Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

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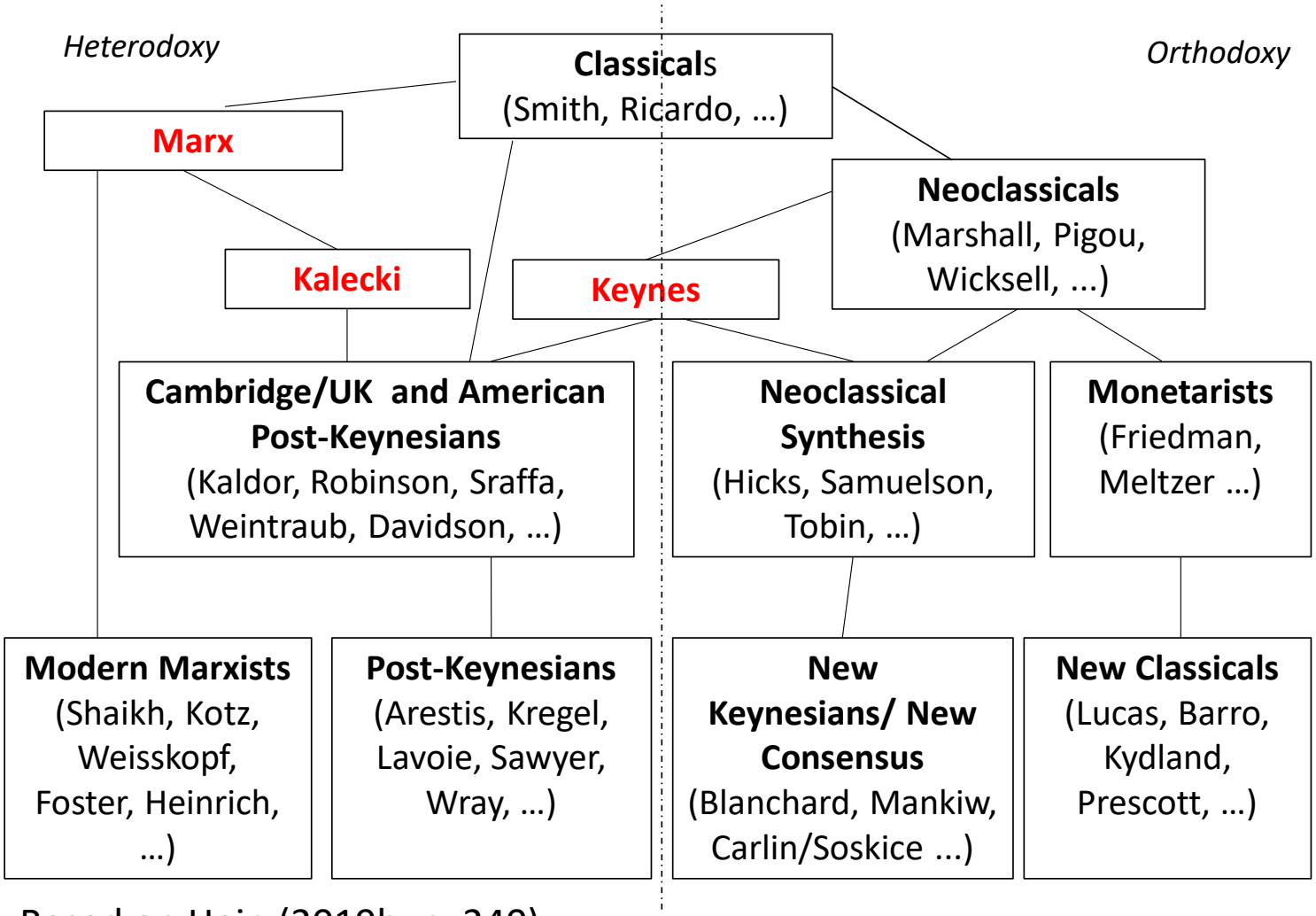
MACROECONOMICS AFTER KALECKI AND KEYNES

Post-Keynesian Foundations

(Edward Elgar 2023)

Chapter 3
‘THE PRINCIPLE OF EFFECTIVE DEMAND, MONEY, CREDIT AND FINANCE: MARX, KALECKI, KEYNES AND THE MONETARY CIRCUIT SCHOOL’

Figure 2.1 Heterodox and orthodox schools in macroeconomics



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Source: Based on Hein (2019b, p. 240)

Content

3.1 INTRODUCTION

Real Analysis

‘Real Analysis proceeds from the principle that all essential phenomena of economic life are capable of being described in terms of goods and services, of decisions about them, and of relations between them. Money enters the picture only in the modest role of a technical device that has been adopted in order to facilitate transactions. This device can no doubt get out of order, and if it does it will indeed produce phenomena that are specifically attributable to its modus operandi. But so long as it functions normally, it does not affect the economic process, which behaves in the same way as it would in a barter economy: this is essentially what the concept of Neutral Money implies.’ (Schumpeter 1954, p. 277)

Real Analysis

- Classical macroeconmics (Currency School: Ricardo, Overstone, Torrens)
- Neoclassical microeconomics (Walras, Arrow, Debreu)
- Neoclassical Macroeonomics (Marshall, Pigou, Wicksell)
- Neoclassical Synthesis (Hicks, Samuelson, …)
- Monetarism (Friedman, …)
- New Classical Economics (Lucas, …)
- New Keynesian Economics (Blanchard, Mankiw, …)
- New Consensus Macroeconomics (Goodfriend/King, Clarida/Gali/Gertler, …)

Monetary Analysis

‘Monetary Analysis introduces the element of money on the very ground floor of our analytical structure and abandons the idea that all essential features of economic life can be represented by a barter-economy model. Money prices, money incomes, and saving and investment decisions bearing upon these money incomes, no longer appear as expressions – sometimes convenient, sometimes misleading, but always nonessential – of quantities of commodities and services and of exchange ratios between them: they acquire a life and an importance of their own, and it has to be recognized that essential features of the capitalist process may depend upon the ‘veil’ and that the ‘face behind it’ is incomplete without it.’ (Schumpeter 1954, p. 278)

Monetary Analysis

- Classical Macroeconomics (Banking School: Tooke, Fullarton, neo-Ricardian monetary theroy of distribution: Panico, Pivetti)
- Marx‘s economics (Capital I, II, III, TSV)
- Keynes (Contribution to Spiethoff Festschrift, General Theory, …)
- Kalecki (Theory of Economic Dynamics, …)
- Modern Post-Keynesian economics (Arestis, Kregel, Lavoie, Sawyer, Wray, …)
- Parts of modern Marxian economics (Monopoly capitalism & underconsumption school – Monthly Review school)

3.2 KARL MARX´S THEORY OF MONEY AND EFFECTIVE DEMAND

- Marx‘s theory of value (*Capital I, Chapter I)* as a **‚monetary theory of value‘** (Rubin 1973, Heinrich 1991, Reuten 1988, 1995, Matthews 1996, Williams 2000)
- **Theory of value implies theory of money**, no ‘labour embodied theory of value’, no ‘commodity theory of money’
- Amount of **‘socially necessary labour’ is determined in exchange against ‘universal equivalent**’, i.e. money, representing ‘abstract labour’
- **Money as a socially accepted representative of the universal equivalent** which has to be guaranteed by social institutions

➢ perfectly compatible with the **modern credit money system** which can be described as a **hierarchy of promises to pay**

Capital, Volume 1, Karl Marx (1867, pp. 97-144) discusses three principle roles of money:

- money as a standard of value,
- money as a means of circulation and
- ‘money as money,’ including money as a store of value, as a means of payment and as universal money.

