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Financialization of the U.S. household sector: The “subprime mortgage crisis” in U.S. and global perspective

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Financialization of the U.S. household sector: The "subprime mortgage crisis" in U.S. and global perspective

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1. Introduction

The global crisis that first erupted in global money markets in August 2007 had its origin and epicenter in the so-called "subprime" segment of the U.S. mortgage market. The severity of the crisis that unfolded subsequently suggests that global trends prior to the crisis, for long featuring a very prominent role of U.S. consumers, were not altogether healthy.[1] For many years the liberalization of financial markets and the innovative products and techniques developed in those markets had been widely celebrated as ingenious ways to boost efficiency and enhance the well-being of mankind. The near-meltdown of the global financial system in 2008-9 would have seemed inconceivable, just before it almost happened. For some observers the crisis may have felt like a wake-up call of earthquake-like dimension. The mainstream economics profession was caught off guard dozing away in its never-ending market efficiency dreams. There have certainly been some surprising responses from international policymakers that show a rather refreshing skepticism as to the rising role of "liberalized" (or: unfettered) finance in the global economy. For instance, ECB president Jean-Claude Trichet (2009) offered the following damning critique of what Post-Keynesians discuss under the notion of "financialization":

> "… let me recall the origins of the current crisis. Over the past ten years, we have witnessed a dramatic shift of focus in the financial sector – away from facilitating trade and real investment towards unfettered speculation and financial gambling. Managing genuine economic risk gradually ceased to be the main concern of international finance. Instead, the creation and assumption of financial risk – the risk involved in arbitrage and deliberate exposure to asset price changes – became the core activity of the financial in-

* I would like to thank Barry Bosworth, Jan Hatzius and Michael Palumbo for helpful discussions on U.S. household saving behavior and related measurement issues, and Marco Zandi for data sharing. I also thank Till van Treeck for constructive comments on an earlier draft of this paper.

[1] According to Bernanke (2010) "the financial crisis that began in August 2007 has been the most severe in the post-World War II era and, very possibly – once one takes into account the global scope of the crisis, its broad effects on a range of markets and institutions, and the number of systemically critical financial institutions that failed or came close to failure – the worst in modern history."

> dustry. A point was reached where the main role of the financial system was no longer to hedge existing economic risks and assist trade within and between countries, but increasingly to create and propagate new risks."

This study focuses on the financialization of the U.S. household sector, featuring enhanced access to credit and ease of consumer spending as essential aspects. In fact, the growth in U.S. private consumption has been remarkably strong since the 1980s considering trends in income growth and income and wealth inequalities. Since the mid 1980s the personal saving rate has declined from around 10 percent to near zero before the outbreak of the "subprime mortgage crisis". Studying the process of financialization of the U.S. household sector during the last three decades should help to better understand the emergence of the crisis and its unmatched global dimension.

After discussing the concept of financialization and its application to the U.S. household sector in this study, section 2 highlights the remarkable strength of U.S. consumption expenditures in the era of financialization and provides an overview of some broad trends relevant in this context. Section 3 then explores trends in aggregate saving behavior, household indebtedness and net worth. The somewhat paradoxical finding is that in the era of financialization U.S. households managed to get richer while saving less and becoming more indebted at the same time. Having identified the prominent role of capital gains in U.S. households' net worth building, the next section 4 reflects on the notion of wealth effects in the consumption literature. We emphasize the importance of liquidity (cash flow) and collateral values rather than wealth effects as such in understanding household spending behavior. Equipped with the approach to measuring saving used in the Flow of Funds Accounts, section 5 takes a closer look at how U.S. households have managed their balance sheets. The residential investment boom of the 2000s is seen as a massive balance sheet expansion, "mortgage equity withdrawals" and share buybacks are identified as prominent phenomena highly relevant to the liquidity issue in spending. Measured household saving includes saving for retirement through employer-sponsored pension plans. Section 6 briefly discusses some fundamental developments in the U.S. retirement system that occurred in the 1980s. We find that while the decline in the "headline" saving rate only began in the mid 1980s, household saving outside of retirement accounts actually started earlier. Section 7 investigates Maki and Palumbo's (2001) pioneering approach to decomposing the aggregate saving rate by household income percentiles. Their early study rightly argued that rich households played a

decisive part in the decline in the aggregate saving rate in the 1990s, but contrary to their original finding that other households saved more, more recent applications of their approach suggest that the decline in saving in the 1990s was actually more broadly based and included middle-class households too. Lower-income households stand out for the fact that their saving held up in the 1990s, but then declined the most in the 2000s. Once again emphasizing that aggregate household spending in excess of disposable income presents a formidable liquidity (cash flow) challenge, the investigation turns to developments in property markets, beginning in section 8 with a more detailed analysis of MEWs under property boom conditions. The following two sections then address developments in U.S. housing finance and the role of monetary policy. Starting with the supply side of housing finance, section 9 investigates expanding credit availability as linked to the rising collateralizability of home properties. Section 10 then turns to the demand side of the credit boom, the part played by Federal Reserve policy in enticing households to making liberal use of credit the availability of which was uplifted by innovative products and business procedures developed in under-regulated and under-supervised markets. Highlighting the special status of the U.S. dollar as key global reserve currency as well as the role of global conditioning forces in shaping U.S. Federal Reserve monetary policy, section 11 concludes the analysis.

