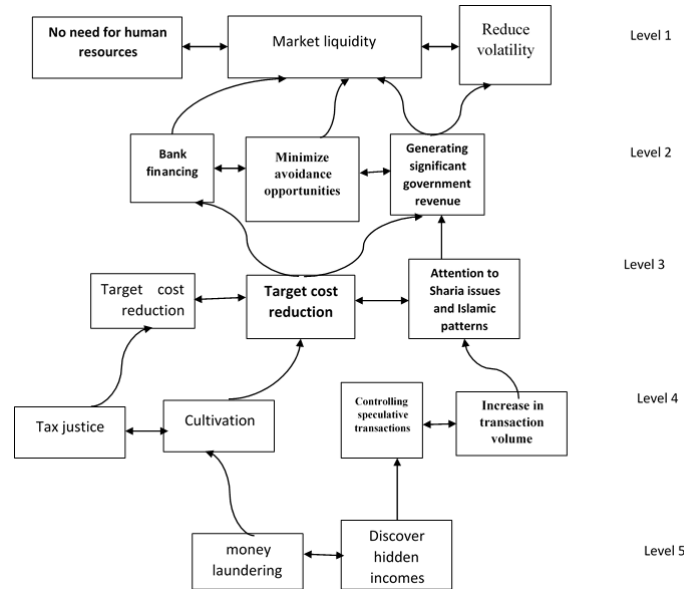


Figure 1: Structural-interpretive modeling for FTT implementation

Table 6: Calculation of the ranking of research components

rank	Ratio	Driving power	Dependence power	Component	
9	0/857143	7	6	Reduce volatility	C1
8	0/916667	12	11	Generating government revenue	C2
1	44959	5	11	Market liquidity	C3
13.5	0/5	10	5	Minimize avoidance opportunities	C4
6.5	1/125	8	9	Increase in transaction volume	C5
4	1/285714	7	9	Controlling speculative transactions	C6
2	2	2	4	Provide Bank financing	C7
10	0/75	8	6	Attention to Sharia issues and Islamic patterns	C8
11	0/666667	3	2	No need for human resources	C9
6.5	1/125	8	9	Target cost reduction	C10
12	0/571429	7	4	Cultivation	C11
13.5	0/5	12	6	Tax justice	C12
3	27395	4	7	Discover hidden incomes	C13
15	0/4	5	2	Acceptance of FATF	C14
5	1/166667	6	7	Money Laundering	C15

	1 : c1	2 : c2	3 : c3	4 : c4	5 : c5	6 : c6	7 : c7	8 : c8	9 : c9	10 : c10	11 : c11	12 : c12	13 : c13	14 : c14	15 : c15
1 : c1	1	0	2	1	1	1	2	0	2	2	0	2	0	0	0
2 : c2	1	1	2	3	3	3	2	1	1	2	1	3	3	3	2
3 : c3	2	2	1	1	2	2	2	2	2	1	3	3	1	3	1
4 : c4	3	3	2	1	3	3	3	1	2	2	3	3	2	3	3
5 : c5	2	2	2	1	1	1	2	1	1	2	2	0	1	2	1
6 : c6	2	3	3	3	0	1	2	0	2	2	2	2	1	3	3
7 : c7	0	2	1	1	0	0	1	3	0	2	1	1	1	2	2
8 : c8	0	0	0	3	0	2	2	1	0	0	2	2	2	0	2
9 : c9	0	1	1	0	0	0	0	0	1	2	2	0	3	3	3
10 : c10	0	2	2	1	1	1	2	0	1	1	1	0	0	2	1
11 : c11	0	2	2	2	0	2	2	2	2	1	1	2	2	3	2
12 : c12	0	2	0	1	0	2	2	0	0	1	2	1	2	3	1
13 : c13	0	3	2	3	0	3	3	3	0	0	3	3	1	3	3
14 : c14	3	3	2	3	2	3	3	1	1	1	3	3	3	1	3
15 : c15	1	3	2	3	1	3	3	3	0	0	3	3	3	3	1

