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**Working Paper**

## Keynesian capital theory: Declining interest rates and persisting profits

Hohenheim Discussion Papers in Business, Economics and Social Sciences, No. 10-2019

**Provided in Cooperation with:**

Faculty of Business, Economics and Social Sciences, University of Hohenheim

*Suggested Citation:* Spahn, Peter (2019) : Keynesian capital theory: Declining interest rates and persisting profits, Hohenheim Discussion Papers in Business, Economics and Social Sciences, No. 10-2019, Universität Hohenheim, Fakultät Wirtschafts- und Sozialwissenschaften, Stuttgart, <https://nbn-resolving.de/urn:nbn:de:bsz:100-opus-16720>

This Version is available at:

<https://hdl.handle.net/10419/206403>

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UNIVERSITY OF  
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Hohenheim Discussion Papers in Business, Economics and Social Sciences

# KEYNESIAN CAPITAL THEORY, DECLINING INTEREST RATES AND PERSISTING PROFITS

**Peter Spahn**

University of Hohenheim

Institute of Economics

10-2019

Discussion Paper 10-2019

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and Persisting Profits**

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ISSN 2364-2084

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# Keynesian Capital Theory, Declining Interest Rates and Persisting Profits

Peter Spahn\*

October 2019

## *Abstract*

The current debate whether zero interest rates are caused by a saving glut or a liquidity glut is resolved by the distinction between the market and the natural rate, where saving affects only the latter variable, and monetary policy mainly the first. This topic is linked to a second one: the monetary determination of the rate of profit in Keynesian capital theory. Both topics merge in a critical review of Keynes's vision of the "euthanasia of the rentier". The data show however that we have not reached a state of capital satiation. The rising gap between the rate of profit and the rate of interest poses a challenge for capital theory.

*Key words:* saving vs. liquidity, zero interest rates, capital satiation

*JEL Classification:* B1, E4, E5

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## 1. Introduction

This paper aims to bring together two strands of discussions on interest rate theory. One is the current controversy on a savings glut vs. a liquidity glut as determining factors of low interest rates. The other is the claim of Keynes's capital theory to deliver – in response to Böhm-Bawerk's critique of the classical surplus approach – a monetary foundation of the rate of profit in equilibrium. Both lines of argument join up in Keynes's prediction that steady accumulation and expansive monetary policy will lead to a kind of stationary state where capital income has been eroded. But only half of this vision has come true: interest tends to zero, whereas profit rates still are on the rise.

As for the first topic, low interest and growth rates, the scientific problem is hardly to find new explanations. "The decline in global real rates is, if anything, *over-explained*" (Gourinchas 2017: 44). An attempt to classify the various contributions finds, almost typical for economic theory controversies, competing "real" and "monetary" views, roughly associated with neoclassical and Keynesian camps. One of the key arguments of the former group is the familiar story of over-saving, motivated primarily by demographic reasons, so that with nominal interest rates pegged at the zero-lower bound and low inflation, the real interest rate cannot match its "natural" equilibrium value – and stagnation ensues (e.g. Weizsäcker 2014; Rachel/Summers 2019). Critics belonging to the latter group point to the empirical evidence of monetary policy influencing the real interest rate even in the long run, which implies that current macro-financial conditions are not independent of central bank strategies (e.g. Borio et al. 2017; 2019).

Both views are not necessarily incompatible as the firstly mentioned approach is concerned with the (hypothetical or normative) equilibrium interest rate, whereas the second focuses on drivers of the market rate (almost needless to say that ample confusion of both rates can be found in the literature). But below the surface of these debates, some unsettled questions of capital and monetary theory reappear: Under what conditions can real and monetary views on low interest rates be reconciled? Does the natural rate act as an attractor of market rates or do we, to the contrary, identify long-run monetary non-neutrality?

This paper addresses these questions and the debate on declining interest rates in general through the lens of Keynesian capital theory. The task is to review the state of this theory, compared to the neoclassical intertemporal approach of explaining interest and profit. Moreover, the paper asks in what way we experience the verification of

Keynes's vision of the "euthanasia of the rentier". The current state of financial markets, with savers desperately searching for positive yields at reasonable risk, apparently confirms Keynes's view who saw "the rentier aspect of capitalism as a transitional phase which will disappear when it has done its work" (1936: 376).

The program of the paper is as follows. After a short review of capital theory and its key topic, explaining a steady equilibrium yield of reproducible capital goods under competitive market conditions (*Section 2*), it is shown that Keynes's contribution to the theory of interest and profit rates suffers from his decision to abstract from the credit market in the *General Theory*; in mainstream economics, liquidity preference was appreciated as a mere disturbance term in the money market but not as a fundamental element in capital theory. Nevertheless, compared to the neoclassical idea of time preference, Keynes's concept of a liquidity premium is well suited to offer a foundation for capital profit if framed as an element of credit supply (*Section 3*).

Wicksell's "natural" rate of interest, interpreted as a goods-market equilibrium benchmark, is indispensable for macro theory and practical monetary policy (*Section 4*). Weakness of, in particular, consumption demand can require a negative natural rate, but is unable to lower market rates; the contrary popular view in current debates confuses saving and liquidity (*Section 5*). Policy interest rates follow the natural rate decline, but the resulting regime does not resemble Keynes's vision of capital abundance: despite zero interest rates, capital yields are even on the rise. This gap has to be explained by risk factors and monopolistic rents (*Section 6*).

## **2. Capital theory: a quick refresher**

The traditional topic of capital theory is "to explain how, under stationary conditions, the possession of capital can remain a permanent source of income" (Wicksell 1934: 154), whereby, in the case of capital goods, we speak of a rate of profit and, in the case of financial assets, of a rate of interest. The sequence of answers, given in history of economic thought, is well known: Classical theory pointed to the difference between average labour productivity and the real wage, named exploitation by Marx, giving rise to a surplus that was shared between entrepreneurs and investors. However, a steady positive flow of capital income in equilibrium is a "theoretical difficulty" (*ibid.*) because, as Böhm-Bawerk and Schumpeter argued, any surplus should be distributed to the owners of scarce means of production (basically land and labour) in a competitive process if

there are no barriers to market entry.