2. Financialization and U.S. private consumption: the broad picture

The notion of financialization broadly refers to the rising significance of finance in the economy: "financialization means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein 2005: 3). Conceptually financialization includes both changes within the financial system as well as changes in the relationship between the financial and real sectors of the economy. We may define financialization as a process of structural change within the financial sector that features the growth of securities and derivative markets relative to traditional bank intermediation, developments driven by deregulation, competition and financial innovation, together with a growing importance of the financial sector relative to the nonfinancial sector (in terms of value added, employment, profits, and political clout etc). The task then is to investigate whether and

in what ways financialization may affect the performance of the economy in general and households' well-being in particular.

Contrary to the common presumption that profitable "innovations" in finance (just like successful entrepreneurial innovations) are inevitably and almost by definition efficiency-enhancing – specifically by making financial markets "more complete" –, the Post-Keynesian "financialization hypothesis" posits that a rising influence of financial elites may perpetrate society, politics and the economy in ways that primarily lead to greater income and wealth inequalities together with increased risks of financial fragility, while overall economic efficiency and performance may well be adversely affected (see Hein 2009; Palley 2007; Skott and Ryoo 2008; van Treeck, Hein and Dűnhaupt 2007, for instance). Historically, the financialization hypothesis focuses on social, political and economic developments since the early 1980s, with the U.S. generally seen as world leader and as the hub in the global dimension of financialization as an ongoing process that has also fundamentally changed the functioning of the increasingly integrated global economy along the way.

Most research under the financialization hypothesis concentrates on corporate investment and firm behavior. And in the tradition of John Maynard Keynes and Hyman P. Minsky this focus seems perfectly justified. Keynes ([1937]1973: 121) observed that his "theory can be summed up by saying that, given the psychology of the public, the level of output and employment as a whole depends on the amount of investment. I put it in this way, not because this is the only factor on which aggregate output depends, but because it is usual in a complex system to regard as the *causa causans* that factor which is most prone to sudden and wide fluctuations." Elaborating on the financial underpinnings of Keynes' *General Theory*, Minsky (1975) developed a framework of cash flows and interconnected balance sheets to describe market economies' inherent tendency for boom-bust cycles driven by investment and finance – a vision of endogenous financial fragility that is known as the "financial instability hypothesis" (FIH). Other Post-Keynesian researchers highlight that the replacement of traditional "retain and invest" managerial policy by shareholder-value orientation has led to a focus on short-term profitability at the expense of firms' accumulation decision (Crotty 1990, Lazonick and O'Sullivan 2000, Stockhammer 2005-6, for instance).

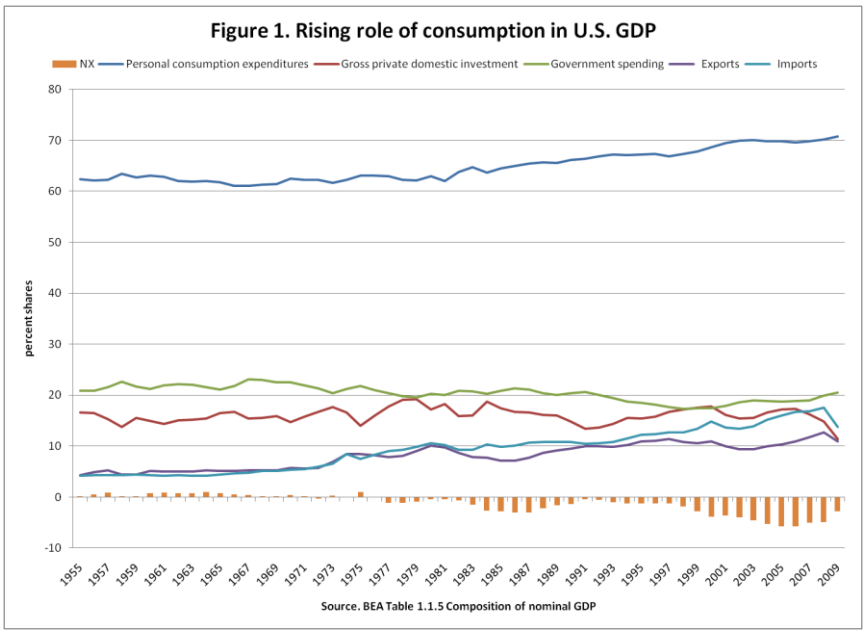
In rejection of mainstream neoclassical doctrines on the matter, a prominent Post-Keynesian tenet is that financialization would tend to be detrimental to physical investment and growth in aggregate demand (Crotty 2005, for instance). Moreover, in view of the Cambridge equation, a fall in investment would be expected to generally come along with a decline in profits (Robinson 1962). Therefore, the fact that the general slowdown in accumulation and output growth that has occurred in Western economies since the early 1980s saw a simultaneous *rise* in profit shares and profit rates represents a formidable challenge to Post-Keynesian economic thought: the "investment-profit puzzle" (Stockhammer 2005-6).

