



The Velocities of Maximum Escaped Savings with than of Financial Liquidity to the Case of Mixed Savings

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ABSTRACT

This paper is about the comparison of the velocity of the cycle of money with the velocity of financial liquidity in the case of mixed savings. This analysis is based on the cycle of money in combination with the velocity of maximum escaped savings with the velocity of financial liquidity with the influence of mixed savings. This means that used the maximum escaped savings, the enforcement savings, and the mixed savings are parts of these velocities. Thence, we compare the velocity of the financial liquidity with the velocity of the maximum escaped savings, using and the mixed savings. Then, we extract conclusions between these velocities. The method used is the Q.E. method.

Keywords: velocity of maximum escaped savings, mixed savings

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1. Introduction

This paper analyzes the case of the cycle of money with the velocity of financial liquidity with the velocity of maximum escaped savings to the mixed savings. Then, in this scrutiny are used the basic principles of the cycle of money some of which are included in the next two sections of this paper. Thence, using the Q.E. method, I conclude the importance of these velocities in the economy. Moreover, using this analysis is defined the relationship between the velocity of maximum escaped savings, with the velocity of financial liquidity, in the case of mixed savings.

2. Literature Review

The contracts and the agreements between the participants of control transactions are these which determine the allocation of profits and losses. This is the reason why the tax authorities should make periodic inspections. The periodic specification of contracts is important for comparability analysis (Altman, 2012; Goldsztejn et al., 2020b, 2020a; Grove et al., 2020; Howlett, 2020; Menguy, 2020; Schwartz, 2019; Strassheim, 2019; Sultana et al., 2020). These periodic inspections of the companies which participate in controlled transactions are crucial for the arm's length principle (Challoumis, 2018a, 2019d, 2019b, 2019a, 2021b, 2021c, 2021a, 2022, 2023). 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 relate to the taxation of their activities. Therefrom, 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 (Anderson et al., 2020; Bento, 2009; Bestari et al., 2019; Laplane & Mazzucato, 2020; Porter, 2007; Schram, 2018; Torres & Riaño-Casallas, 2018; Wangsness et al., 2020). The interpretation of the condition of the proportional adjustments is that the companies which 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 (Diallo et al., 2021; Domingues & Pecorelli-Pere, 2013). This means that if the companies which 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:

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

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

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 receive is determined by the influence of the method (using the best method rule) to 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 equations from (1) to (2) is plausible to determine the following equations:

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

$$b = (p - u_c) * j_1 \quad (4)$$

The symbol of b in the prior equation is about the amount of taxes that should pay 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 avoid through the allocations of profits and losses. Moreover, j_1 is a coefficient for the rate of taxes. Then, equation (4) shows the case of the arm's length principle. In addition, the case of the fixed length principle:

$$v = p*j_2 \quad (5)$$

The symbol of v in the previous equation shows the taxes that should pay 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:

$$v \geq b \quad (6)$$

The tax for the companies which 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. Thence, 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. The next scheme has illustrated 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:

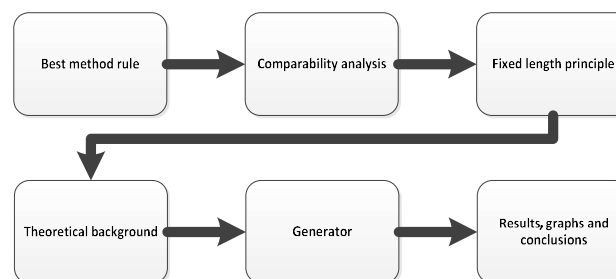


Figure 1: Cost sharing and application of fixed length principle

Fig. 1 determines the procedure of the fixed length principle and its quantity analysis for the determination of the behavior of the model. The next section presents the theory of the cycle of money. Moreover, the methodology which followed stands on the Q.E. method.

3. Methodology

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 could be taxed. The theory of the cycle of money shows when the savings robust the economy and when the taxes robust the economy (Challoumis, 2018c, 2018d, 2018b, 2019c). It is crucial for this determination to be a separation of savings into non-returned savings (or escaped savings) and returned savings (or enforcement savings). For the scope of this analysis below are demonstrated the equations which are:

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

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

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

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

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

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

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

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

The variable of α has symbolized the case of the escaped savings. This means that savings are not returning to the economy or coming back after a long-term period. The variable of α_s symbolizes the case that escaped savings come from transfer pricing activities. The variable of α_t symbolizes the case that escaped savings are not from transfer pricing activities but from any other commercial activity. For instance, α_t could refer to the commercial activities which come from uncontrolled transactions. The variable of m symbolizes the financial liquidity in an economy. The variable of μ symbolizes the consumption in an economy. The variable of α_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_α 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, there are the basic principles of 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 reenter of this amount of money in the market. This situation causes a lack of financial liquidity in an economy.
- The substitution of controlled transactions is not substituted from the citizens and the small and middle size companies when there is not plausible to offer the same added value to the products and the services. This case happens especially in the instance of factories, research centers, etc. Therefrom, 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 these elements that come from the savings of the citizens and the small and middle size 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 is any economy.
- 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 substitute 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.

