

Financialization as Debt Shift *

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(DRAFT VERSION)

Extended Abstract

The aim of this paper is to analyze the sustainability – the likelihood of uninterrupted continuation – of the financialization process. One widely used definition of financialization is the expansion of the financial sector (e.g., measured in terms of its assets) relative to the economy (e.g., measured as the gross domestic product, of GDP). An apparent puzzle is that this same measure is also used to measure financial development – a process that is in principle sustainable, and has been occurring over many centuries.

Therefore to analyze the sustainability of financialization, it must be defined as a specific form of financial development which is unsustainable. It will be proposed in this paper that what makes financialization development unsustainable is that it pushes up the rate of the increase in leverage at the macro level. The faster the change in the stock of debt relative to the flow of income, the larger is the growth of the debt servicing burden, and the sooner the process will end, i.e. the less sustainable is the process. So what drives the change in the stock of credit relative to the flow of income? A key claim of this paper is that an important driver is the extent to which credit is used to generate incomes; and that this extent depends on the degree of ‘debt shift’.

This connects to a dimension of financialization often noted in the literature: in a financializing economy, the financial sector increasingly supports financial transactions and asset prices, at the cost of real-sector transactions and income formation. This suggests that it is helpful to study ‘debt shift’, defined as the shift in the allocation of bank credit, away from the real sector (such as credit to nonfinancial business) and towards the support of transactions in assets, on the real estate and financial asset markets. This implies the following. To assess the sustainability of the increase in credit relative to GDP, perhaps it is not so much the increase in the level of credit assets relative to GDP as the change in the composition of the credit stock (i.e., debt shift) which matters. In that case, financialization may be usefully defined as *financial development with debt shift*. In connection to the research question posed in this paper, this lens on the nature of financialization implies that debt shift can be isolated as the internal contradictions of financialization, which undermines its sustainability. It does so in two ways: directly and indirectly.

With regard to the direct impact, it can be shown that debt shift implies the growth of leverage, while financial development without debt shift does not. This will be illustrated in two ways. First, with minimal assumptions, a simulation of the interconnected growth of GDP and credit with debt shift is capable of replicating the actual empirical trends in the GDP ratios of nonfinancial business debt and of credit to asset markets (predominantly household mortgage credit), as well as the growth in total private debt as a ratio to GDP (macro leverage). Second, data will be presented to show that debt shift (rather than only the growth of debt) over the last

decades can indeed be empirically connected to increasing leverage, on average over dozens of countries.

With regard to the indirect ways in which financialization may be self-defeating, this paper introduced the debt shift concept into the literature on some well-known consequences of financialization. Evidence will be presented on the relation between debt shift and: reduced income growth; more inequality in incomes and in wealth; and larger probability of a financial crisis and vulnerability to a crisis. It will be argued that their correlations with debt shift are not coincidental, but that debt shift gives rise to each of these trends. Since, as the literature shows, they undermine the stability of growth and the ability to service financial obligations, therefore these three consequences of debt shift represent indirect ways in which financialization is unsustainable.

These findings and arguments support the central idea of this paper: that debt shift is an important manifestation of financialization, which helps us to think through the various ways in which the financialization process is unsustainable. This analysis prepares the ground for a wider recognition of the risks inherent in the financialization process, and for policies to counteract financialization.

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Financialization as Debt Shift

Dirk Bezemer

"Credit is the pavement along which production travels and the bankers if they knew their duty, would provide the transport facilities to just the extent it is required in order that the productive powers of the community can be employed at full employment."

John Maynard Keynes, *Collected Writings* VI:197

1. Introduction

This paper responds to one set of questions posed by the editors in the call for papers for this special issue: "Are there limits to financialisation and the dominance of finance over the real economy? What might post-financialisation capitalism look like? What institutions and policies might support a fairer more sustainable system?". The to this call in the present paper will be to focus on a key variable in a financializing economy: leverage – the ratio of debt to incomes. This is at once seemingly ever-increasing since the financialization processes started, while its continued growth is, by its very nature, unsustainable. This points to an internal contradiction in financialization. An important driver of leverage, it will be argued, is the process of 'debt shift', defined and explained in this paper. How can a focus on leverage and debt shift elucidate the nature and sustainability of financialization? Does this angle of analysis imply specific institutions and policies which might support a more sustainable system? These questions are addressed in the present paper.

A prominent aspect of financialization is the growth of the financial sector since the 1980s, in terms of its assets relative to the size of the economy, or in terms of its value-added share (Greenwood and Scharfstein, 2012). This growth is historically unprecedented. Conceived in this way, financialization presents a puzzle. The same thing, namely expansion of the financial sector, has been given different names, and different functions have been ascribed to it.

First, expansion of the financial sector under the monikers 'financial development', or 'financial deepening' has traditionally been linked to benign economic outcomes in terms of income growth and income equality (Schumpeter, 1934; Gurley and Show, 1962; King and Levine, 1993). But, second, expansion of the financial sector under the name 'financialization' is studied as an aberration, as financial-development-gone-wrong. While earlier episodes of financialization have been identified (Hilferding 1910; Vercelli, 2014), the focus will here be on the post-1980 years (Krippner 2005; Epstein, 2005;).

The scope of financialization studies includes anthropology, sociology, political science, and critical accounting, and it is much wider than the traditional, economics-focused study of financial development. One might surmise that this accounts for the different assessments of financial-sector expansion: it may be benign in purely economic terms (e.g in average per capita income growth terms), but with problematic consequences in terms of work relations, self-image or social fabric – possibly with negative feedback loops to the economic benefits and sustainability of financialization.

While this is one aspect of the problem, it does not resolve the puzzle. Even within the narrower terms of traditional economic measures, expansion of the financial sector has negative

outcomes. Research indicates that it is associated with lower, not higher income growth; that it increases inequality in incomes and in wealth; and that it increases the probability of a financial crisis, as well as the economy's vulnerability to a crisis (references to be added). All these are by now well-known findings. But financial development has been linked to precisely the opposite findings: higher income growth, lower inequality, and risk sharing leading to greater stability (references to be added).

The puzzle, therefore, is the following. If financial development has positive economic outcomes, and financialization has negative outcomes *in the same areas*, what is it that separates financialization from financial development?

By analyzing this apparent puzzle, we may be able to say something about the sustainability – the likelihood of uninterrupted continuation – of the financialization process. In the present paper, the concept of 'debt shift' will be used to do this. It signifies the change in the use of private debt which started in Western societies a few decades ago, at the onset of financialization. This leads to a definition of financialization as the increased use of debt and other financing instrument in the pursuit of capital gains on asset markets, rather than supporting the pursuit of profit from sales realized in the productive process.