In the U.S. case, the observed strength in private consumption expenditures and marked rise in the propensity to consume to be discussed momentarily provide a potential explanation for the investment-profit puzzle. At the same time, however, the strength of U.S. consumption expenditures also highlights another puzzle of its own which we may dub the "inequality-spendthrift puzzle". For consumer spending happened to be particularly strong during a period when in view of concomitantly rising inequalities in income and wealth distribution the opposite aggregate behavior would have seemed more likely (see Horn et al. 2009, for instance).

The inequality-spendthrift puzzle provides the rationale for focusing this investigation on the financialization of the U.S. household sector. Following the Keynes-Minsky tradition financialization studies typically portray households as the passive "receiver of income" part in the play. For better or worse, however, the household sector seems to have taken on a far more active "driver of spending" part. We hypothesize that growing financialization of the U.S. household sector has acted as one of two main forces behind the strength in U.S. private consumption expenditures, the other one being U.S. monetary policy. In particular, as financial deregulation, competition and innovation expanded credit availability to private households, monetary policy was critical to enticing debt-driven household spending, thereby positioning the U.S. consumer as prime engine of U.S. spending growth.

In order to clarify in what sense U.S. current account deficits – representing one side of those infamous "global imbalances" – may be understood as a "byproduct of financialization" (van Treeck, Hein and Dünhaupt 2007), this investigation of the financialization of the U.S. household sector will also explore the global conditioning factors of the U.S. consumer's acting as growth engine. In this regard, the idea that U.S. capital imports – sourced from a "global saving

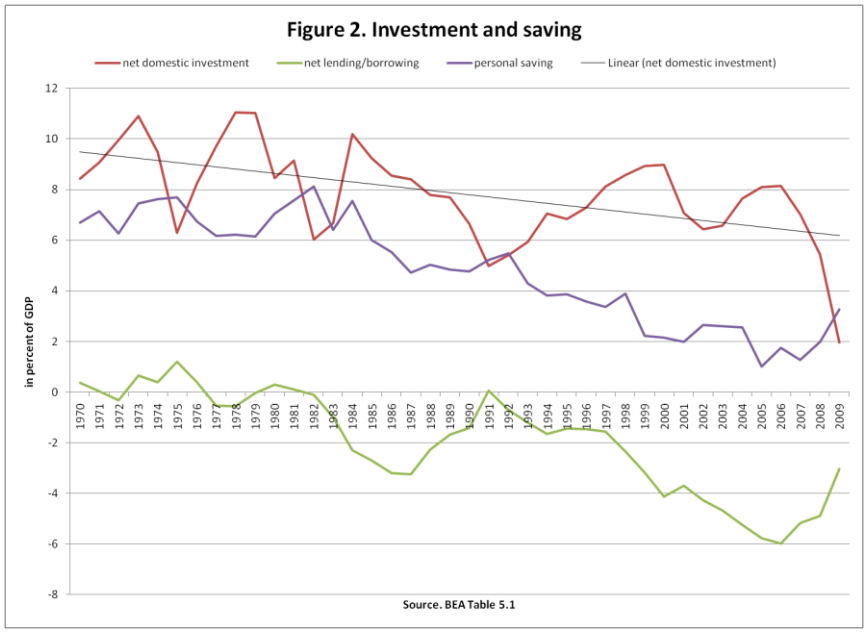
glut" (Bernanke 2005) – provided the basis for debt-financed household spending deserves particular scrutiny. The remainder of this section serves to illustrate the broad picture of the rising role of U.S. consumption expenditures, both in domestic and global perspective, followed by some summary statistics of the process of financialization and rising income and wealth inequalities during the same period.