© IPSOR-EPTA-MICMAC

Figure 2: Mutual effects of variables, based on the opinions of the panel of colleagues

where the impacts range from 0 to 3, 0: no impact; 1: Weak; 2: moderate penetration; 3: Strong penetration After the analysis, the system announces its report regarding the value and classification of the variables. Out of the total of 181 evaluation equations in this matrix, 44 equations have a value of 0, which means that the factors did not affect each other, or were not affected by each other. 56 equations with number 1 have shown low impact, 68 equations with number 2 have shown moderate impact, and 57 equations with number 3 have shown strong impact. On the other hand, the matrix based on the statistical index with 2 times of data rotation has a desirability and optimization of 80%, which indicates the high validity of the selected components.

The method of distribution and distribution of variables in the scatter plane shows the stability and instability of the system (Figure 4). There are two types of distributions in the analysis of mutual effects with Mic Mac software. In stable systems, the distribution of variables is in the form of English L. That is, some variables have high influence and some have high influence. In stable systems, there are three categories of highly influential variables, independent variables and system output variables. In the unstable system, the variables are scattered around the diagonal axis of the plane and most of the time they are in an intermediate state. In the unstable system, influencing variables, two-dimensional variables (risk and target variables), regulatory variables, influencing variables or the result of the system, and independent variables can be considered [43].

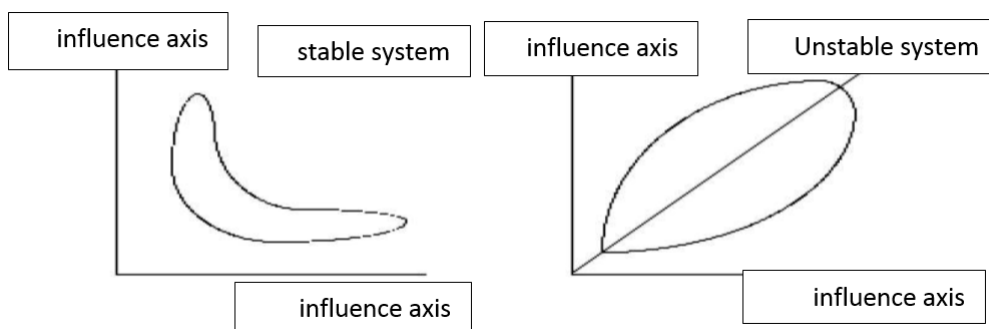


Figure 3: Stable and unstable system model [33]

The status of the scatter plot of variables affecting the optimal tax model is also shown in Figure 4.

Figure 4 shows the location of different factors in the scatter map of variables, from which the position of key variables can be recognized. Table 7 shows a summary of the findings related to these situations