- C-M-C: **money as means of circulation** constitutes **'possibility theory of crisis'**, i.e. Marx's rejection of Say's law (*TSV,* 499-508), possibility of lack of aggregate demand ('general glut'), exacerbated by **money as a means of payments** (*TSV,* 511), i.e. creditor-debtor relations

- Since 'money as money' includes its potential to function as a **store of value (hoarding)**, an increase in the willingness to hoard causes a lack of aggregate demand for the economy as a whole and may therefore trigger a general crisis

- Money has to be **non-commodity money** to sustain the **critique of Say's law** in Marx's 'possibility theory of crisis' and to pose the problem of effective demand to capitalist economies

Capital II, Chapter XX-XXI: Schemes of reproduction

- Given values/prices

Sector 1: $D_{c1} + W_1 + \Pi_1 = p_1 I_1^g + p_1 I_2^g$

Sector 2: $D_{c2} + W_2 + \Pi_2 = C_{w1} + C_{\Pi 1} + C_{w2} + C_{\Pi 2}$

D_i: constant capital costs, W_i: wages, Π_i: profits, I^g_i: gross investment, C_{wi}: consumption of workers, $C_{\Pi i}$: consumption of capitalists

Equilibrium in simple reproduction

$D_1 = p_1 I^g_1$, $D_2 = p_1 I^g_2$, $W_1 = p_2 C_{W1}$, $W_2 = p^2 C_{W2}$

Proportionality condition: $p_1 I_2^g = p_2 C_{w1} + p_2 C_{\Pi 1}$.

Aggregate supply and aggregate demand:

(3.1)
$$\begin{aligned} & D_{c1} + W_1 + \Pi_1 + D_{c2} + W_2 + \Pi_2 \\ & = p_1 I_1^g + p_1 I_2^g + p_2 C_{W1} + p_2 C_{W2} + p_2 C_{\Pi 1} + p_2 C_{\Pi 2} \end{aligned} .$$

With $W_1 + W_2 = p_2 C_{W1} + p_2 C_{W2}$, we get:

(3.2)
$$\Pi_1 + \Pi_2 = p_1 I_1 + p_1 I_2 + p_2 C_{\Pi 1} + p_2 C_{\Pi 2} .$$

With $p_1 I_i = p_1 I_i^g - D_{ci}, \; i = 1, 2$, as net investment.

Kalecki‘s (1968) interpretation of Marx‘s SoR:

- Capitalists cannot determine their sales and their profits but can only decide about their expenditures on net investment and consumption goods
- Capitalist expenditures have to ensure that *produced* profits will become *realized* profits
- Investment determines saving in Marx’s schemes of reproduction
- Contribution to ‘possibility theory of crisis’

Net investment determines saving, which is only out of profits ($S = S_{\Pi}$):

(3.3) $$S = S_{\Pi 1} + S_{\Pi 2} = \Pi_1 - p_2 C_{\Pi 1} + \Pi_2 - p_2 C_{\Pi 2} = p_1 I_1 + p_1 I_2 = p_1 I\,.$$

The capitalists' investment and consumption expenditures thus determine their aggregate profits – it is the capitalists who have to advance the required amount of money in order to realise their produced and expected profits.

‘So far as the entire capitalist class is concerned, the proposition that it must itself throw into circulation the money required for the realization of its surplus-value (correspondingly also for the circulation of its capital, constant and variable) not only fails to appear paradoxical, but stands forth as a necessary condition of the entire mechanism. For there are only two classes: the working class disposing only of its labour-power, and the capitalist class, which has a monopoly of the social means of production and money.’
(Marx 1885, pp. 424-425)

- **Financial sources of capitalists**: transfer of money from hoards, increasing velocity of money in circulation, raising the stock of money (Marx 1885, pp. 349-50, 494-5)

- In a modern **credit economy with endogenous credit and money**: „The sustainable rate of growth of the system obviously depends on the level of such new borrowing: the higher the total borrowing, the faster the rate of expanded reproduction that can be achieved by the system." (Foley 1986a, p. 89)

Marx on endogenous credit money:

"The credit given by a banker may assume various forms, such as bills of exchange on other banks, cheques on them, credit accounts of the same kind, and finally, **if the bank is entitled to issue notes – bank-notes of the bank itself**. … This last form of credit appears particular important and striking to the layman, first because this form of credit money breaks out of the confines of mere commercial circulation into general circulation, and **serves there as money**; and because in most countries the principal banks issuing notes, being a particular mixture of national and private banks, actually have the **national credit to back them**, and **their notes are more or less legal tender**; because it is apparent here that the banker deals in credit itself, **a bank-note being merely a circulating token of credit**." (Marx 1894, pp. 403-4)

The expanded circuit of capital (Marx 1894, pp. 338-57)

$$M - M - C \ldots P \ldots C' - M'' - M'$$

$$M'' - M = \Pi, \; M' - M = R, \; M'' - M' = \Pi_F$$

$$\Pi = \Pi_F + R$$

$$r = r_F + i \cdot$$

M: Money, C: commodities, P: production, R: rentiers' income (interest), Π: profits, Π_F: profits of enterprise, r: rate of profit, r_F: rate of profit of enterprise, i: rate of interest

- no natural rate of interest
- rate of interest as a monetary category

- In Marx's **two stage theory of distribution**, the **rate of interest is a monetary category** determined by relative powers of money capital and industrial capital (Marx 1894, pp. 358-69).
- **Rate of profit** is determined by distributional conflict between **capital and labour**.
- With a given rate of profit, conflict between **industrial and financial capitalists** determines **rate of interest and thus rate of profit of enterprise**.
- **No theory of investment demand in Marx's schemes of reproduction** and hence no determination of the level of output or the rate of growth of the economy (Kalecki 1968, Sebastiani 1991).
- Such a theory is implicit in **production and investment finance** also present in the schemes of reproduction, i.e. capitalists need **access to money/credit** in order to get the process of (even simple) reproduction started (Marx 1885, pp. 329-54, 415-26).

Implications for a Marxian theory of accumulation, growth and crises

- Marxian theories based on ‚real analysis', i.e. profit squeeze (*Capital I*) and FRoP (*Capital III*), cannot be sustained

- Capital accumulation cannot be determined by capitalists' saving in Marx's ‚monetary analysis'

- Saving adjusts to investment, i.e. change in utilisation of capital stock (high elasticity of production, *Capital I*, p. 424) a la Kalecki/Steindl, or in distribution a la Kaldor/Robinson.

- Monetary factors, i.e. monetary rate of interest and credit availability, matter for investment decisions & growth

➢ No ‚general laws of accumulation and crisis'

3.3 MICHAL KALECKI´S THEORY OF MONEY, DISTRIBUTION AND EFFECTIVE DEMAND

Theory of effective demand based on Marx‘s Schemes of Reproduction

Theory of prices:
- demand determined prices in primary sector
- cost determined prices in industrial (and service) sector (oligopolistic or monopolistic competition)

- constant marginal and average variable costs
- mark-up pricing in oligopolistic markets
- underutilisation of productive capacities
- changes in demand trigger changes in output and not in prices

No long-run tendency towards pre-determined full employment growth path:

"In fact, the long-run trend is but a slowly changing component of a chain of short-period situations; it has no independent entity, and the two basic relations mentioned above [first, the effect of investment on aggregate demand, profits and national income, and second, the effect of the level and the rate of change of economic activity on investment decisions, E.H.] should be formulated in such a way as to yield the trend cum business-cycle phenomenon." (Kalecki 1971, p. 165)

Closed economy without government activity, production takes place in three departments of the economy:

- Department 1 produces investment goods,
- department 2 consumption goods for capitalists, and
- department 3 consumption goods for workers.
- Each department is vertically integrated, which means that it produces all required raw materials and intermediate products within the department.
- Total national income (pY) is divided between workers and capitalists. Workers receive wages (W) and capitalists receive profits (Π), including retained earnings, dividends, interest and rent

In oligopolistic or monopolistically competitive markets, firms have some price setting power. Weighted average price in each of our j departments mentioned above:

(3.4) $$p_j = \left(1 + m_j\right)\frac{w_j}{y_j}, \qquad m_j \geq 0, \;\; j = 1, 2, 3 .$$

p : price, m : mark-up, W/Y : unit direct labour costs, $w = W/N$: nominal wage rate, $y = Y/N$: labour productivity, N : employment.