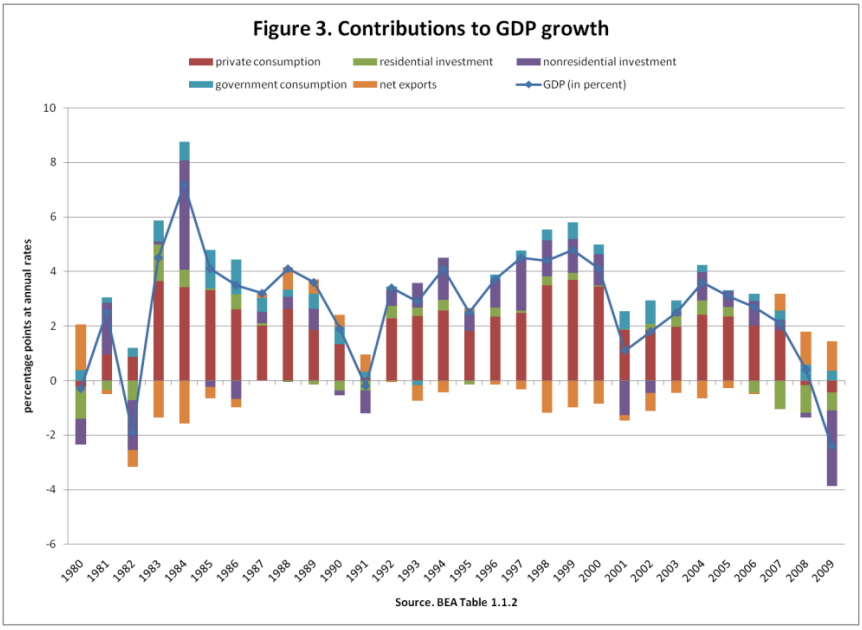
To begin with, Figure 1 shows that the share of consumption in U.S. GDP increased from a stable average of 62 percent for the 1955-1980 period to 66 percent by 1990, to then rise further in the second half of the 1990s and reach a 70 percent share by 2001. Reflecting the end of the cold war, the decline in government spending after 1990 found its counterpart in the IT ("dot.com") boom of the 1990s (with the "peace dividend" having largely evaporated since then though, just as the surge in corporate investment proved to be temporary too). On the external front, a large U.S. trade (and current account) deficit first emerged in the mid 1980s. Shrinking towards the late 1980s and even briefly disappearing in the early 1990s, the U.S. external deficit climbed back to 3 percent of GDP in the late 1990s, and then increased even further in the 2000s, peaking at 6 percent of GDP in 2006.

Figure 2 on investment and saving (as shares of GDP) offers another perspective on these trends. To begin with, net domestic investment is seen here on a clear secular decline since the 1970s; with the 1990s IT boom as a longish but temporary intermezzo. With a trend decline in net do-

mestic investment of just over three percent of GDP, the external deficit shown here as net borrowing opened up since domestic saving declined by even more than domestic investment during the same period. The trend decline in domestic saving, in turn, reflects the pronounced fall in



personal saving starting in the mid 1980s (also shown here as a share of GDP); whereas corporate saving and government saving were more cyclical but trendless overall. Note here the very high correlation between personal saving and the external deficit since the early 1990s.



Showing contributions to GDP growth, Figure 3 underlines the predominant role of consumption in powering U.S. GDP growth in the period prior to the global crisis. In the period 1980-2008 annual GDP growth averaged close to three percent. If consumption represented a share of two thirds of GDP, average annual two-percentage-point growth contributions would keep that share stable. Actual growth contributions averaged well above that level, so that the consumption share of below two-thirds of GDP at the start was pushed well beyond two thirds at the end. Consumption was especially strong in the mid 1980s and late 1990s. Residential investment too made sizeable positive contributions in the mid 1980s and again between 1992 and 2005 (with a brief pause in 2001-2). Regarding nonresidential investment, the 1990s clearly stand out, with the IT boom of 1992-2000 contrasting weakness during much of the 1980s (except for 1984) and early 2000s. The opposite is true for government consumption, playing a fairly prominent role during the 1980s, but much less so thereafter; except for the early 2000s. For net exports the picture for the 1980s looks rather different from the post 1991 period. The 1980s saw a passing of the baton: at first the U.S. acted as global growth engine in the mid 1980s, which was then followed by a reversal of roles as Japan and Western Europe took over in the late 1980s. By contrast, after 1991 and until 2005 the U.S. provided continuous growth stimuli to the rest of the world that averaged half a percentage point per year. It is during this period in particular, then, that U.S. consumption also acted as a global growth engine.

Table 1. U.S. consumption in global perspective (USD bn)

	1980	1990	2000	2005	2008
U.S. gross domestic product	2,788.1	5,800.5	9,951.5	12,638.4	14,441.4
% of world GDP	23.7	25.4	31.0	27.8	23.7
U.S. private consumption expenditure	1,427.6	3,835.5	6,830.4	8,819.0	10,129.9
% of world GDP	12.1	16.8	21.3	19.4	16.6
U.S. net exports	-13.1	-77.6	-382.1	-722.7	-707.8
% of world GDP	0.1	0.3	1.2	1.6	1.2
German gross domestic product	826.1	1,547.0	1,905.8	2,793.2	3,673.1
German private consumption expenditure	448.3	798.3	1,122.0	1,651.2	2,067.2
Chinese gross domestic product	309.3	390.3	1,198.5	2,235.8	4,327.5
Chinese private consumption expenditure	157.0	190.7	553.9	942.3	1,560.1

Source. IMF

And to put things in perspective briefly consider here the role of U.S. consumption in the global economy (see Table 1). Given its substantial global weight of around 20 percent of global GDP it

clearly matters to the world economy whether U.S. consumption roars ahead at a 4-5 percent annual growth rate or grows more moderately – or even declines, as in 2008-9. Between the Asian crises and the global crisis U.S. imports more than doubled, growing from $1,1tr in 1998 to $2.5tr in 2008; a boost to global aggregate demand of $1.4tr. At its peak the U.S. trade deficit (net exports) exceeded one and a half percent of global GDP. The unusual depth of the subsequent slump in U.S. spending, which was partly offset by U.S. government spending and net exports (with imports plunging more sharply than exports) alerts us to the fact that certain developments in the U.S. economy must have been unsustainable.

