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The Cycle of Money - Minimum Escape Savings and Financial Liquidity

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Abstract

This paper discusses the velocities of the minimum escape savings and financial liquidity. This means that it examined the behavior of the money cycle under normal conditions while controlling for the velocity of minimum escape savings and the velocity of financial liquidity. Therefore, it has determined how the economy works based on its cycle of money. Escape savings are the savings that leave the economy. The minimum escape savings simultaneously enhance the enforcement savings, leading them to their maximum level. The enforcement savings are the savings that stay in the economy. Thence, it is plausible to extract conclusions about the consumption and the investments in each economy. For this analysis has used a Q.E. method approach.

Keywords: *Cycle of Money; Minimum Escape Savings; Financial Liquidity*

Introduction

This paper examines the behavior of the money cycle when combined with the velocity of minimum escape savings and the velocity of financial liquidity (Bergquist et al., 2020; Cai, 2017; Camous & Gimber, 2018; Goldsztejn et al., 2020; Hai, 2016; Snow, 1988; Spiel et al., 2018; Wangsness et al., 2020). Contracts and agreements between participants in control transactions determine how profits and losses are allocated. The agreements should be mentioned the changes in the contracts (Aakre & Rübbelke, 2010; AL-UBAYDLI et al., 2021; Altman, 2012; Bhuiyan & Farazmand, 2020; Guardino & Mettler, 2020; Michener & Brower, 2020; Rasmussen & Callan, 2016; Swanstrom et al., 2002; Taub, 2015). This is the reason why the tax authorities should make periodic inspections. The periodic specification of contracts is important for the comparability analysis (Challoumis, 2018d, 2019c, 2019a, 2020c, 2021c, 2021f, 2022e, 2022d, 2023ac, 2023b, 2023j, 2023r, 2023m, 2023u, 2024b, 2024f). These periodic inspections of companies involved in controlled transactions are critical to the arm's length principle. The cost-sharing is then determined by conducting periodic checks on tested parties. 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. 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, 2019g, 2020d, 2021e, 2021b, 2021a, 2023e, 2023f, 2023ab, 2023h, 2024e, 2024d; Constantinos Challoumis, 2024). 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, and after that they make a proportional analogy to compare them with their data (Andriansyah et al., 2019; Evans et al., 1999; GVELESIANI, 2019; Khadzhyradieva et al., 2019; Lajas & Macário, 2020; Laplane & Mazzucato, 2020; Miljand, 2020; Torres Salcido et al., 2015; Williamson & Luke, 2020). The production of goods or services creates profits and costs for the companies:

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

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

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 which takes values between 0 and 1 (Challoumis, 2018e, 2018a, 2019b, 2022c, 2023ad, 2023d, 2023g, 2023y, 2023af, 2023p, 2023aa, 2023c, 2023n, 2024g; Constantinos Challoumis, 2023). 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 Eq. (1) to (6) 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 be paid to the companies of controlled transactions in the application of the arm's length principle (Challoumis, 2018c, 2018b, 2019d, 2020b, 2021i, 2021h, 2021k, 2022b, 2023a, 2023i, 2023z, 2023ae, 2023w, 2024c). The u_c is the amount of tax obligations that can be avoided through the allocations of profits and losses (AICPA, 2017; Bakaki & Bernauer, 2018; Diallo et al., 2021; Erickson, 2016; Grove et al., 2020; Sánchez et al., 2020; Schram, 2018; Schwartz, 2019; Victral et al., 2020). Moreover, j_1 is a coefficient for the rate of taxes. Then, the Eq. (4) shows the case of the arm's length principle:

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

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:

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

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 profits and losses (Anderson et al., 2020; Bento, 2009; Ewert et al., 2021; Hausman et al., 2016; Johnston & Ballard, 2016; Loayza & Pennings, 2020; Menguy, 2020; Mueller, 2020; Nayak, 2019). 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 (Abdelkafi, 2018; Domingues & Pecorelli-Pere, 2013; Holcombe, 1998; Howlett, 2020; Kananen, 2012; Kiktenko, 2020; Maxwell, 2020; OECD, 2020; Stone,

2008). 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:

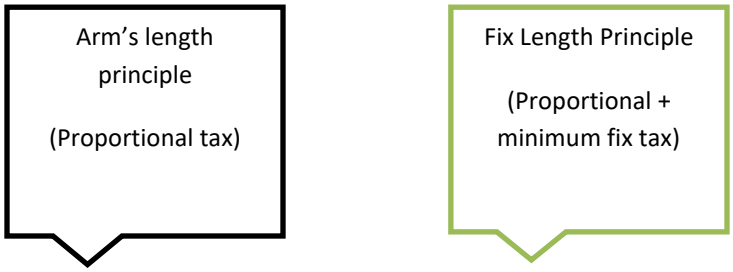

Figure 1: Arm's length principle of fixed length principle

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 cycle of money. The applied methodology is the Q.E. method and its econometric approach.

