

## Article

Sensitivity Plot of  $c_y: \{(m-m^{4*}) * 10^{-4}\}$  - Cycle of MoneyConstantinos Challoumis<sup>1</sup>

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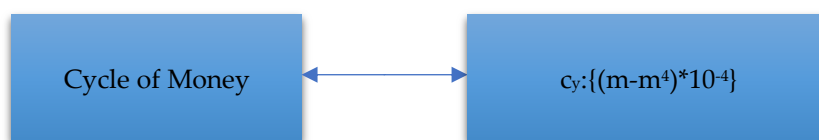
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**Abstract:** In this work escape savings rate is much higher than the financial liquidity. The money cycle is being followed by the restructuring of the administrative structure and the application of a public financial administration model. This happens through the velocity of financial liquidity and escape savings. This work has used the sensitivity plot of the cycle of money. The research is part of a series of case studies from the sensitivity plots of the money cycle,  $c_y$ . It uses mathematical determinations and definitions by the cycle of money but estimates on the first time presented results of sensitivity plot of  $c_y: \{(m-m^4) * 10^{-4}\}$  of the cycle of money in a case study scenario. In this case scenario financial liquidity has magnitudes lower than escape savings.

**Keywords:** sensitivity plot, cycle of money, financial liquidity, escape savings

## 1. Introduction

The paper is about the money cycle in the case study where the escape savings are much higher than the velocity of financial liquidity. The present research studies the case of the money cycle, as formulated by the current literature [1]: "This paper analyzes the case of the cycle of money with and without the escaping savings. The same procedure is followed for the enforcement savings [2-14]. This could happen when there are returned savings and when there are no returned savings. This economic comparison has as a result that in a market consumption and investments in combination with savings have an important role, subject to the public and the tax policy [15-24]. Therefore the appropriate tax rate is the key element for the appropriate public policy". It follows a scheme about the cycle of money and its case study:



**Figure 1.** Cycle of money for  $c_y: \{(m-m^4) * 10^{-4}\}$

The fixed length principle is satisfied when the public policy with the lower taxation of uncontrolled transactions and the higher taxation of the controlled transactions is applied.

## 2. Literature Review

The agreements determine the nature of the transactions. The agreements between the participants in control transactions are those that determine the allocation of profits and losses. To the agreements should be mentioned the changes in the contracts [25-43]: "This is the reason why the tax authorities should make periodic inspections. The periodic

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specification of contracts is important for comparability analysis. These periodic inspections of the companies that participate in controlled transactions are crucial for the arm's length principle. Then, the determination of the cost-sharing depends on the periodic check of companies that are tested parties. The scope of the companies of controlled transactions is to face the issues that are connected with the taxation of their activities. Therefore, the requirements for the companies of controlled transactions with the tax authorities should be in the range of the arm's length principle. Thereupon, the appropriate agreement of the companies of controlled transactions is that which permits them the maximization of their profits in tax environments with low tax rates, and the maximization of costs in economic environments with high tax rates.

Moreover, should be notified that the companies of controlled transactions and the same time the inspections of tax authorities are done under the condition of proportional adjustments [44-57]. The interpretation of the condition of the proportional adjustments is that the companies that participate in controlled transactions many times don't have the appropriate data and uncontrolled transactions of similar circumstances to compare and therefore they proportionally adjust their data [58-67]. According [68] this means that if the companies that are tested parties conclude that the profits and losses of companies from uncontrolled transactions are much higher or much fewer then they make a proportional analogy to compare them with their data. The production of goods or services creates profits and costs for the companies. Based on the prior scrutiny:

$$\mathbf{u} = \mathbf{s}(\mathbf{z}\mathbf{f} + \tilde{\mathbf{z}}\mathbf{d}) \quad (1)$$

