



Institute for International Political Economy Berlin

# 'Financialisation', Distribution, Capital Accumulation and Productivity Growth in a Post- Kaleckian Model

Author: Eckhard Hein

Working Paper, No. 01/2009

Editors:

Trevor Evans ■ Eckhard Hein ■ Martin Kronauer ■

Birgit Mahnkopf ■ Hansjörg Herr

## **‘Financialisation’, distribution, capital accumulation and productivity growth in a Post-Kaleckian model\***

Eckhard Hein (Berlin School of Economics and Law)

### **Abstract**

Focussing on the long-run effects of ‘financialisation’ and increasing shareholder power in a simple Post-Kaleckian endogenous growth model, we examine the effects of increasing shareholder power on the demand regime, on the productivity regime, and on the overall regime of the model. Under special conditions increasing shareholder power may have positive effects on capital accumulation and productivity growth and hence on potential growth of the economy. However, such a regime does not only require directly positive – or under certain conditions only weakly negative – effects of increasing shareholder power on the productivity regime. It also requires expansive – or under special circumstances only weakly contractive – effects of increasing shareholder power on capital accumulation via the demand regime of the economy. Both conditions have recently been questioned on empirical grounds, so that an overall long-run ‘contractive’ regime seems to be the most likely outcome of ‘financialisation’, rising shareholder power and pronounced shareholder value orientation.

Keywords: Financialisation, distribution, capital accumulation, productivity growth, Kaleckian model

JEL Code: E12, E21, E22, E25, O16, O41

Prof. Dr. Eckhard Hein  
Berlin School of Economics and Law  
Badensche Str. 50-51  
10825 Berlin  
Germany  
e-mail: [eckhard.hein@hwr-berlin.de](mailto:eckhard.hein@hwr-berlin.de)

---

\* Paper prepared for the conference “Recent developments in Post-Keynesian modelling” at University Paris XIII, 20 -21 November 2009. For helpful comments I would like to thank Marc Lavoie and Till van Treeck. Remaining errors are, of course, mine.

## 1. Introduction

Focussing on the changes in the relationship between financial and non-financial sectors in developed and developing economies during the recent three decades, which have been generally labelled as ‘financialisation’,<sup>1</sup> Post-Keynesian have suggested a variety of approaches integrating these developments into demand-led distribution and growth models.<sup>2</sup>

The following channels of influence of ‘financialisation’ have been identified and introduced:<sup>3</sup>

1. Both the objectives and the constraints of firms as a whole may be affected by increasing ‘financialisation’. On the one hand, rising shareholder power subordinates management’s and workers’ preference for (long-run) growth of the firm to shareholders’ preference for (short-term) profitability. On the other hand, increasing dividend payments, share buybacks etc. restrict the availability of finance for firms’ real investment projects.
2. New opportunities (and longer term risks) for households in terms of wealth-based and debt-financed consumption arise. The reasons for this are financial asset price booms associated with shareholder value orientation of firms, financial market liberalisation, and new credit instruments made available to households by banks.
3. Distribution of income will be affected due to changes in power relations between shareholders, managers and workers, which will then feed back on investment and consumption.

---

<sup>1</sup> According to Epstein (2005: 3) ‘[...] financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies’. See Krippner (2005), Orhangazi (2008), Palley (2008), and the contributions in Epstein (2005) for a detailed treatment of the development in the US and other countries, van Treeck (2009a) and van Treeck/Hein/Duenhaupt (2007) for a comparison of the macroeconomics of ‘financialisation’ in the US and Germany, and Stockhammer (2008) for the development in Europe.

<sup>2</sup> See for instance the earlier work by Boyer (2000), the papers with partial models on the effects of ‘financialisation’ on investment by Stockhammer (2004, 2005-6) and on consumption by Bhaduri/Laski/Riese (2006) and Dutt (2006a), the flow models by Hein (2008) and Hein/van Treeck (2010b), and complete, stock-flow consistent models, with either simulations or analytical solutions, by Dallery/van Treeck (2008), Hein (2009, 2010), Lavoie (2008), Skott/Ryoo (2008a, 2008b), and van Treeck (2009b). For a review see Hein/van Treeck (2010a).

<sup>3</sup> For a brief survey on empirical and econometric evidence for these channels of influence of ‘financialisation’ see Hein (2010).

Based on the contradictory effects of ‘financialisation’ on investment and consumption and on the impact on distribution, different potential macroeconomic growth regimes have been suggested in the literature. Some authors have considered the possibility of a ‘finance-led growth’ regime (Boyer, 2000), in which shareholder value orientation has an overall positive impact on the rates of capacity utilisation, profit and growth. Other authors, starting with Cordonnier (2006), have argued that a regime of ‘profits without investment’ might emerge. In this regime, rising interest or dividend payments of firms to rentiers (or share buybacks) are associated with increasing rates of profit and capacity utilisation, but with a falling rate of capital accumulation. Finally, some authors have shown that a ‘contractive’ regime may arise, in which higher interest and dividend payments to rentiers have a restrictive effect on the rates of capacity utilisation, profit and capital accumulation (Hein, 2008, 2009, 2010; Hein/van Treeck, 2010b; van Treeck, 2008, 2009b).<sup>4</sup> As shown in Hein (2009, 2010), the financial structure of the firm sector, i.e. the debt-capital or the outside finance-capital ratio, in ‘profits without investment’ and ‘contractive’ regimes are prone to cumulative instability. In the disequilibrium process, these regimes give rise to a ‘paradox of outside finance’ reminiscent of Steindl’s (1952: 113-122) ‘paradox of debt’: Falling (rising) rates of capital accumulation induce firms to attempt to reduce (raise) the outside finance-capital ratio, but the macroeconomic effects of such a behaviour is that this ratio will keep on increasing (falling) feeding back negatively (positively) on capital accumulation.

In the present paper, we do not intend to add further variants of complete stock-flow consistent models to the literature, but we rather focus on the long-run effects of ‘financialisation’ on capital accumulation and productivity growth – and hence on potential

---

<sup>4</sup> As Hein/van Treeck (2010b) have shown, only the ‘profits without investment’ regime displays a strict micro-macro-relationship, whereas the other two regimes generate fallacies of composition. The ‘finance-led growth’ regime generates a ‘paradox of accumulation’ and the ‘contractive’ regime suffers from a ‘paradox of profits’.

growth. In particular the effect on productivity growth has not yet been addressed in Post-Keynesian distribution and growth models dealing with ‘financialisation’ issues and increasing shareholder power. This is surprising because, on the one hand, the early orthodox proponents of shareholder value orientation had argued that increasing shareholder power would induce managers to make more efficient use of the funds at their disposal and thus reduce the inefficiencies inherent in the ‘principal-agent’ conflict of modern corporations (Jensen/Meckling, 1976). Therefore, increasing shareholder power and shareholder value orientation of management should have a positive effect on productivity growth and the economy’s growth potential. On the other hand, those who have argued that ‘financialisation’, increasing shareholder power and rising shareholder value orientation of management would cause a policy of ‘downsize and distribute’ (Lazonick/O’Sullivan, 2000), in order to satisfy shareholders’ demand for distributed profits and high stock and share prices, should have expected that low capital stock growth associated with such a policy would also have negative effects on productivity growth and thus on long-run potential growth of the economy as a whole.