The mark-up and unit direct labour costs are both assumed to be constant up to full capacity output.

The mark-up in the price equation (3.4) determines the share ($\mathbf{h}$) of gross profits (Π) in the income or the value added (pY) in each department, and thus also the share of wages (W) for direct labour in each department ($\Omega = 1 - h$):

(3.5) $$h_j = \frac{\Pi_j}{p_j Y_j} = \frac{\Pi_j}{W_j + \Pi_j} = \frac{m_j W_j}{W_j + m_j W_j} = \frac{m_j}{1 + m_j}, \quad j = 1, 2, 3,$$

(3.6) $$\Omega_j = 1 - h_j = \frac{W_j}{p_j Y_j} = \frac{W_j}{W_j + \Pi_j} = \frac{W_j}{W_j + m_j W_j} = \frac{1}{1 + m_j}, \quad j = 1, 2, 3.$$

The aggregate profit share and wage share for the economy as a whole, i.e. the share of profits as well as wages in national income, can then be derived by taking the weighted average of the industry or department profit and wage shares, or of the mark-ups determining these shares:

(3.7) $$h = \frac{\Pi}{pY} = \frac{\Pi}{W + \Pi} = \frac{m}{1+m},$$

(3.8) $$\Omega = 1 - h = \frac{W}{pY} = \frac{W}{W + \Pi} = \frac{1}{1+m}.$$

- "[…] broadly speaking, the degree of monopoly, the ratio of prices of raw materials to unit wage costs and industrial composition are the determinants of the relative share of wages in gross income of the private sector." (Kalecki 1954, p. 30; 1971, p. 64)

- raw material costs are ignored here because of the assumption of vertically integrated sectors

Determining the level of profits and of income

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Since the national product is equal to the sum of investment expenditures ($p_1 I$), consumption out of profits ($p_2 C_\Pi$) and consumption out of wages ($p_3 C_W$), it follows that:

(3.9) $$pY = W + \Pi = p_3 C_W + p_2 C_\Pi + p_1 I .$$

Subtracting wages from both sides of equation (3.9), we obtain:

(3.10) $$\Pi = p_2 C_\Pi + p_1 I - S_W .$$

Profits are thus equal to consumption out of profits plus investment minus saving out of wages ($S_W = W - p_3 C_W$). If workers do not save and rather spend their income entirely on consumption goods ($W = p_3 C_W$), equation (3.10) becomes:

(3.11) $$\Pi = p_2 C_\Pi + p_1 I .$$

- ‘Now, it is clear that capitalists may decide to consume or to invest more in a given period than in the preceding one, but they cannot decide to earn more. It is, therefore, their investment and consumption decisions which determine profits, and not vice versa.’ Kalecki (1954, p. 46)

- “[...] Mr. Kalecki’s theory of profits […] can be paraphrased by saying that ‘capitalists earn what they spend, and workers spend what they earn’.” (Kaldor 1955/56, p. 96)

Kalecki (1954, Chapter 3): capitalists' consumption expenditures are composed of an autonomous part ($p_2 C_{\Pi a}$) and a part which is proportional to profits.

(3.12) $$p_2 C_\Pi = p_2 C_{\Pi a} + c_\Pi \Pi, \quad C_{\Pi a} \geq 0,\ 0 \leq c_\Pi < 1.$$

Inserting equation (3.12) into equation (3.11) yields the following determination of the equilibrium level of profits in the economy as a whole:

(3.13) $$\Pi = \frac{p_2 C_{\Pi a} + p_1 I}{1 - c_\Pi} = \frac{p_2 C_{\Pi a} + p_1 I}{s_\Pi}, \qquad 0 \leq c_\Pi < 1,\ 0 < s_\Pi \leq 1.$$

Share of gross profits in national income is defined as in equation (3.7), equation (3.13) becomes:

(3.14) $$pY = \frac{p_2 C_{\Pi a} + p_1 I}{(1 - c_\Pi) h} = \frac{p_2 C_{\Pi a} + p_1 I}{s_\Pi h}, \qquad 0 \leq c_\Pi < 1,\ 0 < s_\Pi \leq 1.$$

➔ **paradox of thrift and wage-led demand (paradox of costs)**

Summing up Kalecki‘s theory of distribution

‘There are two elements in Kalecki’s analysis of profits, the share of gross profit in the product of industry is determined by the level of gross margin, while the total flow of profits per annum depends upon the total flow of capitalists’ expenditure on investment and consumption.’ (Robinson 1977, pp. 13-14)

Finance, saving and the rate of interest

‘In the present conception investment, once carried out, automatically provides the savings necessary to finance it. […] If investment increases by a certain amount, savings out of profits are *pro tanto* higher.’ (Kalecki 1954, p. 50, 1971, p. 83, emphasis in the original)

‘One important consequence of the above is that the rate of interest cannot be determined by the demand for and supply of new capital because investment “finances itself”.’ (Kalecki 1954, p. 50, 1971, p. 84)

‘The financing of additional investment is effected by the so called creation of purchasing power. The demand for bank credit increases and these are granted by banks. The means used by the entrepreneurs for construction of new establishments reach the industries of investment goods. This additional demand makes for setting to work idle equipment and unemployed labour. The increased employment is a source of additional demand for consumer goods and thus results in turning higher employment in the respective industries. Finally the additional investment outlay finds its way directly and through the workers’ spending into the pockets of capitalists (we assume that workers do not save). The additional profits flow back as deposits to the banks. Bank credits increase by the amount additionally invested and deposits by the amount of additional profits. The entrepreneurs who engage in additional investment are ‘propelling’ into the pockets of other capitalists profits which are equal to their investment, and they are becoming indebted to these capitalists to the same extent via banks. […] It should be pointed out that the increase in output will result in an increased demand for money in circulation, and thus will call for a rise in credits of the Central Bank. […] Therefore the precondition for the upswing is that the rate of interest should not increase too much in response to an increased demand for cash.’ (Kalecki 1969a, pp. 28-29, 1971, pp. 29-30)

Open economy with government

(3.15) $\Pi^{net} + W^{net} + T = p_1 I + p_2 C_\Pi + p_3 C_W + G + p_{Ex} Ex - p_{Im}\, Im$.

Π^{net} : profits net of taxes, wages net of taxes, W^{net} wages net of taxes, T : taxes, G : government expenditures, $p_{Ex} Ex$: exports, $p_{Im}\, Im$: imports.

Subtracting wages and taxes from both sides of equation (3.15), we obtain:

(3.16) $\Pi^{net} = p_1 I + p_2 C_\Pi + G - T + p_{Ex} Ex - p_{Im}\, Im - S_W$.