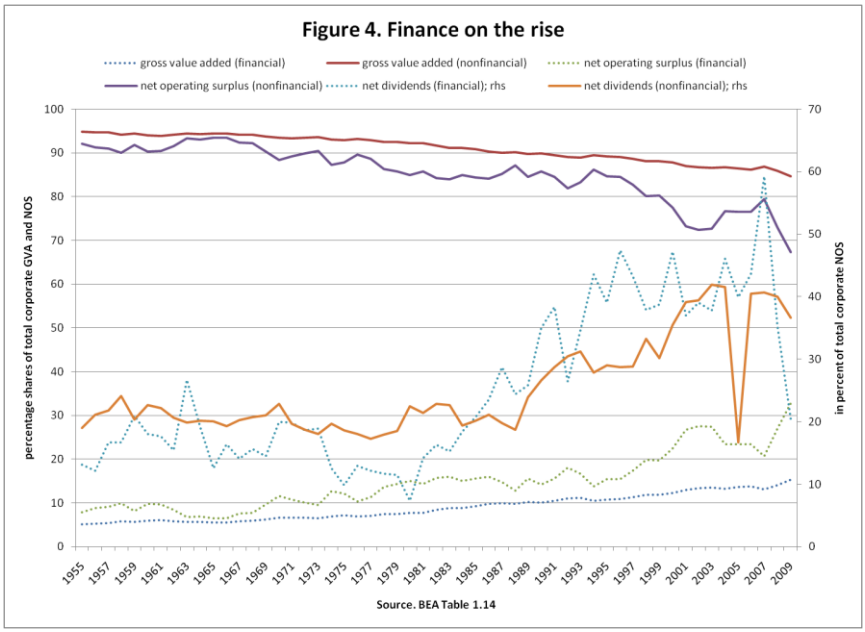
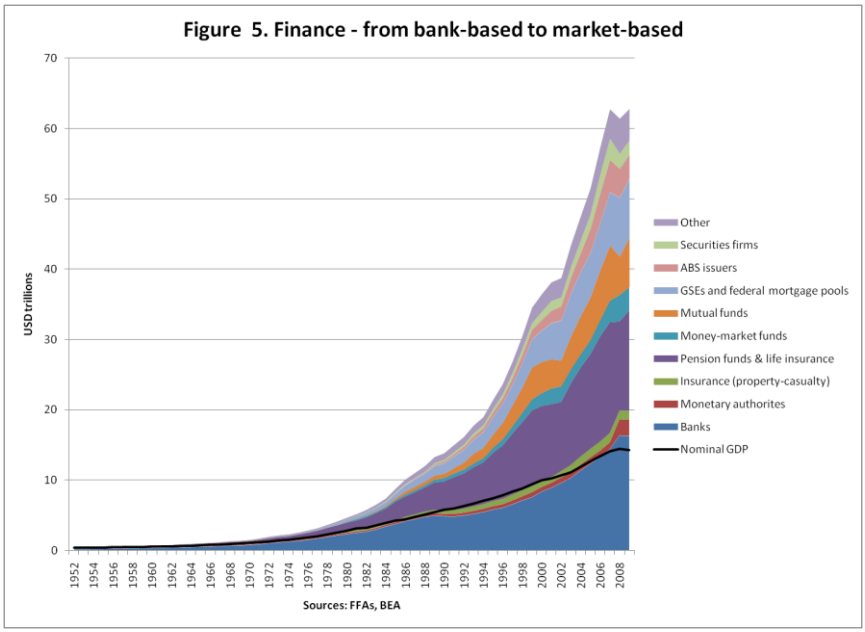