$$\mathbf{z} = |\tilde{\mathbf{z}} - \mathbf{1}| \quad (2)$$

The symbol  $\mathbf{u}$  is about the impact factor of the comparability analysis which has any method to the  $\mathbf{s}$ . The symbol  $\mathbf{z}$  is a coefficient which takes values between 0 and 1. What value could be received is determined by the influence of the method (using the best method rule) on the  $\mathbf{s}$ . The symbol of  $\mathbf{f}$  is about the cost which comes up from the production of goods, and the symbol of  $\mathbf{d}$  is about the cost which comes from the distribution of the goods [69-86]. According to Equation (1) - (2) is plausible to determine the following equations:

$$u_c = \mathbf{z}\mathbf{f} + \tilde{\mathbf{z}}\mathbf{d} \quad (3)$$

$$\mathbf{b} = (\mathbf{p} - \mathbf{u}_c) * \mathbf{j}_1 \quad (4)$$

The symbol of  $\mathbf{b}$  in the prior equation is about the amount of taxes that should be paid to the companies of controlled transactions in the application of the arm's length principle. The  $\mathbf{u}_c$  is the amount of tax obligations that can be avoided through the allocations of profits and losses. Moreover,  $\mathbf{j}_1$  is a coefficient for the rate of taxes. Then, the Equation (5) shows the case of the arm's length principle. In addition, in the case of the fixed length principle:

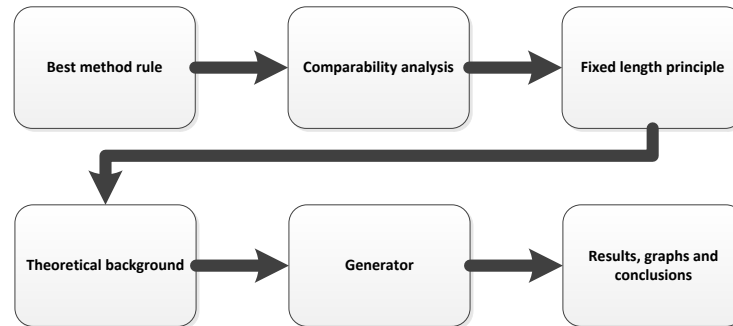
$$\mathbf{v} = \mathbf{p} * \mathbf{j}_2 \quad (5)$$

The symbol of  $\mathbf{v}$  in the previous equation shows the taxes that should be paid to the enterprises of controlled transactions in the application of the fixed length principle [87-96]. Then,  $\mathbf{j}_2$  is a coefficient for the rate of taxes in the case of the fixed length principle:

$$\mathbf{v} \geq \mathbf{b} \quad (6)$$

The tax for the companies that participate in controlled transactions of transfer pricing in the case of the fixed length principle is higher or at least equal to that of the case of the arm's length principle. Thereupon, with the fixed length principle the enterprises of controlled transactions can tackle issues that come from the allocation of the profits and

losses. Therefore, the tax authorities can face the transfer pricing effects on the global tax revenue. The fixed length principle permits the recovery of the tax losses of the global tax revenue from the controlled transactions of the transfer pricing" [97-110]. The next scheme illustrates the procedure that companies of controlled transactions follow for their allocations of profits and losses, the proportional adjustments of data, and the fixed length principle:



**Figure 2.** Cost sharing and application of fixed length principle

Figure 2 clarifies the procedure of the fixed length principle and its analysis for the specification of the behavior of the model.

### 3. Materials and Methods

The tax revenues correspond to the savings that the companies could have if the taxes were avoided. The definitions are defined by prior mathematical research [69, 111, 112]: "The way that these savings are administrated is different from case to case. Then the benefits of the companies could be managed in a completely different way, as could be saved or could be taxed [31, 45, 108-119]. The theory of the cycle of money shows when the savings robust the economy and when the taxes robust the economy [120-131]. This determination must be a separation of savings into the non-returned savings (or escaped savings) and the returned savings (or enforcement savings). For the scope of this analysis below are demonstrated the equations which are:

$$\alpha = \alpha_s + \alpha_t \text{ or } \frac{1}{v} + \alpha_t \quad (7)$$

$$x_m = m - a \quad (8)$$

$$m = \mu + \alpha_p \quad (9)$$

$$\mu = \sum_{t=0}^n \mu_t \quad (10)$$

$$\alpha_p = \sum_{j=0}^m \alpha_{pj} \quad (11)$$

$$c_m = \frac{dx_m}{dm} \quad (12)$$

$$c_\alpha = \frac{dx_m}{d\alpha} \quad (13)$$

$$c_y = c_m - c_\alpha \quad (14)$$

The variable of  $\alpha$  symbolizes the case of the escaped savings. This means that there are savings that are not returning to the economy or come back after a long-term period. The variable of  $\alpha_s$  symbolizes the case that there are escaped savings that come from

transfer pricing activities. The variable of  $\alpha_t$  symbolizes the case that there are escape savings not from transfer pricing activities but from any other commercial activity. For instance,  $\alpha_t$  could refer to the commercial activities that come from uncontrolled transactions. The variable of  $m$  symbolizes the financial liquidity in an economy. The variable of  $\mu$  symbolizes the consumption in an economy. The variable of  $\alpha_p$  symbolizes the enforcement savings, which come from the citizens and small and medium-sized enterprises. The variable of  $x_m$  symbolizes the condition of financial liquidity in an economy. The variable of  $c_m$  symbolizes the velocity of financial liquidity increases or decreases. The variable of  $c_a$  symbolizes the velocity of escape savings". Therefore, the variable of  $c_y$  symbolizes the term of the cycle of money. Thereupon, the cycle of money shows the level of the dynamic of an economy and its robustness.

#### 4. Results and Discussion

Case study analysis of cy in the current case:

$$c_m = m \quad (15)$$

$$c_a = -m^4 * 10^{-4} * m \quad (16)$$

$$\log c_m = \log m \quad (17)$$

$$\log c_a = \log (-m^4 * 10^{-4}) \quad (18)$$

Based on Equation (14) – (18):

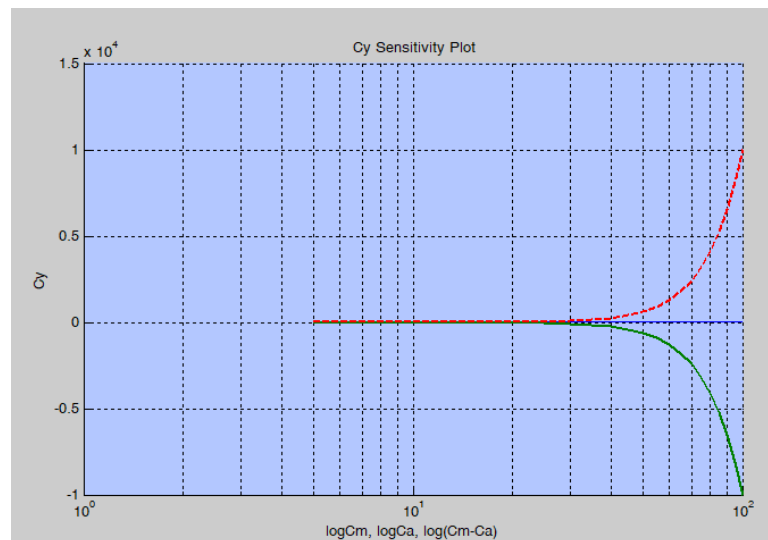


Figure 3.  $c_y = f(\log c_m, \log c_a)$

In this case, financial liquidity is completely identical to the cycle of money. From the prior graph, it is obvious that when the velocity of financial liquidity is higher than the escape savings then the cycle of money is increased geometrically. The absence of financial liquidity ensures that the cycle of money is at its lower level, according to  $c_m = (m - m^4) * 10^{-4}$ .

#### 5. Conclusion

The absence of financial liquidity ensures that the cycle of money is at its lower level, according to  $c_m = (m - m^4) * 10^{-4}$ .

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