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 cycle of money shows when the savings robust the economy and when the taxes robust the economy. This determination must be a separation of savings into the non-returned savings (or escape savings) and the returned savings (or enforcement savings:

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

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

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

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

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

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

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

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

The variable of α symbolizes the case of the escape 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 α_s symbolizes the case that there are escape savings that come from transfer pricing activities. The variable of α_t symbolizes the case that there are escape savings not from transfer pricing activities but from any other commercial activity. For instance, α_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 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 escape savings. Therefore, the variable of c_y symbolizes the term of the cycle of money (Challoumis, 2019f, 2019e, 2021d, 2023o, 2023k, 2023q, 2023v, 2023s, 2023ah, 2023ag, 2024a).

Thereupon, the cycle of money shows the level of the dynamic of an economy and its robustness. Therefore, it has been 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 (Bartels, 2005; Delgado Rodríguez & de Lucas Santos, 2018; Deng & Li, 2011; Khan & Liu, 2019; Kongats et al., 2019; Sultana et al., 2020). 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 (Challoumis, 2018f, 2020a, 2021g, 2021j, 2022a, 2023t, 2023l, 2023x). 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:

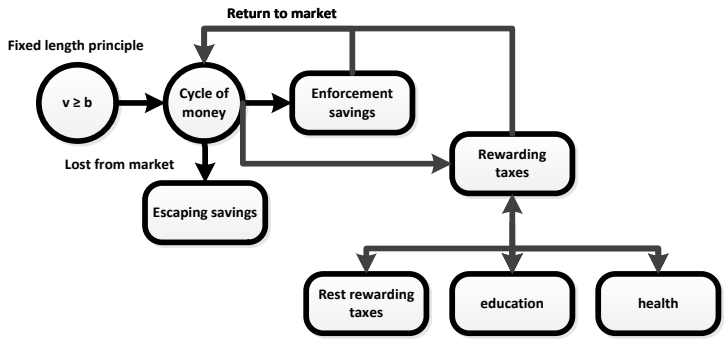

Figure 2: The cycle of money with rewarding taxes

The previous scheme represents the cycle of money additionally with all the rewarding tax factors:

$$\alpha_p = \alpha_r + \alpha_n * h_n + \alpha_m * h_m \quad (15)$$

$$\alpha_r \geq \alpha_n * h_n \geq \alpha_m * h_m \quad (16)$$

In the prior two equations used some impact factors, which are the α_p which is also demonstrated in Eq. (14), moreover the variables $\alpha_r, \alpha_n, h_n, \alpha_m$ and the h_m. The variable $\alpha_r$symbolizes the impact factor of the rest rewarding taxes. The symbol of α_n is the impact factor of education and any technical knowledge (Challoumis, 2019g; Grabs et al., 2020; Hasselman & Stoker, 2017; Jomo & Wee, 2003; Kamradt-Scott & McInnes, 2012; Marume, 2016; Miailhe, 2017; Nash et al., 2017; Oueslati, 2015; Ribašauskiene et al., 2019; Strassheim, 2019; Suslov & Basareva, 2020). The symbol of α_m is about the impact factor of health anything relevant and supporting of this issue. The symbol of h_n, and of the h_m, are the coefficients of the health and the health impact factor accordingly (Aitken, 2019; AL-

UBAYDLI et al., 2021; Altman, 2012; Amanor-Boadu et al., 2014; Andriansyah et al., 2019; Androniceanu et al., 2019; Anguera-Torrell et al., 2020; Arai et al., 2018; Arbel et al., 2019; Azzone, 2018; Baker et al., 2020; Baldwin et al., 2011; Fernando, 2022; Franko et al., 2013).

Results

Using Eq. (6) to (15) it is plausible to proceed to the mixed savings. Using Eq. (1) to (15) it is plausible to define the behavior of the utility of the cycle of money. Moreover, including the mixed savings a_{mi}:

$$\alpha_r = a_{mi} + \sum_{j=1}^{n}(\alpha_r)_j \quad (17)$$

$$\alpha_s = \sum_{k=1}^{m}(\alpha_s)_k \quad (18)$$

$$\alpha_p = \sum_{j=1}^{n}(\alpha_p)_j = \alpha_r + \alpha_n * h_n + \alpha_m * h_m \quad (19)$$

$$\alpha_t = \sum_{v=1}^{d}(\alpha_t)_v \quad (20)$$

$$a = \alpha_s + \alpha_t = \sum_{k=1}^{m}(\alpha_s)_k + \sum_{v=1}^{d}(\alpha_t)_v \quad (21)$$

$$m = \alpha_p + \sum_{z=1}^{q} m_z \quad (22)$$

$$0 \leq a_{mi} \leq 1 \quad (23)$$

In the previous equations the a_{mi} which represents the mixed savings. The role of mixed savings is to represent that simultaneously the factories, the research, and the development centers have escape savings. The rest symbols are already defined.

