The Macroeconomics of Financialization: A Stages of Development Approach

This paper explores the concept of financialization using a "stages of development" approach. The paper develops a stylized history of financialization and tracks its evolution through different stages since the end of World War II. The paper tracks this history using a simple Kaleckian macroeconomic framework, focusing on how changes in remuneration patterns, financial engineering by firms, asset market valuations, and borrowing behavior by firms and consumers affect macroeconomic outcomes. The fact that financialization is long-running and expansionary in its early and middle stages, made it extremely hard to oppose. That is because both the policy and political process have a bias against implementing change in good times. The political cost of change is immediate and direct, yet the benefit is averting a hypothetical future problem.

Este trabajo analiza el concepto de financiarización mediante un enfoque de "etapas de desarrollo". El artículo repasa la historia de la financiarización y su evolución por diferentes etapas desde el final de la Segunda Guerra Mundial. El trabajo analiza su historia utilizando un marco macroeconómico kaleckiano simple, centrándose en cómo los cambios en (1) los patrones de remuneración, (2) la ingeniería financiera de las empresas, (3) las evaluaciones de los activos de mercado, y (4) el comportamiento en materia de endeudamiento de las empresas y de los consumidores afectan a los resultados macroeconómicos. El hecho de que la financiación sea un fenómeno a largo plazo y expansivo en sus etapas iniciales e intermedias, hace que sea extremadamente difícil de contrarrestar. En efecto, tanto la política como el proceso político tienen un sesgo contrario a implantar cambios durante los buenos tiempos, el coste político del cambio es inmediato y directo, mientras que el beneficio es el evitar un posible problema futuro.

Lan honetan finantzarizazioaren kontzeptua aztertu da, "garapen-etapen" ikuspegiaren bitartez. Artikulu honetan finantzarizazioaren historia eta Bigarren Mundu Gerratik etapa ezberdinetan izan duen bilakaera aztertzen dira, eremu makroekonomiko kaleckiar sinplea erabiliz. Bertan azaldu nahi izan da nola eragiten dieten emaitza makroekonomikoei faktoreen ordainsari-ereduen aldaketek, enpresen finantza-ingeniaritzak, merkatuko aktiboen ebaluazioen aldaketek eta enpresa eta kontsumitzaileen zorpetze-alorreko portaeraren aldaketek. Finantziazioa epe luzerako fenomenoa denez, eta hedagarria denez hasierako eta bitarteko etapetan, oso zaila da behar bezala ahultzea. Hala da, prozesu politikoaren joera ez da oparoaldian aldaketak egitearen aldekoa; izan ere, aldaketaren kostu politikoa berehalakoa eta zuzena da, eta onura etorkizunean egon litekeen arazoa saihestea da.

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1. INTRODUCTION

Financialization is a process that elevates the significance of the financial sector and financial interests in the operation of the macroeconomy (Epstein, 2001). This paper examines the macroeconomics of financialization using a stage of development approach that captures the evolving nature of financialization. This stages of development approach is suggested by Chick's (1986) treatment of the evolution of banking systems, and a stages approach is also very compatible with Minsky's (Ferri and Minsky, 1992) description of his financial instability hypothesis. That is because financialization is represented as a long-running non-equilibrium process marked by changes in institutions and economic regimes, which is very similar to the process envisaged by Minsky (Palley, 2009a).

The paper presents a series of simple parable-like models that describe a stylized history of financialization. This stylized history highlights both the economic impacts and the dynamic nature of financialization. The paper focuses on the US economy in which financialization is the most evolved, and the US economy therefore provides a longer more extended view that may be helpful for anticipating developments in other economies.

The process governing the evolution of financialization is long and the duration of individual stages may be of unequal length. Moreover, some stages may be

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expansionary, while others may be contractionary. The beginning and middle stages of the process tend to be marked by expansionary forces, but the mature end stage is likely marked by stagnation. The extended duration of the process means that it can look stable yet ultimately prove unstable. However, the formal issue of stability and stability conditions is not examined in the current paper.

The fact that financialization is an extended process poses deep political and policy challenges. The process of financialization develops over a long time period and looks good for much of the time, yet recent events have confirmed it ultimately hits the economic rocks. That raises profound political problems of how to initiate policy change that alters the direction of the process. Who is going to believe the case for change and who will be willing to bear the political cost of implementing change when current economic conditions look good? Politicians are not rewarded for imposing pain now even if it prevents far greater future pain. Instead, they are rewarded for good times now.

Analytically, the paper changes the focus of existing enquiry on financialization. The existing conversation (see for example Hein, 2008a, 2008b; Hein and van Treeck, 2007; Skott and Ryoo, 2008) seems focused on the effect of financialization on the mark-up, income distribution and stock market valuations. This interest in the mark-up comes out of traditional Kaleckian model, as the mark-up is critical for determination of the functional distribution of income between wages and profits. The impact of financialization on the functional distribution of income is a valid question, and the model that is developed is capable of addressing it. However, the wage share has been relatively stable, which suggests the mark-up is not the key issue for understanding financialization. Instead, the paper directs attention to the changing the accumulation of debt and the changing financing behavior of corporations and households.

The paper examines changes in the way that firms have financed investment combined with changing patterns of dividend payouts. In this regard, no distinction is drawn between stock buybacks and dividends, which are treated as macroeconomically equivalent – though in practice there is a difference owing to the tax benefit from distributing profits via buybacks rather than dividends. Additionally, the paper introduces consumer debt which was of critical significance in the last US expansion.