In order to explain capital profits, Schumpeter then resorted to the idea of market imperfections, leading to monopolistic quasi-rents, whereas Böhm-Bawerk and Fisher initiated the development of a neoclassical theory of the rate of interest building primarily on the concept of time preference. This approach extends the theory of relative-price determination by attributing a "time stamp" to goods and services so that trades on the timeline become feasible, in principle. The rate of interest then is defined as the relative price of present and future goods. However, a uniform natural rate of interest, as the foundation of an equilibrium rate of profit, cannot be derived along these lines: there are as many natural rates as there are commodities. Sraffa (1932) directed this fundamental critique towards Hayek (1931a), a key proponent of intertemporal price theory, who just before had deplored that Keynes's (purely macroeconomic) theory of profit, put forward in the famous "fundamental equations" of his *Treatise*, lacked a proper micro-foundation (Hayek 1931b, cf. Zouache 2008).

Keynes, who seemed to be impressed by Hayek's reproach at first, later showed no apprehension or sympathy for Austrian intertemporal price theory, because this approach allowed no proper distinction between the rate of interest and prospective yields of investors (1936: 192-93). Keynes's own capital theory took up the threads of the discussion of the classical view – albeit with major modifications. In his *Sundry Observations on the Nature of Capital*, Keynes professed to the "doctrine that everything is *produced by labour*" (1936: 213). This does not mean to say that a labour theory of value is an appropriate explanation of relative prices, but rather that an understanding of property income cannot be built of the concept of a surplus.

But Keynes only subscribed to the critical part of Böhm-Bawerk's work, not to his positive theory of capital. To the above statement he added a lengthy critique of Böhm-Bawerk's (1891: ch. V.IV) argument of "roundabout production" (i.e. lengthening the period of production) as a second pillar of a theory of interest (besides time preference). The key point, already raised by Fisher (1907: 73), Marshall (1920: 485n), Fetter (1927), and later by Schumpeter (1954: ch. IV.6.5.a), is that technical efficiency gains might increase productivity in physical, but not in value terms; thus Böhm-Bawerk falls victim to the same fallacy that he had accused the classical economists of.

Whereas, in the classical tradition, the return on (real and financial) capital was derived from the productive power of machinery, Keynes (1933/34) on the contrary argues that it is a positive rate of interest which keeps capital scarce so that new invest-

ment and, in turn, the capital stock yields a positive rate of return.<sup>1</sup> Here it is assumed that a positive sufficient demand for employing additional capital exists – for whatever reason: Böhm-Bawerk insisted on yields from roundabout production; Fisher (1907: ch. IX) more generally pointed to some "opportunity to invest"; and Keynes introduced the "marginal efficiency of capital" (where he emphasised its *value* character). However, compared to this second pillar of interest rate theory, it is the first pillar which is essential: without any restriction on the supply side of the capital market, competition will drive rents from employing capital, and interest rates paid on loans and bonds, to zero (Weizsäcker 1962: 5, 31).

Neoclassical and Keynesian theories differ on the reason given for these supply side constraints. The former refer to time preference that regulates some kind of resource lending. Keynes in no way ignores time preference on the microeconomic level, but points to a degree of freedom when it comes to an explanation of macroeconomic consumption:

"For a single individual the notion of time preference is fairly clear. Given all the relevant attendant circumstances which are fixed for me by the actions of others including my income [...] and the prices, actual and prospective, of debts, assets and consumables, it is my state of time preference which determines what part of my income I spend on consumables and what part of it I reserve. [...] But when we try to deduce from the general state of time preference [...] what part of the community's aggregate income will be spent and what part will be reserved, we are soon in difficulties. For the amount of total expenditure responds immediately to the amount of total income, whilst, for the community as a whole, the amount of total income depends not less directly and immediately on the amount of total expenditure. We are therefore on shifting sands, and must approach our goal more circumspectly and by a different route" (Keynes 1932: 400).

In order to understand interest rates, Keynes propagates liquidity preference as the essential force. Two main arguments support his view:

- Time preference expresses a desired time structure of consumption. This might correspond to a specific pattern of lending and borrowing which centres on the distribution of resource *flows* over time. Time preference also curbs the accumulation of a *stock* of wealth (which agents for many reasons, including uncertainty and old-age provision, find advantageous in a market economy), but obviously does not shape its structure.

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<sup>1</sup> It should be emphasised that Keynes claimed to present an equilibrium theory of interest and profit whereas Schumpeter offered a dynamic disequilibrium approach. This distinction with regard to capital theory is sometimes overlooked in post-Keynesian contributions that aim at a "Schumpeter-Keynes fusion" (Bertocco 2007).



Usually agents wish to keep wealth, designed for some future use that they do not want to specify today. Decisions on the optimal structure of wealth keeping (capital goods, real estate, bonds, loans, money) then are obligatory, and they do not depend on time preference, but – besides risk factors – on liquidity preference.

- Apart from renting a car or a flat, lending in kind has no major role to play in market economies; credit is offered and demanded in monetary terms.

On this account one might expect that Keynes would have won the battle on capital theory in the history of economic thought. But at least Keynesians regret that this is not the case. Productivity and thrift still are considered as the fundamental causes of the rate of interest, at least in the mainstream branch of economics.

### 3. From money demand to credit supply

A most important reason for this failure of his capital theory is that Keynes omitted to integrate his innovative concept of liquidity preference<sup>2</sup> into an analysis of behaviour on a (widely defined) credit market; it is rather introduced as a new demand aspect in the "money market" (which, as an accounting identity, mirrors transactions on all proper markets<sup>3</sup>). Readers of Keynes's work might easily get the impression that he avoided the use of the credit market as a macroeconomic tool like the plague. A reason can be found in his obvious dislike of the Loanable Funds approach that had developed from the famous saving-investment image (Keynes 1936: 183). This neoclassical view seemed to mix and add up real and monetary variables in a for Keynes most confusing way<sup>4</sup> so that he preferred to ignore the "saving-investment market" altogether.

He also felt justified to do so because, due to his poor capability to understand German scientific work, he impermissibly identified Wicksell with the "old" view of saving and investment in terms of resources, equalised by the rate of interest and not by in-

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<sup>2</sup> Some hints to liquidity preference can already be found e.g. in Pigou (1912: 424) and Lavington (1921: 30).

<sup>3</sup> There is no evidence that Keynes ever thoroughly dealt with Walras Law. He approved though Hicks's (1937) early formal representation of the *General Theory* which has a Walrasian background that was clear for Hicks, as he stated later (1980/81), but which was not explicit in the early paper.