We address these potentially contradicting effects of ‘financialisation’ on capital accumulation and productivity growth in a simple Post-Kaleckian distribution and growth model for a closed private economy with endogenously determined productivity growth. Having presented the basic model features in Section 2, we will then make use of the distinction between demand and productivity regime, suggested by Setterfield/Cornwall (2002), we analyse the demand regime in Section 3, and then the productivity regime in Section 4. In Section 5 the overall regime will be derived and the effects of increasing shareholder power will be discussed. Section 6 concludes.

## 2. The basic model

The effects of ‘financialisation’ and increasing shareholder power will be integrated into a Post-Kaleckian distribution and growth model with an extension of the investment function proposed by Bhaduri/Marglin (1990). An increase in shareholder power will be considered to be the exogenous variable in our model, both for the demand and the productivity regime. For the analysis of the demand regime we will take productivity growth to be an exogenous variable, which will then be endogenised in the analysis of the productivity regime. Finally, in the overall regime, the equilibrium rates of capital accumulation and productivity growth will be determined endogenously and the effects of increasing shareholder power will be derived.

We assume a closed private economy. Under given conditions of production, there is just one type of commodity produced which can be used for consumption and investment purposes. There is no overhead-labour and in order to simplify the following discussion we assume that technical progress is labour saving and capital embodied. Technical progress is hence associated with a falling labour-output-ratio ( $a = L/Y$ ) and rising labour productivity ( $y = Y/L$ ). The capital-labour-ratio ( $k = K/L$ ) increases at the same rate as labour productivity does, and the capital-potential output-ratio ( $v = K/Y^v$ ), therefore remains constant. This means we assume Harrod-neutral technical progress, as in Rowthorn (1981), Casetti (2003) and Dutt (2003). For the sake of simplicity we also do not consider depreciations. The rate of capacity utilisation ( $u$ ) is given by the relation between actual real output and potential real output. Pricing and distribution of income between different social groups in the model can be described by the following equations:

$$p = [1 + m(\Omega)]wa, \quad m > 0, \frac{\partial m}{\partial \Omega} \geq 0, \quad (1)$$

$$h = \frac{\Pi}{pY} = 1 - \frac{1}{1 + m(\Omega)}, \quad \frac{\partial h}{\partial \Omega} \geq 0, \quad (2)$$

$$r = \frac{\Pi}{pK} = \frac{\Pi}{pY} \frac{Y}{Y^v} \frac{Y^v}{K} = hu \frac{1}{v}, \quad (3)$$

$$\Pi = \Pi^F + R^i + R^d = \Pi^F + R, \quad (4)$$

$$r^R = \frac{R}{pK}, \quad \frac{\partial r^R}{\partial \Omega} > 0, \quad (5)$$

$$r^F = \frac{\Pi^F}{pK}, \quad (6)$$

$$r = r^F + r^R \quad (7)$$

Writing  $w$  for the nominal wage rate, we assume that firms set prices ( $p$ ) according to a mark-up ( $m$ ) on unit labour costs in the incompletely competitive goods market (equation 1). Following Kalecki (1954: 17-18), the mark-up is mainly determined by the degree of price competition in the goods markets and by the relative powers of capital and labour in the labour market. The profit share ( $h$ ), i.e. the proportion of total profits ( $\Pi$ ) in nominal output ( $pY$ ), is therefore determined by the mark-up (equation 2). The mark-up and the profit share may become elastic with respect to a change in shareholder power ( $\Omega$ ) vis-à-vis management and labourers, as will be discussed in more detail below. The profit rate ( $r$ ) relates the annual flow of profits to the nominal capital stock and can be decomposed into the profit share, the rate of capacity utilisation and the reciprocal of the capital-potential output ratio (equation 3).

Since long-term finance of firms' capital stock in our model consists of firms' accumulated retained earnings controlled by owners/managers and equity and bonds held by rentiers' households, total profits ( $\Pi$ ) split into firms' retained profits ( $\Pi^F$ ), on the one hand, and dividends paid on equity held by rentiers ( $R^d$ ) as well as interest paid on debt ( $R^i$ ) also accruing to rentiers' households, on the other hand (equation 4). In order to simplify further

analysis, we synthesize dividend and interest payments to rentiers and thus only have to consider retained profits vs. distributed profits ( $R$ ). Dividing by the nominal capital stock, we can distinguish a rentiers' profit rate ( $r^R$ ) (equation 5) and a firms' profit rate ( $r^F$ ) (equation 6), which sum up to the total profit rate (equation 7).

'Financialisation' and rising shareholder power will be associated with increasing rentiers' demand for distributed dividends. It may also be accompanied by increasing interest payments, if the process of financialisation is characterised by the substitution of own capital by debt (debt-financed mergers and acquisitions, debt-financed share buybacks), as has been observed in the US and recently also in Germany (see Krippner, 2005; van Treeck/Hein/Dünhaupt, 2007; van Treeck, 2009a). Therefore, we assume that an increase in shareholder power will also cause an increase in the rentiers' profit rate. With a given total rate of profit, a given capital-potential output ratio, given income distribution between capital and labour, and a given rate of capacity utilisation, an increase in the rentiers' rate of profit would cause a decrease in the firms' rate of profit (equation 7). However, as will be seen below, as the rate of capacity utilisation is an endogenous variable in our model, the total rate of profit will generally not remain constant in the face of a change in the rentiers' rate of profit.<sup>5</sup>

Further on, a persistent increase in shareholder power ( $\Omega$ ) is likely to affect distribution between capital and labour. If 'financialisation' and rising shareholder power reduce the degree of competition in the goods market as a consequence of mergers and acquisitions, hostile takeovers, etc., and, in particular, if the bargaining power of labour unions in the labour market decreases as a result of firms' 'downsize and redistribute' strategy and (the

---

<sup>5</sup> Of course, one may also consider the possibility that an increase in shareholder power reduces the rentiers' profit rate, when there are strong contractive macroeconomic effects on the overall profit rate. Here, we exclude this possibility for simplicity.



threat of) increasing unemployment, rising dividend payments to shareholders will be associated with an increasing mark-up in firms' pricing (equation 1). Under these conditions, increasing shareholder power will hence be accompanied by an increasing share of total profit in income (equation 2) and by a falling share of labour income.