'The above shows clearly the significance of "external" markets (including those created by the budget deficits) for a capitalist economy. Without such markets profits are conditioned by the ability of capitalists to consume or to undertake capital investment. It is the export surplus and the budget deficit which enable capitalists to make profits over and above their own purchases of goods and services.' (Kalecki 1954, p. 52, 1971, pp. 85-86)

- Kalecki uses monetary circuit model with exogenous interest rates and endogenous money and credit

- Kalecki's approach contains the paradox of saving and the paradox of costs

- But what determines investment?

- 'It is interesting to notice that the theory of effective demand, already clearly formulated in the first papers, remains unchanged in all the relevant writings, as do my views on the distribution of national income. However, there is a continuous search for new solutions in the theory of investment decisions, where even the last paper represents – for better or for worse – a novel approach.' (Kalecki 1971, p. viii)

Early work published in 1933 in Poland, Kalecki (1969a, Chapter 1; 1971, Chapter 1)

(3.17) $$g = \frac{I}{K} = g\left(\underset{+}{r}\right) = g\left(\underset{+}{I}, \underset{-}{K}\right).$$

$g = I / K$: accumulation rate, $r = \Pi / pK$: profit rate

'We see that the question, "What causes periodical crises?" could be answered shortly: the fact that investment is not only produced but also producing. Investment considered as expenditure is the source of prosperity, and every increase of it improves business and stimulates a further rise of investment. But at the same time every investment is an addition to capital equipment, and right from birth it competes with the older generation of this equipment. The tragedy of investment is that it causes crisis because it is useful. Doubtless many people will consider this theory paradoxical. But it is not the theory which is paradoxical, but its subject – the capitalist economy.' Kalecki (1939, pp. 148-149)

In Kalecki (1954, Chapter 9, 1971, Chapter 10), investment decisions are affected by firms' financial resources, and by changes in profits and in the capital stock:

➔ 'principle of increasing risk' (Kalecki 1937):

'The access of a firm to the capital market, or in other words the amount of rentier capital it may hope to obtain, is determined to a large extent by the amount of its entrepreneurial capital. It would be impossible for a firm to borrow capital above a certain level determined by the amount of its entrepreneurial capital.' (Kalecki 1954, p. 91, 1971, p. 105)

(3.18) $$I = I\left(\underset{+}{\Pi_F}, \underset{+}{d\Pi}, \underset{-}{dK}\right).$$

3.4 JOHN MAYNARD KEYNES´S THEORY OF MONEY AND EFFECTIVE DEMAND

- „Treatise on Money“ (1930)
  - Monetary variables only have disequilibrium real effects
  - S-I discrepancies cause oscillation around full employment equilibrium

- Keynes in Spiethoff-Festschrift 1933:

  ‘In my opinion the main reason why the problem of crises is unsolved, or at any rate why this theory is so unsatisfactory, is to be found in the lack of what might be termed a *monetary theory of production*. (…) The theory which I desiderate would deal (...) with an economy in which money plays a part of its own and affects motives and decisions and is, in short, one of the operative factors in the situation, so that the course of events cannot predicted either in the long period or in the short, without a knowledge about the behaviour of money between the first state and the last.’ (CW XIII, 408-9)

- „General Theory of Employment, Interest and Money“ (1936)

Keynes in the drafts of the General Theory

Validity of Say's law is restricted to:

- barter economy: money is absent,
- cooperative economy: the role of money is reduced to a means of circulation,
- neutral economy: there is an economic mechanism (neoclassical interest rate mechanism) which compensates for drains from the circular flow.

Keynes: Concept of a monetary economy or entrepreneur economy as „the world in which we are living“

1. *Parts of income is not spent on buying output, instead it is held liquid.*

   ‘Perhaps anything in terms of which the factors of production contract to be remunerated, which is not and cannot be a part of current output and is capable of being used otherwise than to purchase current output, is, in a sense, money. If so, but not otherwise, the use of money is a necessary condition for fluctuations in effective demand.’ (Keynes 1979, p. 86)

   - money: (close to) zero elasticity of production and (close to) zero elasticity of substitution

‘Money of account, namely that in which debts and price and general purchasing Power are *expressed*, is the primary concept of a theory of money.

A money of account comes into existence along with debts, which are contracts for deferred payment, and price lists, which are offers of contracts for sale or purchase. Such debts and price lists, whether they are recorded by word of mouth or by book entry on baked bricks or paper documents, can only be expressed in terms of a money of account.

Money itself, namely that by delivery of which debt contracts and price contracts are *discharged*, and in the shape of which a store of general purchasing power is *held*, derives its character from its relationship to the money of account, since the debts and prices must first have been expressed in terms of the latter. … Money proper in the full sense of the term can only exist in relation to money of account.’ (Keynes 1930, p. 3, italics in the original)

- Money is thus a creature of the state, as had already been pointed out by Knapp (1905), to whom Keynes (1930, p. 4) favourably refers, when he argues that '(t)o-day, all civilised money, is, beyond the possibility of dispute, chartalist'.

- Holding money causes the problem of aggregate demand failures, because '(…) money has, both in the long and the short period, a zero, or at any rate a very small, elasticity of production (…)' and '(…) it has an elasticity of substitution equal, or nearly equal, to zero (…)'(Keynes 1936, pp. 230-231).

- ‘Why should anyone outside a lunatic asylum wish to use money as a store of wealth?’ (Keynes 1937, p. 216)

- ‘By “uncertain” knowledge, let me explain, I do not mean merely to distinguish what is known for certain from what is only probable. … The sense in which I am using the term is that in which the prospect of a European war is uncertain, or the price of copper and the rate of interest twenty years hence, or the obsolescence of a new invention, or the position of private wealth-owners in the social system in 1970. About these matters there is no scientific basis on which to form any calculable probability whatever. We simply do not know.’ (Keynes 1937, pp. 213-214)

- ‘Because, partly on reasonable and partly on instinctive grounds, our desire to hold Money as a store of wealth is a barometer of the degree of our distrust of our own calculations and conventions concerning the future. … The possession of actual money lulls our disquietude; and the premium which we require to make us part with money is the measure of the degree of our disquietude.’ (Keynes 1937, p. 216)

2.a Demand is not only financed by present income, instead credit can be created from "nothing" in the banking sector.

2.b Firms' production and investment decisions are geared towards monetary profits (M-C-M')

- Only by accident, the sum of income dependent demand (consumption) and income independet demand (investment) will generate full employment.
- There is no economic mechanism which ensures that the part of income at full employment not directly spend will exactly be compensated by credit financed expenditure so that a full employment level is maintained.

‘The distinction between a co-operative and an entrepreneur economy bears some relation to a pregnant observation made by Karl Marx, - though the subsequent use to which he put this observation was highly illogical. He pointed out that the nature of production in the actual world is not, as economists seem often to suppose, a case C-M-C’, i.e. of exchanging commodity (or effort) for money in order to obtain another commodity (or effort). That may be the standpoint of the private consumer. But it is not the attitude of *business*, which is a case of M-C-M’, i.e. of parting with money for commodity (or effort) in order to obtain more money. (…) An entrepreneur is interested, not in the amount of product, but in the amount of *money* which will fall to his share.’ (Keynes 1979, pp. 81-82, italics in the original)

Keynes (1936, chapter 3): The principle of effective demand

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Aggregate Supply Function:
$Z = \Phi (N)$

- Aggregate supply price of the output from employing N workers

Aggregate Demand Function:
$D = f (N)$

- Proceeds which entrepreneurs expect to receive from the employment of N workers