Lastly, the paper incorporates concerns with the wage bill and the distribution of wages between workers and managers (Palley, 2005). Over the last three decades there have been large changes in the distribution of the wage bill, with managers benefiting at expense of workers. These changes can be interpreted as part of the mechanism of financialization whereby managers are induced to align their behaviors with financial market interests (Palley, 2008a).

2. THE BASIC MODEL

The basic model is the standard short-run Kaleckian macro model described by the following eight equations plus a growth equation:

(1) $Y = aN$

(2) $s_w + s_P = 1 \qquad 1 > s_w > 0,\ 1 > s_p > 0$

(3) $wN = s_w Y$

(4) $P = s_p Y$

(5) $Y = C + I$

(6) $C = \alpha_0 + \alpha_1 bwN + \alpha_2[1-b]wN + \alpha_3 R + \alpha_4 V$
$1 \geq \alpha_1 \geq \alpha_2 \geq \alpha_3 \geq \alpha_4 \geq 0 \quad 1 > b > 0$

(7) $I^* = \beta_0 + \beta_1 y + \beta_2 P + \beta_3 q$
$\beta_0, \beta_1, \beta_2, \beta_3 > 0$

(8) $V = qP \qquad q > 0$

(9) $g = g(I/Y) \qquad g' > 0, g'' < 0$

Where Y = output, a = output per worker, N = employment, s_w = wage share, s_P = profit share, w = nominal wage, P = profits, C = consumption spending, I = actual investment spending, I^* = desired investment spending, b = worker share of the wage bill, $1 - b$ = managers' share of the wage bill, R = dividend and interest payments to owners, V = value of the stock market, q = stock market multiple valuing profits, and g = growth rate.

Equations (1) – (8) constitute the standard Kaleckian short-run macro model that is used by those working in the Kaleckian tradition to study financialization. One innovation is the inclusion of stock market wealth in the consumption function (equation (6)), a feature that has been strangely overlooked by Kaleckians. For simplicity the government and foreign sectors are both left out of the model. The international dimension of financialization and its relationship to globalization is a separate topic and is a matter requiring further research.

One innovation is the inclusion of stock market wealth in the consumption function, a feature that has been strangely overlooked by Kaleckians. It transpires that this has important implications for whether an economy is wage- or profit-led, with large wealth effects on consumption making it more likely that an economy is profit-led.

Closing the basic model calls for additional equations determining actual investment spending (I), the dividend payouts of firms (R), and how firms finance their investment spending and dividend payouts. It is these additional equations that change with the evolution of financialization, and it is these issues that are the focus of the paper.

Equation (1) is the standard linear aggregate production function. Equation (2) is the adding up constraint on wage and profit shares. Equation (3) relates the wage bill to the wage share, while equation (4) relates total profits to the profit share.

Equation (5) is the goods market clearing condition, and has output equal to aggregate demand which consists of consumption and investment spending. Equation (6) is the aggregate consumption function. Equation (7) is the aggregate desired investment spending function. Equation (8) is the stock market valuation equation, and equation (9) is a simple growth model in which the rate of growth is a positive function of the investment share. Latin letters denote structural parameters, while Greek letters denote behavioral coefficients.

The profit share is a critical parameter. Its effects ramify throughout the model, affecting consumption and investment spending through several channels. The profit share affects consumption via its impact on the wage share. It also affects consumption indirectly via the value of equities which affects household wealth. Additionally, the profit share directly affects investment spending via its impact on the level of profits, and it also affects investment

indirectly via stock prices. These varied channels illustrate why the profit share and income distribution are so central in the Kaleckian approach to macroeconomics.

Consumption (equation (6)) depends positively on the worker share of the wage bill, dividend and interest payouts by firms, and the value of the stock market. Since the wage bill is divided between workers and managers there are implicitly two different classes. Workers receive a fraction 'b' of the wage bill and have a propensity to consume of α_1. Managers receive a fraction [1-b] of the wage bill and have a propensity to consume of α_2 that is below that of workers. The propensity to consume out of profits (α_3) and wealth (α_4) is assumed to be less than that out of wages.[1]

The division of the wage bill between workers and managers is an important analytical feature that has been largely overlooked in Kaleckian macroeconomics, which has tended to focus exclusively on the wage – profit division. Introducing a worker – manager wage bill division means an economy can simultaneously be both profit- and wage-led (Palley, 2005). Thus, shifts in the distribution of income toward profits can stimulate economic activity by raising investment spending, and shifts in the composition of the wage bill toward workers can also stimulate activity by increasing consumption spending.

Desired investment spending (equation (7)) depends positively on output, profits, and stock prices. The desired investment spending function has a conventional Keynesian accelerator channel (β_1). It also has a Kaleckian profit share channel (β_2) that proxies for both profit rate and cash-flow effects, as well a stock price channel (β_3) that reflects a Tobin - q (Brainard and Tobin, 1968) or cost of equity capital channel.