2. Conceptualizing 'Debt Shift'

To recast questions about financialization as questions about debt and debt shift requires a conceptual link from finance to debt. One way to build this link is to start by asking: What is finance? What is money? The best evidence we have is that historically, money often was a form of debt. In this 'credit theory of money' (Knapp 1905; Innes, 1913; Wray 1998, 2004; Bell 2001; Ingham, 2013) is that money often and perhaps typically, emerged as a form of debt (and therefore credit). Creating money as transferable debt allows the debt to be transferred as finance for goods-and-services transactions – that is, the debt can be 'shifted around' in society in payment for goods and services, supporting economic activity, employment and incomes in the process. To explore how this supportive process differs from the 'debt shift' which is the focus of the present paper, consider an example.

Suppose an entrepreneur takes out a production loan. The bank makes the loan by crediting the entrepreneur's account and increase her deposit. Simultaneously to this bank liability creation, the bank creates a claim of equal size on the entrepreneur (e.g., McLeay et al, 2014). Money has now been created. The entrepreneur can use the bank's liability to pay for inputs and wages, and so will her counterparties. The money which was newly created is now circulating. Debt is shifted from buyer to seller. As it changes hands, output and employment is created: 'shifting around' the debt in this manner supports economic growth. This process is most clearly analysed in circuitist theory (e.g., Graziani, 2003).

The creation and circulation of debt in this manner can be a financially sustainable process. The debt grows, but so does the economy, and so does the income with which to repay the debt. Debt growth is not a problem but a solution. Financial development supports economic development, just as Schumpeter (1934) describes. The first row in Figure 1 depicts the implications for leverage of this 'Schumpeterian' process of nonfinancial business lending and innovation, by linking balance sheets to the economy's current (income) and capital (assets and debt) accounts.

The direct consequences of Schumpeterian’ business lending are increases in both debts and incomes, so that leverage need not rise.

Figure 1: Schumpeterian lending versus debt shift: balance sheets, income, wealth

firm		bank		House hold		Current account	Capital account		Leverage
						Income (Y)	Debt (D)	Asset values	D/Y
assets	liab.	assets	liab.	assets	liab.				
‘Schumpeterian’ credit to nonfinancial business: lending & innovation									
+ Plant & machinery	+ loan	+loan	+deposit			↑	↑	?	-
‘Debt Shift’ Lending: Mortgaging, stock repurchases									
		+loan	+deposit	+house	+mort-gage	-	↑	↑	↑
	+ loan - capital	+loan	+deposit			-	↑	↑	↑

Note: Balance sheet changes are indicated by ‘+’ and ‘-’ entries. Changes in income, debt and asset values are indicated by arrows point upward or downward (increasing/decreasing) or ‘-’ for no change.

This, of course, is not all. As Minsky (e.g. 1992) famously theorized, the credit system supports growth but also fosters instability. The financial crisis of 2007 was a credit crisis. Researchers have identified 147 banking crises since 1970 (Laeven and Valencia, 2014). Also further back we find them with alarming regularity, from the Dutch tulip mania and crash in the 1630s and the 1716-1720 South Sea Bubble and crash, to the 1929 New York stock exchange crash. More recently there was the 1986 US Savings and Loan crisis, the 1987 Black Monday Crisis, the 1989 Japan land market crisis, the 1992 Swedish property crisis, the 1996 Albanian Ponzi crisis, the 2006 Latvian mortgage crisis – an so on. Tranquility appears the exception in modern capitalism. Crisis, or the credit boom that ends in crisis, seems normal. Apparently, there are forms of debt creation which lead to outcomes less supportive of growth and innovation.

All these booms-and-crashes were based on growth of macro-level leverage, that is, private liability creation (typically with public endorsement or outright support) at a rate beyond the rate of income growth. As an example, consider the home mortgage loan, which is typically issued to buy an existing home. Unlike the entrepreneurial loan, this lending does not finance income formation or employment. It finances the trade in an already existing asset. There may be some additional activity, for instance connected to decoration or to buying a new kitchen. But this additional spending, and the additional income that is generated, is small compared to the typical home mortgage loan.

If a loan used to buy an existing home hardly generates income, it must be serviced out of existing incomes. On the macroeconomic level, such mortgage lending grows the economy’s debt, but not total incomes (Figure 1). The debt-to-income ratio in the economy, or the debt burden, rises. This holds not just for mortgages, but for all loans which finance not incomes and employment but trade in existing assets – for instance financial assets such as property, bonds, stocks, and derivatives. The bottom rows in Figure 1 one depicts the process for home mortgages and stock repurchases.

Debt shift may take many forms linked to a large variety of financial innovations and financial practices. Just one well-known example of this is mortgage securitizations, which monetize and make tradable capital gains on mortgages via mark-to-market accounting. This processing of

innovations and change in praxis then encourages more bank lending in pursuit of property capital gains, and – as has been shown in empirical research - therefore less bank lending to nonfinancial business. This is one - albeit the most prominent – example of ‘debt shift’. Other examples from the business sector are mergers and takeovers and stock repurchase programs. In each of these instances, financial resources, instruments and practices are used to realize capital gains, and that in doing so the actor’s focus shifts from the pursuit of efficiency gains and profit to the pursuit of transactions volumes and capital gains.

This suggest a dichotomy in the use of finance and of debt (Bezemer, 2014): to support incomes and jobs on one hand, and to support asset prices on the other hand. A shift in the use of debt, from the former to the latter, is debt shift. In the Figure 1 stylized example, the rise in total private debt relative to GDP (leverage) can be attributed exclusively to debt supporting asset markets. Any change on the allocation of bank debt, away from ‘Schumpeterian’ lending to nonfinancial business and towards mortgages, stock repurchases, mergers and acquisitions and the like, will increase leverage.

3. Debt shift Implies Rising Leverage

The argument so far is that what makes financial development unsustainable, turning it into financialization, is the rate of the increase in leverage at the macro level. The faster the change in the stock of debt relative to the flow of income, the larger is the growth of the debt servicing burden, and the more likely it is that the process is unsustainable. An important driver of the change in the stock of debt relative to the flow of income, it was also argued, is the extent to which credit is used to generate incomes. The change in this is debt shift. Therefore, it is not so much the level of financial assets relative to GDP, as the composition of the credit stocks that matter to the rise in macro leverage. This is an argument why financialization-as-debt-shift is unsustainable: it increases the rate at which leverage rises.

