An Inconsistency in Using Stock Flow Consistency in Modelling the Monetary Profit Paradox

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Abstract

In order to understand from where the profits or monetary profits of capitalists and firms emerge the author examined the phrase of Marx, 'Die Gesamtklasse der Kapitalisten kann nichts aus der Zirkulation herausziehen, was nicht vorher hineingeworfen war.' (The class of capitalists cannot extract from the circulation, what has not previously been thrown in.) Also Keen studied the monetary paradox and contrary to circuitists he came to the conclusion that capitalists can make monetary profit with a possibility to earn enough to repay their debt and with positive balances for all actors. The author will prove that Keen made a fundamental mistake and is using the Stock Flow Consistency Principle in an inconsistent way by combining it with behavior equations in a dynamic model. So the solution presented here is not only showing that the numbers are incorrect but the method itself. This resolves a contraction between Keen and circuitists and implies that, in a Wicksellian pure credit economy, it remains impossible to gain a monetary profit for all actors. More precisely that the total sum of monetary profit over all actors is zero.

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Citation   Marcel R. de la Fonteijne (2014). An Inconsistency in Using Stock Flow Consistency in Modelling the Monetary Profit Paradox. Economics Discussion Papers, No 2014-3, Kiel Institute for the World Economy. http://www.economics-ejournal.org/economics/discussionpapers/2014-3

1. Introduction

In its most simple form the paradox is described as:

A capitalist can put workers to work against wages W. The workers buy the consumer good from the capitalist for C=W. And then the question arise how can the capitalist make a profit from it. For an extensive historical overview on this topic see Tomasson & Bezemer (2010).

In a discussion paper Keen (2010-1) tried to solve the monetary paradox too and came, in contrary to circuitists, to the conclusion that capitalists can make monetary profit with a possibility to earn enough to repay the debt and with positive balances for all actors. I will prove that Keen made a fundamental mistake and is using the Stock Flow Consistency Principle in an inconsistent way by combining it with behavior equations in a dynamic model. The solution presented here is not only showing that the numbers are incorrect but the method itself. This resolves a contraction between Keen and circuitists and implies that, in a Wicksellian pure credit economy, it remains impossible to gain a monetary profit for all actors.

In the published paper (Keen,2010-2) the numbers are different but the fundamental mistake is still there.

2. Analysis

We will follow his reasoning step by step and show where his mistake took place. First he is building a small closed economy with workers, a firm and a bank. He is adding a bank because the argument is that with fiat money each transaction is in principle a tripartite action between buyer, bank and seller. And another argument is that with a bank there is interest involved.

This process results in a stock flow table as Godley [2007] is producing in his Stock Flow Consistency (SFC) approach with corresponding differential equations if behavior function are defined.

The model begins with the banking sector extending a loan Λ to the firm sector; this initializes the system by creating Λ of credit money stored in the F_D account, for which there is a matching
record of debt in F_L.
The minimum set of flows that this creation of credit money sets in train is:
1. Accrual of interest (A) compounds the outstanding debt in F_L at the rate (r_L) specified in the loan contract;
2. Assuming that the firm sector meets its debt-servicing obligations in full, a flow of money (also A) from F_D to B_I offsets the compounding of debt in the first operation;
3. A flow of money (B) from B_I to F_D pays the firm sector interest on its deposits at the rate r_D a lower rate than that charged on debt;
4. A flow of money (C) from F_D to W_D pays wages to workers (who are then employed in factories to produce output for sale);
5. A flow of money (D) from B_I to W_D pays workers interest on their bank balances; and

6. A flow of money (E and F) from both B_I and W_D goes to F$_D$ to pay for the output from the factories owned by the firm sector.

Firms Deposit F$_D$	Worker Deposit W$_D$	Bank Income Bi	
-A		+A	0
+B		-B	0
-D	+C		0
	+D	-D	0
+E+F	-F	-F	0
0	0	0	0

Because F$_L$ is not changing I left it out of the table, so in fact it is a revolving loan.

These conditions can be specified more precisely by making simple constant parameter

substitutions and introducing the following behavior:

1. $A = rL \Lambda$ is the loan rate of interest r_L times the amount outstanding in the loan account F$_L$.

2. $B = r_D F_D$ is the deposit rate of interest r_D times the balance in F$_D$;

3. $C = w F_D$ is some factor (say w) of the current balance in F$_D$

4. $D = r_D W_D$ is the deposit rate of interest times the balance in W$_D$ and

5. $E = \omega W_D$ and $F = \beta B_I$ will be some factor (say ω and β respectively) of the balances in the accounts W$_D$ and B$_I$

Now we can solve for the equilibrium levels of these accounts, which will give us the conditions for F$_D$, W$_D$ en B$_I$.

