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Financialisation and the potentials for a progressive equality-, sustainability- and domestic demand-led regime: a post-Keynesian simulation approach

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Abstract
In several publications, starting more than a decade ago, Peter Flaschel and co-authors have outlined the features of a 'social capitalism' as a normative alternative to the liberal and financialised capitalism of the Anglo-Saxon type, but also to the undemocratic Chinese-type of state capitalism. Theoretically and analytically, this concept has been built on a Marx-Keynes/Kalecki-Schumpeter approach to macroeconomics. Our approach in this paper, based on post-Keynesian/Kaleckian foundations and making use of a two-country stock-flow consistent (SFC) simulation model, shares with Flaschel and co-authors the search for an alternative to the liberal finance-dominated capitalism which has dominated, to different degrees in different countries, since the late 1970s/early 1980s and led to the 2007-09 crises. On the one hand, our approach is narrower than the one by Flaschel and co-authors, since we are explicitly in our model only focusing on demand and growth regimes, as well as on macroeconomic policy regimes, but only implicitly on innovations and structural change. On the other hand, however, we shed light on different regimes in modern capitalism, their interaction at the global scale, and then on the changes in regimes after the 2007-09 crises. Finally, we present the main features of a progressive and more stable equality-, sustainability- and domestic demand-led regime. We believe that such a progressive regime is in the spirit of Flaschel and co-authors' concept of 'social capitalism', but we also point out some disagreements regarding the underlying model and the core policies.

Keywords: post-Keynesian macroeconomics, financialisation, growth regimes, inequality, debt, social capitalism, stock-flow consistent model
JEL code: B59, E02, E11, E12, E25, E65, F41, O41

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1. Introduction

The era of *Capitalism Unleashed* (Glyn 2006) with the liberalisation and deregulation of international financial, goods and labour markets, the abandonment of government aggregate demand management policies, and the weakening of organised labour, has been associated with the rise of finance-dominated capitalism, or financialisation (Hein 2012, Palley 2013). Since the late 1970s/early 1980s, this tendency towards financialisation, beginning in the US and the UK, has spread over the developed and emerging capitalist world, of course to different degrees and extents, and has led to the Global Financial Crisis (GFC) and the Great Recession (GR) 2007-09.

In several publications, starting more than a decade ago, Peter Flaschel and his co-authors, i.e. Asada et al. (2011), Flaschel et al. (2009, 2011), Flaschel and Greiner (2009, 2011, 2012) and Flaschel and Luchtenberg (2012), have outlined the features of a 'social capitalism', as an alternative to the liberal and financialised capitalism of the Anglo-Saxon type, but also to the undemocratic Chinese-type of state capitalism. Theoretically and analytically, this has been rooted in the MKS approach to (macro-)economics, the Marx-Keynes/Kalecki-Schumpeter approach. From Marx and Schumpeter this approach takes the view of capitalism as a dynamic and turbulent system, with Marx focussing on the role of class struggle and the distributive cycle, and Schumpeter on innovations, creative destruction and a tendency towards competitive socialism. Keynes and Kalecki come in through effective demand, with Keynes focussing on uncertainties in a monetary economy and Kalecki on income distribution and the political economy of distributional struggle. Peter Flaschel and co-authors see social capitalism as a normative concept embedding the still capitalist forces of production and their dynamic properties into a regulated labour market taming the capital-labour conflict and into macroeconomic management of the economy providing stability and full employment, also in the face of dynamic technical change.

Our approach in this is paper shares with Flaschel and co-authors the search for an alternative to the liberal finance-dominated capitalism which has dominated, to different degrees in different countries, since the late 1970s/early 1980s and led to the 2007-09 crises. However, on the one hand, our approach is narrower than the one by Flaschel and co-authors, since we are explicitly in our model only focusing on demand and growth regimes, as well as on macroeconomic policy regimes, but only implicitly on innovations and structural change. On the other hand, we shed light on different regimes in modern capitalism and their interaction at the global scale, and then on the changes in regimes after the 2007-09 crises. Finally, we outline a progressive equality-, sustainability and domestic demand-led regime, which should be the macroeconomic feature of some 'social capitalism'. We have chosen a stock-flow consistent (SFC) simulation model for our analysis. As will be seen below, the model explicitly contains post-Keynesian and Kaleckian features, including an in-depth consideration of the interaction of the real and the financial side of the model economies, but Marxian and Schumpeterian features can only be discussed indirectly and implicitly.

We will base our SFC model on the research on the macroeconomics of finance-dominated capitalism (Hein 2012, Stockhammer 2015), which has analysed the effects of financialisation on the macroeconomy through four channels: distribution, consumption, investment, current and capital accounts. Against this background, four regimes have been distinguished, a debt-

led private demand boom (DLPD) regime, a domestic demand-led (DDL) regime, a weakly export-led (WEL) regime, and an export-led mercantilist (ELM) regime. With the GFC and the GR of 2007-09, we have seen remarkable shifts in the DLPD countries, towards DDL regimes stabilised by government deficits, on the one hand, and, on the other hand, towards the ELM regime (Dünhaupt and Hein 2019; Hein 2019; Hein and Martschin 2020; Hein et al. 2021). With these shifts, global current account imbalances, a feature of the pre-crises period, have persisted. The type of regime shift of the previously DLPD countries has depended on the requirement of private sector deleveraging after the financial crisis, as well as on the ability and willingness to run deficit-financed and stabilising fiscal policies. This has also been found by Kohler and Stockhammer (2021), abandoning the regime distinction for the post-crises period, in a cross-country analysis of the underlying growth drivers before and after the 2007-09 crises in 30 OECD countries. Hein and Martschin (2021) have kept the typology for macroeconomic regimes for the post-crises period and have examined the role of the macroeconomic policy regime for regime changes the four main Eurozone countries, France, Germany, Italy and Spain. The macroeconomic policy regime describes the set of monetary, fiscal and wage or income policies, as well as their coordination and interaction, against the institutional background of a specific economy, including the degree of openness or the exchange rate regime.

Our paper builds on this macroeconomic regime analysis and our own attempts at modelling and simulating these regimes and regime transitions in the course of and after the 2007-09 crises using a two-country SFC macroeconomic simulation model (Prante et al. 2022). The basic framework of the model is briefly presented in Section 2. We present the modelling of the transition of regimes in the course and after the crises in Section 3. These are related to the financial instabilities which have been built up before the crisis, the required deleveraging and credit restrictions through rising prudence in the financial sector, the macroeconomic policy regime, in particular the stances of fiscal policy and incomes policy, income distribution, and the changes in international price and non-price competitiveness. We briefly discuss the instabilities incorporated in the post-crises regimes. Based on these findings, in Section 4, we derive the main features of a progressive and more stable equality-, sustainability- and domestic demand-led regime, which builds on the post-Keynesian notion of coordinated macroeconomic policies (Arestis 2013, Hein 2023, Chapter 6, Hein and Stockhammer 2010) and also takes into account some ecological constraints and features of social-ecological transformation of modern capitalism. Section 5 will summarise and conclude.