Lastly, equation (9) adds the simplest of growth models, thereby enabling some observations on the effect of financialization on growth. Growth depends positively on the investment share of output, a feature that has strong empirical support (De Long and Summers, 1991). An alternative specification might be in terms of the investment – capital ratio. Increased investment spending has a positive but declining marginal impact on growth so that faster growth becomes progressively more costly to achieve. Substituting (7) into (9) yields

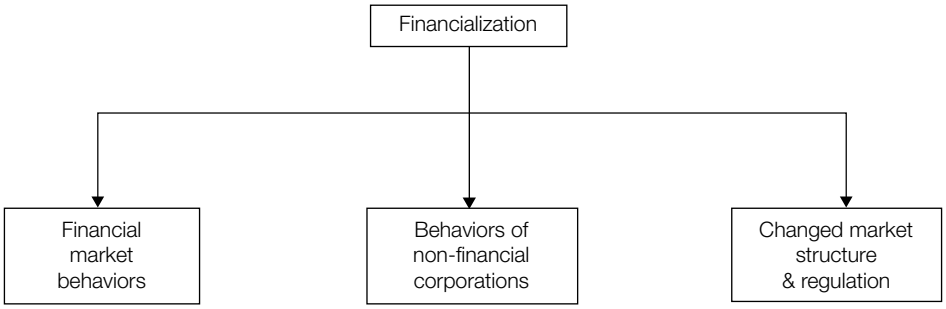
$$(10)\ g = g([\beta_0 + \beta_1 y + \beta_2 P + \beta_3 q]/Y)$$

A feature of equation (10) is that increases in output that lower the investment share will lower growth. This differs from the standard Kaleckian growth model in which it is assumed increased capacity utilization, which is analogous to increased output, raises growth. The difference is because the standard Kaleckian model has growth determined by the rate of capital accumulation (I/K) rather than the investment share (I/Y). If the I/Y ratio is the appropriate specification, increased capacity utilization caused by increased consumption could lower growth – unless capacity utilization (income) has a positive non-linear effect on investment spending. This is an issue deserving of more theoretical and empirical study.

[1] For purposes of simplicity, the model does not analyze the division of wealth between workers and managers. The coefficients α_3 and α_4 can be thought of as weighted average coefficients of worker and manager propensities to consume out of dividends and wealth, with the weights being equal to the respective ownership shares of workers and managers.

Figure 1

The channels of financialization



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3. CHANNELS OF FINANCIALIZATION

The first channel concerns changes in financial markets that impact the macro economy. These changes include changes in equity valuations, increased access to debt, and changes in the terms Figure 1 describes three channels whereby financialization affects the economic process. on which credit is made available.

The second channel concerns changes in the behavior of non-financial corporations. This may include changes in corporate financial policy regarding payouts to shareholders and changes in corporate leverage and financing behavior.

The third channel concerns changes in economic policy that financial interests lobby for. These policy changes include deregulation of financial and labor markets and globalization, and they affect such important structural parameters as the profit share, and the composition of the wage bill.

The balance of the paper uses the basic model presented in section II to construct a stylized historical narrative that shows how changes linked to financialization have changed patterns of economic outcomes.

4. THE GOLDEN AGE OF CAPITALISM, 1945 – 1969

The analysis begins with the twenty-five year period after World War II that is often referred to as the golden age of capitalism. During this period the real economy was marked by full employment and rapid growth, while on the financial side profits were strong and the stock market boomed.

The stylized investment, financing, and dividend payout decisions of non-financial corporations during this first stage can be described by

(11.1) $I = \text{Min}[I^*, [1\text{-}v]P]$

(11.2) $I^* < [1\text{-}v]P$

(11.3) $R = \text{Max}\ [0, v[P - I]]$ $\quad 1 > v > 0$

Equation (11.1) determines investment as the minimum of desired investment and retained profits. Inequality (11.2) has desired investment being less than retained profits, while equation (11.3) has the dividend payout being equal to the maximum of zero or the fraction (v) of the excess of profits over investment spending.

Solving (11.1) – (11.3) yields $I = I^*$ and $R = v[P - I^*]$. During this period firms relied on internally generated financing, but profits were sufficiently strong for firms to fully cover desired investment as well as pay dividends. In effect there was no reliance on external funding.[2]

Substituting the solutions to (11.1) – (11.3) in the equations of the basic model then yields an expression for output given by

(12) $Y^* = \{\alpha_0 + [1 - \alpha_3 v][\beta_0 + \beta_3 q]\}/$

$\{1 - \{\alpha_1 b + \alpha_2[1 - b]\}[1 - s_P] - \{\alpha_3 v + \alpha_4 q + [1 - \alpha_3 v]\beta_2\}s_P - [1 - \alpha_3 v]\}$

The critical parameters are s_P, b, v, and q. The comparative statics are

$dy/ds_P \gtrless 0, dy/db > 0, dy/dv > 0, dy/dq > 0$

$dI/ds_P \gtrless 0, dI/db > 0, dI/dv > 0, dI/dq > 0$

As in standard Kaleckian models, the effect of an increase in the profit share (higher s_P) is ambiguous. On one hand there is a positive effect on investment, and there is also a positive effect on consumption operating through stock market wealth. Balanced against that there is a negative effect on consumption due to a reduced wage share. If the economy is profit-led the former effects dominate and a higher profit share raises output: if the economy is wage-led the latter effect dominates and a higher profit share lowers output. This type of ambiguous outcome was first identified by Bhaduri and Marglin (1990), but the current model supplements their analysis by introducing a profit share effect on stock market wealth and consumption. That additional channel makes it more likely economies are profit-led.

The impact on investment is also ambiguous. On one hand there is a direct positive profit share effect. However, balanced against that there is the income accelerator effect, the sign of which is ambiguous and could offset the profit share effect. If the economy is profit-led, the accelerator effect is positive and reinforces the profit share effect. However, if the economy is wage-led it offsets the profit share effect and could overwhelm it.

