

## **The Velocity of Escaped Savings and Maximum Financial Liquidity (On Mixed Savings of Cycle of Money)**

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### ***Abstract***

*This paper is about the comparison of the velocity of cycle of money with the velocity of maximum financial liquidity in the case of mixed savings. This analysis is based on the cycle of money in combination with the velocity of escaped savings with the velocity of maximum financial liquidity with the influence of mixed savings. This means that the escaped savings, the enforcement savings, and the mixed savings are parts of these velocities. Therefore, it compared the velocity of the maximum financial liquidity with the velocity of the escaped savings, using and the mixed savings. that under these economic circumstances, the dynamic of any economy is at its higher level, when there are mixed savings, with the enforcement savings at their maximum level. The method which is used is the Q.E. method.*

**Keywords:** *maximum financial liquidity, escaped savings, cycle of money.*

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## Introduction

This paper analyzes the case of cycle of money with the velocity of maximum financial liquidity with the velocity of escaped savings to the mixed savings. Then, in this scrutiny, the basic principles of the cycle of money are included in the next two sections of this paper. Thence, using the Q.E. method extracted conclusions, about the importance of these velocities in the economy (Challoumis, 2020, 2021c; De Araujo et al., 2020; Engström et al., 2020; Fernandez & Raine, 2019; Gangl & Torgler, 2020; Maier, 2012; Syukur, 2020; Van de Vijver et al., 2020)(Baker et al., 2020; Berg et al., 2020; Gangl & Torgler, 2020; Hagenars et al., 2017; Levi, 2021). Moreover, using this analysis is defined the relation between the velocity of escaped savings, with the velocity of financial liquidity is defined in the case of mixed savings. The contracts and the agreements between the participants of control transactions are those that determine the allocation of profits and losses. The agreements should mention changes that happen in the contracts. This is the reason why the tax authorities should make periodic inspections (Carattini et al., 2018; Carfora et al., 2021; Cascajo et al., 2018; Castaño et al., 2016; Castro & Scartascini, 2019). The periodic 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 (Challoumis, 2023d, 2023e). 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 (Fernandez & Raine, 2019; Siegmeier et al., 2018; Urwannachotima et al., 2020; Van de Vijver et al., 2020; Παπακωνσταντίνου et al., 2013). 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 (Challoumis, 2021f, 2021a, 2021d, 2021e, 2021c, 2021g, 2021h, 2021b, 2022b, 2022a, 2023a, 2023c, 2023b). 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:

$$u = s(zf + \tilde{z}d) \tag{1}$$

$$z = |\tilde{z} - 1| \tag{2}$$

The symbol  $u$  is about the impact factor of the comparability analysis which has any method to the  $s$ . The symbol  $z$  is a coefficient that 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  $s$ . The symbol of  $f$  is about the cost which comes up from the production of goods, and the symbol of  $d$  is about the cost which comes from the distribution of the goods. According to prior equations, it is plausible to determine the following equations:

$$u_c = zf + \check{z}d \tag{3}$$

$$b = (p - u_c) * j_1 \tag{4}$$

The symbol of  $b$  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  $u_c$  is the amount of tax obligations that can be avoided through the allocations of profits and losses. Moreover,  $j_1$  is a coefficient for the rate of taxes. Then, the Eq. (4) shows the case of the arm's length principle. In addition, the case of the fixed length principle:

$$v = p * j_2 \tag{5}$$

The symbol of  $v$  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. Then,  $j_2$  is a coefficient for the rate of taxes in the case of the fixed length principle:

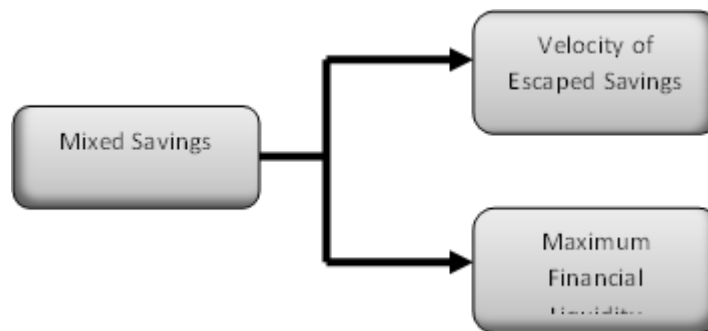
$$v \geq b \tag{6}$$

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 to recovery of the tax losses of the global tax revenue from the controlled transactions of the transfer pricing.

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 1: Mixed Savings considering the velocity of escaped savings and maximum financial liquidity**

The next section presents the theory of the cycle of money. Moreover, the methodology which followed stands on the Q.E. method.