To demonstrate that debt shift does indeed imply an increase in leverage, consider a simple formalization of the first debt process (mortgaging) described in Figure 1 in balance sheets, as distinct from Schumpeterian lending. The Figure shows that for every unit of mortgage credit, GDP increases less (or may not increase at all, as in Figure 1) than it does for a unit of nonfinancial business credit. Let M be the stock of mortgage and m the annual net flow, and let B be the stock of nonfinancial business loans, and b the annual net flow (to save notation we here omit time subscripts). Let total credit C be $C=M+B$. Lending flows M and B increase by fractions f_M and f_B each year, and their annual repayment percentages are fixed at r_M and r_B . For every unit increase of mortgage credit, GDP increases by e_M and for every unit of business credit, GDP increases by e_B . There are no other factors causing GDP growth. (That is, we make the simplifying assumption that past flows of credit have no effect on current GDP growth.) Initial stocks and flows of mortgage credit and business credit are, respectively, M_0 and m_0 , and B_0 and b_0 .

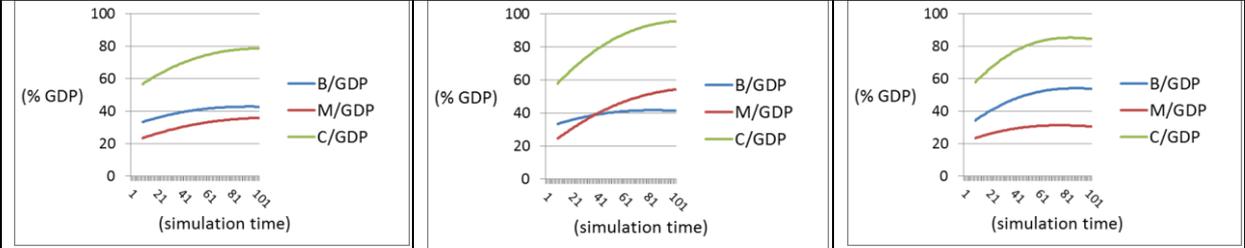
If we fix parameter values and simulate debt shift, we can now illustrate that debt shift increases leverage C/GDP . Let both types of loans be repaid in five years ($r_M = r_B= 0.2$). Starting stocks are $M_0=30$ and $B_0=50$, and $GDP=200$. For every unit of mortgage credit, GDP increases by 0.01 units

($u_M = 0.01$) and for every unit of business credit GDP increases by 0.05 units ($u_B = 0.05$). (This implies a diminishing effect of credit on GDP growth). Formally,

$$\begin{aligned}
 M_t &= M_{t-1} + m_t, M_0=30 \\
 m_t &= f_M \cdot m_{t-1}, m_0=5 \\
 B_t &= B_{t-1} + b_t, B_0=50 \\
 b_t &= f_B \cdot b_{t-1}, b_0=5 \\
 C_t &= M_t + B_t \\
 GDP_t &= GDP_{t-1} + u_M \cdot m_t + u_B \cdot b_t, GDP_0=200
 \end{aligned}$$

The left-hand panel of Figure 4 simulates this simple system in the case where mortgage and business credit flows increase both by 0.2 ($f_M = 0.2, f_B = 0.2$); this implies mild debt shift. The middle panel simulates faster debt shift, where mortgage flows increase twice as fast as business credit flows ($f_M = 0.4, f_B = 0.2$). And the right-hand panel simulates a reversal of debt shift, where business flows increase faster than mortgage flows ($f_M = 0.2, f_B = 0.4$), and all else equal.

Figure 2: Debt Shift implies higher Leverage



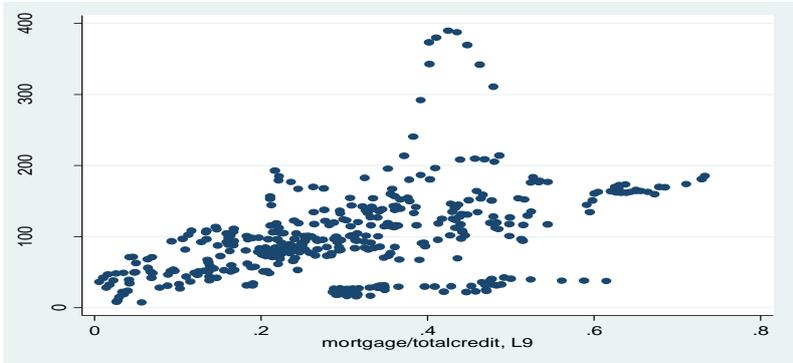
Comparing the left and middle panels, we see that leverage increases faster and continues longer with strong debt shift (leverage goes close to 100% and is still rising after 100 periods) than with little debt shift (leverage goes to 80% and is stabilizing). Comparing the middle and right-hand panel, we see that the direction of change of leverage for the same increase in credit flows may be positive with debt shift (leverage goes to 100% and still rising at the end) than without debt shift (leverage goes to 85% and is falling at the end). This latter result reflects the ‘paradox of debt’: more use of debt, if it is productive debt, may actually decrease leverage.

This exercise captures two important empirical regularities which were noted above. The rise of total leverage is driven by the rise of credit to asset market relative to the rise of credit to the productive sectors. And the growth of credit for productive uses in the nonfinancial sectors closely tracks the growth of GDP, as noted in empirical data by Godley and Federal Reserve analysts. This is really an accounting equality (and a very useful one): credit for productive used in the nonfinancial sectors and value-added realized in the productive process are the financial and real sides of the same process. Formalizing this here in a simulation serves to bring this out clearly.

Is there a way to illustrate this empirically? In the data, we should observe a strong correlation between debt shift and leverage, just as we did in the simulation data. One measure proxy measure for debt shift consistent with the simulations is the share of household mortgage credit in all credit. In section 5 we motivate the choice for this measure; here we use it to construct an

empirical counterpart to the simulation outcomes. Figure 3 is a scatter plot covering dozens over countries since 1990. Unsurprisingly in view of Figures 1 and 2, the lagged share of household mortgage credit in total credit – a measure for the extent of past debt shift - is strongly correlated to leverage.

Figure 3: Debt shift implies higher leverage



Note: Based on data for 36 countries over 1990–2011. Data details: see Samarina and Bezemer (2016).

In sum, the simulations have formalized the argument made so far: growth of leverage is implied in debt shift and this is consistent with the data. The relevance of this result is that this may be one reason that financialization-as-debt-shift is not a sustainable process.

Now that debt shift has been defined and its relevance explored, its relation to similar ideas will be considered. While both the debt shift concept and the empirical measure for it are novel, they build on and are consistent with literature on financialization and financial cycles. In the next section we consider the intellectual pedigree of the debt shift concept.

4. Debt Shift and its Precursors

The distinction between production capital and financial capital is an old one. Marx wrote about ‘Money-Capital and Real Capital’, the title of chapter 30 in *Capital*, and made a distinction between “credit, whose volume grows with the growing volume of value of production” and “the plethora of moneyed capital – a separate phenomenon alongside industrial production.” Keynes distinguished between ‘money in the financial circulations’ from ‘money in the industrial circulations’ (1930:217-218). James Tobin in 1984 worried that “... we are throwing more and more of our resources, including the cream of our youth, into financial activities remote from the production of goods and services”.