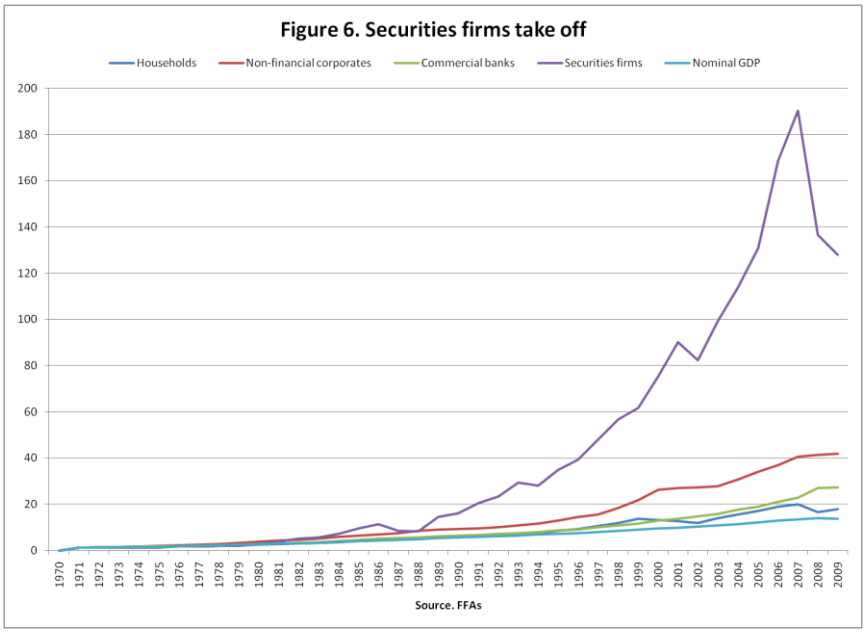
Figure 4 illustrates one core process of financialization: both in terms of gross value added (GVA) and even more so in terms of net operating surplus (NOS) the financial corporate sector has clearly gained weight relative to the nonfinancial corporate sector since the 1970s. Figure 4 also shows the rising distribution of profits (as a share of NOS) in both sectors, but especially so in the financial sector.

Figure 5 illustrates another core process of financialization: the rise of securities markets relative to banking or: the transitioning from a bank-based toward a market-based financial system. While commercial banks' assets have grown roughly in line with GDP, the financial asset holdings of other financial intermediaries, funds and investment vehicles (excluding domestic hedge funds) have grown so strongly that total financial assets of this multi-layered financial system

exceed GDP by a multiple of 4 today. Yet, even within the more complex and diverse modern market-based financial system banking and capital markets remain closely intertwined, for instance through securitization and "structured finance" engineering. Furthermore, U.S. banking

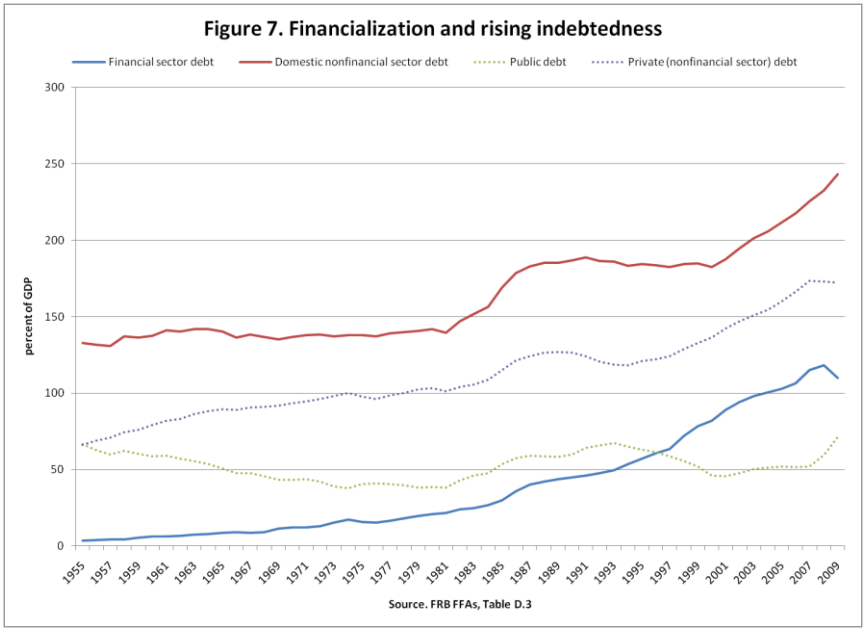


itself has moved towards the universal banking model since the enactment of the Gramm-Leach-Bliley Act in November 1999 repealing the Glass-Steagall [Banking] Act of 1933 (Barth et al. 2000). While old demarcation lines between commercial and investment banking have become