<sup>4</sup> The Loanable Funds view can be summarised by an equation that has saving and additional bank credit on one side, and investment plus money hoarding on the other (see e.g. Hayes 2010).

come variations. Therefore Keynes was unable to fully grasp the innovative content of Wicksell's contribution to monetary macroeconomics, which can be seen in the separation of the bank rate and the natural rate (more on this in *Section 4*), and in starting the exploration of the macroeconomic disequilibria that ensue as a consequence from interest gaps (Leijonhufvud 1981; Boianovsky 2019).

Keynes's choice to present his message by using a modified money demand equation instead of credit supply had an unintended consequence. Critics in later times negated the "fundamental" status of his theory, liquidity preference appeared as a mere disturbance term unable to dethrone the "deep" habit of time preference. Already Hicks (1937) had named the *General Theory* a theory of depression, and in subsequent decades it was widely understood as describing a market economy in disequilibrium, characterised by sticky wages and prices, adverse expectations and not "well-behaved" money demand. Keynes's attempt to provide some kind of microfoundation for money demand by referring to Sraffa's concept of own-rates of interest in Chapter 17 of the *General Theory* remained contentious even among non-mainstream writers (Barens/Caspari 1997; Kurz 2010; Grieve 2015).

There are only a few hints to the credit market in the *General Theory*. In a footnote, Keynes (1936: 186) mentions that "interest is a payment for borrowing money", and we find references to lenders' risk (144, 158), where the state of confidence is an influencing factor, but liquidity preference does not show up in this context. Only after the publication of his book, when he had conceded that the financing of investment deserved more attention, Keynes (1937a: 213) states that

"the rate of interest [...] has to be established at the level which, in the opinion of those who have the opportunity of choice – i.e. of wealth-holders – equalises the attractions of holding idle cash and of holding the loan".

An important analytical advance then was suggested by one of Keynes's young followers who stressed that a liquidity premium should be strictly separated from default risk:

"The reluctance to part with liquid money [...] has its origin in the doubts of wealth-owners as to what may happen to values *before the end of any interval, however short*" (Townshend 1938: 290).

This was fully confirmed by Keynes (1938):

"An essential distinction is that a risk premium is expected to be rewarded on the average by an increased return at the end of the period. A liquidity premium, on the other hand, is [...] a payment, not for the expectation of increased tangible income at the end of the period, but for an increased sense of comfort and confidence during the period."

As default risk is assessed to be insurable, at least if organised lending on a large scale is concerned, a Keynesian explanation of a positive rate of interest is the liquidity premium attributed to money as the only means of payment. In this context, the factor uncertainty as an exogenous shift parameter modifies the position of the credit supply function as it affects the perceived need of staying liquid.

Keynes (1935) even stressed that the rate of interest is "essentially [!?] based on uncertainty", but this should be taken as an exaggeration, and not as an analytical statement. Interest is the price for disposing over liquid means of payment (see e.g. Keynes 1937b), and the need for liquidity, a decentralised medium that settles contracts, stems from the organisation of society as a market economy; this has to be distinguished from the truism that the state of the world is uncertain. Of course, the subjective assessment of the *degree* of market uncertainty influences the preference for liquidity. *Given* money supply, this will impact on the level of interest rates.

If we conceive of private-agent lending, the asset side of a wealth owner's balance sheet is restructured by substituting loans for money holdings, and the concomitant loss of the portfolio's degree of liquidity has to be compensated by an interest payment. This interrelationship can also be described in terms of money user costs:

"If the 'use' of money is defined as becoming 'illiquid', then the premium that is required to convince individuals to become illiquid and to part with money is the equivalent of the 'user cost' of money. Liquidity preference determines this liquidity 'premium'" (Kregel 1998: 123).

Further arguments that substantiate the liquidity premium include the avoidance of transaction costs when better loans or investments become available only after decisions are made and portfolios cannot be adjusted without some disadvantage; basically this points to money holding as a kind of an option purchase (Hahn/Solow 1995: 144). This line of thought can be generalised: highly liquid assets allow to postpone binding investment decisions, until the perceived state of uncertainty is improved through obtaining more information. "The social function of liquidity is that it gives time to think" (Hicks 1974: 57; cf. Jones/Ostroy 1984).

Turning now to bank lending, extending credit does not entail a restructuring of the asset side, but a lengthening of balance sheets. In former times, commercial banks' liquidity preference – expressing the risk of becoming illiquid – motivated the holding of liquid reserves, but now in most countries this has been replaced by a liquidity-on-demand provision by the central bank. This historical-institutional change implies a fun-

damentally different market architecture: whereas with a "given" quantity of money, liquidity preference determines the rate of interest, in the case of endogenous central bank money supply the (short-term) rate of interest becomes a policy variable.<sup>5</sup>

This consequence is hardly affected if we reintroduce a fluctuating households' and firms' money demand because shifts between cash and deposits can also be compensated by monetary policy operations without altering the rate of interest. The "speculative motive" however maintains some influence over the long-term bond rate. The upshot is that, in a developed modern monetary economy, liquidity preference remains a factor affecting portfolio choice of private agents (including commercial banks) whereas the rate of interest to a large extent is determined by monetary policy.

Thus we arrive in a full circle back to Marx who – much appreciated by Keynes (1933a) – captured the core of capitalism in his famous formula M-C-M', but now with the decisive modification that the fundamental force causing positive capital income in equilibrium is active *before* the process of production commences: besides loss aversion, it is a liquidity premium that financial investors (as creditors of entrepreneurs) attribute to their holding of money proper (Riese 1987). If classical theory is seen through the lens of the neo-Ricardian approach, the Keynesian view now shows a close fit to Sraffa's (1960: 39) remark that the degree of freedom in the classical theory of income distribution can well be closed by determining a uniform rate of profit "from outside the system of production, in particular by the level of the money rates of interest". Keynesian capital theory thus finally leads to a kind of a central bank theory of the profit rate<sup>6</sup>, in other words: the equilibrium rate of return is not based on "real fundamentals", i.e. a set of variables from which liquidity preference usually is excluded.

#### 4. Money rates and natural rates

It appears that not many economists stand ready to subscribe to this view of Keynesian

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<sup>5</sup> For Kaldor (1986: xvii) therefore, liquidity preference ceases to be an important concept.