2. The basics of the two-country SFC model

We make use of a two-country dynamic equilibrium SFC macroeconomic simulation growth model with Keynesian and (neo-)Kaleckian features.[1] The SFC structure of the model developed in the tradition of Godley and Lavoie (2012) allows us to properly capture the interdependencies and complementarities among regimes. Our work reconstructs, albeit in a

[1] Dynamic equilibrium means that in each single period the model reaches a goods market equilibrium. This is because there are no lags in the behavioural equations related to the goods market (e.g. no lagged income in the consumption function), except for stock variables that enter the behavioural functions with one-period lag (as it is usually the case in SFC models).

stylized and simplified fashion, the build-up of the regimes before the 2007-09 crises and the following regime change. The model seeks therefore to present the specific macroeconomic features of finance-dominated capitalism observed in developed capitalist economies in the period leading up to the 2007-09 crises, e.g. rising inequality, weak investment in the capital stock, increase in credit-financed consumption in some countries and rising net exports in others (Hein 2012). In addition, the model attempts to represent the key drivers of the regime change in the course of and after the crises that led to the emergence of the new regimes constellation. These include the need for deleveraging in the private sector and the (in-)ability to make use of stabilising fiscal policies in this adjustment process. We model and simulate demand and growth regimes making use of different types of autonomous demand as drivers of aggregate demand and growth. The transition of regimes is then modelled by means of changing the autonomous demand growth drivers.

In this section we briefly present the structure of our model economy and present the core behavioural equations of the basic Prante et al. (2022) model. The complete set of equations can be found in the appendix (A1). Table 1 presents the balance-sheet matrix of our six-sector model. The six sectors are the households sector, which we divide into high-income households (Top 10 per cent), and low-income households (Bottom 90 per cent), the corporate sector, the government sector, the banking sector and the foreign sector, the second economy in our two-country model (here called *RoW*). Dividing households into two income groups allows to model personal income inequality and more specifically to model emulation-type behaviours (of the less affluent strata vis-à-vis the more affluent households). This together with easy access to credit contributed to the rise in household indebtedness in the DLPD regime, as observed for the case of the US before the GFC and the GR (Barba and Pivetti 2009; Cynamon and Fazzari 2008; van Treeck 2014, 2015).[2]

Table 1. Balance-sheet matrix of the domestic economy

	Households		***Firms***	***Government***	***Banks***	***RoW***	***Sum***
	Top 10% income	**Bottom 90% income**					
Deposits	$+D_{h1}$	$+D_{h2}$	$+D_f$	$+D_g$	$-D$		0
Loans	$-L_{h1}$	$-L_{h2}$	$-L_f$	$-L_g$	$+L$	$+NIIP_{RoW}$	0
Fixed capital			$+K$				$+K$
Net worth	$-V_{h1}$	$-V_{h2}$	$-V_f$	$-V_g$	$-V_b$	$-NIIP_{RoW}$	$-K$

Source: Prante et al. (2022).

The household sector, the corporate sector and the government sector (domestic non-banks sectors, for short) hold deposits within the domestic banking sector. The domestic non-banks sector may also hold financial liabilities in the form of bank loans. The banking sector is responsible for clearing the supply and demand for credit. In addition, when the domestic economy has a current account deficit, it will accumulate liabilities with the foreign sector.

[2] Our division of the household sector between Top 10 per cent income (managers and traditional capitalists with high labour and capital income) and Bottom 90 per cent income (production workers with low labour income and minimal capital income, if any) follows the definition introduced into Kaleckian models by Dutt (2016). The inclusion of emulation type behaviour in consumption pattern follows Detzer (2018), Belabed et al. (2017), and Kapeller and Schütz (2015).

When the domestic economy has a current account surplus with the foreign sector, it will accumulate foreign assets. The net international investment position ($NIIP_{RoW}$) represents the stock of financial assets or liabilities with the foreign sector.

The accounting structure of the foreign economy is a mirror image of the domestic economy. Table 2 shows the accounting structure of the model from the global perspective (that is, for the two countries together). The global balance-sheet matrix shows the interdependencies between the two model economies for the stock variables.

Table 2. Global balance-sheet matrix with consolidated non-bank sectors

	Domestic economy			*External economy*			
	Non-banks	*Banks*	*NIIP*	*NIIP*	*Banks*	*Non-banks*	*Sum*
Deposits	$+D$	$-D$			$-D_x$	$+D_x$	0
Loans	$-L_{nb}$	$+L$	$+NIIP$	$+NIIP_x$	$+L_x$	$-L_{nbx}$	0
Fixed capital	$+K$					$+K_x$	$K + K_x$
Net worth	$-V$	0	$-NIIP$	$-NIIP_x$	0	$-V_x$	$-(K + K_x)$

Note: $L = L_{nb} + NIIP$ and $V = V_{h1} + V_{h2} + V_g + V_b + V_{f_{fin}} + K + NIIP$, where $V_{f_{fin}}$ is firms' financial net worth.
Source: Prante et al. (2022).

The income and expenditure flows of our model economy are represented in the transaction-flow matrix (Table 3). Top 10 per cent households (managers and capitalists) receive distributed profits from corporations, as owners of the firms, as well as labour income in terms of managers' salaries. Bottom 90 per cent households receive only wages. Furthermore, both groups may receive net interest income on their financial wealth held as deposits with banks. The aggregate wage share is exogenously given, as is the distribution of wages between the two groups, with the wage share of the Top 10 being exogenously set by the parameter ω_{h1}. Both household groups pay taxes and consume. Equations (1) and (2) show the consumption function of Top 10 per cent and Bottom 90 per cent households, respectively. Aggregate consumption (C) is simply the sum of the consumption of both households groups:

$$C_{h1} = c_{a_{h1}} + c_{Y_{d_{h1}}} Y_{d_{h1}} + c_{V_{h1}} D_{h1_{-1}} \tag{1}$$

$$C_{h2} = c_{a_{h2}} + c_{Y_{d_{h2}}} Y_{d_{h2}} + c_{V_{h2}} D_{h2_{-1}} + z\alpha C_{h1} \tag{2}$$

with c_{a_h} representing autonomous consumption, $c_{Y_{d_h}}$ the propensity to consume out of current disposable income (Y_{d_h}) , c_{V_h} the propensity to consume out of wealth, in our model previously accumulated deposits $(D_{h_{-1}})$. Subscript 1 represents the Top 10 per cent households, subscript 2 the Bottom 90 per cent households. The consumption of the Bottom 90 per cent (C_{h2}) may be partially driven by the consumption of the Top 10 per cent (C_{h1}) through an emulation effect (determined by the parameter α). Emulation can be seen as a complex phenomenon affected by socio-cultural preferences, institutions, the (non-)provision of public goods (especially housing, education and healthcare), and the access to credit. It may thus be viewed as an indicator for the necessity to keep-up in an increasingly unequal and

competitive society, in which access to credit is easily provided. In this case, when consumption is higher than disposable income, the banking sector will provide the necessary amount of loans. However, the emulation effect will only be possible up to the point where the banking sector is willing to provide access to credit.

Concerning the firm sector, whenever investments are larger than retained earnings, which are the part of (net) profits not distributed to the Top 10 per cent households, additional loans will be provided to firms by the banking sector. Firms' gross investment I is composed of an autonomous part and an income-induced part, with *v* as the capital-output ratio:

$$I = a_a K_{-1} + a_Y v Y \tag{3}$$

Government consumption demand G also contains an autonomous part and an induced part, with σ as the marginal government expenditures-tax revenues ratio.

$$G = G_A + \sigma T \tag{4}$$

Government expenditures (as well as government interest payments on outstanding debt) may thus partly financed by taxes and partly by credit.