Also the idea that there are forces in the economic system which imply a systemic pressure for change in the allocation of financial resources over these two categories can be found in seminal contributions. Veblen (1904) noted the large importance of credit to firms, and wondered how this changes our understanding of the economy. He concluded that within capitalism, there are in fact two systems: the goods-and-services economy on one hand, and the credit and capital markets on the other. He suggested that firms in a capitalist economy have an innate tendency to increase their focus on financial returns on credit and capital markets, at the costs of productivity growth realized in the real sector. This must lead eventually, Veblen thought, to a financial crisis. Then the cycle starts again.

Hilferding (1910) theorized a transition from industrial capitalism to financial capitalism, not at once but in a series of booms and crisis. Each time credit demand due to innovations by entrepreneurs drives up interest rates, and this over time advantages finance for speculation, which start to feed on itself via credit creation, and draws in increasing numbers of households and firms. For Hilferding, the stock market is the key vehicle for speculation, and for the concentration of what he called "fictitious capital". This move from credit for industry to credit supporting returns to 'fictitious capital' is akin to the debt shift process observed in the present paper.

Schumpeter (1939) noted that surges of financial development typically occur in two waves. The first wave of credit supports innovations. The second (and larger) wave, attracted by the returns realized in innovative sectors, outpaces the productive absorption options in those sectors, and is diverted to consumption and speculation (Bezemer 2014). This overtaking of the first wave by the second wave is what is here labelled 'debt shift'.

Perez (2002) develops Schumpeter's insights into a theory of the interaction of 'financial capital' and production capital over the course of the financial cycle, moving through the stages of irruption, frenzy, collapse and recession, reconstitution and deployment, synergy, and maturity. 'Debt shift' would be especially apparent in the irruption and frenzy stages of the cycle.

Minsky's 'financial instability hypothesis' (e.g., 1992), also building on Schumpeter, posits that inherent in financial capitalism is a shift in financing profiles – that is, in the ways in which cash commitments are financed -- over time. Tranquil times will reduce risk levels as perceived by investors. They will increase their investments and their leverage, with growing financial fragility, e.g. through more maturity mismatch, and reduced ability to service cash commitments from cash flows. It is implied in Minsky's (1986) description of the built-in transition from safe to risky financing profiles during the upswing of the financial cycle, that an increasing share of financial resources will be invested in asset financial and real estate asset markets. This is what he termed 'money manager capitalism' (Minsky, 2008), in juxtaposition to Schumpeter's entrepreneurial capitalism. Strikingly, a shift in financial resources allocated to (financial and real estate) asset market transactions is precisely what Greenwood and Scharfstein note as the two drivers of the recent 'growth of finance' – namely, household mortgages and assets under management.

Implied in all of these theories is the notion that a rise in private liabilities other than for productive purposes is unsustainable. This was most explicitly spelled out by Godley (1999), who noted 'seven unsustainable processes' in the US economy (Godley, 1999), one of which was rising private indebtedness. Godley posited a stock-flow norm - the historical ratio of the stock of debt relative to the flow of income – and showed in his financial balances model that deviations from that norm are unsustainable. Combining this with Minsky's insight that the actual ratio has a systematic tendency to rise above the norm, this implies that 'debt shift' is both innate to the system and unsustainable.

Also the financialization literature stresses that a key feature of financialization is firms realizing an increasing share of their returns from financial transactions in the form of fees, interest and dividends, rather than from real-sector transactions in the form of sales revenues (e.g. Krippner, 2005). The 'debt shift' concept simply extends this from the nonfinancial business sector to the whole economy. 'Debt shift' – that is, more of the economy's financial resources going to asset

markets, at the costs of the productive sectors - results in an increasing share of the economy's returns realized in financial transactions and realized capital gains and a smaller share of returns realized in real-sector transactions in the form of sales revenues.

The idea that this distinction has implication for the growth in credit relative to GDP is also implied in a number of earlier analyses, typically in the form of observing the equality of growth credit to productive processes and growth in GDP. It is then implied that growth in credit for other uses will raise the credit/GDP ratio, which is the economy's ratio of private debt to incomes. For instance, in Japanese data Werner (2005: 222). finds a 'stable relationship between 'money' (credit to the real sector) that enters the real economy and nominal GDP'. Godley and Zezza (2006:3) note that in the United States "the two series have moved together to an extent that is somewhat surprising." Federal Reserve economists note that "over long periods of time there has been a fairly close relationship between the growth of debt of the nonfinancial sectors and aggregate economic activity" (Board 2009:76). This is not true for the growth of total debt; and the difference is accounted for by debt shift.

5. Measuring and Observing Debt Shift

By taking an economy-wide, macroeconomic viewpoint, the question arises how to empirically observe at the macro level these myriad changes, which differently in different sectors in the economy. Tracing all these shifts, though their outcomes may be a common trends towards capital gains, is not possible even descriptively, let alone analytically. The approach taken in this paper to address this challenge is to observe one manifestation of 'debt shift', and to treat this as indicative of a wider trend. The *pars pro toto* proxy for debt shift will be the allocation of bank credit. Over the last decades, bank credit stocks shifted away from the real sector and towards the support of asset market transaction, on both real estate and financial asset markets.

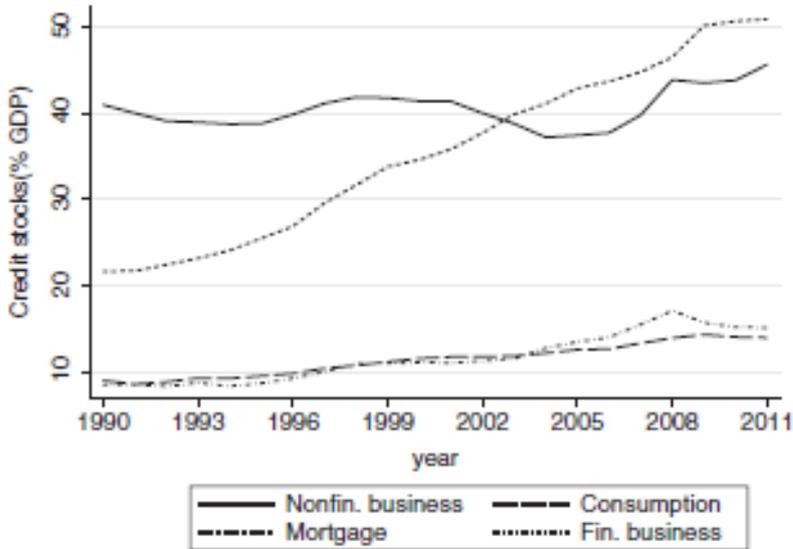
One rationale for this approach is theoretical. Schumpeter (1939) assigned special importance to banks as 'society's planners'¹, since they allocate financial assets which are claims on society's resources. Banks, and by extension the financial sector, are the pivotal point where a shift in the use of society's resources occurs and can be observed. Of course, bank credit is only one part of financial assets, so that the picture they give of the allocation of society's resources is only partial. This needs to be borne in mind in what follows. A second motivation to examine debt shift by analyzing bank credit allocation is that this gives us one variable which not only summarizes many allocation decisions, but which is also available for observation across many countries and years in a fairly consistent manner. This is not true for many other, country-specific aspects of financialization, which also sketch a partial picture of financialization but are not observable beyond their immediate national context, so that generalizations are more precarious.