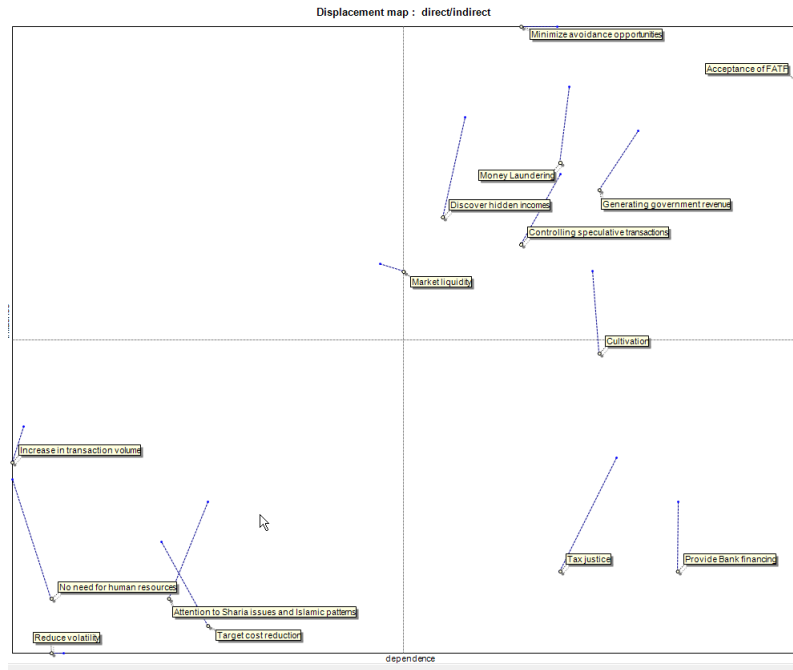


Figure 4: Position of identified variables

Table 7: Summary of research findings

Identified variables		Components
Binary variables	Goal variable	Controlling speculative transactions Cultivation
Binary variables	Risk variable	Generating significant government revenue Minimize avoidance opportunities Acceptance of FATF money laundering
Regulatory variables		Market liquidity Discover hidden incomes
Independent variables		Attention to Sharia issues and Islamic patterns No need for human resources Cost reduction is the goal Reduce volatility
Leverage variables		Increase in transaction volume
Influential variables		Bank financing Tax justice

## 9 Discussion and Conclusion

The results of the interpretive structural analysis of this study show the optimal pattern of taxation in five levels. At level 1, the reduction of volatility, market liquidity and the lack of need for human resources were identified in the case of FATA implementation. These variables were included in the group of independent variables of the Mikmek analysis, based on which the reduction of volatility and the lack of need for human resources were in the group of independent variables that had an impact. They have high and low effectiveness, but market liquidity is included in the group of regulatory variables that can successively act as secondary leverage, weak targets, and secondary risk variables. Although the results of this paper for volatility contradict the views of proponents and opponents of FTT such as [24, 38, 33, 25] but with recent research, the report of the European Union Commission (2013) [8, 5] and [6]. Therefore, as some proponents argue, volatility will not change as a result of the introduction of the FTT. It is clear that liquidity is an important aspect of trading because in a market with less liquidity, traders suffer more losses due to increased bid-ask spreads [22] Since the FTT is partly imposed due to the increase in revenue for the future support of the financial sector, the burden of the FTT should only be on the shoulders of the financial institutions [28]. Since all traders pay for the increase in the bid-ask spread, including businesses and individuals, policymakers should consider it for future consideration. In the second level of structural-interpretive analysis, three components of creating

significant government income, minimizing avoidance opportunities and providing bank credit were identified. Based on Mik Mak's analysis, the position of the variables of creating significant income for the government and minimizing the avoidance opportunities are placed in the group of risk variables, which have a great capacity to become key players in the system, because due to their unstable nature, the potential They have to become the "connection point" of the system. Bank credit provision is also included in the group of influential variables that have low influence and very high influence; Therefore, they are very sensitive to the evolution of influential and bimodal variables. Providing bank credit, the variables output from the LEST system, that is, with the implementation of the tax on bank transactions, we will also see the provision of bank credit. Bank credit provision is mentioned in the study of Lu and Wu [40]. They found that when both bank and commercial credits are viable, the difference in the dividend rate and the tax rate are two important factors in determining the optimal strategy and the joint effect of this rate. examined the optimal financing strategy. When examining the effect of tax asymmetry on the decisions of retailers and MNCs, under bank credit, MNCs lower wholesale prices to induce higher orders, but never offer trade credit. When bank and trade credit are both suitable options, the optimal financing strategy is bank credit in case of tax asymmetry. Philippe Restrepo [16] also identified a key channel through which this tax affects credit provision: a strong incentive to move away from holding deposits and using money and other quasi-currencies. Accordingly, the tax on banking transactions has a negative effect on economic growth, mainly by reducing the growth prospects of industries that are more exposed to financial frictions.