$D = D_1 + D_2$

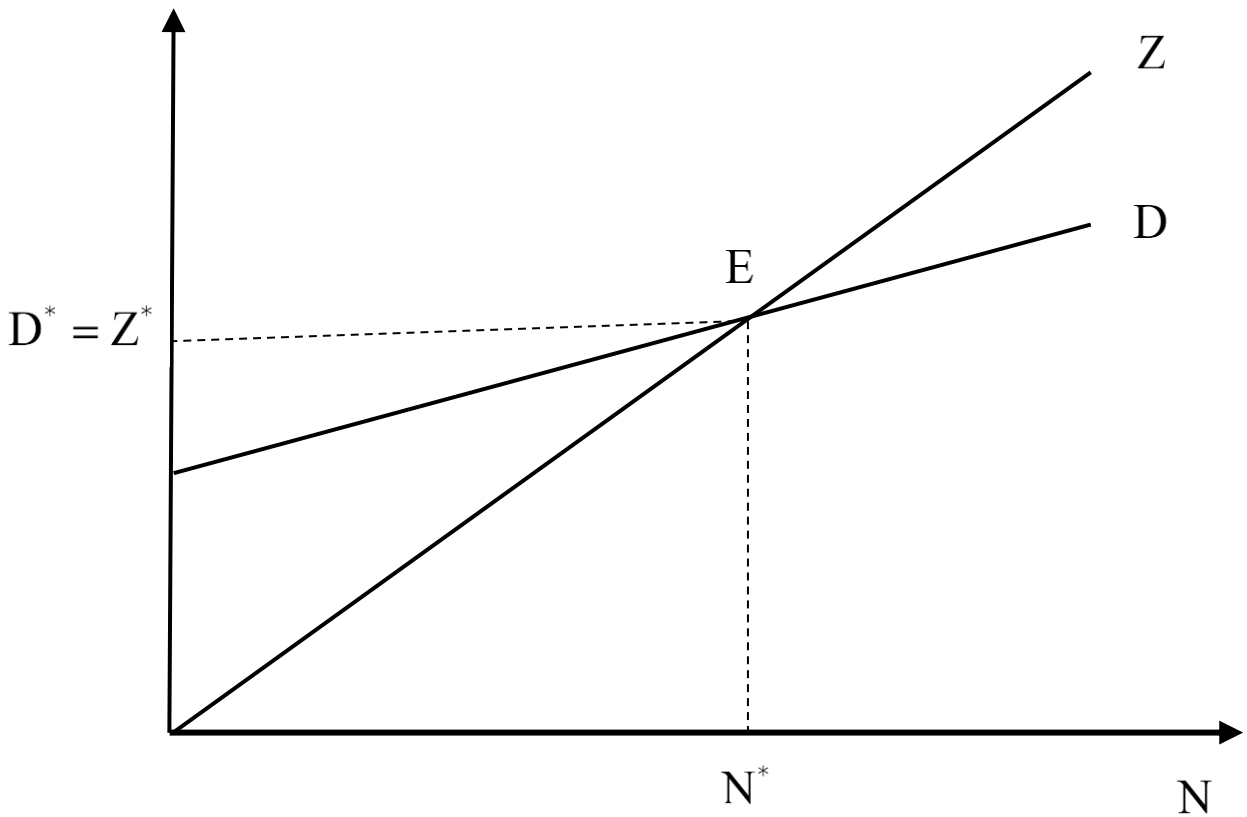
D_1: expected consumption demand, dependent on income and the propensity to consume

D_2: expected investment demand

„The value of D at the point of the aggregate demand function, where it is intersected by the aggregate supply function, will be called the effective demand.“ (Keynes 1936, 25)

Say‘s law implies: D=Z for all levels of employment and output!

Figure 3.1: Keynes's (1936) 'principle of effective demand'



(3.19) $Z = Nyp$.

(3.20) $D = cpY + pI = c(Nyp) + pI, \quad 0 < c < 1$.

D: aggregate demand, Z: aggregate supply,
N: employment, y: labour productivity, p: price

(3.21) $Z(N^*) = D(N^*)$.

(3.22) $N^* = \dfrac{pI}{(1-c)yp}$.

(3.23) $pY^* = (Nyp)^* = \dfrac{pI}{(1-c)} = \dfrac{pI}{s}$.

➔ equilibrium income in income-expenditure model

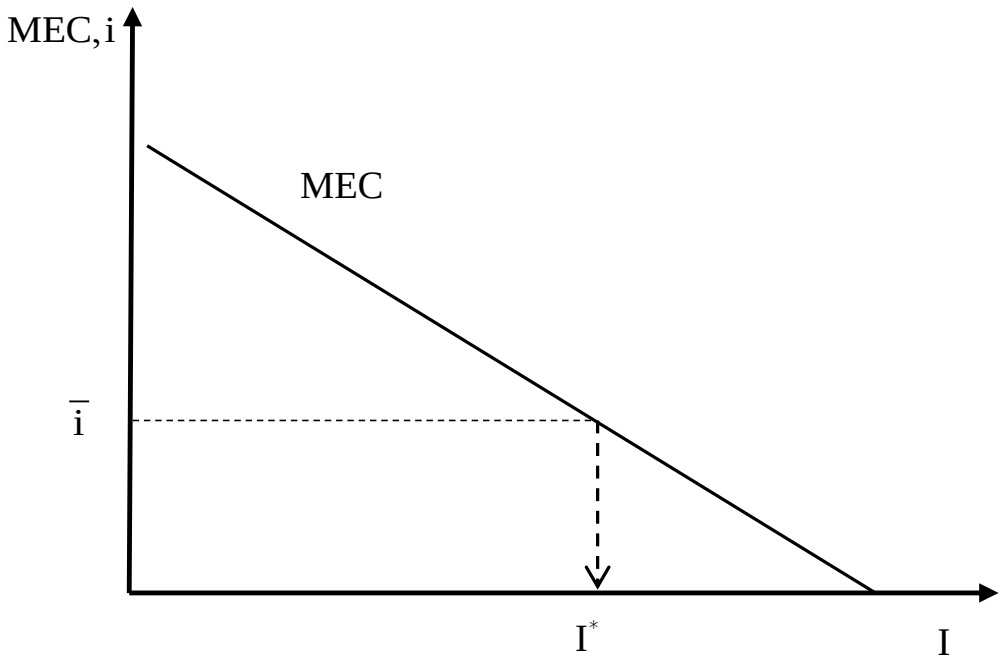
Keynes (1936, Chapter 19): Falling nominal wages to return to full employment?

- If wages fall and prices decrease in step, real wages and income distribution will remain constant and consumption out of wages will not increase, nor will consumption out of profits

- If, more realistically, a fall in nominal wages is not accompanied by an equivalent fall in prices, real wages, wage shares and consumption out of wages will fall, with little, if at all, compensation from consumption out of profits.

- Improvement of investment?

Figure 3.2: Interest rate, marginal efficiency of capital and investment



Investment function:

(3.24) $$I = I\left(\underset{-}{i}, \underset{+}{MEC}\right).$$

‚Animal spirits' as a shift factor

Marginal efficiency of capital (MEC):

$$(3.25)\quad p_0K_0 = Q_0 + \frac{Q_1}{1+MEC} + \frac{Q_2}{(1+MEC)^2} + \ldots + \frac{Q_n}{(1+MEC)^n} = \sum_{t=0}^{n} \frac{Q_t}{(1+MEC)^t}\,.$$

‘I define the marginal efficiency of capital as being equal to the rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price.’ (Keynes 1936, p. 135)

Causes for falling MEC:

1. Rising supply price of capital if invesment demand increases
2. Falling expected marginal revenues when output from new productive capicities meets demand

‘It is important to understand the dependence of the marginal efficiency of a given stock of capital on changes in expectation, because it is chiefly this dependence which renders the marginal efficiency of capital subject to the somewhat violent fluctuations which are the explanations of the Trade Cycle.’ (Keynes 1936, pp. 143-144)

- Falling money wages and prices will not improve firms‘ expected yields and the MEC, just the opposite!