That gives rise to the paradox that output could fall because the economy is wage-led yet the growth rate could increase because the investment share increases. This unusual growth effect follows from specifying growth as a function of the investment share rather than the rate of capital accumulation *(I/K)* and it shows the significance of alternative specifications of the growth function.[3]

An increase in the MPC of workers or managers increases output and investment because it raises AD. An increase in workers' share of the wage bill (higher b) has an unambiguously positive effect on output and investment. This is because it transfers wage income to workers from

[2] If v = 1 then firms were paying out all of their profits after financing investment. If v < 1 they were retaining some part of profits, which implies were accumulating cash balances or other financial assets.

[3] From a Cambridge capital critique perspective specifying growth as a function of the investment share makes more sense. That is because the Cambridge capital critique denies the existence of aggregate capital.

managers and the former have a higher propensity to consume out of wage income. This illustrates how the model can be both profit- and wage-led: a higher profit share and a higher worker share of the wage can both be expansionary.

An increase in the dividend payout ratio (higher v) has an unambiguously positive effect on both output and investment. That is because it increases disposable income, which increases consumption spending which in turn raises output and investment. At the same time, increasing the dividend payout does not crowd-out investment because firms still have ample profits to finance investment.

Lastly, a stock market boom driven by investor exuberance (higher q) also unambiguously raises output and investment. First, it increases stock market wealth, which increases consumption. That raises output, which then has a positive accelerator effect on investment. Additionally, higher stock prices have a direct positive effect on investment via the Tobin q channel whereby higher stock multiples lower the required return on equity capital. In effect, stock mark exuberance constitutes a form of animal spirits and its effect is always positive. Higher stock market animal spirits are therefore a form of Keynesian 'free lunch'.

5. CONFLICTUAL CAPITALISM OF THE 1970S

The 1970s witnessed the end of the golden age and a change of economic regime as the boom times of the 1960s gave way to stagflation and enhanced conflict over income distribution. The new regime can be interpreted as one in which firms became subject to financial constraints owing to a high employment squeeze on profits. In the profit-squeeze regime investment spending and dividend payouts are characterized as follows:

(13.1) $I = \text{Min}[I^*, [1\text{-}v]P]$

(13.2) $I^* > [1\text{-}v]P$

(13.3) $R = vP$

The important feature is that desired investment spending now exceeds retained profits so that investment spending becomes profit constrained. There are two explanations for this new pattern. First, profits fell due to the OPEC oil shocks and a profit squeeze from high employment and labor militancy. Second, firms had previously expanded dividend payments and were now committed to maintaining those payments to shareholders.

Solving (13.1) – (13.3) yields $I = [1\text{-}v]P$, which means investment is profit constrained. Substituting this in the equations of the basic model in turn yields an expression for output given by

(14) $Y^* = \alpha_0/\{1 - \{\alpha_1 b + \alpha_2[1 - b]\}[1\text{-}s_P] - \{\alpha_3 v + \alpha_4 q + [1\text{-}v]\}s_P$

The comparative statics are:

$dY/ds_P \gtrless 0, dY/db > 0, dY/dq > 0, dY/dv < 0.$

$dI/ds_P \gtrless 0, dI/db > 0, dI/dq > 0, dI/dv < 0.$

Once again the effect of a higher profit share (higher s_P) is ambiguous for the familiar profit- versus wage-led reasons. However, in a regime where firms' are profit squeezed it is more likely the economy will be profit-led. This is because the direct impact of a higher profit share on investment spending is likely larger since it relaxes a financial constraint on firm's investment spending. Relaxing the profit constraint will have a large effect if v is small

(i.e. dividend payouts are small and retained profits are large), in which case the additional profit is spent almost entirely on investment. That effect may then overhelm the negative impact on consumption that follows from a reduced wage share.

Since firms are profit constrained, output and investment fall in response to increased dividend payouts (higher *v*). This is because increased dividends reduce investment spending by a full dollar yet households only spend a fraction of their dividend income ($1 > \alpha_3$). The stock market exuberance effect (higher *q*) remains unambiguously positive.

Lastly, shifts in the distribution of the wage bill toward workers still have an unambiguously positive effect on output and investment. Yet, this also highlights the dilemma of the profit squeeze regime in which the market may not be able to accomplish a stable adjustment. Suppose profits need to be restored and this results in a changed regime that raises the profit share via higher mark-ups. The same forces that raise the profit share may then also lower workers' share of the wage bill, in which case the outcome could be contractionary. What may be needed is a higher profit share and a higher worker share of the wage bill, but the market has no way of accomplishing this. That speaks to a potentially important role for measures such as incomes policy and corporate governance policies that constrain managerial pay while at the same time allowing a higher profit share.

6. 1980S LEVERAGED BUY-OUT CAPITALISM

If the 1970s surfaced incipient conflicts within the economy by imposing a profit constraint on firms, the 1980s can be viewed as inaugurating the era of financialization that represented part of a corporate strategy for addressing the challenges raised in the 1970s. Thus, firms started borrowing heavily to fund such activities as leveraged buy-outs. This borrowing served three purposes. First, it pleased Wall Street by returning funds to shareholders. Second, it allowed firms to finance their desired investment spending plans. Third, it loaded firms up with debt thereby pre-empting the income claims of workers. Additionally, structural changes in the labor market weakened the bargaining position of workers. This shifted the distribution of the wage bill in favor of managers, a shift that is exemplified by the CEO pay explosion (Mishel et al. 2007).