Table 3. Transaction-flow matrix of the domestic economy

	Households		***Firms***		***Government***	***Banks***	***RoW***	***Sum***
	Top 10% income	**Bottom 90% income**	**Current**	**Capital**				
Consumption	$-C_{h1}$	$-C_{h2}$	$+C$					0
Investment			$+I$	$-I$				0
Gvt. Expenditure			$+G$		$-G$			0
Exports			$+X$				$-X$	0
Imports			$-M$				$+M$	0
Wages	$+W_{h1_{gross}}$	$+W_{h2_{gross}}$	$-W$					0
Taxes	$-T_{w_{h1}}$	$-T_{w_{h2}}$	$-T_p$		$+T$			0
Profits	$+P_d$		$-P_{net}$	$+P_f$				0
Int. payments on loans	$-r_{-1}L_{h1_{-1}}$	$-r_{-1}L_{h2_{-1}}$	$-r_{-1}L_{f_{-1}}$		$-r_{-1}L_{g_{-1}}$	$+r_{-1}L_{-1}$	$+r_{-1}NIIP_{RoW_{-1}}$	0
Int. payments on deposits	$+r_{-1}D_{h1_{-1}}$	$+r_{-1}D_{h2_{-1}}$	$+r_{-1}D_{f_{-1}}$		$+r_{-1}D_{g_{-1}}$	$-r_{-1}D_{-1}$		0
Change in loans	$+\Delta L_{h1}$	$+\Delta L_{h2}$		$+\Delta L_f$	$+\Delta L_g$	$-\Delta L$	$-\Delta NIIP_{RoW_{-1}}$	0
Change in deposits	$-\Delta D_{h1}$	$-\Delta D_{h2}$		$-\Delta D_f$	$-\Delta D_g$	$+\Delta D$		0

Source: Prante et al. (2022).

The banking sector in the model acts as a passive sector, providing credit on demand and receiving deposits. There is only one interest rate (r), set by an implicit central bank, which it

is assumed to be the same for deposits and loans, and for both countries. Banks do not apply any mark-up on the interest rate and make no profits.

The domestic economy and the foreign economy are connected through their trade relationships and through cross-border interest payments. Export and imports in the two-country model are determined by demand and price competitiveness (assuming the Marshall-Lerner condition to hold). Imports (M), exports (X) and net exports (NX) of the domestic economy are given by:

$$M = (\phi u - \psi e_r)K_{-1} \tag{5}$$

$$X = \left(\phi_x u_x - \psi_x \frac{1}{e_r}\right) K_{x,-1} \tag{6}$$

$$NX = X - M \tag{7}$$

An increase in domestic capacity utilisation (u) raises imports of the domestic economy, whereas an increase in foreign capacity utilisation (u_x) raises exports. Furthermore, net exports are affected by international price competitiveness. A loss of international price competitiveness of the domestic economy is represented by an increase in the real exchange rate e_r.

In our model,[3] the inclusion of an income-induced component along with an income-independent element in each component of aggregate demand (consumption, investment, public demand and net exports, in the latter case through the endogenous effect of the partner economy) ensures that, in the long run, no component of aggregate demand is marginalized. At the same time, every autonomous component of aggregate demand (autonomous consumption, wealth-based consumption, credit-financed consumption, autonomous investment, autonomous government expenditures, competitiveness driven exports) can theoretically work as a long-run driver of economic growth, along the lines of autonomous demand driven growth models.[4]

3. The emergence of the pre-crises regimes and the shift of regimes after the 2007-09 crises

In our previous work (Prante et al. 2022), we have shown by means of stylized simulations how the features of finance-dominated capitalism – i.e. the falling wage share, growing

[3] The baseline parameters of the model can be found in Appendix A2. For a convergence of domestic and foreign economies towards their steady growth paths, see Figure 1 in Prante et al. (2022).

[4] See Serrano (1995) for the original Sraffian supermultiplier growth model, Freitas and Serrano (2015, 2017) for comparative presentations of the model, and Allain (2015), Lavoie (2016) and Hein and Woodgate (2021) for the inclusion of autonomous demand-led growth into Kaleckian distribution and growth models. Different from the Sraffian supermultiplier model, in our SFC model we do not treat investment as fully induced, and different from the Kaleckian autonomous demand-led growth models, we do not assume that our autonomous demand-driven SFC simulation model returns to an exogenous normal rate of capacity utilisation, which is similar to the procedure in the closed economy analytical model by Hein (2018a).

inequality at the personal income level together with deregulation in the credit market (easy access to credit) in some countries – have led to the simultaneous emergence of two growth regimes, the DLPD and the ELM. While in one country (or group of countries) consumption (and thus imports) grew driven by credit-financed consumption compensating for the fall in income-financed consumption (and also in investment) (DLPD), in the other country (or groups of countries) the economy grew driven by exports demand (ELM) from DLPD countries.

As shown in detail in Prante et al. (2022),[5] the DLPD regime in the domestic economy is generated by a reduction in the economy-wide wage share and by an increase in the wage share of the Top 10 per cent. This captures the simultaneous deterioration in functional and personal income distribution (at the expense of the poorest) observed in DLPD economies, like for example the US. At the same time, the Bottom 90 per cent try to keep up with their consumption style (but also cover essential needs such as better education and adequate healthcare coverage) despite their relative fall in income. This behaviour is captured with an increase in the emulation parameter α. A deregulated credit market satisfies the rising demand for credit. The foreign economy will experience an increase in net export demand that will be further supported by a real depreciation due to a stronger fall in its wage share. As a consequence, the current account of the foreign economy will be in surplus and the economy will accumulate foreign assets (i.e. issued by the domestic economy). The foreign economy turns into an (at this point complementary) ELM regime relying on growth coming from the DLPD economy.[6] The financialisation of the domestic economy has driven growth, ultimately in both countries/regimes.

The accumulated fragilities in the domestic economy are such that a further increase in credit-financed consumption, for example triggered by a further increase in inequality, brings the household debt-disposable income ratio $(L_{h2}/Y_{d_{h2}})$ of the Bottom 90 per cent households above the (exogenous) threshold imposed by the banking sector, the maximum leverage ratio (l). The crisis will lead banks to tighten credit access requirements. In the stylized presentation in the model, the banks' tolerance threshold (l) will go to zero and, at the same time, the emulation behavior of Bottom 90 per cent income households will be stopped and α in equation (2) falls to zero, too. At this point, without the effect of consumption financed by credit, the economies would stabilize at lower steady-state growth rates compared to the situation before the crisis with lower rates of capacity utilisation.[7]