Kalecki‘s critique of Keynes‘s investment theory

‘Keynes’s concept, which tells us only how high investment should be in order that a certain disequilibrium may turn into equilibrium, meets a serious difficulty along this path also. In fact, the growth of investment in no way results in a process leading the system toward equilibrium. Thus it is difficult to consider Keynes’s solution of the investment problem to be satisfactory. The reason for this failure lies in an approach which is basically static to a matter which is by its nature dynamic.’ (Kalecki 1936, p. 231)

Borrowers‘ risk and lenders‘ risk: indebtedness matters for investment, too:

‘Two types of risk affect the volume of investment which have not commonly been distinguished, but which it is important to distinguish. The first is the entrepreneur’s or borrower’s risk and arises out of doubts in his own mind as to the probability of his actually earning the prospective yield of which he hopes. If a man is venturing his own money, this is the only risk which is relevant.

But where a system of borrowing and lending exists, by which I mean the granting of loans with a margin or real or personal security, a second type of risk is relevant which we may call lender’s risk. This may be due either to moral hazard, i.e. voluntary default or other means of escape, possibly lawful, from the fulfilment of the obligation, or to the possible insufficiency of the margin of security, i.e. involuntary default due to the disappointment of expectations.’ (Keynes 1936, p. 144)

Interest rate and capital stock/investment

- Keynes (1936: 136-146): falling marginal efficiency of capital
  - short run: rising supply price of capital when demand for capital goods rise
  - long run: marginal yields from capital stock decline

- Keynes (1936: 144): rising rate of interest means rising lender‘s risk (credit default) and borrower‘s risk (insolvency and bankruptcy) because increase of fixed payment obligations relative to uncertain revenues

- Kalecki (1937): ‚principle of increasing risk‘: increasing debt for investment finance purposes means increasing risk of loss of wealth for the investor and increasing risk of illiquitiy, for creditor it means increasing risk of default

➔ own capital and internal funds co-determine investment and rising interest rate have negative impact through availability of internal and access to external funds
➔ **Caution**: fallacy of composition! Potential paradox of debt!

Determination of the rate of interest

Long-run monetary equilibrium in chapter 17 of GT

- 'It seems, then, that the *rate of interest on money* plays a peculiar part in setting a limit to the level of employment, since it sets a standard to which the marginal efficiency of a capital-asset must attain if it is to be newly produced.' (Keynes 1936, p. 222, italics in the original)
- 'The money-rate of interest, by setting the pace for all the other commodity-rates of interest, holds back investment in these other commodities without being capable of stimulating investment for the production of money, which by hypothesis cannot be produced.' (Keynes 1936, p. 235)
- Money has a liquidity premium in a world of fundamental uncertainty
- Rate of interest on money: Compensation for parting with money and for holding less liquid assets
- If rates of return of all other assets fall when holding of these assets is extended ➔ rate of interest on money sets a floor to all the other rates of retrun ➔ long-run equilibrium determined by the monetary interest rate! (Rogers 1989)

- Chapters 13 and 15 of the *General Theory:* Increase in nominal money supply should cause a fall in the rate of interest in the bonds market, because part of this increase in money will be used by households to raise their demand for bonds, which increases bond prices, lowers the effective rate of interest on bonds and stimulates investment.

- Same effect via fall in money wages and prices on real money supply? Keynes real balance effect as in Neoclassical Synthesis .. ?

- 'Indeed if the fall of wages and prices goes far, the embarrassment of those entrepreneurs who are heavily indebted may soon reach the point of insolvency, - with severely adverse effects on investment.' (Keynes 1936, p. 264)

➔ real debt effects (Fisher) dominate!

- Destabilising effects of falling money wages and prices on aggregate demand, via re-distribution, expectations and the marginal efficiency of capital and, in particular, via the real debt effects, which were highlighted already by Fisher (1933), requires money to be predominantly credit money generated endogenously by creditor-debtor-contracts in the economy.

- Keynes abandons idea of given money supply in a debate with Ohlin, Hawtrey and Robertson in *The Economic Journal* in 1937/38 (‘revolving fund of finance’):

- Investment finance-motive of money demand requires endogenous credit and money – and implies exogenous interest rate under control of the banking sector.

‘This means that, in general, the banks hold the key position in the transition from a lower to a higher scale of activity. If they refuse to relax, the growing congestion of the short-term loan market or of the new issue market, as the case may be, will inhibit the improfovement, no matter how thrifty the public purpose to be out their future incomes. On the other hand, there will always *exactly* enough *ex post* saving to take up the *ex post* investment and to release the finance which the latter had been previously employing. The investment market can become congested through shortage of cash. It can never become congested through shortage of saving. This is the most fundamental of my conclusions in this field.’ (Keynes 1973, p. 222)

‘However important a role liquidity preference may play in Keynes’ monetary theory, it is entirely immaterial to his theory of effective demand. What this theory requires, as far as the rate of interest is concerned, is not that the rate of interest is determined by liquidity preference, but that it is determined *exogenously* with respect to the income generation process. Whether, in particular, liquidity preference, or anything else determines it, is entirely immaterial.’ Pasinetti (1974, p. 47, emphasis in the original)

3.5 ENDOGENOUS CREDIT, FINANCE, INVESTMENT AND SAVING IN MONETARY CIRCUIT SCHOOL

- Keynes-Robertson-Hawtrey-Ohlin debate on rate of interest, finance and saving
- Keynes (1937): revolving fund and the finance motive of money demand
- Graziani (1984, 1989): Theory of a monetary circuit (considering the dimension of time)
- Further contributions and clarifications: Bossone (2001, 2003), Fontana (2000), Gnos (2007), Lavoie (1994), Nell (2002), Parguez (1996), Rochon (1999, 2003), Seccareccia (1996, 2003), ...