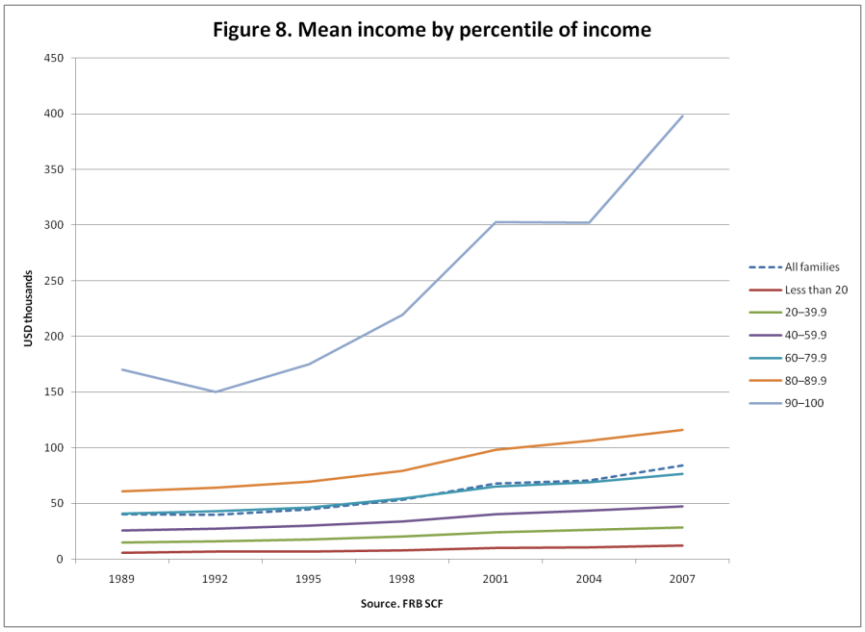
blurred as far as the U.S.'s largest (global) banking players are concerned, securities firms' activities provide an example of most spectacular growth, particularly since the late 1990s.

Figure 6 shows the financial assets of households, non-financial firms, commercial banks and securities firms, all normalized to 1970. While financial asset holdings of all sectors have growth faster than nominal GDP, securities firms' business appears to have skyrocketed. Securities firms' business spans both securities and derivative markets, with growth of the latter type, including so-called "credit derivatives" (see below in section 9), having been literally "off the chart". For instance, the Bank for International Settlement (2007, 2009) reports growth of (notional amounts of) "Credit Default Swaps" (CDS) from $6.4tr at the end of 2004 to almost $43tr as of June 2007, then reaching a peak volume of $58tr by the end of the year ($62tr according to ISDA 2007). For households and firms, but until recently not for the public sector, financialization also meant rising indebtedness (see Figure 7). At this point it becomes important to disaggregate and consider the phenomenon of sharply rising inequalities within the U.S. household sector witnessed in the era of financialization.

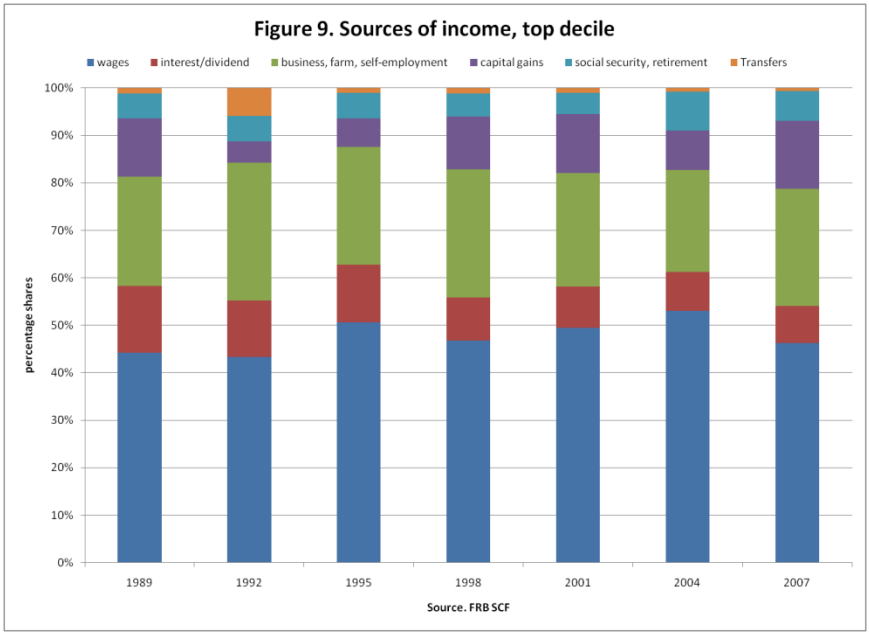


Trends in income inequality have been at the forefront of attention, the most conspicuous event being the decoupling of general wage growth from productivity growth together with the spectacular growth of top managerial remuneration (see Piketty and Saez 2003, 2006; Gordon and

Dew-Becker 2007, for instance). Using data from the Federal Reserve Board's tri-annual Survey of Consumer Finances (SCF) starting with the 1989 survey, Figure 8 confirms that households in the top income quintile have gained rather disproportionally since the 1990s.