### 3. The demand regime

Saving, investment and the goods market equilibrium of the model are described by the following equations:

$$\sigma = \frac{S}{pK} = \frac{\Pi - R + s_R R}{pK} = r - (1 - s_R)r^R, \quad 0 < s_R \leq 1, \quad (8)$$

$$g = \frac{I}{pK} = \alpha + \beta u + \tau h - \theta r^R + \omega \hat{y}, \quad \alpha, \beta, \tau, \theta, \omega \geq 0, \frac{\partial \alpha}{\partial \Omega} < 0, \frac{\partial r^R}{\partial \Omega} > 0, \quad (9)$$

$$g = \sigma, \quad (10)$$

$$\frac{\partial \sigma}{\partial u} - \frac{\partial g}{\partial u} > 0 \quad \Rightarrow \quad \frac{h}{v} - \beta > 0. \quad (11)$$

For the determination of the goods market equilibrium we assume a classical saving hypothesis, i.e. labourers do not save. The part of profits retained is completely saved by definition. The part of profits distributed to rentiers' households is used by those households according to their propensity to save ( $s_R$ ). Therefore, we get the saving rate ( $\sigma$ ) in equation (8) which relates total saving to the nominal capital stock.

The accumulation rate ( $g$ ), relating net investment ( $I$ ) to the capital stock (equation 9) is based on the investment function proposed by Bhaduri/Marglin (1990). Investment decisions are

assumed to be positively affected by expected sales (proxied by the rate of capacity utilisation) and by unit profits (and hence the profit share), because both increase the (expected) profit rate. Distributed profits, the dividends and interest payments to rentiers, have a negative impact on investment, because they reduce retained earnings and firms' own means of investment finance. This also limits the access to external funds in imperfect capital markets, according to Kalecki's (1937) 'principle of increasing risk'.

Based on a 'growth-profit trade-off' at the firm level, as implied by the Post-Keynesian theory of the firm (Lavoie 1992: chapt. 3), pronounced shareholder value orientation is likely to be associated with a high preference for short-term profitability at the expense of the propensity to invest in real capital stock (Crotty, 1990; Stockhammer, 2005-6). This has two dimensions. Increasing shareholder power vis-à-vis management will increase the rentiers' rate of profit and reduce available funds for real investment and growth of the firm. But increasing shareholder power will not only affect investment through this 'internal finance channel'. Management's 'animal spirits', reflected in the constant  $\alpha$  in the investment function, will decline and might even become negative when managers are aligned with shareholders through stock option programmes and the threat of hostile takeovers in an active market of corporate control. Even if the availability of internal funds were irrelevant for firms' investment decisions, increasing shareholder power would negatively affect investment through this 'preference channel'. Our investment function hence captures two channels of transmission of increasing shareholder power on real investment: the 'internal finance channel' and the 'preference channel'.

We also include technical progress, which for the time being is assumed to be exogenous, into the investment function, following the procedure suggested by Rowthorn (1981), Lavoie (1992: 316-322) and Dutt (2003). Since technical progress is embodied in capital stock, it will

stimulate investment. Firms have to invest in new machines and equipment in order to gain from productivity growth ( $\hat{y}$ ) which is made available by new technologies. This effect on investment will be the more pronounced the more fundamental technical change is: The invention of new basic technologies will have a stronger effect on real investment than marginal changes in technologies already in existence.<sup>6</sup>

The goods market equilibrium is determined by the equality of saving and investment decisions (equation 10). The goods market stability condition requires that the saving rate responds more elastically to changes in capacity utilisation than capital accumulation does (equations 11). Finally, we obtain the following goods market equilibrium values for the rates of capacity utilisation, profit and capital accumulation:

$$u^* = \frac{\alpha + \tau h + \omega \hat{y} + r^R (1 - s_R - \theta)}{\frac{h}{v} - \beta}, \quad (12)$$

$$r^* = \frac{\frac{h}{v} [\alpha + \tau h + \omega \hat{y} + r^R (1 - s_R - \theta)]}{\frac{h}{v} - \beta}, \quad (13)$$

$$g^* = \frac{\frac{h}{v} (\alpha + \tau h + \omega \hat{y}) + r^R \left[ \beta (1 - s_R) - \theta \frac{h}{v} \right]}{\frac{h}{v} - \beta}. \quad (14)$$

In what follows, the discussion of the effects of increasing shareholder power on the demand regime will assume stable goods market equilibria, and we will focus here on the effects on

---

<sup>6</sup> Dutt (2003) also discusses potential effects of technical progress on saving – new products and hence consumption possibilities may cause a reduction in the propensity to save – and on the mark-up and hence income distribution – technology leaders may increase their mark-ups and hence the profit share for the economy as a whole. We will not integrate these effects into our model.

capital accumulation only.<sup>7</sup> We have two channels of influence of rising shareholder power via firms' investment, the 'preference channel' with  $\frac{\partial \alpha}{\partial \Omega} < 0$  and the 'finance channel' with  $\frac{\partial r^R}{\partial \Omega} > 0$ . Further on we have a potential 'distribution channel' with  $\frac{\partial h}{\partial \Omega} \geq 0$ . For the demand regime of our model, we get the following total effects of an increase in shareholder power on capital accumulation:

$$\frac{\partial g^*}{\partial \Omega} = \frac{\frac{\partial \alpha}{\partial \Omega} \frac{h}{v} + \frac{\partial r^R}{\partial \Omega} \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] + \frac{\partial h}{\partial \Omega} \frac{1}{v} (\tau h - \beta u)}{\frac{h}{v} - \beta}. \quad (15)$$

As can be seen from the first term in the numerator, the effect of increasing shareholder power via the 'preference channel' is negative. The effect via the 'finance channel', however, may be negative or positive, because increasing dividend payments mean a loss of internal means of finance for firms with a negative impact on investment, but they also increase rentiers' income with a direct positive impact on consumption and an indirect one on investment. The overall effect of the 'finance channel' will hence depend on the rentiers' propensity to save and on the elasticities of firms' investment with respect to distributed profits and to capacity utilisation, as can be seen from the second term in the numerator. Finally, if rising shareholder power has a positive effect on the profit share, the 'distribution channel' will have ambiguous effects on equilibrium capital accumulation, too, because the accumulation regime in the model may either be wage-led or profit-led, as can be seen from the third term in the numerator. If unit profits have a strong impact on investment decisions and the impact of capacity utilisation is rather weak, capital accumulation tends to become profit-led and

---

<sup>7</sup> For a more detailed discussion including the effects on the rates of capacity utilisation and profit in similar models see Hein (2009, 2010) and Hein/van Treeck (2010b).

redistribution at the expense of labour will push capital accumulation. If however the impact of unit profits is weak and the effect of aggregate demand and hence the rate of capacity utilisation is strong, accumulation will become wage-led and redistribution at the expense of labour in the face of rising shareholder power will affect capital accumulation in a negative way.