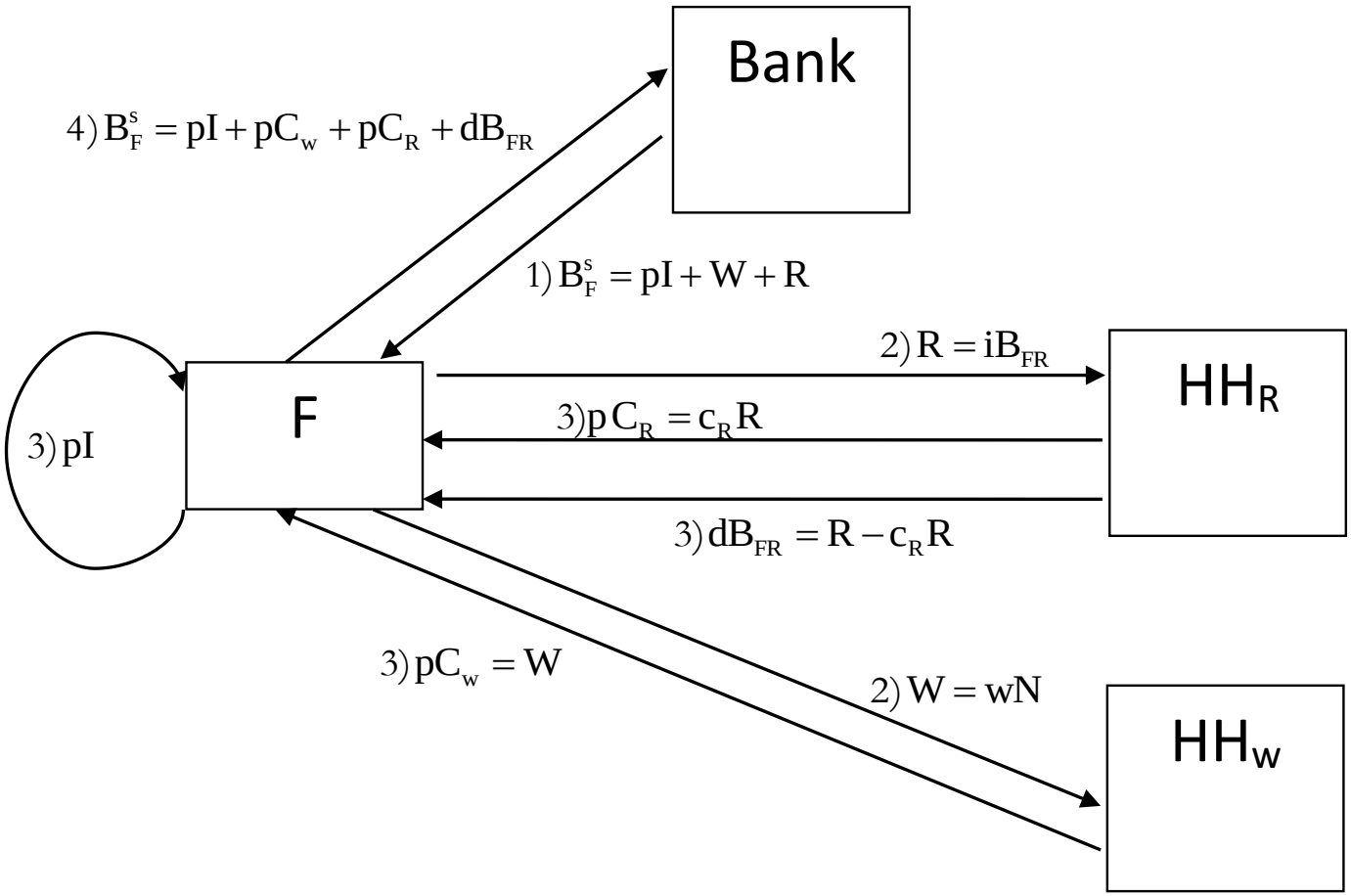
Monetary circuit for a given level of economic activity determined by effective demand

Agents: Banking sector (commercial banks), workers‘ households, rentiers‘ households, firms

Markets: market for short-term credit (finance or initial finance), market for long-term credit/equity (funding or final finance), goods market and labour market
Short-term and long-term rate of interest are given
Payments only take place via bank accounts

➔ pure credit economy

Figure 3.3: A monetary circuit without interest on short-term credit and without rentiers holding deposits



1. **Phase:** efflux phase (Seccareccia 2003):

   Firms obtain short-term credit (B^s_F) from banks, banks create credit money ‚ex nihilo': initial finance for wages (W), payments to creditors and shareholders (R) and investment (pI)
   Debate on the amount of initial finance (only wages? wages & interest plus dividends? wages, rentiers' income and investment

(3.26) $$B^s_F = pI + W + R = pI + wN + iB_{FR} .$$

2. **Phase:**

   Firms initiate production and pay wages to workers and capital income to rentiers

3. Phase: reflux phase

Workers spend wages for consumption (pCW), rentiers spend part of their income for consumption (pCR), firms purchase investment goods (pI)

- Realisation of profits:

(3.27) $\Pi = pI + pC_R + pC_W - W = pI + pC_R$

- In order to allow firms to pay back short term credit, rentiers have to use their saving for funding investment (equity or bonds), dB_{FR}

- final finance:

(3.29) $S_R + \Pi_F = dB_{FR} + dE_F = pI$

(3.28) $\Pi_F = \Pi - R = pI + pC_R - R$

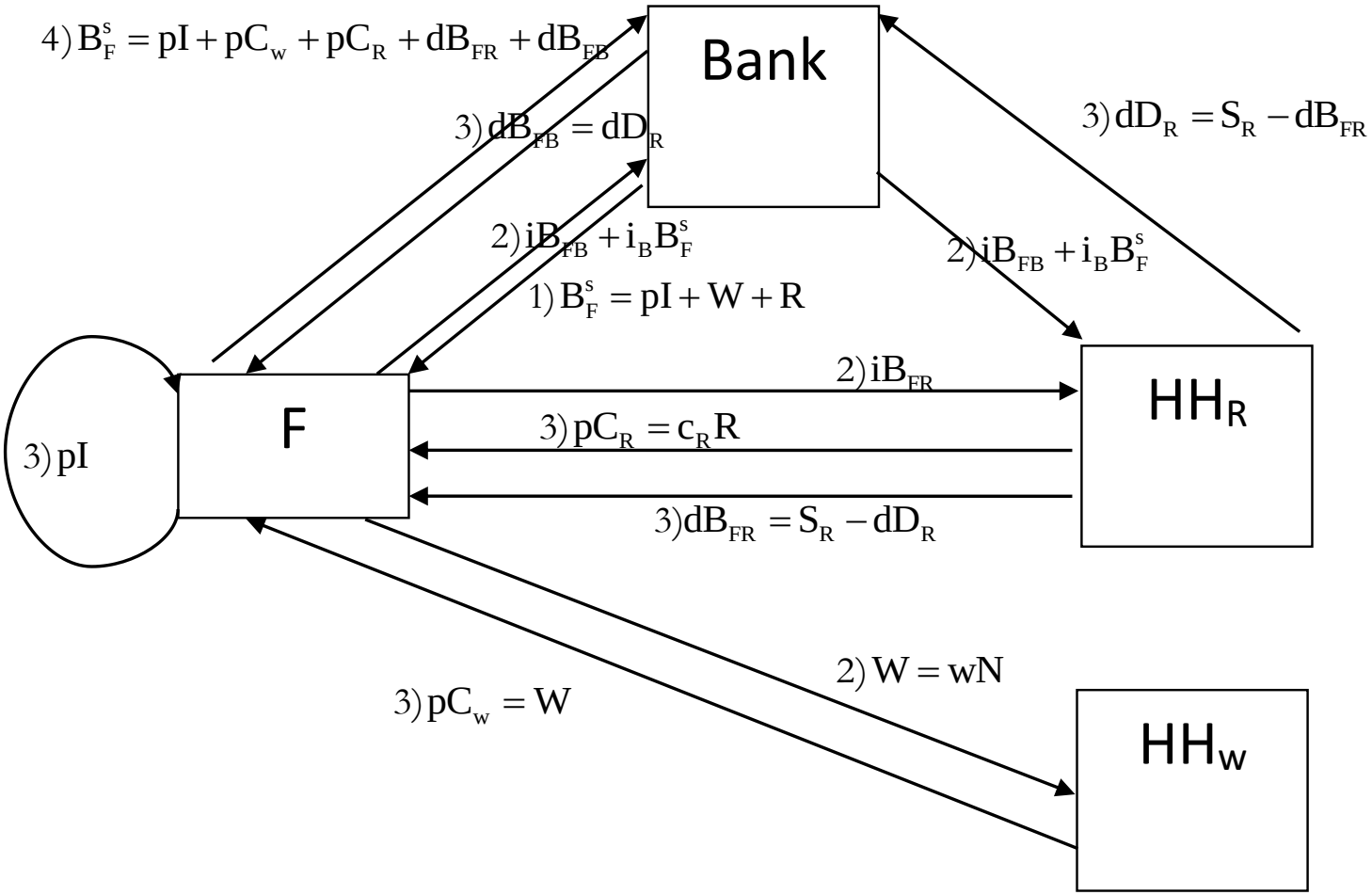
- Saving is not a precondition for investment but a result

4. Phase:

Firms pay back short-term credit to banks, monetary circuit is closed, credit money is destroyed

(3.30) $B^S_F = pI + pC_R + pC + dB_{FR}$

Figure 3.4: A monetary circuit with rentiers holding deposits and firms paying interest on short-term bank credit



What is different?