At the third level, we have the three components of FATF acceptance, paying attention to Shariah issues and Islamic patterns and reducing the cost of the objective. In Mik Mak's analysis, the two components of paying attention to Shariah issues and Islamic patterns and reducing the cost of the target are placed in the group of independent variables, which are like the first level variables that have high influence and low influence, but the acceptance of FATF was included in the group of risk variables that the capacity They have many to become key players in the system. [2] have also discussed the opportunities to avoid.

At the fourth level, four components were identified: containment of speculative transactions, culture building, increasing the volume of transactions and tax justice. In the Meek Mak analysis, the variables of this level were identified in three groups: target, leverage and influence variables. The target variables include curbing speculative transactions and culturalization, which are more influential than influential; Therefore, they can be identified with more certainty as the results of system evolution. By manipulating these variables, changes and evolution of the system can be achieved in the desired direction; Therefore, these variables, rather than showing predetermined results, represent the possible goals in the system, which shows that the implementation of the transaction tax is aimed at curbing speculative transactions and creating culture. Tax justice is in the group of influential variables that have low influence and very high influence; Therefore, they are very sensitive to the evolution of influential and bimodal variables. Tax justice is the result of tax implementation on bank transactions.

In the fifth level of structural-interpretive analysis, two variables of discovering hidden income and money laundering were identified. In the analysis of Mik Mak, the discovery of hidden incomes is in the group of regulatory variables, which, as said, these variables deserve to be introduced. This merit is less due to their intrinsic meaning and more due to their position compared to the other aforementioned variables. Money laundering was also included in the group of risk variables, which is a two-faceted variable that is very effective and very effective at the same time. The nature of these variables is mixed with instability; Because every action and change on them has the reaction and change of other variables following "damping" or "intensification". Such results and reactions have a boomerang effect that ultimately cause the initial effect and symptom and have a great capacity to become key players in the system.

Analyzing the impact of financial transaction taxes on market behavior is a topic of current interest in financial research. However, this field of study still remains a controversial topic not only for researchers but also for policy makers. Proponents of FTT argue that the introduction of the tax will positively affect the quality of the market, while the ideas of the opponents are contradictory. The existence of the shadow economy has potentially serious implications for economic performance and public policy. Activities conducted in this sector are neither protected nor regulated in the same way as activities in the official sector. Growth prospects can be compromised by restrictions on doing business due to the lack of social infrastructure. Public finances may suffer as the tax base declines, thereby weakening the government's capacity to generate revenue, and policymakers' assessments and recommendations may be more error-prone due to the lower quality of official statistics. For these and other reasons, the size of the informal sector is a matter of non-trivial concern, and an important task is to understand what factors might influence it. Informality in an economy is a reflection of people's motivations to hide their activities or circumstances. This may take many forms, from full participation in the underground sector (e.g., working exclusively in the shadow labor market) to more covert practices (e.g., misreporting income and concealing investments). Other researchers can identify the factors affecting bank transactions with other qualitative approaches such as ground theory and compare the results with the

findings of this study. It is also possible to carry out bank transactions separately by industry and specify the FTT rate for each industry.