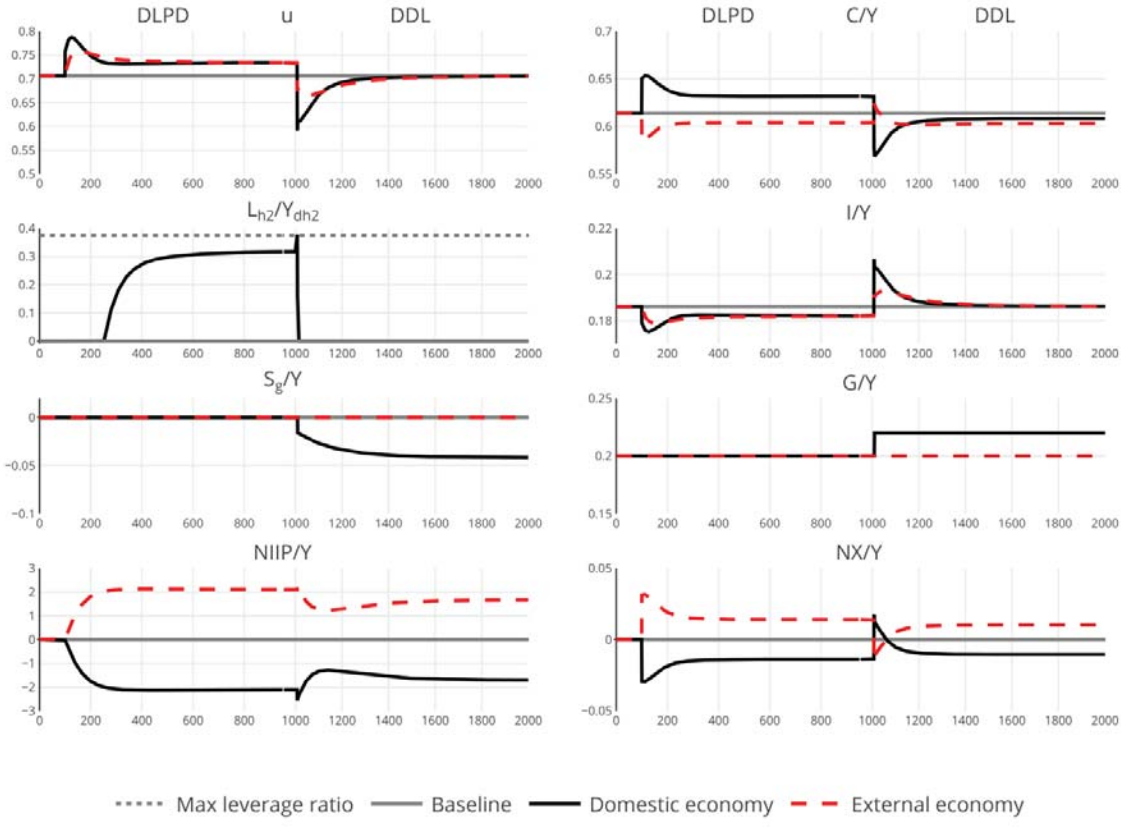
However, we have seen different types of policy responses in the course of and after the 2007-09 crises, in particular in the DLPD countries, which are included in the simulations shown in Figures 1 and 2. Empirical studies have demonstrated that some DLPD regimes turned into DDL regimes where fiscal policy was able to play an active role in sustaining aggregate demand, like in the US and the UK, whereas others have turned towards ELM regimes, in particular the crisis countries in the Eurozone periphery in the course of the Eurozone crisis and the austerity policies applied in this crisis (Hein 2019, Hein and Martschin 2020, 2021, Hein et al. 2021). The first transition is shown in Figure 1. While the banks' tolerance threshold

[5] The shock sequences in order to generate the pre- and post-crises regimes can be found in Appendix A2.
[6] This case is comparable to the experience in Germany in the pre-crisis period.
[7] In Prante et al. (2022), the emergence of DLPD and ELM regimes during the period of financialisation of the economy is shown in Figure 2. The crises and the resulting stagnation are shown in Figure 3.

and the emulation parameter remain at zero, a persistent positive fiscal policy shock is applied by increasing the parameter σ, the marginal government expenditures-tax revenues ratio, above one in the government consumption demand equation (4). Since this happens only in the domestic economy, the foreign economy remains in an ELM regime benefiting now from deficit-financed public spending in the domestic economy.

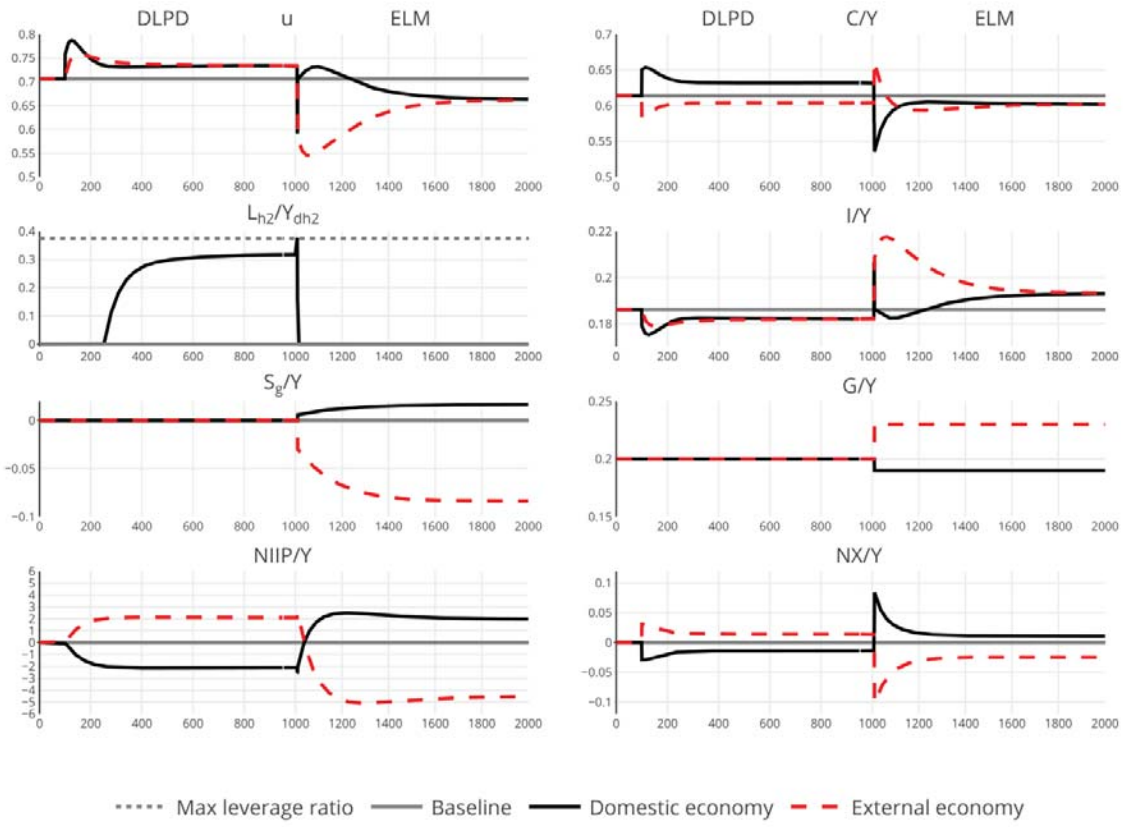
The transition from a DLPD pre-crisis regime towards an ELM regime is shown in Figure 2. This has been the case in some Eurozone countries (e.g., Spain) where significant fiscal policy intervention was not possible because of the fiscal rules in place in the currency area. On top of this, after an initial expansionary phase, Eurozone countries reacted to the crisis with an even more restrictive fiscal policy. Austerity measures are introduced into the model by decreasing the marginal government expenditures-tax revenues ratio in the government expenditure function and by further lowering the aggregate wage share and changing personal income distribution to the disadvantage of the Bottom 90 per cent. Worsening income distribution is followed by an improvement in international price competitiveness. To generate a transition of the domestic economy from DLPD to ELM, we further need the foreign economy to assume a DDL regime stabilized by government deficit spending.

Figure 1. From DLPD to DDL: relying on fiscal deficits



Notes: u, rate of capacity utilisation; $L_{h2}/Y_{d_{h2}}$, debt-disposable income ratio of Bottom 90 per cent households; S_g/Y, deficit-income ratio of the government; $NIIP/Y$, net international investment position-total income ratio; C/Y consumption share in total income; I/Y investment share in total income; G/Y public consumption share in total income; NX/Y net exports share in total income. Source: Own elaboration.