Therefore, depending on the parameter values of our model, the effect of increasing shareholder power on equilibrium capital accumulation in the demand regime may be ‘expansive’ or ‘contractive’:

$$\frac{\partial g^*}{\partial \Omega} > 0, \quad \text{if:} \quad 1 - s_R > \left( \frac{-\frac{\partial \alpha}{\partial \Omega} - \frac{\partial h}{\partial \Omega} \left( \tau - \beta \frac{u}{h} \right)}{\frac{\partial r^R}{\partial \Omega}} + \theta \right) \frac{h}{\beta v} \quad (15')$$

An ‘expansive’ demand regime is obtained, if the following conditions are given: a low propensity to save out of rentiers’ income, little importance of distributed profits (and hence internal funds) for firms’ investment decisions, weak relevance of the ‘preference channel’ for firms’ investment decisions relative to the ‘finance channel’, and a high responsiveness of investment with respect to the profit share. A ‘contractive’ demand regime will prevail under the opposite conditions.

#### 4. The productivity regime

Within Post-Keynesian distribution and growth theory, in particular Kaldor has developed different ways to endogenise technological change. In his technical progress function (Kaldor,

1957, 1961), productivity growth is positively affected by the growth of capital stock and capital intensity, because technical progress is capital embodied. Another possibility has been proposed by Kaldor (1966) looking for an explanation of the (slow) growth in the United Kingdom. There he applies Verdoorn's Law. According to Verdoorn (1949), the growth rate of labour productivity in industrial production is positively associated with the growth rate of output.<sup>8</sup> This can be explained by static and dynamic economies of scale. Following these approaches implies that the growth rate of labour productivity is positively affected by the dynamics of output and capital stock. Rowthorn (1981), Lavoie (1992: 322-327), and Dutt (2003), for example, have chosen the latter way of integrating productivity growth into Kaleckian distribution and growth models, and we will follow their suggestion here.

Apart from capital accumulation, we will consider two further determinants of productivity growth. First, we assume a direct effect of increasing shareholder power on productivity growth: Following the arguments put forward by early proponents of shareholder value orientation (Jensen/Meckling, 1976), we assume that increasing shareholder power and the associated higher dividend payouts demanded by shareholders, weaker ability of firms to obtain new equity finance through stock issues (which tend to decrease share prices), increased threat of hostile takeovers in a liberalised market for corporate control (Manne, 1965), as well as financial market-oriented remuneration schemes (Fama, 1980), push managements to make more efficient use of the resources at their disposal. This should have positive effects on labour productivity growth and potential growth of the economy, at least initially.<sup>9</sup> However, as Jensen (2005) and Rappaport (2005) have argued recently, there may be drawbacks if shareholder value orientation goes too far, productivity enhancing investment is undermined by share buy-backs and dividend payouts, and management's short-termism

---

<sup>8</sup> For empirical evidence on Verdoorn's Law see the survey by McCombie/Pugno/Soro (2002) and the recent work by Vergeer/Kleinknecht (2007) and Hein/Tarassow (2009).

<sup>9</sup> It should also have a negative impact on the capital-potential output ratio, at least temporarily. This effect will be neglected in order to keep the analysis as simple as possible.

becomes an obstacle to efficiency and productivity gains – and finally to shareholder value itself. The effect of shareholder power on productivity growth may thus be non-linear. However, in our simple model, we will first consider only a directly positive partial effect of shareholder power on productivity growth and we will come back to potential drawbacks when we discuss the macroeconomic feedbacks in the total model in Section 5.

Second we include a wage-push variable into the productivity growth equation, as in Taylor (1991: 225-228), Cassetti (2003), Naastepad (2006), and Hein/Tarassow (2009). We thus make use of an idea proposed by Marx (1867) and Hicks (1932).<sup>10</sup> The argument is as follows: Low unemployment and increasing bargaining power of employees and their labour unions will speed up the increase in nominal and real wages which will finally generate a rising wage share and hence a falling profit share.<sup>11</sup> This will accelerate firms' efforts to improve productivity growth in order to prevent the profit share from falling. Dutt (2006b) has recently argued that increasing pressure from lower unemployment and rising real wages will accelerate the diffusion of innovations and will thus increase productivity growth.<sup>12</sup> Since rising shareholder power may have a depressing effect on labourers' bargaining power and on the wage share, as argued above, this may have an indirect negative effect on productivity growth.

Taking into account capital stock growth, shareholder power and the profit share as determinants yields the following simple equation for labour productivity growth:

---

<sup>10</sup> See also Lima (2004) who makes use of a non-linear effect of the wage share on technological innovations in a somewhat more complex model than ours. However, in his model there is no Verdoorn effect or technical progress function. See also Lima (2000).

<sup>11</sup> In a Kaleckian model of an open economy, as the one presented here, nominal wage growth exceeding productivity growth will cause a rise in the wage share and a drop in the profit share, even if the mark-up on unit labour costs in firms' pricing remains constant (Hein 2005).

<sup>12</sup> For empirical evidence on wage push variables on productivity growth see recently Marquetti (2004), Naastepad (2006), Vergeer/Kleinknecht (2007), and Hein/Tarassow (2009).

$$\hat{y} = \eta + \varepsilon g + \vartheta \Omega - \rho h(\Omega), \quad \eta, \varepsilon, \vartheta, \rho > 0. \quad (16)$$

The constant in equation (16) can be interpreted as representing ‘learning by doing’. As in the demand regime, a change in shareholder power has ambiguous effects on the productivity regime in this simple linear version of the productivity growth equation, taking capital accumulation as given:

$$\frac{\partial \hat{y}}{\partial \Omega} = \vartheta - \rho \frac{\partial h}{\partial \Omega}. \quad (17)$$

Whereas the direct effect of increasing shareholder power on productivity growth is positive, the indirect effect via the profit share is negative and may thus overwhelm the direct effect, so that the overall effect is indeterminate. The condition for a positive effect is:

$$\frac{\partial \hat{y}}{\partial \Omega} > 0, \quad \text{if:} \quad \vartheta > \rho \frac{\partial h}{\partial \Omega}. \quad (17')$$

The productivity regime may therefore be ‘expansive’ or ‘contractive’, too. The ‘expansive’ regime is given when the effect of shareholder power on productivity growth is strong and the wage-push effect is weak and/or redistribution at the expense of the wage share is only moderate.