With these caveats, observing bank credit allocation, and the shift in bank credit allocation, provides one way to draw the dividing line between financial development and financialization. Specifically, if we take the sum of all loans issued for purposes of incomes formation in production and consumption – that is, all credit issued to non-financial business and as non-secured consumer loans – and we divide it by the gross domestic product (GDP), which is the sum of all incomes, then one would expect this ratio to be roughly stable over time. Each time a new loan to business is issued, it grows the debt but it also generates income by increasing

demand or supply. Income and debt rise in tandem: the debt burden (the debt/income ratio) need not rise, as in Figure 1. In contrast, if we construct the same ratio for loans to property and financial markets, we expect to see a rising ratio. These loans grows the economy’s debt but do not (or hardly) generate income.

Bank credit data, disaggregated along these lines, were collected for many countries. Central banks have only recently started to report bank credit in some detail on a regular basis, and for most countries we do not have good data before the 1990s. Figure 2 shows the largest panel which can be constructed, for 14 economies for which data are continuously available since 1990. We find that bank credit to nonfinancial business meanders around 40% of GDP. It is quite stable over time, with no upward trend, just as Figure 1 would lead one to expect. In contrast, household mortgage credit more than doubles over 1990-2011 s a share of GDP to a level of pver 50% and credit from banks to nonbank financial triples from about 5% to about 15% of GDP. Also consumer credit rises appreciable, though on a very low level. The long-term rise in private leverage is not due to nonfinancial business credit, but largely to the rise in credit to financial and real estate asset markets.

Figure 4: Debt Shift, 1990-2011: a panel of 14 economies



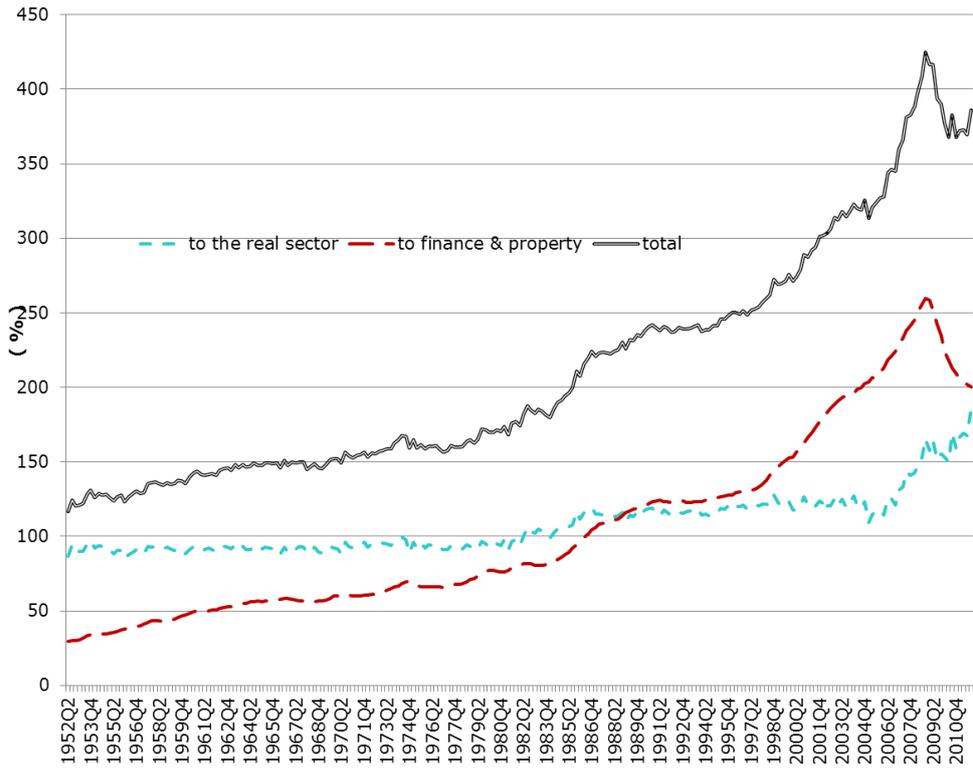
Source: Bezemer et al, 2016. The Figure shows the unweighted average of credit/GDP ratio’s for four types of bank credit for Canada, Chile, Germany, UK, Greece, Hong Kong, Japan, the Netherlands, New Zealand, Portugal, Singapore, and the US.

While this data shows that debt shift is indeed a general trend, clearly observable in averages for a sizeable sample of countries, one disadvantage is that to in order to be consistent across countries, only bank credit is taken into account. For the U.S., where bank credit is relatively unimportant, we can use the BEA flow of fund account data to construct the debt shift data using both bank and nonbank credit. The data go back to 1952 and it is worthwhile to consider the trends for the most financialized of the large developed economies in some detail. It is quite striking to note how over decades of data from 1952 to the mid 1980s, credit to nonfinancial business is indeed remarkably stable as a ratio to GDP, just below 100%. This ratio then shifts to a higher level, quite possible due to the financial liberalizations of the 1980s. This induced many real-sector firms to realize a greater share of their returns from financial transactions, so that

less income was realized for the same level of debt. The ratio is then again stable until the dislocations starting in 2006 which ushered in the financial crisis. The changes to both the numerator and denominator were so large that a very cautious interpretation of the 2008-2011 data is warranted.

The rise in total private debt relative to GDP can be attributed almost exclusively to debt supporting financial and property markets, in line with Figure 1. Starting from a low level of private leverage, debt growth was low and stable into the mid 1970s, when it levelled off during the stagflation year and resumed after the second oil shock. This was the first episode of a sustained increase in the growth rate of leverage, until the mid 1980s Savings and Loan. Leverage rose more slowly during the second half of the 1980s and stagnated again in the early 1990s recession and jobless recovery. From about 1994, private leverage in the US began its longest rally yet. This was the second post-war period of a sustained rise in the growth rate of leverage, pausing only at the mild 2001 recession, and resuming into a final growth spurt with the reflation that followed this. The 2008 turning point inaugurated by far the steepest fall in leverage on record in the flow of funds data.