Figure 2. From DLPD to ELM: relying on external demand



Notes: u, rate of capacity utilisation; $L_{h2}/Y_{d_{h2}}$, debt-disposable income ratio of Bottom 90 per cent households; S_g/Y, deficit-income ratio of the government; $NIIP/Y$, net international investment position-total income ratio; C/Y consumption share in total income; I/Y investment share in total income; G/Y public consumption share in total income; NX/Y net exports share in total income. Source: Own elaboration.

Our simple two-country SFC model and the resulting simulations have shown in a stylized way, how the interconnectedness of some main features of finance-dominated capitalism (income re-distribution, credit market deregulation, both nationally and internationally) may generate national and international imbalances and the resulting financial fragilities that ultimately led to the 2007-09 crises. In addition, the model demonstrated how the regimes have changed after the crises, depending on developments in income distribution, the need for deleveraging of households and the ability (where possible) of fiscal policy to intervene to support aggregate demand. Although our model shows a convergence towards steady growth for both post-crises regimes, these growth rates are lower than the baseline solution for our model and lower as in the pre-crises DLPD regime. Furthermore, they are struck with lower investment and higher inequalities at the national levels and with persistent current account imbalances at the international level. On the one hand, this constellation is associated with high international economic fragility. On the other hand, it has contributed to the stagnative trend after the 2007-09 crises, highlighted both in orthodox economics (Summers 2014, 2015, Teulings and Baldwin 2014a, 2014b, von Weizsäcker and Krämer 2021) and in heterodox economics (Blecker 2016, Cynamon and Fazzari 2015, 2016, Hein 2016, 2018b, 2019, Onaran

2016a, Palley 2012, van Treeck 2015). In the following section we will thus make use of our two-country SFC model in order to outline and simulate an alternative regime based on regulated finance, lower inequality and an active public investment strategy targeted towards the social-ecological transition.

4. A progressive equality-, sustainability- and domestic demand-led regime

Since the pre-crises DLPD and ELM regimes contained some severe fragilities which led to the 2007-09 crises, and the post-crises DDL and ELM regimes are also struck with several problems, as indicated above, post-Keynesians have proposed wage-led or income-led recovery strategies after the 2007-09 crises as alternative paths to take. These suggestions are usually built on a post-Keynesian macroeconomic policy mix (Arestis 2013, Hein 2023, Chapter 6, Hein and Stockhammer 2010). Monetary policies should target low long-term interest rates and take care of financial stability by applying regulatory instruments. Wage and incomes policies should target stable inflation and stable income shares, and fiscal policies are in charge of stabilising aggregate demand at non-inflationary full employment levels, both in the short run and in the long run. For this purpose, in particular government expenditure variations should be used, accepting the emerging government deficit- and debt-GDP ratios as endogenous variables. The tax and social benefit system should be applied to reduce disposable income inequality. Some of the suggestions of a wage- or income-led recovery strategy after the 2007-09 crises based on post-Keynesian macroeconomics have been linked with financial market re-regulation, gender equality concerns and/or with targeting government investment to the required socio-ecological transformation in the face of climate change and other ecological constraints.[8] We follow this route and will now present an alternative and socially progressive post-crises regime based on more pre-cautionary credit generation in the financial market through tighter regulation, a more equal distribution of income, both through a higher aggregate wage share and a reduction of the wage share of the Top 10 per cent households and an increase of the wage share of the Bottom 90 per cent households, and on expansionary fiscal policies with government investment targeted towards the ecological transition and fostering green investment, in particular.[9]

We illustrate the post-crises transition to a progressive equality-, sustainability- and domestic demand-led regime (PES-DDL) containing these elements, and assume that it is simultaneously pursued in both economies of our two-country SFC model, and internationally coordinated to some degree. In this setting, we assume that a progressive macroeconomic policy mix is aimed at improving the relative income position of the Bottom 90 per cent households, as well as at a comprehensive provision of public goods (education, health care, housing, infrastructure) by the government to foster a broad and deep improvement in living conditions and societal well-being, while also reducing the importance of status-driven

[8] See, for example, Arestis (2010), Cynamon and Fazzari (2010), Hein (2012, Chapters 7-8, 2016, 2018), Hein and Martschin (2020), Hein and Truger (2012/13), Obst et al. (2020), Onaran (2016a, 2016b), Onaran et al. (2017), Palley (2012, Part II, 2013, Chapters 11-12), and Pollin (2010), among several others.

[9] For a recent discussion of alternative strategies dealing with ecological challenges and CO2 emissions, in particular, see Hein (2023, Chapter 9) and Priewe (2022). For the macroeconomics of green investment strategies, see, for example Pollin (2018, 2020, 2021).

competitive consumption patterns, as indicated by the relative income hypothesis, explained above. Not least, the progressive policy mix is also aimed at the transition towards a decarbonized and broadly more environmentally sustainable mode of production and consumption. We also assume that the policy mix encompasses an approach to financial and banking regulation that, on the one hand, prevents speculative excesses and unsustainable credit-provision through stricter financial and credit market regulation, and, on the other hand, facilitates the flow of funds into real-economy investment projects that are primarily aimed at the green transition (energy and general production) and the digital and robotics transformation. The shift towards long-term investment-oriented policies by the government can also serve to increase the investment orientation of the private sector through demand certainty and a higher viability of long-term investments in the field of green technologies and digitalisation.

In our model, we can illustrate this kind of broad-based progressive turn by the following changes regarding the parameters of our model in the post-crisis period:[10]