Capturing these new developments requires re-specifying firms financing and investment decisions, which are described by the following equations:

(15.1) $D = D_{-1} + B$

(15.2) $B = \text{Min}[D_{Max} - D_{-1}, B^*] = B^*$

(15.3) $B^* = B_{DIV} + B_{INV}$

(15.4) $B_{INV} = [I^* - [1-v]P]$

(15.5) $R = vP + B_{DIV} + iD_{-1}$

(15.6) $I = \text{Max}[I^*, [1-v]P - iD_{-1} + B_{INV}] = I^*$

(15.7) $wN = s_W[Y - ziD_{-1}]$ $\quad 0 < z < 1$

(15.8) $P = s_p Y + s_W ziD_{-1}$

(15.9) $V = q[P - iD_{-1}] + iD_{-1}$

where B = actual corporate borrowing D_{-1} = last period's corporate debt, D_{MAX} = firms' debt ceiling, B^* = firms' desired borrowing, B_{DIV} = borrowing to finance buy-outs, B_{INV} = borrowing to finance desired

investment, and i = nominal interest rate on debt.[4]

The logic of these relations is as follows. Equation (15.1) describes the evolution of firms' indebtedness. Equation (15.2) describes actual borrowing by firms, and it is assumed firms can borrow as much as they desire (B^*) because their balance sheets are still relatively unencumbered so that debt is below their debt ceiling. Equation (15.3) decomposes desired borrowing, into borrowing to finance an exogenously given leveraged payout to shareholders plus borrowing to finance desired investment. Equation (15.4) defines borrowing to finance investment as equal to the shortfall between retained profits and desired investment.

Equation (15.5) determines the total payout to shareholders which consists of dividends from profits, the leveraged payout, and interest on existing debt. Equation (15.6) determines actual investment spending.

Equations (15.7) and (15.8) determine the wage bill and profits. The important innovation is that the amount of income available for wages is reduced by debt service payments, reflecting how balance sheet engineering can pre-empt income claims of other stakeholders (Bronars and Deere, 1991). The coefficient z determines the extent to which debt reduces income available for wages by intimidating workers with the threat of bankruptcy. Pure neo-classical theory provides a benchmark that sets $z = 0$. The argument is labor market competition ensures workers are paid their marginal product, which is technologically determined and unaffected by financial engineering. Kaleckian theory argues $z > 0$ because wages are determined by relative bargaining power.

Lastly, equation (15.9) determines financial wealth which now consists of stock market wealth and debt claims against corporations. The value of equities is determined by the value of profits after interest payments. The value of debt is its face value. Substituting (15.7) into (15.9) yields

$$(16)\ V = q[s_pY + s_WziD_{-1} - iD_{-1}] + iD_{-1}$$

The term s_WziD_{-1} represents the addition to shareholder value that comes from re-engineering the balance sheet and pre-empting wage claims in favor of profits.

Once again neo-classical theory provides a benchmark. First, it maintains $z = 0$. Second, under the Modigliani – Miller (1958) theorem a dollar of income is always valued the same, regardless whether it is paid out as dividends or interest so that $q = 1/i$. Consequently, the value of financial wealth is unchanged by financial engineering and $V = qs_pY$. In a Post Keynesian framework z can be non-zero and stock prices can be greater than or less than $1/i$ depending on the state of market exuberance.

Solving equations (15.4) – (15.6) yields $I = I^*$. Combining equations (15.1) – (15.9) with the basic model then yields a solution for output given by:

$$(17)\ Y^* = \{\alpha_0 + \beta_0 + \alpha_3 B_{DIV} + \beta_3 q + \{\alpha_3[1-v] + \alpha_4[1+q[1-s_P]z-1]] + \beta_2[1-s_P]z - [\alpha_1 b + \alpha_2[1-b]]z\}iD_{-1}\}/$$

$$\{1 - [\alpha_1 b + \alpha_2[1-b]][1-s_P] - \alpha_3 vs_p - \alpha_4 qs_p - \beta_1 - \beta_2 s_p\}$$

Equation (17) is a complicated expression but it is revealing of the channels whereby financialization affects economic activity.

[4] The term iD_{-1} can be thought of as the real value of debt interest payments because the model abstracts from issues concerning inflation.

As before increases in the profit share are ambiguous because of the profit- versus wage-led distinction. Redistributions of the wage bill toward workers (higher b) remain unambiguously expansionary.

Increases in the dividend payout ratio also remain unambiguously expansionary. That is because they distribute profit to households who spend part of it, yet investment is unaffected since firms obtain replacement finance by borrowing (B_{INV}) from banks. Similarly, a higher value of stock prices also remains unambiguously positive because of the impact on wealth and consumption, and because of the Tobin q effect on investment. Thus, the Keynesian animal spirits free lunch continues to operate.

Large leveraged payouts to households (B_{DIV}) are also unambiguously expansionary. The logic is that firms finance these payouts by borrowing from banks and pass the funds over to households which spend part of them.

Borrowing represents the flow dimension of credit, while debt represents the stock dimension. Whereas borrowing (B_{INV} and B_{DIV}) is unambiguously expansionary, the effect of the debt stock is more nuanced.

In the leveraged buy-out regime firms' debt stock is below their debt ceiling (D_{MAX}), which means firms always have access to more credit. Consequently, the debt stock (D_{-1}) does not constrain borrowing, which means debt has no adverse effects on firms. It is only later in the financialization process when debt constraints bind that debt stock effects come fully into play.

One potentially contractionary effect of higher debt stocks is via their effect on the wage share, which is reduced by pre-empting income to payoff bondholders. That effectively increases the profit share, which is contractionary if the economy is wage-led. However, it is expansionary if the economy is profit-led.