<sup>6</sup> In order to make this channel of transmission comparable to the neoclassical story, where time preference is seen to dominate lending supply or bond demand, one has to assume that short-term policy interest rates show a stable relationship to capital market rates. For well known reasons, this relationship is less than perfect. Nevertheless, modern neo-Keynesian macro theory mostly ignores this problem. In practical policy making, central banks respond by manipulating the short-term rate until the favoured effect on the bond rate is realised (or practise Quantitative Easing nowadays).

capital theory as it seems to imply that central banks can determine the rate of profit at will. But of course, monetary policy, under ordinary market conditions, is in no position to make arbitrary decisions, at least if the central bank's charter commands the preservation of the value of money. The profit rate is thus linked, but surely not equal, to the interest rate that clears the goods market. Again, this corresponds to neoclassical theory where time preference (agents wanting to consume parts of future permanent income already in the present) causes a latent excess demand problem that makes the central bank to appear on the scene.

Modern macro theory, centred around the neo-Keynesian model, focuses in a Wicksellian style on the gap between the bank (or money) rate and the natural rate. The latter, in an unchallenged neoclassical tradition, is seen to be basically determined via time preference, i.e. the discount rate of the representative agent. The neo-Keynesians (e.g. Woodford 2003) explicitly refer to Wicksell who, in the establishment of his saving-investment approach, at first stated that the natural rate corresponds to the equilibrium rate of an intertemporal, non-monetary barter market, where capital goods are borrowed in kind, although he stressed that such a market *does not exist* in a monetary economy (1898: xxvi, 102, 108-09, 135).<sup>7</sup>

Keynes (1936: 242-43) disliked Wicksell's notion of the natural rate, arguing that there is no unique rate where investment equals saving, but one for each income level. This is true, but Wicksell defined his natural rate unambiguously by referring to a macroeconomic equilibrium that preserves price stability. He did not deal with the labour market explicitly, his equilibrium nevertheless corresponds to full employment in analytical terms: a constellation without demand-driven wage-price dynamics. Keynes, somewhat reluctantly, finally suggests the term "neutral" rate of interest for the full employment case, but that's what Wicksell's natural rate is all about. Any macro theory needs an equilibrium interest rate along these Wicksell-Keynes lines. Modern economists (e.g. Rachel/Summers 2019) often use the notions "natural" and "neutral" rates without elucidating the difference.<sup>8</sup>

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<sup>7</sup> Neo-Keynesians even fall behind of Wicksell as they basically model a non-monetary economy where interest rate changes affect the distribution of demand over time, but money has no active role to play. This is kept up even in model versions including commercial banks, which are seen as institutions collecting and lending resources (Boianovsky/Trautwein 2006; Jakab/Kumhof 2015; Borio 2019).

<sup>8</sup> Keynesians tend to dismiss the natural rate in one fell swoop with the rejection of the Loan-

Keynes's attempt to dissociate himself from the natural rate indirectly draws attention to an essential point: Wicksell's implicit identification of the imaginary case of physical lending between savers and investors with macro equilibrium. This amounts to the analytical hypothesis that a non-monetary barter economy ensures full employment, and it is only through the intermediary "disturbing" forces of money and banking that disequilibria on a macro scale can occur. Interestingly enough, Keynes in his outlines on a *Monetary Theory of Production* (1933a; 1933b) conveys the same association: he confronts a "money-wage or entrepreneur economy" with a "real-wage or co-operative economy", where, in the latter, workers always are able to make contracts on the real wage and, therefore, preserve positions on their labour supply curve; also shocks to goods demand are said to be smaller than in a monetary economy.

This line of reasoning, which asserts that money evokes uncertainty, hampers investment and production, and tends to undermine the coherence of a market economy, is widely shared in post-Keynesian circles.<sup>9</sup> However, this argument attributes a problem to money that actually is caused by the division of labour: if agents do not use their own products, but want to exchange them against other commodities, this is all the more imponderable if there is no generally accepted means of payment. It is a preposterous idea to believe that there is no unemployment in a barter economy. Seen from this angle, money *reduces* uncertainty (Hahn 1977; Gale 1982: 182).

Instead of the gap between the natural (or neutral) rate and the bank rate, Keynes is more focussed on the gap between the bank (or market) rate and the "marginal efficiency of capital". The latter is an ex-ante, i.e. expected yield governing new investment from the demand side that has much in common with Fisher's "opportunity to invest", the hypothetical neutral rate on the other hand is addressed indirectly when stating that market rates for decades might be too high for achieving full employment (Keynes 1936:

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able Funds theory (e.g. Rogers 1989: ch. 2). Boianovsky (2019: 107) argues that "without the 'natural rate' of interest idea, Keynesian economics cut its links with the notion of intertemporal coordination failure [...] as central to macroeconomic theory". But this accusation clearly is beside the point with regard to Keynes who more than once emphasised that future consumer wants are not transmitted to investors in a monetary economy (see e.g. Kregel 1980).

<sup>9</sup> "What distinguishes the investments realised in a monetary economy is the fact that the inability of predicting their results in probabilistic terms is not due to the uncertainty on the possibility to obtain the desired amount of product, but to the uncertainty regarding the sale of the goods produced and the opportunity to achieve a profit in terms of money" (Bertocco 2014: 205; cf. Dillard 1955; Rotheim 1981; Bertocco 2013).

204). However, despite all these differences, the gap between a financial market rate, affected by monetary policy, and a hypothetical (full employment) equilibrium rate is compatible with Wicksell's, Keynes's and modern economists' thinking.

In order to assess the economy's dynamic stability, and the need for policy actions, it is most important to understand which of the rates mentioned above act as the key attractor in the market process. The attitude of some contributions to mainstream economics (e.g. Rachel/Smith 2017) is to treat the natural rate as the "long-term" equilibrium value, which implicitly assumes that the "short-term" market rate will adjust endogenously sooner or later. But after long detours of macroeconomic reasoning, Woodford and modern new-Keynesian theory took up the thread that Wicksell had laid out: if the banking systems operates without an exogenous stock of scarce reserves, active interest policy on the part of central banks is indispensable in order to prevail over the destabilising real interest effect and to maintain stable macro dynamics; the Taylor Principle therefore requires the nominal rate to respond over-proportionally to changes of inflation. Hence standard wisdom today is that the natural rate is no strong attractor for market interest rates; the latter have to be controlled by central banks in order to maintain macroeconomic equilibrium.