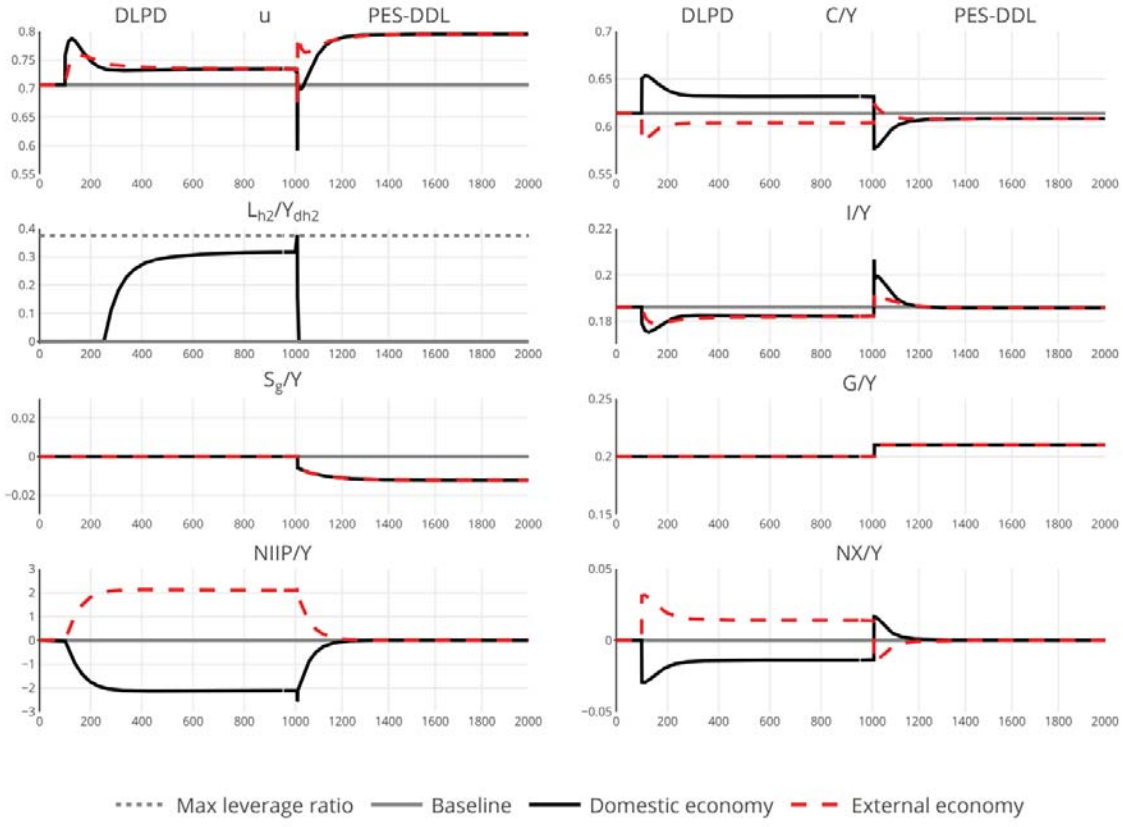
- We assume that the new policy mix leads to less wage inequality and higher aggregate wage shares, which both work to reduce overall income inequality. For both economies, we assume that income policies results in both distributional dimensions do not only reverse the changes from the financialisation shock, but lead to a scenario that is actually more favorable to Bottom 90 per cent households than in the initial state of the baseline. The aggregate wage share (ω) increases above and the wage share of the Top 10 per cent households (ω_{h1}) falls below the baseline constellation in both economies.
- Similar to the DLPD-to-DDL transition, fiscal policy assumes a more expansionary role, not only as a stability-oriented response to the crisis, but also aimed at a broad provision of public goods and infrastructure for a green transition. We assume that in both economies, the marginal government expenditures-tax revenues ratio therefore increases substantially, and σ in equation (3) thus rises above the baseline constellation in both economies.
- We assume that both, the acceptable debt-income ratio of banks and the emulation parameter of households, stay low. Not only are banks and households more prudent after the crisis, but also credit market regulations improve. Furthermore, households' consumption norms change due to lower inequality and better public provision of positional goods. This reduces the perceived need for status-driven consumption emulation. In the simulations, both and l and α in equation (2) stay at zero after the crisis in both economies.
- We also assume that both governments' push towards decarbonisation and infrastructure provision improves the overall conditions of investment in both economies. On the one hand, publicly owned companies are pursuing a generally higher investment-orientation and regulations and higher long-term government demand also provide incentives for higher investment-orientation of privately-owned companies. At the same time, disruptive technological advancements related to green

[10] The numerical values for the shocked variables are listed in Appendix A2.

energy, green production, digitalisation and robotics together with improved financing conditions and tax incentives for real-economy investments trigger a prolonged process of creative destruction à la Schumpeter that also improves general investment conditions. We assume that this leads to a broad change in the investment behaviour of private and public corporations that is represented by both, a higher autonomous investment rate and a higher propensity to invest. This means that a_a and a_Y in equation (3) rise above the baseline constellation in both economies.

Figure 3 presents the simulation results for this scenario. Compared to the previous scenarios and the baseline, capacity utilisation and the long-run rate of growth both increase strongly due to the general increase in aggregate demand in both economies. Compared to the DLPD-to-DDL scenario from above in which government deficit expenditures became the main growth driver, in the new regime, the government does not need to run as high deficits since demand increases across all components, except for net exports. As we assume that the shocked variables attain the same parameter values in both countries, international trade returns to a balanced constellation.

Figure 3. A progressive equality-, sustainability- and domestic demand-led (PES-DDL) regime



Notes: u, rate of capacity utilisation; $L_{h2}/Y_{d_{h2}}$, debt-disposable income ratio of Bottom 90 per cent households; S_g/Y, deficit-income ratio of the government; $NIIP/Y$, net international investment position-total income ratio; C/Y consumption share in total income; I/Y investment share in total income; G/Y public consumption share in total income; NX/Y net exports share in total income. Source: Own elaboration.

For comparison, Table 4 provides the steady-state growth rates of the baseline and the different regime simulations. The general increase in aggregate demand growth in our PES-DDL regime makes the steady-state growth rate surpass the rates from the baseline and the other regimes.

Table 4. Steady-state growth rate of output for the domestic economy in the baseline and the different regimes

	$\hat{Y}$	*Direction of change of $\hat{Y}$ compared to baseline*
Baseline	1.63%	
DLPD	1.67%	+
Crisis	1.52%	-
From DLPD to DDL	1.63%	
From DLPD to ELM	1.56%	-
From DLPD and ELM to PES-DDL	1.95%	++

Source: Own elaboration.

We believe that such a progressive regime is in the spirit of Flaschel and co-authors' concept of 'social capitalism'. Fundamentally, we agree with Flaschel and Luchtenberg (2012, p. 6, p. 11), for example, when they argue that '(t)he basic insight of the MKS approach is that capitalism without state intervention is not a viable construction', and that '… the future of capitalism will depend very much on its capability to integrate its "dynamic forces of production" with a truly "social mode of production"…'. For this purpose, state intervention taming distribution conflict, financial instability and environmental damage is required.[11] This is what we have included in a stylized way into our two-country SFC simulation model.

However, this broad agreement does not mean that there is agreement about the details of a 'social capitalism' regime. Space constraints only allow for the presentation of three examples. First, different from Flaschel's models and approach, our SFC model is not based on a short-run Marx/Goodwin distributive cycle, in which rising GDP growth and falling unemployment leads to a profit squeeze triggering a downswing in a profit-led demand and growth economy (Flaschel and Greiner 2011, 2012, Flaschel and Luchtenberg 2012). Our model has a medium-run perspective, in which distribution is taken to be exogenous with respect to GDP growth. From the post-Keynesian/Kaleckian perspective on which our SFC model is built, distribution can be seen to be determined by institutional features of the labour market, the wage bargaining system and social security system, which affect workers' nominal wage setting power, and of the features of the goods market, which affect firms' price setting power (Dutt 2012, Hein 2023, Chapters 4-5, Hein and Stockhammer 2010). Furthermore, in these models, aggregate demand and growth, at least in a closed economy, are usually not profit-led but tend be wage-led, unless some compensatory increases in demand make demand and profit shares both rise, like credit-financed consumption in the pre-crises DLPD regime, and we see

[11] We should mention here that Peter Flaschel was awarded the Friede Gard Prize for Sustainability in 2021 (https://www.umwelt-campus.de/friede-gard-preis). In private communication the late Peter Flaschel pointed out to one of the current authors (E. Hein) that he had a very early paper on energy issues based on input-output models (Flaschel 1985).

'seemingly profit-led' regimes. However, although Flaschel's neo-Goodwin approach and our post-Keynesian/Kaleckian approach may disagree regarding the type of interaction of distribution, demand and growth, there is agreement that a stable progressive demand and growth regime, or 'social capitalism', requires some social distributional compromise – or some income policies – in order to avoid instabilities emanating from escalating distribution conflict, both in nominal and real terms.