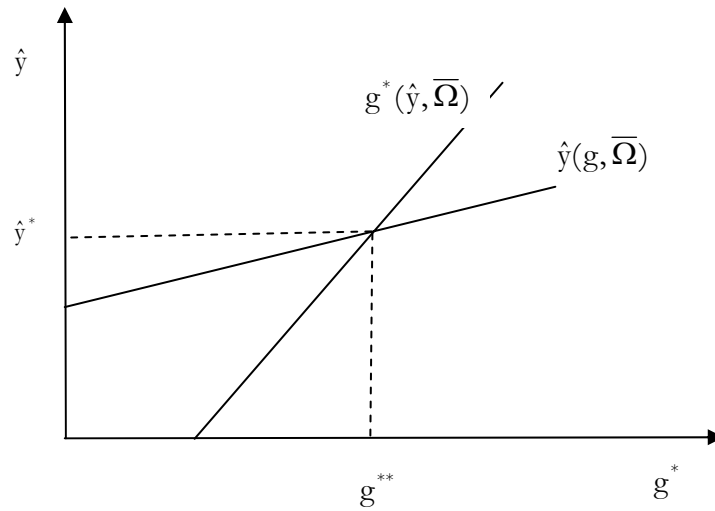
## 5. Increasing shareholder power and the overall regime

In order to discuss the total effect of a change in shareholder power on the demand and productivity regimes together, we first have to determine the overall equilibrium with given



shareholder power. Graphically, we obtain this equilibrium in Figure 1, which contains the goods market equilibrium rate of capital accumulation from equation (14) and the productivity equation (16). With given shareholder power ( $\bar{\Omega}$ ), we obtain a joint equilibrium in which the rate of capital accumulation ( $g^{**}$ ) and the growth rate of labour productivity ( $\hat{y}^*$ ) are determined endogenously.<sup>13</sup> The ‘natural rate of growth’, or potential growth, is hence endogenous in our model.

**Figure 1: Growth equilibrium with endogenous productivity growth**



Analytically we obtain from equations (14) and (16) the following results for the endogenous growth equilibrium:

$$g^{**} = \frac{\frac{h}{v} [\alpha + \tau h + \omega(\eta + \vartheta \Omega - \rho h)] + r^R \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right]}{\frac{h}{v} (1 - \varepsilon \omega) - \beta}. \quad (18)$$

<sup>13</sup> Of course, the rates of capacity and profit can be determined endogenously in this model, too.

$$\hat{y}^* = \frac{\left(\frac{h}{v} - \beta\right)(\eta + \vartheta\Omega - \rho h) + \varepsilon \left\{ \frac{h}{v}(\alpha + \tau h) + r^R \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] \right\}}{\frac{h}{v}(1 - \varepsilon\omega) - \beta}. \quad (19)$$

The existence and stability of the overall equilibrium requires that the slope of the capital accumulation function exceeds the slope of the productivity function in Figure 1. From equations (14) and (16) we obtain the following condition for this:

$$\frac{h}{v}(1 - \varepsilon\omega) - \beta > 0 \quad (20)$$

This implies that the reaction of capital accumulation with respect to productivity growth and productivity growth with respect to capital accumulation have to be moderate in order for an overall equilibrium to exist and to be stable.<sup>14</sup> In what follows we assume this condition to hold. From equations (18) and (19) we can derive the effects of rising shareholder power on the overall equilibrium, i.e. on the equilibrium rates of capital accumulation and productivity growth:

$$\frac{\partial g^{**}}{\partial \Omega} = \frac{\frac{\partial \alpha}{\partial \Omega} \frac{h}{v} + \frac{\partial r^R}{\partial \Omega} \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] + \frac{\partial h}{\partial \Omega} \frac{1}{v} (\tau h - \beta u) + \omega \frac{h}{v} \left( \vartheta - \frac{\partial h}{\partial \Omega} \rho \right)}{\frac{h}{v}(1 - \varepsilon\omega) - \beta}. \quad (21)$$

$$\frac{\partial \hat{y}^*}{\partial \Omega} = \frac{\left(\frac{h}{v} - \beta\right) \left( \vartheta - \frac{\partial h}{\partial \Omega} \rho \right) + \varepsilon \left\{ \frac{\partial \alpha}{\partial \Omega} \frac{h}{v} + \frac{\partial r^R}{\partial \Omega} \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] + \frac{\partial h}{\partial \Omega} \frac{1}{v} (\tau h - \beta u) \right\}}{\frac{h}{v}(1 - \varepsilon\omega) - \beta}. \quad (22)$$

---

<sup>14</sup> Comparing stability condition (20) for the overall regime, with feedbacks between capital accumulation and productivity growth, with the stability condition (11) for the demand regime, with exogenous productivity growth, shows that the former is more stringent than the latter. See Lavoie (1992: 325) for a similar result in a different Kaleckian model.

If both the demand regime and the productivity regime are expansive in the face of rising

shareholder power, it follows that  $\frac{\partial \alpha}{\partial \Omega} \frac{h}{v} + \frac{\partial r^R}{\partial \Omega} \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] + \frac{\partial h}{\partial \Omega} \frac{1}{v} (\tau h - \beta u) > 0$  and

$\vartheta - \frac{\partial h}{\partial \Omega} \rho > 0$ . Therefore, the numerators in equations (21) and (22) will be both positive and

the overall regime will be expansive, too. And if both the demand regime and the productivity

regime are contractive, it follows that  $\frac{\partial \alpha}{\partial \Omega} \frac{h}{v} + \frac{\partial r^R}{\partial \Omega} \left[ \beta(1 - s_R) - \theta \frac{h}{v} \right] + \frac{\partial h}{\partial \Omega} \frac{1}{v} (\tau h - \beta u) < 0$  and