A second effect of higher debt stocks operates via financial valuation effects. Recall, profit income is transformed into debt payments, which gives rise to two separate effects. A first expansionary effect is that the transformed profit is fully paid out as interest income. This is expansionary since none is held as retained profit, as can be seen from the expression for dividend and interest income which is given by

$$(18)\ R = v[s_pY - iD_{-1}] + iD_{-1} + B_{DIV}$$

A second ambiguous effect concerns the value of financal wealth. Transforming profit into interest payments reduces the financial value of equities and increases the financial value of debt holdings. Financial wealth increases if $q < 1/i$, which is expansionary. Alternatively, financial wealth decreases if $q > 1/i$, which is contractionary. In a depressed stock market financial wealth is increased by using debt to buy back undervalued equities, whereas financial wealth is decreased by using debt to buyback over-valued equities.

In sum, as always, there are ambiguities in a complex macroeconomic system. That said the leveraged buy-out period of financialization was likely highly expansionary because fims were making large payouts to households which spurred consumption, while investment spending was unaffected because firms could fully finance their desired investment by borrowing from banks as their debt was still below their debt ceiling.

What about effect on growth? Compared to the 1970s conflictual capitalism regime,

the leverage buy-out regime likely contributed to a recovery of growth. However, compared to the unconstrained golden age the effect is ambiguous and depends on the specification of the growth process. If growth is a function of the investment share (I/Y) there is likely little impact as both I and Y both increase. If growth is a function of the accumulation rate (I/K) there may be an acceleration of growth since I increases.

7. 1990S AND 2000S CONSUMER DEBT CAPITALISM

The corporate leveraged buy-out boom that lasted until the early 1990s was succeeded by a consumer debt boom that lasted until the bust of 2007. Consumer borrowing is a critical part of the financialization narrative yet it has been largely over-looked in the Post Keynesian literature. Just as the corporate balance sheets were leveraged up to transfer income and spur growth, so too were consumer balance sheets.

This section addresses the issue of consumer financialization using a simple framework presented in Palley (1994, 1997). Dutt (2005, 2006) has studied a similar model that is explicitly dynamic, but it also lacks wealth effects. These wealth effects are now constituted by the value of the stock market, which includes banks that lend to consumers. To simplify the presentation, the stylized model treats investment as exogenous and abstracts from the corporate sector issues identified in the previous section. This enables attention to focus exclusively on financialization's consumption dimension.

The basic model of consumer financialization is given by

(19) $Y = C + I$

(20) $C = C_W + C_K$

(21) $C_W = bwN - iD_{-1} + B$

(22) $C_K = \alpha_2[1 - b]wN + \alpha_3 R + \alpha_4 V$

(23) $I = I_0$

(24) $s_w + s_P = 1 \qquad 1 > s_w > 0,\ 1 > s_p > 0$

(25) $wN = s_W Y$

(26) $P = s_p Y$

(27) $B = \text{Min}[D_{MAX} - D_{-1}, \phi wN] \qquad \phi > 0$

(28) $D = D_{-1} + B$

(29) $R = v[P + iD_{-1}]$

(30) $V = q[P + iD_{-1}]$

Where C = aggregate consumption, C_W = consumption of debtor (worker) households, C_K = consumption of creditor (capitalist) households, B = worker borrowing, D_{-1} = last period's debt of worker households.

The most significant feature is that introducing consumer debt requires distinguishing between debtor and creditor households. It is assumed that worker households do all the borrowing and they have a marginal propensity to consume of unity. That means all wealth is held by manager/capitalist households and only they receive dividend and interest income.

Workers borrow from banks, which are treated as part of the corporate sector. Now, instead of firms making interest payments to households (as with corporate leverage buy-outs), debtor households make interest payments to firms. Part of those interest payments is then redistributed as dividends to capitalist households.

Equation (19) is the national income identity, while equation (20) defines aggregate consumption as consisting of consumption by worker-debtor households and capitalist – creditor households. Equation (21) describes the consumption of worker households which is financed by wage income and borrowing, but is reduced by debt interest payments. Equation (22) describes the consumption of capitalist households. Equation (23) determines investment, which for simplicity is exogenous. Equation (24) is the wage and profit share adding up constraint. Equation (25) determines the wage share and equation (26) determines the investment share.

Equations (27) – (30) describe the financial dimensions of consumer financialization. Equation (27) determines consumer borrowing. Each period workers borrow a fraction, ϕ, of their wage income as long as their total debt remains below their debt ceiling. Equation (28) determines the evolution of household debt. Equation (29) determines dividend income paid to capitalists which is derived from profits and interest income received by banks. Equation (30) determines the value of stock market wealth, which is the value placed on profits and bank interest income. The solution to the model is given by

$$(31) Y^* = \{I + [\alpha_3 v + \alpha_4 q - 1] i D_{-1}\} / \{1 - b[1 - s_p] - \alpha_2[1 - b][1 - s_p] - \phi[1 - s_p] - \alpha_3 v s_p - \alpha_4 q s_p\}$$

There are four main dimensions to consumer financialization. First, worker borrowing is unambiguously positive since it finances additional worker consumption. This effect is captured in the denominator by the term $- \phi[1 - s_p]$.

Second, higher debt is contractionary if $[\alpha_3 v + \alpha_4 q - 1] < 1$. The logic is higher debt interest payments reduce worker consumption, but they raise capitalist consumption by raising dividend payments from banks and by raising the stock market wealth of capitalists. Given that workers' propensity to consume is unity and capitalists' propensities to consume out of dividend income and stock market wealth (α_3 and α_4) is low, this debt effect is likely negative.