From these considerations it follows that a modern Wicksellian interpretation should define the natural rate simply through its force of maintaining macroeconomic equilibrium, i.e. clearing the goods market (at full employment) in a monetary economy, and the central bank is asked to modify its bank rate via trial and error so that this result ensues. The implication is to conceive of the natural rate simply as a particular numerical value of the bank rate without any reference to a hypothetical barter system; there is also no need to attach an overriding importance to the "deep" habit of time preference because consumption is only one element of overall effective demand. The Wicksellian framework of confronting saving and investment functions, each dependent (possibly among other variables) on the real interest rate can well be used in Keynesian economics, for the purpose of analysing the natural-rate requirements of maintaining a goods market equilibrium; surely it represents no financial-market diagram (more on this in the next *Section*).

## **5. Overcoming the "natural" fact of positive interest rates**

The heritage of Böhm-Bawerk's and Fisher's theories is the widely shared belief that in-

terest rates have to be positive due to the stylised fact of time preference. However, even among neoclassical economists critical arguments were raised. Böhm-Bawerk (1891: 254-55) himself considered time preference as a manifestation of imperfect economic rationality. He speaks of a "peculiar defect in estimate" and of a "defect in will":

"I believe it frequently occurs that a man, called on to make choice between a present and a future pleasure or pain, decides for the present pleasure although he knows perfectly, and is even conscious while choosing, that his future loss will outweigh his present gain, and that, taking his welfare as a whole, the choice is unprofitable."

Fisher (1907: 103) likewise pointed to the irrationality of time preference as such a behaviour raises the costs of current welfare by shifting them into the future: "The greater the foresight, the less the rate of time-preference". Following Cassel (1932: 191-92), also Knight (1934: 272n) expressed fundamental reservations about the approach of explaining basic economic categories by psychological knowledge:

"There is literally no 'sense' in the notion of an inherent reluctance to postpone, or preference to future enjoyment, as a general principle embedded in human nature, rational or sentimental. [...] The permanent and cumulative saving and investment we actually and typically find in the world cannot be explained in any degree through comparison between present and future enjoyment, or 'waiting' and being paid for waiting. [...] The only possible basis for interest theory is simply to assume some indifference curve between current income as consumption and as increase in wealth. Wealth, viewed socially and objectively, is perpetual income capitalised, but what it means psychologically to the individual accumulator is a problem outside the sphere of the price theorist."

Despite these more general doubts, the argument of time preference preserved its status in the history of economic thought and is currently applied to understand the tendency of declining real interest rates in the world economy. One approach is founded on the Ramsey theory of optimal growth where the equilibrium real interest rate depends on productivity growth (weighed by the intertemporal elasticity of substitution) and time preference. Lower growth thus is directly transmitted to the natural rate. But the practical use of this exercise in optimisation theory is limited:

"The Euler equation is a weak peg to hang the empirical estimates on. A large and abundant empirical literature has documented very weak support for the aggregate Euler equation and the absence of a strong relationship between real interest rates and growth" (Gourinchas 2017: 48; cf. Brand et al. 2018).

A second approach builds on the saving-investment relationship. Here, a key macroeconomic argument can be drawn from the process of ageing in many societies. More precisely, it is *expected* ageing: a rising share of old-age people, running down previously



accumulated stocks of wealth, would *depress* saving, but a growing class of mid-life agents in a shrinking population, confronted with the fact of a decreasing number of young people and the expectation of longer lifetime, might wish to shift consumption into the future.<sup>10</sup> In analytical terms, this is a case of consumption smoothing – not necessarily a case of negative time preference. The scenario can best be understood by an application of Böhm-Bawerk's (1891: ch. V.II) "first reason" in interest rate theory, where expected changes in the relation of supply and demand of goods provide for adjustments in the desired distribution of consumption over time.

Even we accept the excessive-saving story for the sake of argument (more on this below in *Section 6*), it does not immediately follow that market real interest rates would fall in response to changing spending preferences. On the one hand, the scenario – due to weak consumption – should be characterised by persistent output gaps so that inflation is subdued; but demand deficiency is no ubiquitous phenomenon. On the other hand, it is a stubborn fallacy to believe that additional household saving would bring down nominal interest rates. The counter-argument is *not* that savers might switch to increased money hoarding<sup>11</sup>, rather, a reduction of consumption spending implies also a reduction of entrepreneurial income so that increased money wealth in the household sector is neutralised by lower money wealth in the firm sector. Higher saving redirects money flows in the economy, but does not generate additional money wealth and liquidity on a macroeconomic level.

It is useful to imagine matters with the help of *two* diagrams where saving and investment are shown in the first, and bond supply and bond demand in the second (all variables depend, possibly among other factors, on the real interest rate, and we abstract from the banking sector). A preference-induced downward shift of the saving curve lowers the natural rate (when full employment is given as the starting point) and likewise shifts the household bond demand curve, but at the same time the firm bond supply curve moves in the same direction to cover losses that arise from lower sales. Hence, the market interest rate does not fall.<sup>12</sup> Monetary policy intervention is required

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<sup>10</sup> Weizsäcker and Krämer (2019) collect an impressive large body of data on the development of assets and debts in the private sector of OECD countries (plus China). They argue that private agents wish to keep an ever rising stock of public debt for the purpose of future consumption financing.

<sup>11</sup> Strangely enough, this is believed among post-Keynesians (Bertocco 2014: 203).

<sup>12</sup> This is different in the neoclassical barter model where saving simply means buying goods

to reach an adjustment process towards the full-employment equilibrium. A corollary of these bookkeeping relationships is: saving cannot drive asset prices.

"The popular and powerful image that additional saving bids up financial asset prices (and hence depresses yields and interest rates) because it 'has to be allocated somewhere' is misleading. There is no such thing as a 'wall of saving' in the aggregate. Saving is not a wall, but a 'hole' in aggregate spending" (Borio/Disyatat 2011: 8).

It almost goes without saying that saving-glut arguments with regard to interest rate movements are also dubious in the open economy. Export-surplus countries re-investing their proceeds in deficit countries in no way enlarge the world supply of loanable funds.<sup>13</sup> Bernanke's saving-glut story is analytically flawed (Bibow 2009: chs. 3, 8.5; Bofinger/Ries 2017). The whole issue has been discussed in the past under the heading of "Loanable Funds vs. Liquidity Preference", but the key problem obviously is that funds are not measured correctly – to some extent the dispute is (or should be) a matter of proper accounting than a topic of theoretical controversies.