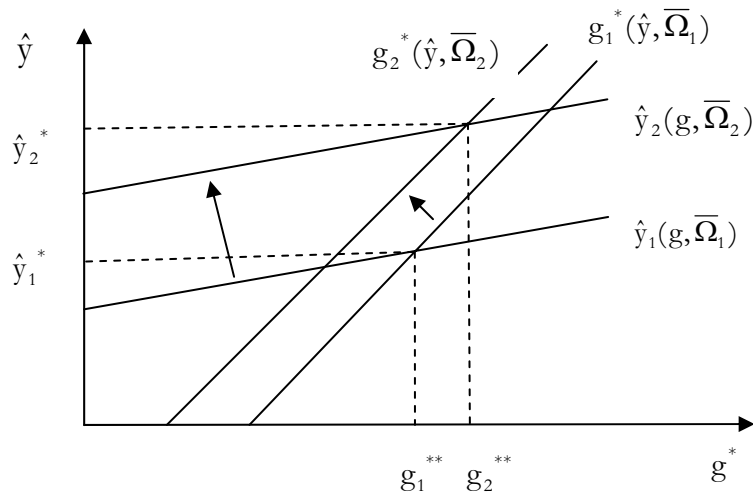
$\vartheta - \frac{\partial h}{\partial \Omega} \rho < 0$ , and thus the overall regime will be contractive, too.

If however, the demand regime is contractive (expansive) and the productivity regime is expansive (contractive) the two terms in the numerators of equations (21) and (22) have opposite signs and the overall effect of rising shareholder power depends on the relative strength of each partial effect. In Figures 2a-c this is shown for a ‘contractive’ demand regime and an ‘expansive’ productivity regime, in which a change in shareholder power has opposite partial effects on capital accumulation and on productivity growth. The overall results will therefore depend on the relative strength of each of these partial effects. If the contractive effect on the demand regime is rather weak, and the expansive effect on the productivity regime is strong, we obtain an overall expansive regime, as shown in Figure 2a: Capital accumulation and productivity growth increase with rising shareholder power. However, if the negative effect on the demand regime is very pronounced and the positive effect on the productivity regime is weak, we obtain an overall contractive regime, as can be seen in Figure 2c: The rates of capital accumulation and productivity growth decrease in the face of rising shareholder power. With intermediate partial effects on demand and productivity regimes, an

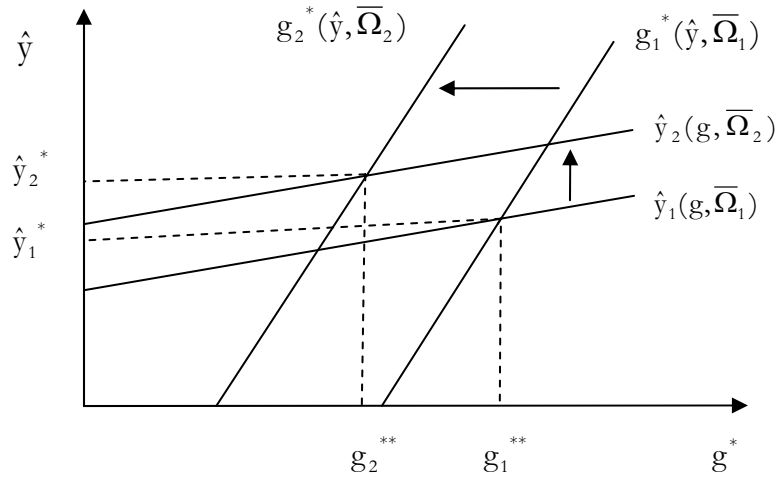
overall intermediate regime is possible as well: Increasing shareholder power triggers slower capital accumulation but faster productivity growth, as is displayed in Figure 2b.

**Figure 2: Increasing shareholder power, ‘expansive’ productivity regime and ‘contractive’ demand regime**

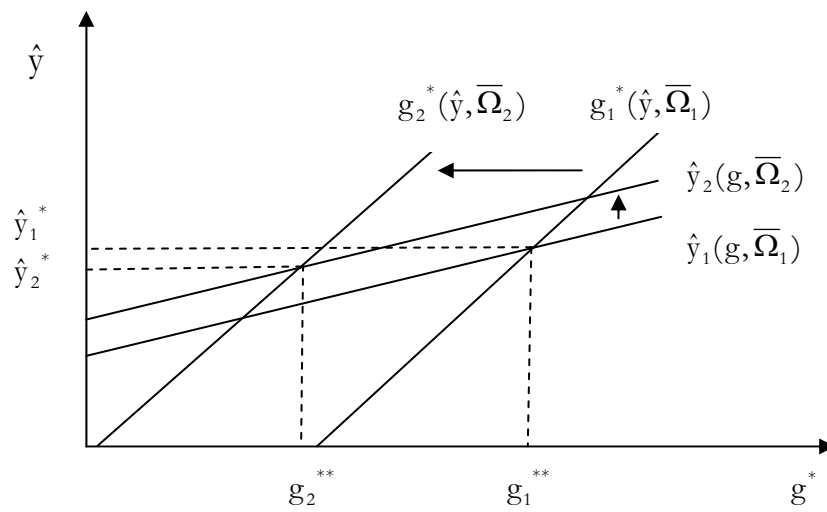
**a) Expansive overall regime**



**b) Intermediate overall regime**



**c) Contractive overall regime**



<b>Table 1: Demand, productivity and overall regime in the face of rising shareholder power</b>								
		<b>Demand regime</b>						
		<b>Contractive (<math>\partial g^* / \partial \Omega &lt; 0</math>)</b>			<b>Expansive (<math>\partial g^* / \partial \Omega &gt; 0</math>)</b>			
<b>Productivity regime</b>	<b>Contractive</b> ( $\partial \hat{y} / \partial \Omega < 0$ )	$\partial g^{**} / \partial \Omega$	$\partial \hat{y}^* / \partial \Omega$	<b>Overall regime</b>	$\partial g^{**} / \partial \Omega$	$\partial \hat{y}^* / \partial \Omega$	<b>Overall regime</b>	
						+	+	<i>Expansive</i>
		–	–	<i>Contractive</i>	+	–	<i>Intermediate</i>	
					–	–	<i>Contractive</i>	
	<b>Expansive</b> ( $\partial \hat{y} / \partial \Omega > 0$ )	$\partial g^{**} / \partial \Omega$	$\partial \hat{y}^* / \partial \Omega$	<b>Overall regime</b>	$\partial g^{**} / \partial \Omega$	$\partial \hat{y}^* / \partial \Omega$	<b>Overall regime</b>	
		–	–	<i>Contractive</i>	+	+	<i>Expansive</i>	
		–	+	<i>Intermediate</i>				
		+	+	<i>Expansive</i>				

In Table 1 the potential effects of changing shareholder power on the overall regime are summarised. Under special conditions increasing shareholder power may indeed have positive effects on capital accumulation and productivity growth and hence on the overall regime of the economy. Such a regime emerges for sure if increasing shareholder power has positive effects on firms' productivity growth via management's use of the resources at their disposal, and rising shareholder power triggers rising capital accumulation. However, it might also arise, if there is a strongly positive effect on capital accumulation but a weakly negative effect on productivity growth, or a weakly negative effect on capital accumulation but a strongly positive effect on productivity growth.

