

Discussion Paper

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The Finance–Growth Nexus Revisited: From Origins to a Modern Theoretical Landscape

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I have some remarks and suggestions to your paper:

I think the paper is a well made review on economic growth theory which tries to relate financial growth to GDP growth. Of course it can not contain every ansatz made in the last decades, especially as a lot of them are mathematically redundant. It was instructive to read as a review.

I just like to point here to an import general critics to classical growth theory and a related paper, which should eventually be added regarding the modern ansatz. The failure of standard growth theory to model the nexus between financial assets and economic growth arises always from the same misunderstanding how to construct models.

(1) First of all we can be sure from general understanding of economy that there is a (in details unknown) nexus between finance and GDP growth. This is indeed undisputed, but the question is how it works in time and why can be there a crisis, although central banks can (and do) create as much money as they like?

The fact related to pure mathematics is now: A ansatz like $Y = f(K)$ can never give a reliable answer¹ to this question. The reason is just simple: The mathematical answer to a function is never a function. The answer(s) are always just pairs of numbers. The mathematical gadget to find functions as an answer is always differential calculus. And as there is a nexus, we need at least two (for Y and K) coupled, but linear independent, differential equations to get a reliable answer just by mathematical modeling premise:

$$\frac{dY}{dt} = f(Y, K) \quad \wedge \quad \frac{dK}{dt} = g(Y, K)$$

is the absolute minimum requirement for a growth model to be taken into consideration.

Despite the numerous possible choices of such systems of differential functions, even the simplest possible non-trivial ansatz shows, that then the calculation² gets correct results for GDP and Capital growth, their dependencies and the time and reason for crisis and decline.

1 which says GDP Y is any function of capital K, just like the shown ansatz in your paper like AK-Model, which reads in principle like $\frac{Y}{K} = A(t) \Leftrightarrow Y = A \cdot K$ or your cited ansatz $Y_{it} = \alpha_0 + \alpha \cdot F_{it} + \beta \cdot X_{it} + \epsilon_{it}$. In the case $Y=f(K)$ the answers Y and K (or parts of it like F) are invested by the scientist himself. To say it simple: writing down $Y=f(K, +parameters)$ is writing down the answers I was looking for by myself. A second important short cut is: For searching two unknowns (here Y and K) we would need at least two linear independent (differential-) functions.

2 For this simplest ansatz you may read the paper D.Peetz, H.Genreith, “The financial sector and the real economy”, real-world economics review, issue no. 57, 2011 : <http://www.paecon.net/PAERReview/issue57/PeetzGenreith57.pdf>

(2) The second problem of classical growth theory is as well important: To calculate the impact of financialisation on GDP one has to take into account all products of an economy, also all financial products. Only then the outcome will be correct. As a simplified³ argument we can have a look at the quantity equation $KV=HP$. We just have to split it up into real economy and financial products, which reads:

$$KV = M_R V_R + M_I V_I = H_R P_R + H_I P_I = HP$$

rearranging it gives:

$$(M_R V_R + M_I V_I) - H_I P_I = H_R P_R$$

and by definition

$$KV > KV - H_I P_I = H_R P_R = Y \quad .$$

The (here just simplified) thing is: The demand on financial products makes the money available for GDP smaller. As K and Y are growing in time (not equally), this effect comes to significance not until the total capital coefficient⁴ grows beyond $\frac{K}{Y} > 3$. This is exactly the fact you mentioned in your conclusion: *“Yet, it happens until a threshold is reached, when more finance is no longer more growth.”*

With best regards

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³ The whole theory can be read on <http://genreith.de/index.php?id=economics-of-growth-and-crisis>

⁴ The total capital coefficient means, that we take into account the whole of all assets (sometimes referred to as the whole debt owned to market) for K .