Second, Flaschel and co-authors believe in 'flexicurity' as the key concept of 'social capitalism', with high unemployment benefits and strictly activating labour market policies, on the one hand, and little employment protection legislation and highly flexible employment relationships, on the other hand (Flaschel and Greiner 2011, 2012, Flaschel and Luchtenberg 2012). They hold that this concept allows for, first, moderating the Marxian distributive conflict and, second, for providing room for Schumpeterian processes of 'creative destruction' and hence for the dynamics inherent to a capitalist system. We have several doubts regarding the efficiency of such a concept in terms of reaching its aims. In the short run, although distribution of disposable income may be stabilised by such a concept, it is not clear whether it will also contribute to stabilising conflict inflation, which requires stable nominal unit labour cost growth for the economy as a whole (Hein 2023, Chapter 5, Hein and Stockhammer 2010). In the medium to long run, it is not clear whether high flexibility of employment relationships really is conducive to high productivity growth and rapid technological change, at any rate. On the one hand, this concept does not seem to sufficiently take into account the wage-push effect on productivity growth, which is also prominent in Marx (1867, Chapter 25) from which the Goodwin distributive cycle is derived. The (threat of a) profit squeeze in periods of high employment and high workers' bargaining power will induce capitalists to speed up the introduction of labour-saving technological progress (Dutt 2006, Hein and Tarassow 2010). Furthermore, highly flexible labour markets will prevent the build up of firm specific human capital and capacities, which are most important for incremental innovations and productivity growth (Vergeer and Kleinknecht 2010/11, 2014, Vergeer et al. 2015).

Third, Flaschel and Luchtenberg (2012, Chapter 5) seem to endorse full reserve banking as a means of generating financial stability. However, as explained by Fontana and Sawyer (2016), full reserve banking does not take the principle endogeneity of money and credit seriously, on which our post-Keynesian/Kaleckian SFC model relies. Full reserve banking is thus likely to exacerbate financial instability, because it focusses too much on commercial banks and too little on non-bank financial intermediaries and the shadow banking sector. It does not take into account the required flexibility of initial and final financing in a monetary production economy, as explained by the monetary circuit approach (Hein 2023, Chapter 3). It thus contains an inherent deflationary bias, on the one hand, and underestimates the capacity of a monetary production economy to create near-moneys, as already pointed out by Kaldor (1970). Fontana and Sawyer (2016) also claim that full reserve banking undermines the stabilising role of fiscal policies and creates a dominance of monetary policy over fiscal policy. It thus does not seem to be compatible with a PES-DDL regime, which to a large degree has to rely on active fiscal policies.

5. Conclusions

In several publications, starting more than a decade ago, Peter Flaschel and co-authors, have outlined the features of a 'social capitalism', as an alternative to the liberal and financialised capitalism of the Anglo-Saxon type, but also to the undemocratic Chinese-type of state capitalism. Theoretically and analytically, this concept has been built on a Marx-Keynes/Kalecki-Schumpeter approach to macroeconomics. Social capitalism is seen as a normative concept embedding the still capitalist forces of production and their dynamic properties into a regulated labour market taming the capital-labour conflict and into macroeconomic management of the economy providing stability and full employment, also in the face of dynamic technical change.

Our approach in this paper, based on post-Keynesian/Kaleckian foundations and making use of a two-country SFC simulation model, shares with Flaschel and co-authors the search for an alternative to the liberal finance-dominated capitalism which has dominated, to different degrees in different countries, since the late 1970s/early 1980s and led to the 2007-09 crises. On the one hand, our approach is narrower than the one by Flaschel and co-authors, since we are explicitly in our model only focusing on demand and growth regimes, as well as on macroeconomic policy regimes, but only implicitly on innovations and structural change. On the other hand, however, we have shed light on different regimes in modern capitalism, the DLPD and the ELM regimes before the crisis, and their interaction at the global scale, and then on the changes in regimes after the 2007-09 crises, towards DDL and ELM regimes. Finally, we have derived the main features of a progressive equality-, sustainability- and domestic demand-led regime, which builds on the post-Keynesian notion of coordinated macroeconomic policies and also takes into account some ecological constraints and features of social-ecological transformation of modern capitalism. The main elements are financial regulation, income re-distribution towards the wage share and the low-income households and active fiscal policies making use of government expenditures to address the required socio-ecological transformation.

We believe that such a progressive regime is in the spirit of Flaschel and co-authors' concept of 'social capitalism', but we have also pointed out some disagreements regarding the underlying model and the core policies. Therefore, we would not claim that our model is representing the basic ideas of Flaschel and co-authors on 'social capitalism'. However, we would argue that some basic principles, as mentioned above, are in agreement. The debate will thus have to go on – sadly so without the main and inspiring contributor.

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Appendix

A1. List of model equations

Output domestic economy

$Y = C + I + G + X - M$ — *Aggregate real output*

Income domestic economy

$W = \omega Y$ — *Aggregate gross wages*

$P = Y - W$ — *Aggregate gross profits*

$T = \tau Y$ — *Aggregate tax income of the government*

$T_{W_{h1}} = \tau W \omega_{h1}$ — *Taxes on wages of Top 10 per cent households*

$T_{W_{h2}} = \tau W - T_{W_{h1}}$ — *Taxes on wages of Bottom 90 per cent households*

$W_{h1_{gross}} = \omega_{h1} W$ — *Gross wages of Top 10 per cent households*

$W_{h2_{gross}} = W - W_{h1_{gross}}$ — *Gross wages of Bottom 90 per cent households*

$W_{h1} = (1 - \tau) W \omega_{h1}$ — *Net wages of Top 10 per cent households*

$W_{h2} = (1 - \tau) W - W_{h1}$ — *Net wages of Bottom 90 per cent households*

$T_P = \tau P$ — *Taxes on gross profits of firms*

$P_{\text{net}} = (1 - \tau) P - r_{-1} L_{f_{-1}} + r_{-1} D_{f_{-1}}$ — *Net profits of firms*

$P_d = \begin{cases} P_{net} > 0 : \left(1 - s_f\right) P_{net} \\ \text{otherwise: } 0 \end{cases}$ — *Distributed (net) profits of firms*

$Y_{d_{h1}} = W_{h1} + P_d + r_{-1} V_{h1_{-1}}$ — *Disposable income of Top 10 per cent households*

$Y_{d_{h2}} = W_{h2} + r_{-1} V_{h2_{-1}}$ — *Disposable income of Bottom 90 per cent households*

$P_f = P_{net} - P_d$ — *Retained earnings of firms*

Households domestic economy

$C = C_{h1} + C_{h2}$ — *Aggregate consumption*

$c_{a_{h1}} = c_{a_{h1_{-1}}} \left(1 + \widehat{c_{a_{h1}}}\right)$ — *Autonomous consumption of Top 10 per cent households*

$C_{h1} = c_{a_{h1}} + c_{Y_{d_{h1}}} Y_{d_{h1}} + c_{D_{h1}} D_{h1_{-1}}$ — *Consumption of Top 10 per cent households*

$z = \begin{cases} \dfrac{L_{h2}}{Y_{d_{h2}}} < l : 1 \\ \text{otherwise: } 0 \end{cases}$ — *Trigger parameter in the consumption function of Bottom 90 per cent households*

$c_{a_{h2}} = c_{a_{h2_{-1}}} \left(1 + \widehat{c_{a_{h2}}}\right)$ — *Autonomous consumption of Bottom 90 per cent households*

$C_{h2} = c_{a_{h2}} + c_{Y_{d_{h2}}} Y_{d_{h2}} + c_{D_{h2}} D_{h2_{-1}} + z \alpha C_{h1}$ — *Consumption of Bottom 90 per cent households*