An overall contractive regime will arise if the effects of rising shareholder power on productivity and demand regimes are negative each, or if it is strongly negative for one regime but only weakly positive for the other. If rising shareholder power has moderately positive effects on one regime but moderately negative ones on the other, intermediate regimes with rising (falling) rates of accumulation but falling (rising) rates of capital accumulation might emerge.

## **6. Summary and conclusions**

Focussing on the long-run effects of 'financialisation' and increasing shareholder power in a simple Post-Kaleckian endogenous growth model, we have found that under special conditions increasing shareholder power may indeed have positive effects on capital accumulation and productivity growth and hence on potential growth of the economy, as implied by the claims of the early protagonists of the concept of shareholder value orientation. However, such a regime does not only require directly positive effects of increasing

shareholder power on the productivity regime – or only weakly negative effects if there are strongly positive effects on the demand regime. It also requires expansive effects of increasing shareholder power on capital accumulation via the demand regime of the economy – or only weakly negative effects if there are strongly positive effects on the productivity regime. The former condition has recently been questioned by the protagonists of the shareholder value concept themselves (Jensen, 2005; Rappaport, 2005) and it has also been questioned on empirical grounds (Graham/Harvey/Rajgopal, 2005). The latter condition requires extreme assumptions regarding the determinants of saving and investment and it has been put into question by empirical studies on the effects of ‘financialisation’ and increasing shareholder power on firms’ real investment (Orhangazi, 2008; Stockhammer, 2005-6) and on the prevailing demand regime (van Treeck, 2008, 2009a; van Treeck/Hein/Dünhaupt, 2007): Although being able to generate high levels of demand and profits at the macroeconomic level for considerable periods of time, building on wealth-based and credit-financed consumption demand, increasing ‘financialisation’ and shareholder power seems to cause a general weakness of capital accumulation. This does not only generate financial and real instability, as has been analysed elsewhere (Hein, 2009, 2010). Depressed capital accumulation is also very likely to feed back negatively on productivity growth and hence on long-run potential growth of the economy, as shown in the present paper. Therefore, an overall long-run ‘contractive’ regime seems to be the most likely outcome of ‘financialisation’, rising shareholder power and pronounced shareholder value orientation in a Post-Kaleckian endogenous growth model.



**References**

- Bhaduri, A., Laski, K., Riese, M. (2006): A model of interaction between the virtual and the real economy, *Metroeconomica*, 57: 412-427.
- Bhaduri, A., Marglin, S. (1990): Unemployment and the real wage: the economic basis for contesting political ideologies, *Cambridge Journal of Economics*, 14: 375-393.
- Boyer, R. (2000): Is a finance-led growth regime a viable alternative to Fordism? A preliminary analysis, *Economy and Society*, 29: 111-145.
- Cassetti, M. (2003): Bargaining power, effective demand and technical progress: A Kaleckian model of growth, *Cambridge Journal of Economics*, 27: 449-464.
- Cordonnier, L. (2006): Le profit sans l'accumulation: la recette du capitalisme dominé par la finance, *Innovations. Cahiers d'Economie de l'Innovation*, 23: 51-72.
- Crotty, J. (1990): Owner-management conflict and financial theories of investment instability: a critical assessment of Keynes, Tobin, and Minsky, *Journal of Post Keynesian Economics*, 12: 519-542.
- Dallery, T., van Treeck, T. (2008): Conflicting claims and equilibrium adjustment processes in a stock-flow consistent macro model, *IMK Working Paper*, 9/2008, Duesseldorf: Macroeconomic Policy Institute (IMK) at Hans Boeckler Foundation.
- Dutt, A.K. (2003): New growth theory, effective demand, and post-Keynesian dynamics, in: Salvadori, N. (eds.), *Old and New Growth Theories: An Assessment*, Cheltenham: Edward Elgar.
- Dutt, A.K. (2006a): Maturity, stagnation and consumer debt: a Steindlian approach, *Metroeconomica*, 57: 339-364.
- Dutt, A.K. (2006b): Aggregate demand, aggregate supply and economic growth, *International Review of Applied Economics*, 20: 319-336.

- Epstein, G.A. (ed.) (2005): *Financialization and the World Economy*, Cheltenham: Edward Elgar.
- Fama, E.F. (1980): Agency problems and the theory of the firm, *Journal of Political Economy*, 88: 288-307.
- Graham, J., Harvey, C., Rajgopal, S. (2005): The economic implications of corporate financial reporting, *Journal of Accounting and Economics*, 40: 3-73.
- Hein, E. (2005): Löhne, Verteilung und Wachstum: Ansätze in der Tradition Michal Kaleckis, in: Hein, E., Heise, A., Truger, A. (eds.), *Löhne, Beschäftigung, Verteilung und Wachstum. Makroökonomische Analysen*, Marburg: Metropolis.
- Hein, E. (2008): Rising shareholder power: effects on distribution, capacity utilisation and capital accumulation in Kaleckian/Post-Kaleckian models, in: Hein, E., Niechoj, T., Spahn, P., Truger, A. (eds), *Finance-led Capitalism? Macroeconomic Effects of Changes in the Financial Sector*, Marburg: Metropolis.
- Hein, E. (2009): Shareholder value orientation, distribution and growth – short- and medium-run effects in a Kaleckian model, *Metroeconomica*, early view: DOI: 10.1111/j.1467-999X.2009.04072.x.
- Hein, E. (2010): A Keynesian perspective on ‘financialisation’, in: Arestis, P., Sawyer, M. (eds.), *21<sup>st</sup> Century Keynesianism*, Basingstoke: Palgrave Macmillan, forthcoming.
- Hein, E., Tarassow, A. (2009): Distribution, aggregate demand and productivity growth – theory and empirical results for six OECD countries based on a Post-Kaleckian model, *Cambridge Journal of Economics*, advance access: doi: 10.1093/cje/bep066.
- Hein, E., van Treeck, T. (2010a): ‘Financialisation’ in Post-Keynesian models of distribution and growth – a systematic review, in Setterfield, M. (ed.): *Handbook of Alternative Theories of Economic Growth*, Cheltenham: Edward Elgar, forthcoming.