$$c_\alpha = c_{a0} * ln(c_m - c_{m0}) \quad (24)$$

$$c_{y\alpha} = b_1[(c_a - c_{a0})^2 + c_{y\alpha 0}] \pm b_2\left(\frac{1}{c_a}\right) \pm b_3\left(\frac{1}{ln\, c_a}\right) \quad (25)$$

$b_1, b_2, b_3 = 0$ and x_i (26)

$x_i \geq 0$, where i=1,2

In the prior equations the c_{a0} and the c_{m0} are accordingly the initial values of the velocity of escape savings and the cycle of money. Moreover, the equation of $c_{y\alpha}$ represents the general equation of the escape savings:

$$c_{ym} = b_4[(c_m - c_{m0})^2 + c_{ym0}] \pm b_5\left(\frac{1}{c_m}\right) \pm b_6\left(\frac{1}{ln\, c_m}\right) \quad (27)$$

$b_4, b_5, b_6 = 0$ and x_i (28)

$x_i \geq 0$, where i=1,2 (29)

Eq. (26) is about the general form of the velocity of the cycle of money. The coefficients of b_1, b_2, b_3 took two of them one constant value x_i, and the other one is zero. The same happens with the coefficients of b_4, b_5, b_6 which also two of them take one constant value x_i and the other one is zero. In that way, there are all the possible combinations of velocities of escape savings and financial liquidities to be defined by two concrete equations.

$$c_{y\alpha} = b_3\left(\frac{1}{lnc_a}\right) \tag{30}$$

$$c_{ym} = b_5\left(\frac{1}{c_m}\right) \tag{31}$$

The table of coefficients for the cycle of money is this:

Table: compiling coefficients

Factors	Values
α_s	0.6
α_t	0.7
μ	0.9
α_p	0.8

Applying the Q.E. method with the prior coefficients:

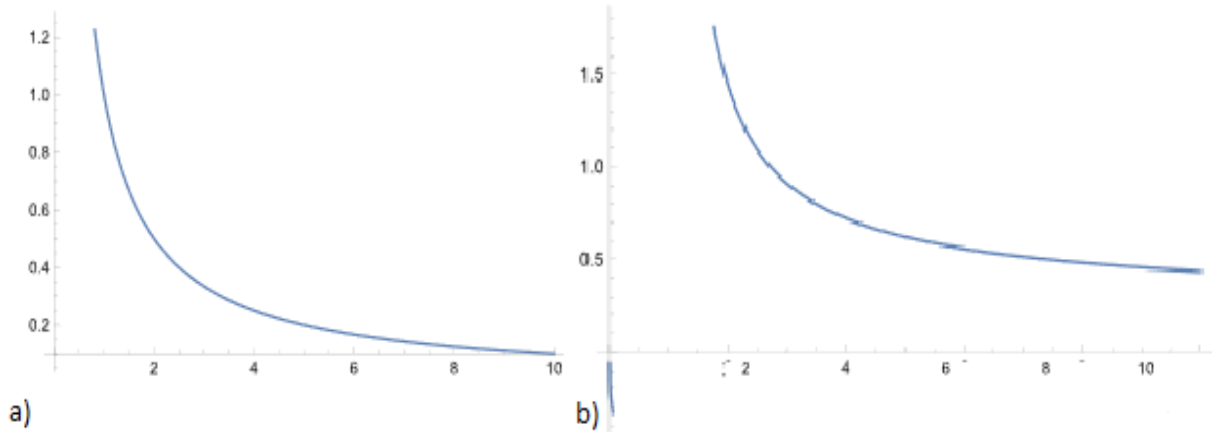

Figure 3: Cycle of money with its velocities

Eq. (29) represents the velocity of escape savings in Fig. 3a. Eq. (30) represents the financial liquidity in Fig. 2b. The velocity of escape savings when it is at its minimum level the financial liquidity has increased offering a higher cycle of money. Therefore, the economy has been boosted.

Conclusions

In this paper, it has concluded that in the cycle of money when there the escape savings are limited the economy has a maximum positive orientation. This means that the consumption and the investments would be increased in any economy, at the maximum level. But, also it has determined that limited escape savings transform the logarithmic form of the velocity of escape savings into a linear form.

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