**Literature Review**

The tax revenues correspond to the savings that the companies could have if the taxes were avoided. 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

taxed (De Araujo et al., 2020; Gong et al., 2020; Kominers et al., 2017; Maier, 2012; Olcina et al., 2020; Paes-Sousa et al., 2019). The theory of the cycle of money shows when the savings robust the economy and when the taxes robust the economy/ It is crucial for this determination to 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:

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

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

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

$$\mu = \sum_{i=0}^n \mu_i \quad (10)$$

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

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

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

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

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 escaped 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 (Challoumis, 2019a, 2019b). 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  $c_\alpha$  symbolizes the velocity of escaped 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.

Then, the following basic principles about the cycle of money:

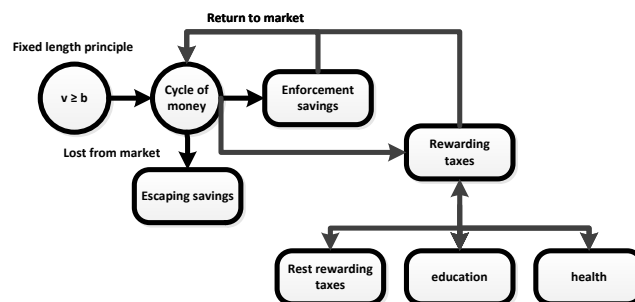
- The citizens, the small and the middle-sized enterprises substitute the services and the property of the companies which save their money and not invest them or consume it proportionally in the economy. Thereupon, the companies of the controlled transactions are the main cause of the escape savings.
- The escaped savings are responsible for the decline of the economic dynamic of the economy. The key point of escape savings is that the companies of controlled transactions of transfer pricing are responsible for not reentering these amounts of money in the market. This situation causes a lack of financial liquidity in an economy.
- The substitution-controlled transactions are not substituted from the citizens and the small and middle-sized companies when it is not plausible to offer the same added value to the products and the services. This case happens especially in the instance of factories, in the

research centers, etc. Therefore, these cases in the appropriate tax policy should be taxed as uncontrolled transactions independently if they participate in controlled transactions (using the fixed length principle).

- The enforcement savings are responsible for the high economic dynamic of the economy. Therefore, investments and consumption are elements that come from the savings of the citizens and the small and the middle-sized companies.
- The velocity of financial liquidity shows how rapidly the economy's robustness grows or declines accordingly. Then is an index for how well structured any economy is.
- The velocity of escaped savings shows how rapidly the non-return savings are lost from the market, or by the lack of investments, or by the lack of consumption.
- The cycle of money represents the condition of the economy. The level of a well-structured tax system, and in general the dynamic of the economy. If this indicator is high, then the economy could have high robustness otherwise has low financial liquidity.
- Controlled transactions in the theory of the cycle of money are considered not only the cases of transfer pricing, but any kind of administration of profits and losses to avoid taxation.
- Uncontrolled transactions in the theory of the cycle of money are the case of the commercial activity of citizens, small and medium-sized enterprises, factories, research centers, and any kind of commercial activity that cannot be substituted by the companies of controlled transactions.
- The fixed length principle tackles issues subjects like the case cycle of money. But this doesn't mean that restriction must apply the fixed length principle as the cycle of money is more widely theory which exceeds the transfer pricing scope.

Therefore, it is obtained that the cycle of money grows when there is a tax system like the case of the fixed length principle which permits the low taxation of uncontrolled transactions and the higher taxation of controlled transactions. Should be mentioned that as uncontrolled transactions are considered the same happens with the cases of the financial liquidity of citizens and the small and middle-sized companies.

Moreover, there are three basic impact factors of the rewarding taxes. The rewarding taxes are the only taxes that have an immediate and important role in the market of any economy. These factors are affiliated with education, with the health system of each society, and with the rest relevant structural economic factors of the prior two impact factors. This issue is illustrated in the next scheme:



**Figure 2: The cycle of money with rewarding taxes**

In the previous figure, it is the case that the tax system includes all the tax factors and all the rewarding tax factors.