## References

- [1] V. Acharya, T. Cooley, M. Richardson, and I. Walter, *Market Failures and Regulatory, Failures: Lessons from Past and Present Financial Crises*, Asian Development Bank Institute, ADBI Working Paper Series, 264 (2011).
- [2] H. Bessembinder, J. Hao, and K. Zheng, *Liquidity provision contracts and market quality: Evidence from the New York Stock Exchange*, *Rev. Financ. Stud.* **33** (2020), no. 1, 44–74.
- [3] V.A. Bhosale and R. Kant, *An integrated ISM fuzzy MICMAC approach for modelling the supply chain knowledge flow enablers*, *Int. J. Prod. Res.* **54** (2016), no. 24, 7374–7399.
- [4] L. Burman, W.G. Gale, S. Gault, B. Kim, J. Nunns, and S. Rosenthal, *Financial transaction taxes in theory and practice*, *Nat. Tax J.* **69** (2016), no. 1, 171–216.
- [5] G. Capelle-Blancard, *The abrogation of the impôt sur les opérations de bourse did not foster the French stock market*, *Finance Res. Lett.* **17** (2016), 257–266.
- [6] M. Coelho, *Dodging Robin Hood: Responses to France and Italy's financial transaction taxes*, Job Market Paper, University of Carolina, Berkeley, Available at SSRN 2389166 (2016).
- [7] D. Coleman, D. Anderson, D. Sih-Ting Cai, and W. Daniel, *Financial transaction costs reduce benefit take-up evidence from zero-premium health insurance plans in Colorado*, *J. Health Econ.* **89** (2023).
- [8] J.E. Colliard and P. Hoffmann, *Financial transaction taxes, market composition, and liquidity*, *J. Finance* **72** (2017), no. 6, 2685–2716.
- [9] V.T. Constâncio, *The future of finance and the outlook for regulation, Remarks*, Vice-President of the European Central Bank, at the Financial Regulatory Outlook Conference, organised by the Centre for International Governance Innovation and Oliver Wyman, Rom, 2017.
- [10] E. Dávila, *Optimal financial transaction taxes*, *J. Finance* **78** (2023), 5–61.
- [11] D. Dhaliwal, S. Huang, S. Moser, and W.R. Pereir, *Corporate tax avoidance and the level and valuation of firm cash holdings*, Working paper, 2011.
- [12] D. Diamond and P. Dybvig, *Bank runs, deposit insurance, and liquidity*, *J. Politic. Econ.* **91** (1983), no. 3, 401–419.
- [13] M. Drehmann and N. Tarashev, *Measuring the systemic importance of interconnected banks*, BIS Working Papers, 2011.
- [14] S.D. Dyreng, M. Hanlon, and M.E.L. Maydew, *Long-run corporate tax avoidance*, *Account. Rev.* **83** (2008), no. 1, 61–82.
- [15] European Commission, *Impact Assessment: Proposal for a Council Directive Implementing Enhanced Cooperation in the Area of Financial Transaction Tax*, Analysis of Policy Options and Impacts, Working Document, 2013.
- [16] R. Felipe, *The effects of taxing bank transactions on bank credit and industrial growth: Evidence from Latin America*, *J. Int. Money Finance* **93** (2019), 335–355.
- [17] P. Gai, A. Haldane, and S. Kapadia, *Complexity, concentration and contagion*, *J. Monetary Econ.* **58** (2011), no. 5, 453–470.
- [18] E. Garcia-Appendini and J. Montoriol-Garriga, *Firms as liquidity providers: Evidence from the 2007–2008 financial crisis*, *J. Financ. Econ.* **109** (2013), no. 1, 272–291.
- [19] B.G. Glaser and J. Holton, *Remodeling grounded theory*, *Forum Qual. Sozialforschung/forum: Qual. Soc. Res.* **5** (2004), no. 2, 47–68.
- [20] M. Godet, P. Durance, and A. Gerber, *Strategic foresight: Use and misuse of scenario building*, Work Paper Laboratoire d'Innovation de Prospective Stratégique et d'Organisation, Paris 200.8 (2008).