$S_{h1} = Y_{d_{h1}} - C_{h1}$ — *Saving of Top 10 per cent households*

$S_{h2} = Y_{d_{h2}} - C_{h2}$ — *Saving of Bottom 90 per cent households*

$V_{h1} = V_{h1_{-1}} + S_{h1}$ — *Stock of wealth of Top 10 per cent households*

$D_{h_1} = \begin{cases} V_{h1} > 0 : V_{h1} \\ \text{otherwise: } 0 \end{cases}$ — *Deposits of Top 10 per cent households*

$L_{h_1} = \begin{cases} V_{h1} < 0 : -V_{h1} \\ \text{otherwise: } 0 \end{cases}$ — *Loans of Top 10 per cent households*

$V_{h2} = V_{h2_{-1}} + S_{h2}$ — *Stock of wealth of Bottom 90 per cent households*

$D_{h_2} = \begin{cases} V_{h2} > 0 : V_{h2} \\ \text{otherwise: } 0 \end{cases}$ — *Deposits of Bottom 90 per cent households*

$$L_{h_2} = \begin{cases} V_{h2} < 0: -V_{h2} \\ \text{otherwise: } 0 \end{cases}$$ *Loans of Bottom 90 per cent income households*

Firms domestic economy

$I = a_a K_{-1} + a_Y v Y$ *Investment function*

$S_f = P_f - I$ *Saving of firms*

$K = K_{-1} - \delta K_{-1} + I$ *Capital stock*

$u = Y / Y_{fc}$ *Utilisation rate*

$Y_{fc} = K_{-1} / v$ *Full capacity output*

$V_{f_{fin}} = V_{f_{fin_{-1}}} + S_f$ *Stock of net financial wealth of firms*

$$D_f = \begin{cases} V_{f_{fin}} > 0: V_{f_{fin}} \\ \text{otherwise: } 0 \end{cases}$$ *Deposits of firms*

$$L_f = \begin{cases} V_{f_{fin}} < 0: -V_{f_{fin}} \\ \text{otherwise: } 0 \end{cases}$$ *Loans of firms*

$V_f = V_{f_{fin}} + K$ *Total stock of wealth of firms*

Government domestic economy

$G_A = G_{A_{-1}}\left(1 + \widehat{G_A}\right)$ *Autonomous government demand*

$G = G_A + \sigma T$ *Government consumption demand*

$S_g = T - G + r_{-1} V_{g_{-1}}$ *Saving of the government*

$V_g = V_{g_{-1}} + S_g$ *Stock of wealth of the government*

$$D_g = \begin{cases} V_g > 0: V_g \\ \text{otherwise: } 0 \end{cases}$$ *Deposits of the government*

$$L_g = \begin{cases} V_g < 0: -V_g \\ \text{otherwise: } 0 \end{cases}$$ *Loans of the government*

Trade current account and NIIP domestic economy

$M = (\phi u - \psi e_r) K_{-1}$ *Imports*

$X = (\phi^x u^x - \psi^x / e_r) K^x_{-1}$ *Exports*

$NX = X - M$ *Net exports*

$CA = NX + R_{CA}$ *Current account*

$R_{CA} = r_{-1} NIIP_{-1}$ *Interests on net international investment position*

$NIIP = NIIP_{-1} + CA$ *Net international investment position*

Banks domestic economy

$L = L_{h1} + L_{h2} + L_f + L_g + NIIP$ *Total loans*

$R_L = r_{-1} L_{-1}$ *Interests on loans*

$D = D_{h1} + D_{h2} + D_f + D_g$ *Total deposits*

$R_D = r_{-1} D_{-1}$ *Interests on deposits*

$R = R_L - R_D$ *Interests income of banks*

$V_b = L - D$ *Stock of wealth of banks*

A2. Baseline parameter constellation and shock sequences for scenarios

Table A2.1. Baseline parameter constellation

Parameter	*Description*	*Baseline for the domestic and external economy*
a_a	Autonomous rate of investment	0.015
a_Y	Propensity to invest	0.016
$c_{a_{h1}}$ *in t = 0*	Autonomous consumption h_1	0.2
$\widehat{c_{a_{h1}}}$	Growth of $c_{a_{h1}}$	0
$c_{a_{h2}}$ *in t = 0*	Autonomous consumption h_2	0.2
$\widehat{c_{a_{h2}}}$	Growth of $c_{a_{h2}}$	0
$c_{V_{h1}}$	Propensity to consume out of wealth h_1	0.05
$c_{V_{h2}}$	Propensity to consume out of wealth h_2	0.015
$c_{Y_{d_{h1}}}$	Prop. to consume out of disposable income h_1	0.4
$c_{Y_{d_{h2}}}$	Prop. to consume out of disposable income h_2	0.7
G_A *in t = 0*	Autonomous government demand	0.5
$\widehat{G_A}$	Growth of G_A	0.01
K *in t = 0*	Fixed capital stock	40
l	Banks' maximum acceptable leverage ratio for h_2	0
s_f	Firms' retention rate	0.3
V_f *in t = 0*	Firms net worth	40
v	Capital-potential output ratio	5
α	Consumption emulation parameter	0
δ	Capital scrapping rate	0.01
σ	Marginal government expenditures-tax revenues ratio	1
τ	General net tax rate	0.2
ϕ	Demand effect on imports	0.05
ψ	Price-competitiveness effect on imports	0.01
ω	Aggregate wage share	0.6
ω_{h1}	Wage share of h_1 households	0.2
		Global
e_r	Real exchange rate	1
r	Real interest rate	0.01

Source: Prante et al. (2022).

Table A2.2. Shock sequences for pre- and post-crises regimes

Description of shock and timing	*Parameter*	*Domestic economy*	*External economy*
(1) 'Pre-crisis financialisation' (t = 100)	l	0.375	
	α	0.29	
	ω	0.55	0.5
	ω_{h1}	0.3	
	e_r	0.9	
(2) Small additional distributional change (t = 1000)	ω	0.545	
	ω_{h1}	0.305	
(3) Within crisis 'prudence' shocks (t = 1009)	l	0	
	α	0	
(4) DLPD to DDL (t = 1010)	σ	1.08	
(5) DLPD to ELM (t = 1010)	σ	0.97	1.15
	ϕ	0.04	0.06
	ψ	0.015	
	ω	0.5	
	ω_{h1}	0.25	
	e_r	1	

Notes:
The table reports only the values of the shocked parameters. Other values remain as in the baseline.
Shock timing: t = 0 is the last period of the convergence phase of the baseline.
Combination of shock sequences from table for each scenario in Prante et al. (2022):

- Pre-crisis debt-led and export-led growth: (1)
- Pre-crisis debt-led and export-led growth with crisis: (1) + (2) + (3)
- DLPD to DDL (Figure 1): (1) + (2) + (3) + (4)
- DLPD to ELM (Figure 2): (1) + (2) + (3) + (5)

Source: Based on Prante et al. (2022).

Table A2.3. A progressive equality-, sustainability- and domestic demand-led (PES-DDL) regime

Description of shock and timing	*Parameter*	*Domestic economy*	*External economy*
(6) DLPD and ELM to PES-DDL (t = 1010)	σ	1.03	1.03
	ω	0.62	0.62
	ω_{h1}	0.18	0.18
	a_a	0.016	0.016
	a_Y	0.017	0.017

Notes:
Combination of shock sequences for the new scenario:

- DLPD and ELM to PES-DDL (Figure 3): (1) + (2) + (3) + (6)

Source: Own elaboration.

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