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 small and middle-size companies.

Moreover, there are three basic impact factors of 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:

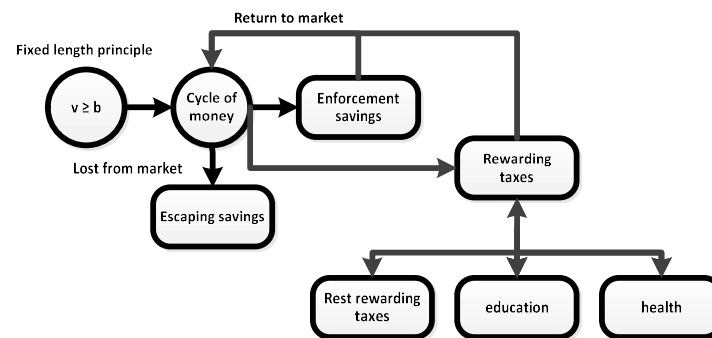


Figure 2: The cycle of money with rewarding taxes

In the previous figure, there is the case that the tax system is included all the tax factors and all the rewarding tax factors.

4. Results

For the mathematical approach to the cycle of money:

$$\mu > \alpha_p > \alpha_t > \alpha_s \quad (15)$$

The symbol of $U(t)$ is about the utility of the enterprises which participate in controlled transactions. Using equations (1) to (15) it is plausible to define the behavior of the utility of the cycle of money:

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

$$\alpha_s = \sum_{k=1}^m (\alpha_s)_k \text{ and } \alpha_t = \sum_{v=1}^d (\alpha_t)_v \quad (17)$$

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

$$a = \alpha_s + \alpha_t = \sum_{k=1}^m (\alpha_s)_k + \sum_{v=1}^d (\alpha_t)_v \quad (19)$$

$$m = \alpha_p + \sum_{z=1}^q m_z \text{ and } 0 \leq a_{mi} \leq 1 \quad (20)$$

In the previous equations, the a_{mi} represents mixed savings. The role of mixed savings is to represent that simultaneously the factories, the research, and the development centers have escaped savings. the α_p , which is also shown in the formula given, as well as the factors α_r , α_n , h_n , α_m and the h_m . The factor α_r shows the influence factor of the rest rewarding taxes. The α_n is concerned with the impact of knowledge and academic expertise. The symbol of α_m is really about the health impact factor and everything relevant and useful to this issue. The symbol of h_n , and of the h_m , are the health parameters and the health impact factor modified. The rest symbols are already defined:

Variables	Coefficients
α_s	0.9
m	0.6
α_t	0.7

Table: Compiling coefficients

The generator of this procedure used the coefficients which appeared in the previous table. Therefrom, 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 extracted the following diagram:

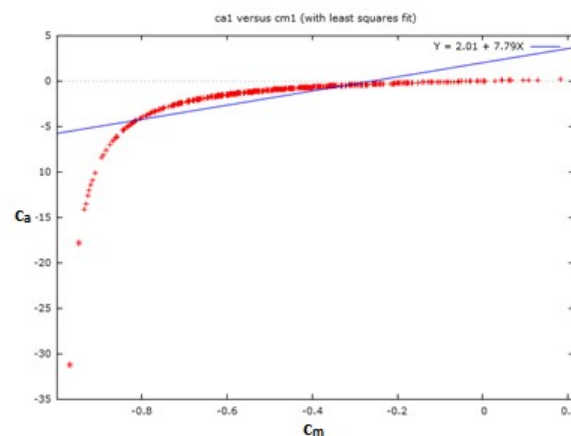


Figure 3: Velocities of maximum escaped savings and financial liquidity

Based on Fig. 3 the values of the velocity financial liquidity are lower than the values of the maximum escaped savings, in the case of mixed savings. This shows that under economic circumstances the dynamic of any economy is weak when there are low mixed savings, showing that the financial liquidity is low.

5. Conclusions

This paper shows that the general behavior of the velocity of financial liquidity is lower than the velocity of escaped savings when there are mixed savings. This means that the economy has a weak economic dynamic, and therefore the economy, in this case, is growing weakly. Thence, consumption, and investments in this economy will be at a low level.

Appendix

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```
as=0;
at=0;
xm=0;
m=0;
m1=0;
ap=0.1;
cm=0;
ca=0;
cy=0;
t=0;
while t<10
    t=t+1;
    if rand()<9
        as=0.6*rand();
    end
    if rand()<9
        at=0.7*rand();
    end
    if rand()<9
        m1=0.9*rand();
    end
    a=as+at;
    m=m1+ap;
    xm=m-a;
    cm=xm/a;
    ca=xm/m;
    cy=cm-ca;
    tab=[a,xm,m,cm,ca,cy;tab];
end
```

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