- [21] A.G.R. Haldane, *Thinking financial stability, speech, chief economist, Bank of England*, Rethink. Macroecon. Policy IV Conf., Peterson Institute for International Economics, Washington, 2017.
- [22] J.C. Hull, *Risk Management and Financial Institutions*, John Wiley and Sons, Inc, 2015.
- [23] J.G. Montalvo, A. Piolatto, and J. Raya, *Transaction-tax evasion in the housing market*, *Region. Sci. Urban Econ.* **81** (2020), 103526.
- [24] J.M. Keynes, *The General Theory of Employment, Interest and Money*, New York: Harcourt Brace, 1936.
- [25] P. Kupiec, *Noise traders, excess volatility and securities transaction tax*, *J. Financ. Serv. Res.* **10** (1996), 115–129.
- [26] L. Laeven, L. Ratnovski, and H. Tong, *Bank Size and Systemic Risk*, IMF Staff Discussion Note, (SDN/14/04), 2014.
- [27] N. McCulloch and G. Pacillo, *The Tobin Tax – A Review of the Evidence*, Institute of Development Studies University Sussex, 2011.
- [28] C. Miller and A. Tyger, *The impact of a financial transaction tax*, *Fiscal Fact.* **690** (2020).
- [29] A. Pekanov and M. Schratzenstaller, *A Global Financial Transaction Tax-Theory, Practice and Potential Revenues*, Practice and Potential Revenues, 2019, Available at SSRN: <https://ssrn.com/abstract=3407855> or <http://dx.doi.org/10.2139/ssrn.3407855>
- [30] R. Raciborski, J. Lendvai, and L. Vogel, *Securities Transaction Taxes: Macroeconomic Implications in a General-Equilibrium Model*, European Commission, Directorate-General for Economic and Financial Affairs, 2012.
- [31] J.R. Robinson, S.A. Sikes, and C.D. Weaver, *Performance measurement of corporate tax department*, *Account. Rev.* **85** (2010), 1035–1064.
- [32] J. Ruan, Z. Yan, B. Dong, Q. Zheng, B. Qian, *Identifying suspicious groups of affiliate d-transaction-base d tax evasion in big data*, *Inf. Sci.* **477** (2019), 508–532.
- [33] G.W. Schwert and P.J. Seguin, *Security transaction taxes: An overview of costs and benefits and unresolved questions*, *Financ. Anal. J.* **49** (1993), no. 5, 27–35.
- [34] L.E. Stiglitz, *Using tax policy to curb speculative short-term trading*, *Regulatory Reform of Stock and Futures Markets*, 1989, pp. 3–17.
- [35] S.M.H. Sultan Ulamaei and M.R. Bakhsh, *Tax on bank transactions*, *Trend Quart.* **26** (2019), 85–86.
- [36] L.H. Summers and V.P. Summers, *When financial markets work too well: A cautious case for a securities transactions tax*, *J. Financ. Serv. Res.* **3** (1989), no. 2-3, 261–286.
- [37] V. Swarnakar, A. Bagherian, and A.R. Singh, *Prioritization of critical success factors for sustainable Lean Six Sigma implementation in Indian healthcare organizations using best-worst-method*, *TQM J.* **35** (2023), 630–653.
- [38] J. Tobin, *A proposal for international monetary reform*, *East. Econ. Rev.* **4** (1978), 153–159.
- [39] S.K. Wong and K.S.H. Cheung, *Shing and Deng, Kuang Kuang and Chau, Kwong Wing, policy responses to an overheated housing market: Credit tightening versus transaction taxes*, *J. Asian Econ.* **75** (2021), 101330 .
- [40] L. Xiangyuan and W. Zhiqiao, *How taxes impact bank and trade financing for multinational firms*, *Eur. J. Oper. Res.* **286** (2020), no. 1, 218–232.
- [41] M. Xuting Mao, H. Sun, Zh. Xiaoqian, and L. Jianping, *Financial fraud detection using the related-party transaction knowledge graph*, *Procedia Comput. Sci.* **199** (2022), 733–740.
- [42] J. Yellen, *Financial stability a decade after the onset of the crisis*, Speech, Chair of the Board of Governors of the Federal Reserve System, at the Federal Reserve Bank in Kansas City Econ. Symp. Foster. Dyn. Glob. Recov., Jackson Hole, 2017.
- [43] N. Zali, *Strategic Futur study in Regional Planning and Development*, Research Institute for Strategic Studies, Tehran, 2013.