Third, the parameter ϕ is of importance since it determines worker borrowing each period as a multiple of worker income. The processes of financial innovation and deregulation can be thought of as increasing the value of this parameter.

Fourth, the parameter D_{MAX} is also important as it limits consumer borrowing. The processes of financial innovation and deregulation can also be thought of as raising consumers' debt ceiling, thereby postponing the day when consumers are debt constrained.

As before, an increase in the profit share reduces consumption by reducing the wage income of worker and manager/capitalist households. It also increases consumption by increasing dividends paid to capitalists and by increasing the value of stock market wealth held by capitalists. However, there is now an additional negative channel as a lower wage share reduces the amount that workers borrow each period. This suggests why consumer financial innovation has been so important since raising the borrowing parameter ϕ can offset the negative effect that corporate leverage buy-out financialization has on the wage share.

8. DEBT CONSTRAINTS AND THE COMING LONG STAGNATION

The consumption-led expansion of 2001 – 07 has been followed by the deepest

recession since the Great Depression of the 1930s. This recession can be thought of as marking a shift to the latest stage of financialization when both corporations and consumers have become debt constrained.

This latest stage can be captured by a model that combines the models developed to describe the US economy in the 1980s (Photo 3) and the 1990s and 2000s (Photo 4). The key feature of this combined model is the need to recognize both corporate and household debt. Moreover, at this stage both corporations and households are debt constrained, which forces them to deleverage. That means rather than borrowing from banks, firms and households are re-paying debt.

The corporate sector's finance constraints are given by

(32) $D^{Corp} = D^{Corp}_{-1} - B^{Corp}$

(33) $B^{Corp} = D^{Corp}_{Max} - D_{-1} = - Z^{Corp} \leq 0$

(34) $R = vP - Z^{Corp} + iD^{Corp}_{-1}$

(35) $I = \text{Min}[I^{*}, [1-v]P - Z^{Corp} - iD^{Corp}_{-1}] = [1-v]P - Z^{Corp} - iD^{Corp}_{-1}$

where D^{Corp} = debt of corporations, B^{Corp} = borrowing of corporations, $-Z^{Corp}$ = corporate debt repayments. Equation (32) tracks the evolution of corporations' debt. Equation (33) determines corporate borrowing, which is now characterized as negative. Equation (34) determines corporate dividend and interest payments, while equation (35) determines investment spending.

There are several features about these equations. First, corporations are debt constrained, which constricts the amount they can borrow. Equation (33) has them de-leveraging and repaying loans so that $B^{Corp} = - Z^{Corp} \leq 0$. Equation (34) determines investment spending which is again profit constrained.

In a sense, corporations are moved back to the earlier profit constrained regime that characterized the 1970s. However, the situation is aggravated because corporate balance sheets are now deteriorated. That further constrains investment spending since firms must deleverage ($- Z^{Corp}$) and pay interest on existing debt (iD^{Corp}_{-1}). This stands to significantly lower investment spending, with severe consequences for output and growth.

The household sector's finance constraint is given by

(36) $D^{Cons} = D^{Cons}_{-1} + B^{Ccns}$

(37) $B^{Cons} = D^{Cons}_{MAX} - D^{Cons}_{-1}, = - Z^{Cons} < 0$

Households are now also debt constrained, and equation (37) has them also de-leveraging by paying back debt. This is unambiguously contractionary because it directly reduces worker household consumption spending.

Whereas before borrowing spurred spending of households and corporations, deleveraging works in reverse as households and firms cut back spending to pay back debt. Moreover, the contractionary impulse is compounded because both firms and households are burdened by debt interest payments that tend to further reduce demand.

The equations for the real sector of the economy are given by

(38) $Y = C + I$

(39) $C = C_W + C_K$

(40) $C_W = bwN - iD^{Cons}_{-1} + B^{Cons}$

(41) $C_K = \alpha_2[1 - b]wN + \alpha_3 R + \alpha_4 V$

(42) $wN = s_W[Y - ziD^{Corp}_{-1}]$ $\quad 0 < z < 1$

(43) $P = s_p Y + s_W ziD^{Corp}_{-1}$

(44) $V = q[P - iD^{Corp}_{-1} + iD^{Cons}_{-1}] + iD^{Corp}_{-1}$

Substituting equation (37) into (40) yields an expression for worker consumption given by

(45) $C_W = bwN - iD^{Cons}_{-1} - Z^{Cons}$

This expression shows how consumer interest payments and deleveraging reduce worker consumption spending. Whereas the interest payment at least gets partially transferred to capitalist households and supports their consumption, the repayment extinguishes bank loans and has a pure negative impact on aggregate demand.

The level of investment spending is given by

(46) $I = [1-v]P - Z^{Corp} - iD^{Corp}_{-1}$

Corporate interest payments and loan deleveraging have a parallel effect on firms, reducing investment by tightening the financial constraint on firms. Corporate loan repayments extinguish loans and reduce investment without any offsetting positive effect on AD. Corporate interest payments reduce investment but have a positive effect on capitalist household income that supports their consumption.

Solving the model yields an expression for output given by

(47) $Y^* = \{- [b + \alpha_2[1 - b]]\{1- s_P\}ziD^{Corp}_{-1} - Z^{Cons} - Z^{Corp} - iD^{Cons}_{-1} - iD^{Corp}_{-1}$

$+ \alpha_3[iD^{Corp}_{-1} - Z^{Corp}] + \alpha_4\{q[iD^{Cons}_{-1} - iD^{Corp}_{-1}] + iD^{Corp}_{-1}\} /$

$\{1- [b + \alpha_2[1 - b]]\{1- s_P\}- \alpha_3 vs_P - \alpha_4 qs_P - [1-v]s_P\}$

This complicated expression is actually fairly simple to understand and conveys significant insight into the difficulties the economy now faces.