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For the mathematical approach to the cycle of money:

$$\mu > \alpha_p > \alpha_t > \alpha_s \tag{15}$$

The symbol of  $U(t)$  is about the utility of the enterprises that participate in controlled transactions. Using Eq. (1) to (15) it is plausible to define the behavior of the utility of the cycle of money. In addition, including the mixed savings  $a_{mi}$ :

$$\alpha_r = a_{mi} + \sum_{j=1}^n (\alpha_r)_j \tag{16}$$

$$\alpha_s = \sum_{k=1}^m (\alpha_s)_k \tag{17}$$

$$\alpha_p = \sum_{j=1}^n (\alpha_p)_j = \alpha_r + \alpha_n * h_n + \alpha_m * h_m \tag{18}$$

$$\alpha_t = \sum_{v=1}^d (\alpha_t)_v \tag{19}$$

$$a = \alpha_s + \alpha_t = \sum_{k=1}^m (\alpha_s)_k + \sum_{v=1}^d (\alpha_t)_v \tag{20}$$

$$m = \alpha_p + \sum_{z=1}^q m_z \tag{21}$$

$$0 \leq a_{mi} \leq 1 \tag{22}$$

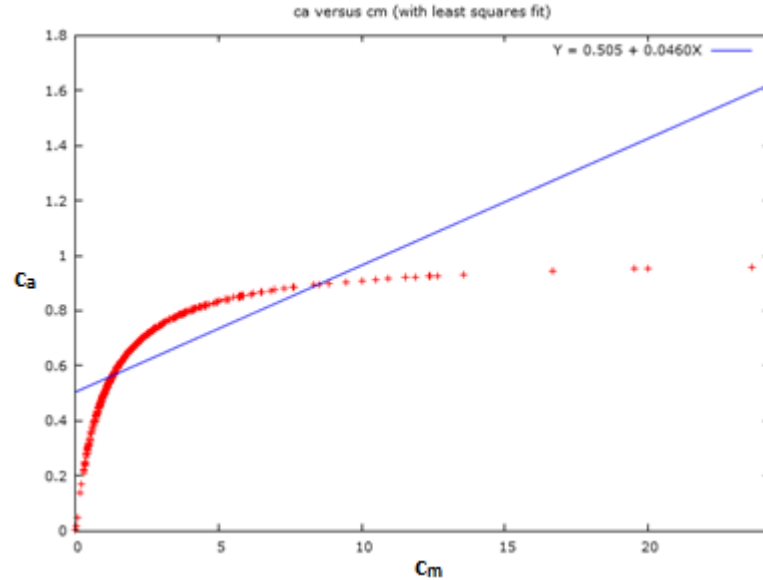
From this point, it seems that both elements of recapitalization and reinvestment are important, as it is concluded that industries and large enterprises in general engaged in the primary sector have a mixed character. Of course, there is a basic condition, it is that they do not carry out controlled transactions. If they participate in controlled transactions then their savings are mainly non-supportive and therefore belong to the excess savings (Ruiz et al., 2017; “The East Asian Miracle: Economic Growth and Public Policy,” 1994). Thus, in the case of industrial units which do not participate in triangular transactions, it is considered that their savings are partly supportive, and partly deferred savings (generally economic units which are not substituted by medium or medium-dynamic economic data). Also, if it is considered that companies engaged in product research and development have a large volume of transactions, then it is understood that they are substituting medium-dynamic research units that would have boosted savings. For this reason, it is considered that this type of savings belongs to mixed savings. They have characteristics of both boosting savings due to their research nature, but also excessive savings because they concern a large volume of transactions.

Variables	Coefficients
$1 - a_{mi}$	0.2
$\sum_{j=1}^m (\alpha_r)_j$	0.6
$\alpha_t$	0.7

Table: Compiling coefficients

The generator of this procedure used the coefficients which appeared in the previous table. Therefore, the factors have an upper limit of 1, and a lower limit of 0, but  $s$  and  $\tilde{s}$  are plausible to

receive values greater than one as their mathematical structure allows this. After 461 iterations the following diagram:



**Figure 3: Velocities of escaped savings and maximum financial liquidity**

Fig. 3 shows that the values of the velocity maximum financial liquidity are higher than the values of the escaped savings, in the case of mixed savings. This shows that under these economic circumstances, the dynamic of any economy is at its higher level, when there are mixed savings, with the enforcement savings at their maximum level.

**Conclusion**

This paper shows that the general behavior of the velocity of maximum financial liquidity is much higher than the velocity of escaped savings when there are mixed savings. This means that the economy has a positive orientation, and therefore the economy in this case is growing rapidly. Since the consumption and the investments in this economy will be at their highest level.

**Appendix**

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%(C)(R)2018 Constantinos Challoumis Q.E. method

as=0;
at=0;
xm=0;
m=0;
m1=0;
ap=0;
cm=0;
ca=0;
cy=0;
t=0;

while t<10
```

```
t=t+1;

if rand()<9
am=0.2*rand();
end

if rand()<9
ar=0.6*rand();
end

if rand()<9
at=0.7*rand();
end

m=(1-am)+ar;
a=at;
xm=m-a;
cm=xm/m;
ca=xm/a;
cy=cm-ca;

tab=[a,xm,m,cm,ca,cy;tab];
end
```

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