- Banks‘ interest revenues are immediately transferred to bank owners, the rentiers households

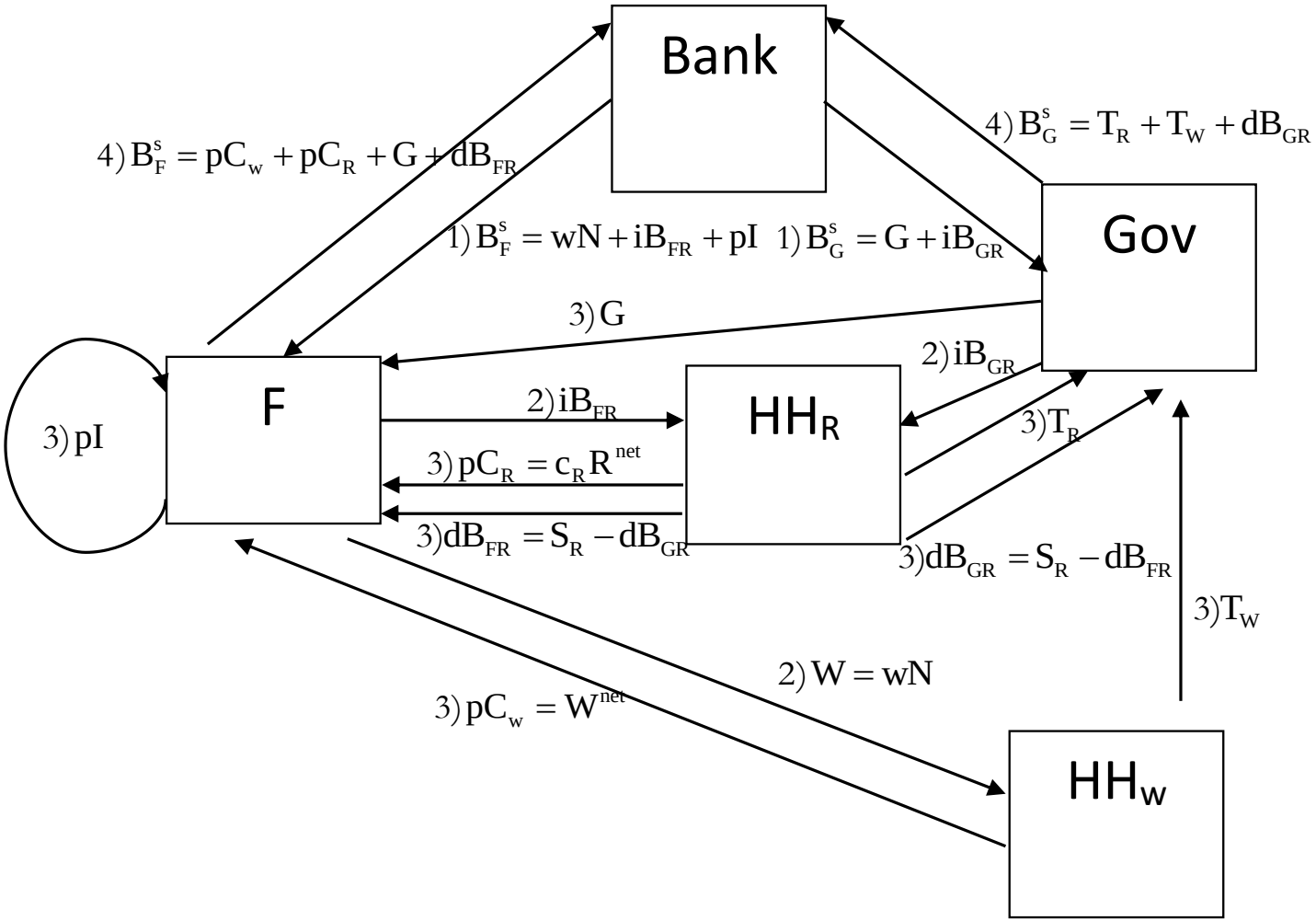
- Banks have also to grant short-term credit to serve interest on this credit

(3.31) $$B_F^s = pI + W + iB_{FR} + iB_{FB} + i_B B_F^s = pI + W + R\ .$$

- Rentiers holding deposits/liquidity requires banks to grant long-term credit of the same amount to firms and to close the circuit

(3.32) $$B_F^s = pI + pC_w + pC_R + dB_{FR} + dB_{FB}\ .$$

Figure 3.5: A monetary circuit including a government and without interest on initial finance and without rentiers holding deposits



What is different?

- Initial finance also has to cover government expenditures ($G + iB_{GR}$)
- Rentiers‘ households also buy debt issued by governments
- Tax revenues are not a precondition of government expenditures but a result of total expenditures, government deficit is endogenous
- Government deficit contributes to realising profits (a la Kalecki)

(3.33) $B^s = B^s_F + B^s_G$,

Use of initial finance:

(3.34) $B^s_F = wN + iB_{FR} + pI$,

(3.35) $B^s_G = iB_{GR} + G$.

Revenues to pay back initial finance:

(3.36) $B^s_F = pI + pC_w + pC_R + G + dB_{FR}$,

(3.37) $B^s_G = T_W + T_R + dB_{GR}$.

The realisation of profits

(3.38) $\Pi_F^{net} + T_\Pi + (iB_{FR})^{net} + T_{FR} + W^{net} + T_W + (iB_{GR})^{net} + T_{GR} = pI + pC_R + pC_W + G + iB_G$,

with pre-tax incomes on the left hand side and expenditures on the right hand side of the equation. Π_F^{net} represents retained profits net of taxes, T_Π taxes on retained profits, $(iB_{FR})^{net}$ interest revenues of rentiers from firms net of taxes, T_{FR} taxes on interest revenues of rentiers from firms, W^n wages net of taxes, T_W taxes on wages, $(iB_{GR})^{net}$ interest revenues of rentiers from the government net of taxes, and T_{GR} taxes on interest revenues of rentiers from the government. Assuming that taxes on retained profits are zero and that workers spend their net wages, both in line with our monetary circuit model in this section, and considering that $(iB_{GR})^{net} + T_{GR} = iB_{GR}$, equation (3.38) reduces to:

(3.39) $\Pi_F^{net} + (iB_{FR})^{net} + T_{FR} + T_W = pI + pC_R + G$.

This implies:

(3.40) $\Pi^{net} = \Pi_F^{net} + (iB_{FR})^{net} = pI + pC_R + G - T_{FR} - T_W$.

Results

- Banks hold the key for initial finance and thus the level of production, as well as for the expansion of production

- Firms‘ production decisions, determined by investment, consumption and government demand, and banks‘ finance decisions determine the level of production and of income

- If rentiers decide to hold liquidity with the banks, firms indebtedness with banks increases pro tanto ➔ commercial banks have to grant long-term credit

- *Amount* of saving affects effective demand, output and income
- *Allocation* of saving determines indebtedness of the firm sector and the stock of credit money
- Potential negative feedbacks on the amount of initial finance or on the rate of interest for final finance in order to induce rentiers to hold firms‘ debt
- Liquidity preference affects the structure of interest rates