To do justice to the majority of participants in the debate: trivial faults often are avoided. In his presentation of Keynes's road from the *Treatise* to the *General Theory*, Leijonhufvud (1981) shows the saving-investment diagram as a bond market and thus eschews complications arising from the confusion of saving and finance. Many proponents of the demographic-saving story evade the distinction between the market and the natural rate altogether. The majority of observers believe that market and natural rates *both* have declined in recent years, arguing that we should witness a more unbalanced macroeconomic performance with regard to output and prices otherwise (e.g. Brand et al. 2018). But even if we accept this reasoning – it does not follow that influencing factors impact on both rates. Bean et al. (2015) rightly classify a higher saving propensity as requiring a lower natural rate, but then go on mentioning a list of further factors that also contribute to decrease "the" rate of interest, without elucidating whether the natural rate is affected or not:

- Shocks in the demand or supply of safe financial assets have repercussions on the

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not dedicated to present consumption, and the rate of interest is defined as the relative price of these present and future goods. This is also different in the IS-LM model where a (counterfactual) given money supply lets interest rates decline when less transaction balances are needed.

<sup>13</sup> Bean et al. (2015: 32) do not even get the balance-of payment accounting right when they state: "Capital has been flowing out of China – the counterpart of the Chinese current account deficit [!?] – so that China is, on net, adding to the pool of savings available for investment elsewhere."

structure of market rates, but do not shift the saving function and therefore leave the natural rate unchanged. If the zero-lower bound on yields precludes a further rise in the price of particularly scarce assets, demand for these securities is not diverted to more risky assets and production so that a liquidity-trap-like recession ensues. A different scenario arises if the preference for safe assets increases on the part of investors; in this case a lower natural rate is required to maintain their spending activities (Caballero et al. 2017a; Del Negro et al. 2017).

- Depressed profit expectation on the part of investors shift the investment curve and thus the natural rate, whereas a decreasing relative price of capital goods in terms of consumption goods (Eichengreen 2015) lowers both the natural and the market rate: with smaller opportunity costs of investment a larger demand of consumer demand is possible and necessary; lower capital prices also reduce investors' financial needs.

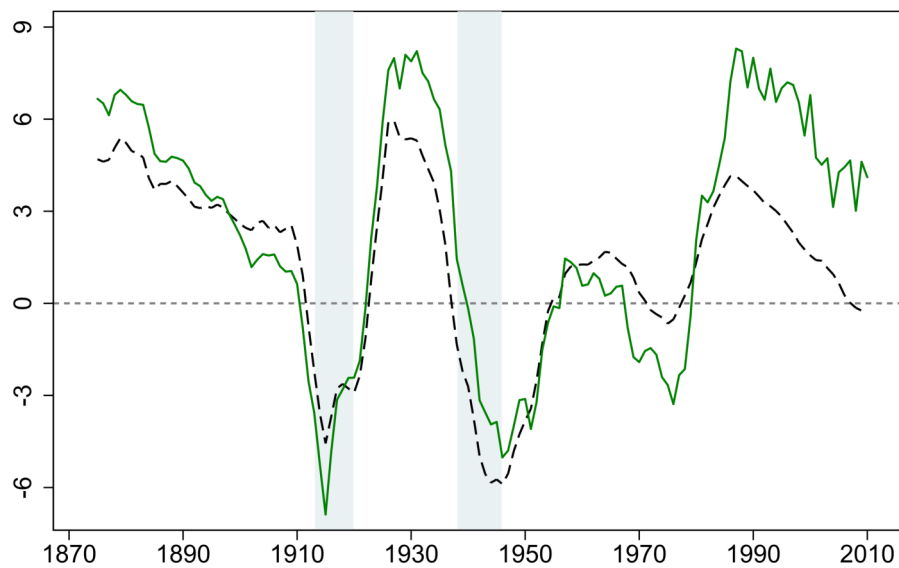
Taking stock, negative natural rates due to modified consumer behaviour in no way contradict the logic of traditional and modern macro theory. It poses a practical problem for monetary policy making, although central banks in recent years have succeeded to bring down short-term and long-term rates well below zero. However, the relevant question from a history-of-economic-thought point of view is whether the Western world now has entered the stage of capital abundance that Keynes regarded as a preferred destiny of market economies' development.

## **6. The survival of the capitalists**

A secular weakness of consumption also was a key element of Keynes's vision for the future. With respect to a possible satiation of wants he was less imaginative compared to his contemporary Schumpeter. But his predictions (Keynes 1936: 375; 1937c; 1943) are reiterated in modern debates: consumption from high income might turn to services that needed not much capital; a slowing of population growth in general would reduce the demand for capital; and the "production period" (a Böhm-Bawerkian proxy for the capital coefficient) might diminish. After the War, after some decades of strong growth, it would become difficult to realise an amount of private investment, equal to full-employment saving, without embarking on "wasteful and unnecessary projects". Therefore the aim of achieving and maintaining full employment was seen to require a "steady fall" of interest rates. A perhaps surprising aspect of Keynes's vision is his trust in the power of monetary policy to erode the positive liquidity premium in the private sector,

simply by enlarging the money supply. He does not raise the question whether agents still accept a money medium that is available without limit as an asset that satisfies their liquidity preference. Traditional beliefs link the value of money to its scarcity.

Casting a very long-term view on the development of the yields of riskless financial assets reveals that the recent period of low rates is not that extraordinary (*Figure 1*). The decadal calculation however "hides" the more recent trend; safe rates now have entered the negative territory in some countries. As neither inflation nor output growth have picked up, it is straightforward to conclude that the natural rate also is negative.



*Figure 1: Real bond rate and real bill rate (dashed) for 16 industrial countries, weighted by real GDP, decadal moving average (Jordà et al. 2017: 15)*

This finding does not necessarily imply a consent to the mainstream belief in a private saving glut motivated by old-age provision considerations. The empirical evidence of the factual interrelationship between age structure and saving propensities is somewhat mixed; and a growing share of countries' saving originates from the firm sector, which hardly can be explained by households' consumption preferences. Moreover, there is no uniform pattern of saving ratios and interest rates.<sup>14</sup> Finally, large groups in Western societies are unable to save due to severe income restrictions. Therefore, at least to some