The first term in the numerator is negative and reflects the fact the leveraged buy-out financialization lowers the wage share by pre-empting claims on income. That lowers consumption spending of both worker and manager/capitalist households ($-[b + \alpha_2[1-b]]\{1-s_P\}ziD^{Corp}_{-1}$).

The second term in the numerator ($-Z^{Cons}$) is also negative. It represents the negative impact on consumption of debt de-leveraging by worker households.

The third term in the numerator ($- Z^{Corp}$) is again negative. It represents the negative impact on investment of debt de-leveraging by firms. These payments tighten the finance constraint on firms and compel dollar-for-dollar reductions of investment spending. They also have a negative effect on dividend payouts since profits must be used to pay-back loans rather than finance dividends, and that reduces capitalist household income and consumption ($-\alpha_3 Z^{Corp}$).

The fourth term in the numerator ($-iD^{Cons}_{-1}$) is also negative. It represents the negative impact of debt interest payments on the consumption of worker households.

Finally, the fifth term in the numerator ($-iD^{Corp}_{-1}$) is also negative. It represents the negative impact of debt interest payments on firms' investment spending. As with loan repayments, these payments tighten the finance constraint on firms.

Balanced against these negative effects are two positive effects. First, corporate interest payments are paid over to capitalist households, increasing their income and consumption ($\alpha_3 iD^{Corp}_{-1}$). Second, worker interest payments raise the value of profits,

which raises capitalist financial wealth and consumption ($\alpha_4 q\ iD^{Cons}_{-1}$). For reasons discussed earlier in connection with asset market valuations and the Modigliani – Miller theorem, the effect of corporate debt payments on capitalist financial wealth and consumption is ambiguous ($-\alpha_4 q\ iD^{Cons}_{-1} + iD^{Corp}_{-1}$).

These numerous channels show how the effects of financialization ramify throughout the economy. Financialization affects the wage share and the functional distribution of income; redistributes income between worker households and capitalist households; transforms profit into interest that is then paid to capitalist households; first boosts consumption and investment spending via borrowing and then constrains them through de-leveraging and debt service payments.

One interesting feature of the stagnation regime is that the profit share can be quite high, yet firms and the economy can appear profit squeezed. This is because firms are debt constrained and compelled to deleverage, and because profit income is pre-committed to pay interest obligations. Such a configuration can create a troubling political economy in which firms make the case for higher profits and further wage squeeze. Yet, the economic reality is a need to recapitalize firms, not increase the profit share.

Lowering the interest rate can have a potentially large beneficial effect on consumption and investment spending by lowering the debt service burden on worker households ($- iD^{Cons}_{-1}$) and firms ($- iD^{Corp}_{-1}$). However, one problem is that though the monetary authority may lower its base interest rate, market interest rates may actually rise due to increased spreads associated with credit risks from high leverage and reduced economic activity (Palley, 2008b).

Lastly, there is the question of what happens to growth. The accumulation of corporate and consumer debts is likely to initiate a period of stagnation marked by high unemployment rates. Growth will also fall if investment declines proportionately more than income.

9. **CONCLUSION**

Financialization has been a major feature of the US economic landscape over the past thirty years. The process of financialization has been a long-running evolving process, marked by transition through different stages. The early and middle stages were characterized by relatively robust economic conditions that were fuelled by corporate and consumer borrowing. However, the US economy now appears headed for prolonged stagnation owing to accumulated debt burdens and the shift to deleveraging in place of leveraging.

Financialization should not be thought of in isolation from other economic developments. In particular, it should be viewed as supporting the neo-liberal policy paradigm that was put in place in the 1980s to counter the challenges faced by capital in the late 1960s and 1970s (Palley, 2009b). The neo-liberal paradigm redistributed income from wages to profits, and it also redistributed wage income away from workers to manager/capitalists. That redistribution posed a threat to aggregate demand and financialization helped fill the hole in demand created by this redistribution.

The fact that the process of financialization is long-running and expansionary in the early and middle stages made it extremely hard to oppose. When times are even half-good it is difficult to push policy change because both the policy and political process have an in-built bias against implementing change in good times. The political cost of change is immediate and direct, yet the benefit is averting a hypothetical future problem.

This political bias was further reinforced by the fact that the expansionary phases of the financialization process were able to run for so long. That is where financial innovation and deregulation become so important, as they allowed the debt accumulation and leveraging process to run far longer than could have been reasonably expected. Moreover, the run was further extended by a massive housing bubble at the tail end. Consequently, those who warned about the financialization process were written off as Cassandras though, like Cassandra, they were ultimately proven right.

Finally, the unpredictability of evolutionary processes like financialization has major implications for their economic representation and study. These processes are fundamentally innovative and change the structure of the economy. That means standard time series econometrics will have great difficulty tracking them because they are subject to repeated structural breaks, and time series will also be of little use predicting the future since that future is driven by a process that does not yet exist. Cross-section panel analysis will catch features of a particular stage but that approach provides a very incomplete understanding of the fundamental process. This suggests a stylized facts – stage of development approach has great value as it provides a theoretical understanding of where the process has come from and is also suggestive of where it is likely to go.

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