Note that one of these three equations is redundant due to Walras law (Godley, 2007).

So solving these equations needs another not mentioned equation. Keen is using

$B_I = \Lambda - F_D - W_D$

Because of his choice in using a part of the Bank balance this is not a very beautiful solution but not wrong either.

In equilibrium the solution is

	Workers	Firms	Banks	
A		-5	5	0
B		0,866269503	-0,86627	0
C	242,5555	-242,5554608		0
D	0,093326		-0,09333	0
E	-242,649	242,6487873		0
F		4,04040404	-4,0404	0
	0	0,0000000	0	0

	balance	initial	monetary profit
Fd	86,62695	100	-13,373
Wd	9,332646	0	9,332646
Bi	4,040404	0	4,040404
	100	100	0,00

So far so good.

Now comes the tricky part. Keen is changing to a complete new problem by introducing a new equation for mark-up.

He is therefore introducing the following equation:

$$w = \frac{1 - s}{\tau_s}$$

Aggregate wages are therefore

$$W = \frac{1-s}{\tau_s} FD$$

Since national income resolves itself into wages and profits Keen argues (interest income is a deduction from other income sources), we have also identified that gross profit Π equals

$$W = \frac{s}{\tau_s} FD$$

and GDP Y equals

$$Y = \frac{F_D}{\tau_s}$$

The problem is that with introducing these equation this results in a strong interdependence of the parameters used. So once you choose τ_s than s can be calculated (iteratively).

As an example Keen let s = 0.3 and τ_s = 0,25. Together with the calculated equilibrium value F_D resulting in

	Keen	Equilibrium
Wages	242,5555	242,5555
Profit	103,9523	4,13373
Y	346,5078 E+F	246,6892

That leaves us with the question why E + F is not equal to Y if we are talking about the same system and again this is because the system has changed and is no longer SFC.

Fortunately we can avoid this inconsistency by choosing s= 0.012506, in which case we are at a new equilibrium with a stabilized monetary loss of -16.70 and again a net profit of zero.

	balance	initial	monetary profit
Fd	83,29966	100	-16,7003
Wd	12,65993	0	12,65993
Bi	4,040404	0	4,040404
	100	100	0,00

So it is not possible to repay in this case the initial loan in no matter how many years.

3. Conclusion: the proposed solution is wrong

- From a mathematical point of view, because the introduction of the new formulas makes the system inconsistent except for s=.012506
- From a fundamental point of view, because in a closed system the total of the financial assets cannot change, so $\Delta F_D + \Delta W_D + \Delta B_I = 0$ (de la Fonteijne, 2013), which also applies to a Wicksellian pure credit economy.
- From a sustainable and philosophical point of view, because otherwise Keen would have created a monetary money making machine with unlimited capacity, which can be considered as a perpetuum mobile.
- From an economical point of view, because you cannot increase Y as you please and because of the strange choice of modelling behavior on the opposite extreme of what Godley [2007] is using throughout his book.

Acknowledgement

Literature

- Bruun C. & Heyn-Johnsen C., 2009, *The Paradox of Monetary Profits: An Obstacle to Understanding Financial and Economic Crisis?,* Aalborg University
  http://www.economics-ejournal.org/economics/discussionpapers/2009-52
- de la Fonteijne, M.R., 2013, *Profit for Capitalists and Monetary Profit for Firms - A fundamental approach*, to be published soon
- Godley, W. & Lavoie, M., 2007. *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth*, Palgrave MacMillan. ISBN 0-230-50055-2
- Keen, S., *The Circuit Theory of Endogenous Money,* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.188.8499&rep=rep1&type=pdf
- Keen, S., 2010-1, *Solving the paradox of monetary profits*, Economics Discussion Papers, No. 2010-2, http://hdl.handle.net/10419/29536
- Keen, S., 2010-2, *Solving the paradox of monetary profits*, Vol. 4, 2010-31, http://dx.doi.org/10.5018/economics-ejournal.ja.2010-31
- Keen, S., 2011, *Behavioral Finance Lecture 07: Endogenous Money & Circuit Theory*, video, http://www.debtdeflation.com/blogs/2011/09/15/behavioral-finance-lecture-07-endogenous-money-circuit-theory/
- Tomasson, G. and Bezemer, D., 2010, *What is the Source of Profit and Interest? A Classical Conundrum Reconsidered*, Munich Personal RePEc Archive, 29 Januari 2010, http://mpra.ub.uni-muenchen.de/21292/1/MPRA_paper_21292.pdf

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