Figure 5: Debt Shift in the US, 1952-2011: the evolution of debt stocks to nonfinancial business and to finance and property, scaled by GDP



Source: BEA. Since 2011 the reporting format has changed, making it difficult to continue the series consistently.

In sum, financial development as conventionally measured – the growth in credit relative to income – can be attributed almost completely to the growth in debt to asset markets. This is debt shift away from the sectors of the economy where goods and services are traded, and where incomes and jobs are generated, and towards asset markets where capital gains are realized. In

the process, the growth of lending and the dynamics of the financial sector decouple from the real sector.

Having defined and observed debt shift, we now turn to an account of its role in the economic system – of the causes of debt shift, and especially to its consequences in terms of macroeconomic outcomes.

One direct consequence of debt shift is growth in leverage, which in itself is not a sustainable process. In this it differs from financial development. Below this will be illustrated in a simple simulation, and then in the empirical data by correlation of debt shift with leverage across many countries and years. This finding is a first reason to expect that financialization is not a sustainable process: the rate of leverage – of the ratio of debt relative to income – cannot continue to increase. We consider this in detail in the next section.

Other consequences of debt shift are indirect. They are precisely some of the consequences that have been ascribed to financialization: reduced income growth; more inequality in incomes and in wealth; and larger probability of a financial crisis and vulnerability to a crisis. Each of these will be functionally linked to debt shift by viewing debt shift through the lens of Minsky's Financial Instability Hypothesis. Each of these can also be demonstrated in data on debt shift for many countries over the last decades, combined with measures for income growth, income inequality and financial fragility. This is a second set of reasons to suggest that debt shift is self-defeating, by engendering processes that undermine its continued growth.

6 Drivers and Consequences of Debt Shift: a Minskyan Lens

Apart from the growth in leverage implied in debt shift, there are also indirect consequences of debt shift. A useful way to explore these is to view debt shift as one manifestation of the dynamics described in Minsky's financial instability hypothesis. The same pressures which make investors change the financing of their investments over time towards riskier and more leveraged positions, may push society to change its financing over time to generate more capital gain and less income for its debt, increasing leverage.

Minsky noted that investors have 'financing profiles', characterized by the ratio between their cash flows and their payment obligations connected to financing. In early stages of the cycle, safe or 'hedge' financing profiles dominate, defined as situations in which cash flow covers repayment plus interest. As returns increase without calamities, investment optimism and risk appetite rise. Led by fundamental human traits such as chronic over-optimism and herding, investors collectively increase their borrowing. This explains the expansion, the quantitative change, in the financial sector. At the same time, qualitative change occurs as investors shift to 'speculative' financing profiles, such that cash flows are still sufficient to cover interest but no longer repayment. This will only be problematic if refinancing becomes expensive or impossible – a possibility ruled out in the mood of rising optimism. Investors, and the economy at large, are now much more sensitive to refinancing conditions, that is, to conditions on credit and capital markets. If financing profiles continue to shift, managers will therefore pay ever more attention to financial-market conditions and ever less attention to real-sector conditions – just as Veblen had observed.

With continued expansion and tranquility of the economy, optimism will develop into euphoria. Financing profiles will become of the 'ponzi' variety: cash flows are insufficient to cover even the interest, let alone repayment. Servicing loans now requires fresh lending - the very definition of a ponzi scheme, in which the majority borrow and invest, hoping for impossible returns, for a minority to get very rich very fast. A ponzi schemes requires exponential growth of money invested so that by definition, ponzi schemes collapse. Only the early adopters who get out in time will gain. Most investors are left holding the bag, with negative equity if their investment was debt-financed. Ponzi schemes foster inequality.

If Minsky's view is an adequate description of how capitalist financial markets function, then in a world with unfettered markets, debt shift must be the norm. The shift towards speculative and then ponzi profiles, after all, is innate to human nature characterized by chronic over-optimism and herding. Financial capitalism and its highly developed capital and credit markets caters to these traits by offering ample opportunities to convert optimism into actual investment. Ever new forms of capital are invented to invest in; ever more credit instrument created to finance the investment with. There is no necessary link with real-sector financing needs, which are limited. Debt will of necessity shift away from real-sector uses and towards financial and property markets. This is how Minsky's theory helps to understand why debt shift occurs once regulation is removed.

What, in this view, are the consequences of debt shift? Minsky's characterization of the financial cycles is a sequence of financing profiles where ever more debt growth is set against ever less income growth to pay the debt with. Such income as is left is distributed increasingly skewed to the rich. The probability of crisis increases, with increasing damage in case of a crisis. In short, the long upswing phase of the financial cycle sees increasing risk, increasing leverage fuelled by the promise of increasing returns, increasing inequality, and increasing financial fragility. This is why Minsky's theory is so helpful. For those are precisely the three consequences of debt shift in the macro economy, as will now be discussed.

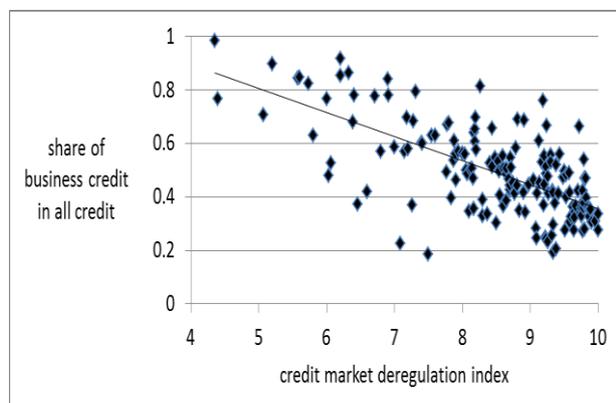
7. Drivers of Debt Shift

This Minskyan lens can be used to suggest causes and consequences of debt shift. As to the causes, Minsky's theory suggests that debt shift is not an aberration to be explained by references to ad hoc shocks or forces outside the market economy. It is the normal dynamic in financial capitalism, unless prevented by regulation. Conversely, de-regulation must result in debt shift. This is just what we find in the data, as Figure 6 illustrates. Here we plot the share of nonfinancial business credit in all credit for 36 economies over 1990-2011 against a measure for credit market deregulation constructed by the Fraser Institute. We observe a clearly negative correlation. Additional econometric analysis in Samarina and Bezemer (2016) suggests that there is likely not only correlation but also causation.