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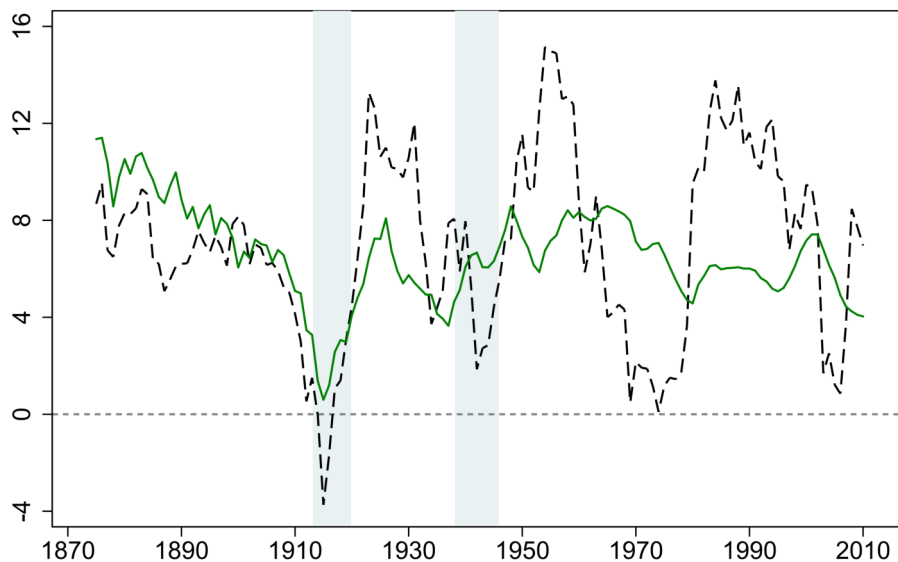
<sup>14</sup> "Some countries with a relatively high dependency ratio [defined as the fraction of the population not of working age] due to rapid population aging, such as Japan or Germany, are also among the countries with the highest saving rate. [...] It is not so clear that the global dependency ratio is a good summary statistic for the desired savings shift due to demographic forces" (Gourinchas 2017: 47; cf. Bean et al. 2015; Rachel/Smith 2017; Bofinger/Ries 2017).

extent, weak consumption might also be a consequence of income inequality.<sup>15</sup>

With regard to investment, Keynes believed that within a few generations a state of capital abundance could be reached. Declining market interest rates in turn would allow the marginal efficiency of capital to decrease towards zero. The consequence for gross profits yielded by capital are straightforward:

"The aggregate return from durable goods in the course of their life would [...] just cover their labour-costs of production plus an allowance for risk and the costs of skill and supervision" (Keynes 1936: 375).

The days of the "functionless investor" who exploited the scarcity of capital by earning a steady flow of interest income then are over. In terms of capital theory, all this implies that – in equilibrium – the rate of profit will tend to vanish.



*Figure 2: Real housing return and real equity return (dashed) for 16 industrial countries, weighted by real GDP, decadal moving average (Jordà et al. 2017: 20)*

But a look at the data casts serious doubts on the realisation of this scenario. There are no signs of a deterioration of capital returns in historical perspective (*Figure 2*). A comparison of different calculation procedures even shows that the trend is slightly on the rise in recent decades (*Figures 3-4*; see also Brand et al. 2018: 17). As a mere consequence, we find a growing gap between capital yields and safe asset returns (*Figure 5*), which researchers explain by pointing to the rise of monopolistic rents and risk premia (Blanchard 2019; Farhi/Gourio 2019). Formally, the latter factor makes the marginal-

<sup>15</sup> This paper does not intend to take a stand in this controversy.

efficiency-of-capital curve, net of risk, shift to the left, whereas the former factor gives rise to a gap between rates of profit and the rate of interest.

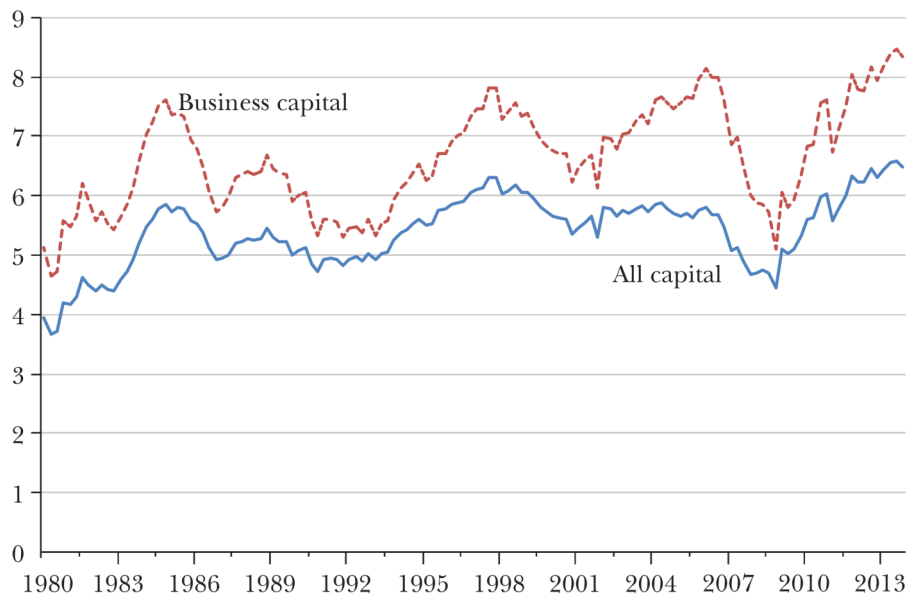


Figure 3: Real after-tax returns in the US economy  
(Caballero et al. 2017a: 34)

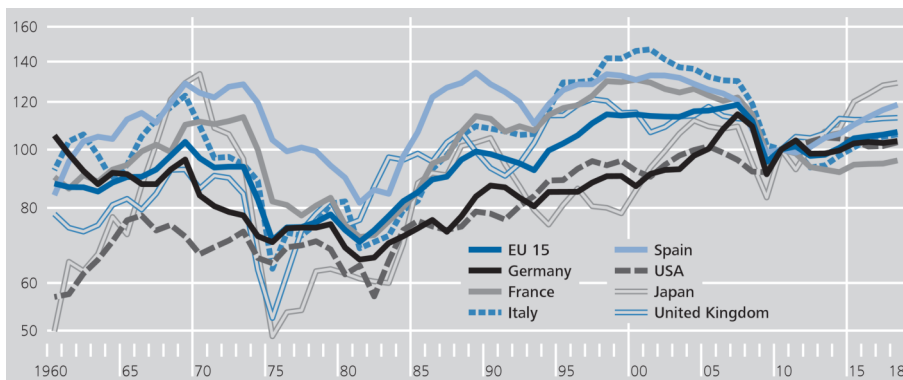


Figure 4: Net return on the aggregate capital stock for selected countries,  
2010=100 (Deutsche Bundesbank 2017: 38)

Keynes (1936: 221) set some hope in the political and social consequences of a coming age where a state of capital abundance would be reached:

"If I am right in supposing it to be comparatively easy to make capital-goods so abundant that the marginal efficiency of capital is zero, this may be the most sensible way of gradually getting rid of many of the objectionable features of capitalism. For a little reflection will show what enormous social changes would result from a gradual disappearance of a rate of return on accumulated wealth."