- Hein, E., van Treeck, T. (2010b): Financialisation and rising shareholder power in Kaleckian/Post-Kaleckian models of distribution and growth, *Review of Political Economy*, forthcoming.
- Hicks, J. (1932): *The Theory of Wages*, London: Macmillan.
- Jensen, M. (2005): Agency costs of overvalued equity, *Financial Management*, 34: 5-19
- Jensen, M.C., Meckling, W.H. (1976): Theory of the firm - managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, 3: 305-360
- Kaldor, N. (1957): A model of economic growth, *The Economic Journal*, 67: 591-624.
- Kaldor, N. (1961): Capital accumulation and economic growth, in: Lutz, F.A., Hague, D.C. (eds.), *The Theory of Capital*, London: Macmillan.
- Kaldor, N. (1966): *Causes of the Slow Rate of Economic Growth in the United Kingdom*, Cambridge: Cambridge University Press.
- Kalecki, M. (1937): The principle of increasing risk, *Economica*, 4: 440-447.
- Kalecki, M. (1954): *Theory of Economic Dynamics*, London: George Allen and Unwin.
- Krippner, G.R. (2005): The financialization of the American economy, *Socio-Economic Review*, 3: 173-208.
- Lavoie, M. (1992): *Foundations of Post Keynesian Economic Analysis*, Aldershot: Edward Elgar.
- Lavoie, M. (2008): Financialisation issues in a Post-Keynesian stock-flow consistent model, *Intervention. European Journal of Economics and Economic Policies*, 5: 331-356.
- Lazonick, W., O'Sullivan, M. (2000): Maximizing shareholder value: a new ideology for corporate governance, *Economy and Society*, 29: 13-35.
- Lima, G.T. (2000): Market concentration and technological innovation in a dynamic model of growth and distribution, *Banca Nazionale del Lavoro Quarterly Review*, 53: 447-475.

- Lima, G.T. (2004): Endogenous technological innovation, capital accumulation and distributional dynamics, *Metroeconomica*, 55: 386-408.
- Manne, H.G. (1965): Mergers and the market for corporate-control, *Journal of Political Economy*, 73: 110-120.
- Marquetti, A. (2004): Do rising real wages increase the rate of labor-saving technical change? Some econometric evidence, *Metroeconomica*, 55: 432-441.
- Marx, K. (1867): *Das Kapital. Kritik der politischen Ökonomie, Erster Band: Der Produktionsprozeß des Kapitals*, 4th edition 1890, edited by Engels, F., *Marx-Engels-Werke*, Volume 23, Berlin: Dietz Verlag, 1962.
- McCombie, J., Pugno, M., Soro, B. (2002): Introduction, in: McCombie, J., Pugno, M., Soro, B. (eds.), *Productivity Growth and Economic Performance. Essays on Verdoorn's Law*, Basingstoke: Palgrave Macmillan.
- Naastepad, C.W.M. (2006): Technology, demand and distribution: a cumulative growth model with an application to the Dutch productivity growth slowdown, *Cambridge Journal of Economics*, 30: 403-434.
- Orhangazi, Ö. (2008): Financialisation and capital accumulation in the non-financial corporate sector: a theoretical and empirical investigation on the US economy: 1973-2003, *Cambridge Journal of Economics*, 32: 863-886.
- Palley, T. (2008): Financialisation: what it is and why it matters, in: Hein, E., Niechoj, T., Spahn, P., Truger, A. (eds.): *Finance-led Capitalism? Macroeconomic Effects of Changes in the Financial Sector*, Marburg: Metropolis.
- Rappaport, A. (2005): The economics of short-term performance obsession, *Financial Analysts Journal*, 61(3): 65-79
- Rowthorn, R. (1981): Demand, real wages and economic growth, *Thames Papers in Political Economy*, Autumn.

- Setterfield, M., Cornwall, J. (2002): A neo-Kaldorian perspective on the rise and the decline of the Golden Age, in: Setterfield, M. (ed.), *The Economics of Demand-led Growth. Challenging the Supply-side Vision of the Long Run*, Cheltenham: Edward Elgar.
- Skott, P., Ryoo, S. (2008a): Macroeconomic implications of financialization, *Cambridge Journal of Economics*, 32: 827-862.
- Skott, P., Ryoo, S. (2008b): Financialization in Kaleckian economics with and without labor constraints, *Intervention. European Journal of Economics and Economic Policies*, 5: 357-386.
- Steindl, J. (1952): *Maturity and Stagnation in American Capitalism*, 2nd. edition., New York, London: Monthly Review Press, 1976.
- Stockhammer, E. (2004): Financialisation and the slowdown of accumulation, *Cambridge Journal of Economics*, 28: 719-741.
- Stockhammer, E. (2005-6): Shareholder value orientation and the investment-profit puzzle, *Journal of Post Keynesian Economics*, 28: 193-215.
- Stockhammer, E. (2008): Some stylized facts on the finance-dominated accumulation regime, *Competition and Change*, 12: 189-207.
- Taylor, L. (1991): *Income Distribution, Inflation, and Growth. Lectures on Structuralist Macroeconomic Theory*, Cambridge/Mass., London: MIT Press.
- Van Treeck, T. (2008): Reconsidering the investment-profit nexus in finance-led economies: an ARDL-based approach, *Metroeconomica*, 59: 371-404.
- Van Treeck, T. (2009a): The political economy debate on ‘financialisation’ – a macroeconomic perspective, *Review of International Political Economy*, forthcoming.
- Van Treeck, T. (2009b): A synthetic stock-flow consistent macroeconomic model of financialisation, *Cambridge Journal of Economics*, 33: 467-493.

- Van Treeck, T., Hein, E., Duenhaupt, P. (2007): Finanzsystem und wirtschaftliche Entwicklung: neuere Tendenzen in den USA und in Deutschland, *IMK Studies*, 5/2007, Duesseldorf: Macroeconomic Policy Institute (IMK) at Hans Boeckler Foundation.
- Verdoorn, P.J. (1949): Factors that determine the growth of labour productivity, in: McCombie, J., Pugno, M., Soro, B. (eds.), *Productivity Growth and Economic Performance. Essays on Verdoorn's Law*, Basingstoke: Palgrave Macmillan, 2002.
- Vergeer, R., Kleinknecht, A. (2007): Jobs versus productivity? The causal link from wages to labour productivity growth, *TU Delft Innovation Systems Discussion Papers*, IS 2007-01.

## Imprint

### Editors

Trevor Evans | Eckhard Hein | Martin Kronauer |  
Birgit Mahnkopf | Hansjörg Herr

Printed by  
HWR Berlin

Berlin November 2009