Another driver of debt shift present in most of the theories reviewed as well in the debt shift concept itself, is that debt shift reflects supply of finance which is increasing faster than the growth of productive investment opportunities. We analysed this empirically in Samarina and Bezemer (2016). For many economies, the supply of finance is linked to foreign capital inflows. In), we find that in the same panel 36 economies over 1990-2011, larger capital inflows into the nonbank sector are indeed associated with lower shares of business lending in domestic bank

portfolios. In an interaction analysis, we also find that this association is weaker in economies with more investment opportunities, proxied in various ways.

Figure 6: Credit market de-regulation and debt shift



Note: Data for 36 countries over the period 1990–2011. The credit market deregulation index is taken from the Fraser Institute’s Economic Freedom Indicators and is scaled from 1 to 10. For details Data details: see Samarina and Bezemer (2016).

8 Consequences of Debt Shift

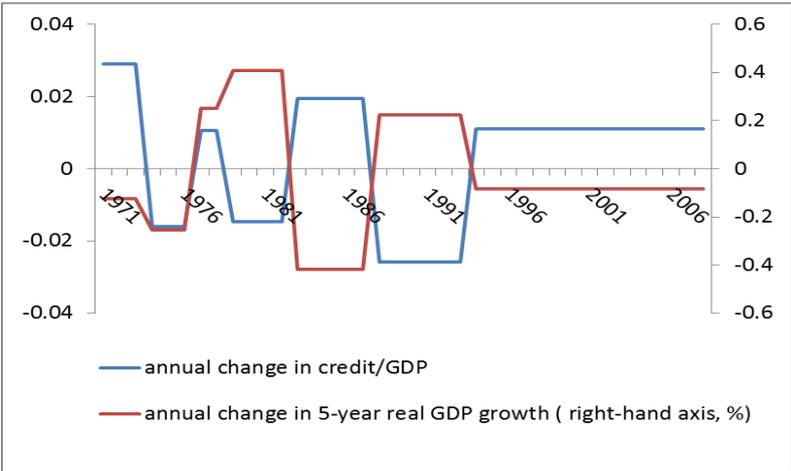
If Minsky’s theory points to the reason for debt shift, it also suggests some of its consequences.

8.1 Debt Shift and Income Growth

A first consequence is lower economic growth. As credit grows faster than the economy, its effectiveness in creating income must fall – not only, or not even mainly, due to decreasing returns, but because a rising share of credit creates no income at all, but creates capital gains in asset markets. This falling effectiveness of credit in creating income is something of a mystery in a world view where credit growth is driven by income creation opportunities – after all, why would the volume of credit continue to grow if it creates ever less income? In a Minskyan world, there is no mystery: credit is driven by sentiments and capital gains, not by income optimization and real-sector productivity. Lower, not higher income growth is a natural consequence. Several recent publications have noted this effect (Arcand et al 2014; Cournède et al 2015; Rousseau and Wachtel 2011).

We can clearly observe the falling income growth effectiveness of credit over time for the US. In Figure the Jordà-Schularick-Taylor Macrohistory Data over 1971-2011 is used to construct episodes of rising and falling total-credit to GDP ratios (the credit definition here is different from that in Figure 4). From trough to trough, seven such cycles can be observed. Some last a few years, the longest from 1994 to 2008. Unsurprisingly, and as already shown above, every cycle starts at a higher level of private debt relative to GDP. And over the cycles, one can observe that the larger the average 5-year average credit growth, the smaller the average 5-year average growth in real income.

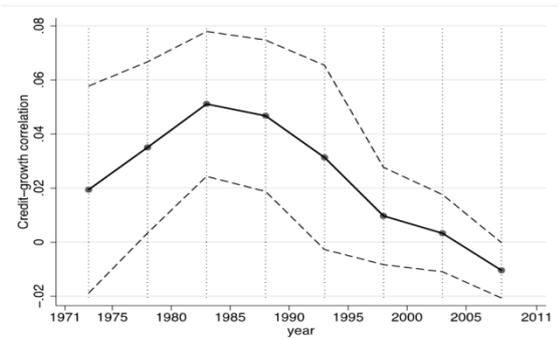
Figure 7: credit growth and income growth, U.S., 1971-2011



Source: Jordà-Schularick-Taylor Macroeconomy Database <http://www.macrohistory.net/data/> and author's calculations.

This illustrates how levels of debt have been rising over time, both in Dollar terms and relative to the GDP, but its effectiveness in creating income has been falling. This holds not just in the US but across dozens of economies, as shown in Figure 7. This is the correlation of credit volumes relative to GDP with income growth on average for 50 economies. This correlation has been falling since the 1980s and it is no longer significantly positive since the 1990s.

Figure 8: Correlation of credit / GDP levels with income growth for 50 economies, 1971-2011



Note: The figure shows coefficient estimates of a univariate regression for a balanced panel of 50 countries over 1971–2011. The solid line plots the point estimates and the dashed lines the boundaries of the 95% confidence interval. Source: Bezemer, Grydaki en Zhang, 2016.²¹ Thanks to Lu Zhang for constructing the graph.

8.2 Debt shift and financial fragility

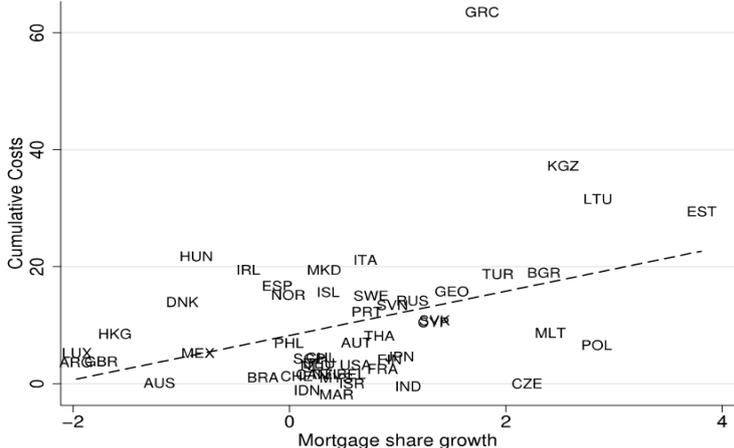
With continuing credit growth and rising debt levels, the economy grows ever more sensitive to financial shocks. There is a clear macro-level analogy to the increased dependence on firm refinancing in Minsky's sequence from speculative to Ponzi financing profiles. Just as both the probability of a crash and its consequences are ever growing over the course of a ponzi scheme,

so a second consequence of debt shift, apart from lower income growth, is rising financial fragility. The continued flow of credit grows ever more important to compensate for the depressing effect of debt levels.

Unfortunately, this continued flow of credit is by no means ensured. As spending comes to be increasingly financed by capital gains on asset prices, not only will the economy grow more slowly but it will also become more vulnerable to the boom-bust dynamics that characterize asset markets.