But the data show that we are far off that desiderated state. One may also doubt that we will ever get there. Ongoing structural change, the evolution of wants and techniques,

and the rise of grave world-wide problems let the idea of capital becoming abundant appear as flowing from a very static view.

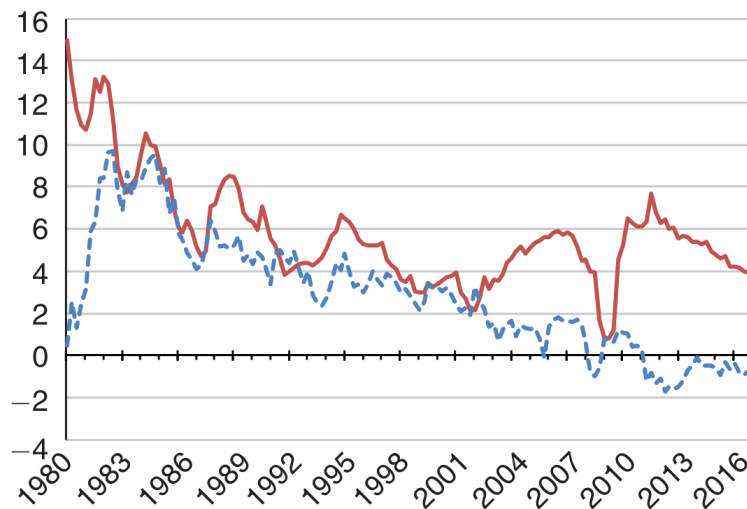


Figure 5: Earnings yield S&P 500 and 10-year US treasury yield (dashed) (Caballero et al. 2017b: 615)

## 7. Taking stock

Throughout pre-modern economic history nominal interest rates have been positive. A straightforward Keynesian explanation builds on the scarcity of a means of payment which is necessary in any society with division of labour, but without a central command over allocation of resources. In turn, the scarcity of a means of payment follows directly from the precondition for any "primitive" medium to serve as money; this comprises the case of contrived scarcity through institutional regulation. The evolution heading for fiat money embraces a period of (intended) money supply control before finally the procedure of preserving the value of money, as the key factor of money acceptance, was modified towards interest rate management accompanied by endogenous central bank money. At the beginning of the 21<sup>st</sup> century, some contingent forces governing goods prices on a world scale<sup>16</sup> paved the way towards the zero-lower bound, where the vanishing aspect of (technical) money scarcity helps to let this constellation endure.

It might appear that zero interest rates are merely a supply-side phenomenon,

<sup>16</sup> Key drivers are the globalisation and open-market orientation of nearly all countries after the demise of socialism after 1900, a tendency of deregulation of external and internal trade activities, a technological revolution enhancing the flexibility and efficiency of production, and – last but not least – a structural excess supply of labour.

caused by a flat and stable world supply function for goods at a very low level. But if the natural rate currently would be larger than zero market rates, countries would experience a strong output and employment boom; as growth figures remain weak however, it can be concluded by implication that the natural rate also is zero or in the negative realm. Thus, we envisage a demand-side problem.

A well respected minority view held at the BIS (Borio 2014; Borio et al. 2019) attacks this conclusion by pointing to asset price inflation and therefore calls for the inclusion of the state of the "financial cycle" in the definition of the natural rate. Despite full employment and price stability a real interest rate cannot be said to show an equilibrium value if at the same time a credit-driven asset price bubble is threatening future macro stability. However, a not too impressive prediction power of credit growth for crashes and goods market crises, and the hope for effective macroprudential rules prevent the acceptance of the BIS view among mainstream economists. Finally, even if the necessity to observe and contain asset price inflation is appreciated, there is still need for a natural rate concept representing a goods market equilibrium.

With regard to the muddles in public debates, it is necessary to insist on the fundamental Wicksellian/Keynesian finding that the natural rate is affected by changes in saving behaviour, whereas market rates basically are not. In contrast, monetary policy (in combination with portfolio dispositions of the private sector) determines market rates, *and* exerts an indirect, although long-term influence on the natural rate: through various hysteresis effects because interest-rate induced spending and investment decisions have repercussions on the supply side and the capital stock.<sup>17</sup>

Most observers explain the recent weakness of goods demand in many industrial countries, mirrored by the "New Secular Stagnation Hypothesis" (Summers 2014), by increased motives for personal saving, routed in old-age provision, but rising inequality may also contribute to curb consumption. The key point is that policy interest rates, particularly in Europe, *respond* to the decline of the natural rate, and – aiming at full employment – they are forced to stick to this course unless fiscal policy steps in to support goods demand. At the same time, this course inevitably contributes to asset price inflation and may cause future financial market distress. This policy conflict cannot be solved

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<sup>17</sup> Another transmission channel of non-neutrality works through financial markets: "Easier policy today boosts output in the short run but accommodates the build-up of financial imbalances, which generate large output losses in the long run when they implode" (Borio et al. 2019: 2).



by central banks alone.

Low interest rates however do not indicate the arrival in Keynes's envisaged scenario of capital satiation where rates of return on capital have dried up. Gross profit ratios even seem to grow, driven by risk premia and monopolistic rents and mark-ups. Time preference (in the neoclassical approach) or liquidity preference (in the Keynesian view) account only for a small part in capital yields. Declining interest rates and persisting profits thus reveal the poor state of capital theory: there seems to be no longer a single, simple and straightforward explanation of capital income in equilibrium. Obviously, contrary to traditional beliefs, competitive forces do not erode yields down to the discount rate or the liquidity premium. Instead, technological and political imponderabilities, market imperfections and frictions seem to be key factors, which however are hard to grasp in aggregative analysis. The reference to risks and rents opens up a large field of (mainly empirical and market structure) research, but controversies on static equilibrium capital theory appear as outdated. Schumpeter's dynamic disequilibrium approach may have the better end.

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