As ever less credit is productively used, and ever more debt depresses income, shocks to income will become larger and more frequent. A number of recent cross-country studies find positive effects of the expansion of household credit on crisis probability e.g. Frankel and Saravelos, 2012; Feldkircher, 2014). In addition, their consequences will worsen. With less credit supporting production and effective demand, re-starting growth after a shock will be more difficult at higher debt levels. Especially financial-market shocks, which hit the financing structures on which the economy increasingly depends, have dire consequences. This vulnerability is *financial fragility*.

Figure 9: Debt shift and financial fragility



Note: Scatter plot based on data for 57 economies. The change in the share of mortgages in all loans is plotted against the cumulative costs of recession, defined as recession length times recession depth. Depth is the peak-to trough loss of GDP growth over 2007-2012. Source: Bezemer and Zhang, 2015²³

Figure 6 illustrates that economies with more debt shift before the crisis experiences worse stagnations after the crisis. This may be so longer since high debt depress consumer spending (Mian and Sufi 2014; Jorda et al 2014). Or the balance sheet problem of banks resulting from a credit boom and bad loans could depress lending and investment (Zhang et al 2016; Gan 1997); or the boom could have worsened the allocation of loans towards productivity-enhancing investments (Cecchetti and Kharroubi 2012; Chkraborty et al 2016). These possibilities merit more research.

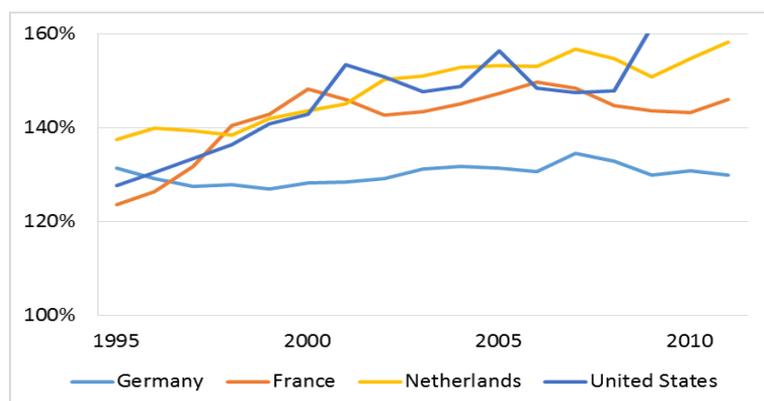
8.4 Debt Shift and income inequality

In addition to lower growth and larger financial fragility, Minsky's theory suggests a third consequence of debt shift. In the long expansion phase of a ponzi scheme, many gain little and a few gain enormously; in the bust that follows, many lose. The macroeconomic analogy is as debt shift occurs, returns in the real sector in the form of wages and profit, which are rather evenly distributed, fall relative to capital gains, which are far more concentrated. Income inequality rises (Onaran 2011; Denk and Cournède 2015).

Real wages have been stagnating for forty years in the U.S.. They have been flat since the turn of the millennium in many other economies. In these years, property and stock prices have seen several rallies. Incomes connected to capital gains earned in the banking, insurance, and financial investor parts of the economy have risen much more than have other incomes, fostering income inequality.

The Figure illustrates this by showing the hourly compensation in the 'finance, insurance and real estate' (FIRE) sectors relative to average compensation in the economy. FIRE-sector compensation is well above average compensation, and increased over time except in Germany²⁹. (This is only a very partial measure, as the data do not include non-wage compensation.) In such an environment, it becomes ever more attractive to invest in (property and financial) asset markets, and ever harder to realize returns on innovation and investment in the real sector³⁰. This attracts more investment and financing to the FIRE sector, creating a feedback loop from higher returns to more credit to higher returns. If this runs its course completely (which of course it never does) then ultimately, returns are driven by new lending, without any connection to real-sector productivity trends – just as in a ponzi scheme.

Figure 10: hourly labour compensation in the 'Finance, Insurance and Real Estate' sector as a percentage of the economy average, 1995-2011



Source: Social-Economic Accounts, World Input-Output Data, release 2013, <http://www.wiod.org/home>. Thanks to Reitze Gouma for constructing the Figure.

9. Concluding Remarks: Applying and Extending the Theory of Debt Shift

This application of Minsky's theory to debt shift suggest two ideal types (or extremes) in the relation between economic development and financial development. What separates them is the difference between investment and speculation, and the difference between incomes and capital

gains. In one extreme, where financial development exclusively supports real-sector growth, we expect to see stable, sustainable and equitable income growth. In the other extreme, where all credit flows to asset markets, we expect to see low and volatile growth, with rising income inequality. Most developed and emerging economies have shifted closer to the second type over the last decades. This fundamental change in the relation between economic development and financial development may well explain macroeconomic trends of low growth, rising inequality and rising fragility, which are much debated today.

Of course, ideal-type models are never observed in the real world. Institutions and policies, which differ from country to country, may enforce or weaken the drivers deregulation and consequences of debt shift. For instance, countries differ in the extent to which their production is debt-financed rather than financed from retained profit or by equity. Income redistribution systems, capital taxation, and financial market regulations are among the many factors which may soften the effects of debt shift also in over-indebted economies with large asset markets.

This is why the relation between financial development and economic development must be studied in an international comparative perspective. Another reason is that the forms of debt shift itself differ over countries. The source of capital gains may be in Asian stock markets, or U.S. tech stocks, or global property markets, or commodity markets. The underlying motive is the same: the shift from the pursuit of profit from investment to the pursuit of capital gains from speculation; from real-sector growth to FIRE-sector growth, and from planning to sentiment. But the financial assets and instruments in which these trends play out differ endlessly.

Despite these differences, we have seen that on average data and empirical research bear out the application of Minsky's theory to the debt shift problem, as the Figures illustrated. There are powerful forces in financial capitalism propelling economies from the first, safe growth model to the second, fragile growth model. If financialization is conceptualized as financial development with debt shift, as proposed in this paper, this implies that financialization is an unsustainable process – both because it implies a rise in leverage, and because it engenders process of lower income growth, rising financial fragility and rising income inequality. This analysis may shed light on the long-term stagnation which the world economy is currently experiencing (Teulings et al 2016), and it reinforces calls by policy institutions such as the BIS and the IMF to 'use debt wisely' (IMF 2016). What is often missed in these calls is the link to the broader process of financialization, and the analytical frameworks offered in the heterodox literature to identify both causes and consequences of 'unwise' uses of private debt. This paper is an attempt to bring those framework to bear on current problems via the concept of debt shift. This may support a wider recognition of the risks inherent in the financialization process, of the unsustainability of the process, and for policies to counteract financialization.

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