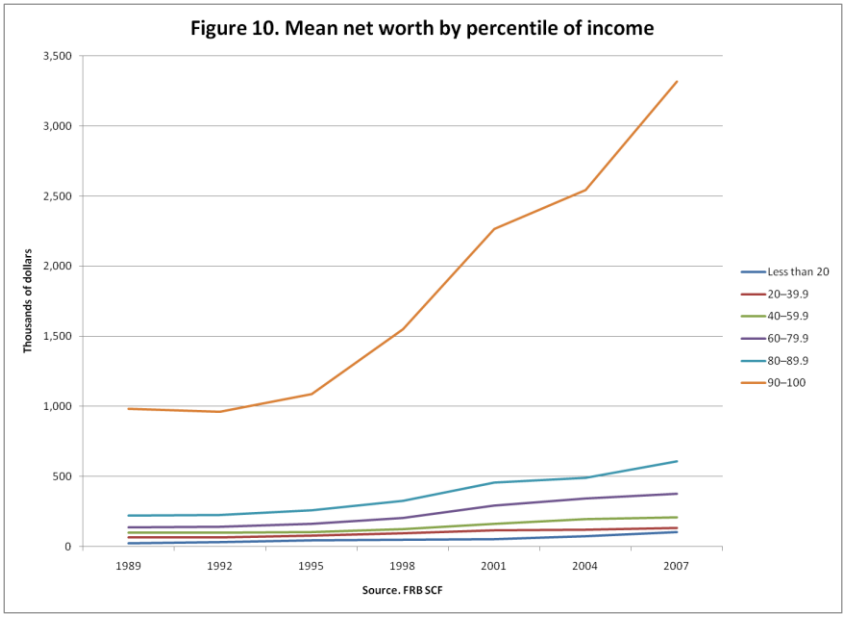


As to income sources it is noteworthy that the top income quintile differs very significantly from remaining households. In particular, while wages constitute roughly two thirds of income for the average household, they make up less than half for the richest ten percent of households. Instead,



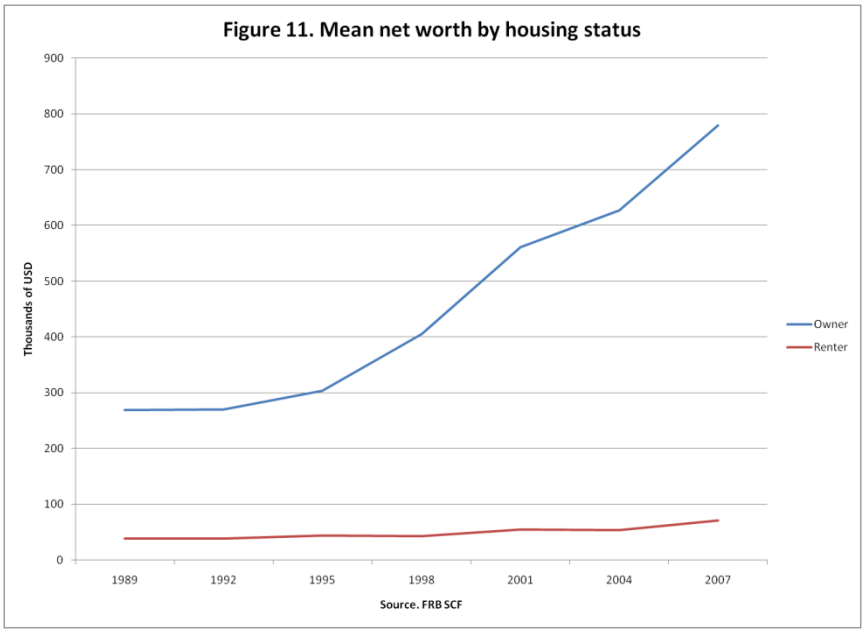
these households rely disproportionately more on interest and dividends, business income and income from self-employment, as well as (realized) capital gains (see Figure 9).

Trends in wealth inequality have been in the same direction and inequalities in wealth are far more pronounced than in income. Updating earlier studies based on SCF data that had found that "the only segment of the population that experienced large gains in wealth from 1983 to 1998 was the richest 20 percent of households" (Wolff 2010: 3), Wolff finds that wealth inequality increased further in the 2000s, albeit somewhat less spectacularly than previously as lower income segments too participated in rising wealth (see Figure 10).[2]



The reason for a broader participation in rising wealth in the later period brings the role of rising home prices to the forefront – to be discussed in depth in sections 8 and 9 below. About two thirds of U.S. households are homeowners and Figure 11 shows that in terms of experiencing rising wealth homeowners fared much better than (on average significantly poorer) renters; and especially so in "metropolitan statistical areas" as opposed to non-metro areas.

[2] The SCFs are held to provide the most representative picture of U.S. wealth distribution including rich households (except for the "Forbes 400" super-rich). Other available microeconomic sources include the Consumer Expenditure Surveys (CEX) and the Panel Study of Income Dynamics (PSID). See Bosworth and Anders (2008), Bosworth and Smart (2009). See Aizcorbe et al. (2003), and Bucks et al. (2006, 2009) for commentaries on the SCFs since 1998. See also Kennickell (2003, 2009) on wealth inequality and the SCF.



Interestingly, among homeowners the poorest quintile actually gained most in percentage growth terms of median values of primary residences (while absolute dollar gains were of course greatest for the top quintile; see Figure 12).

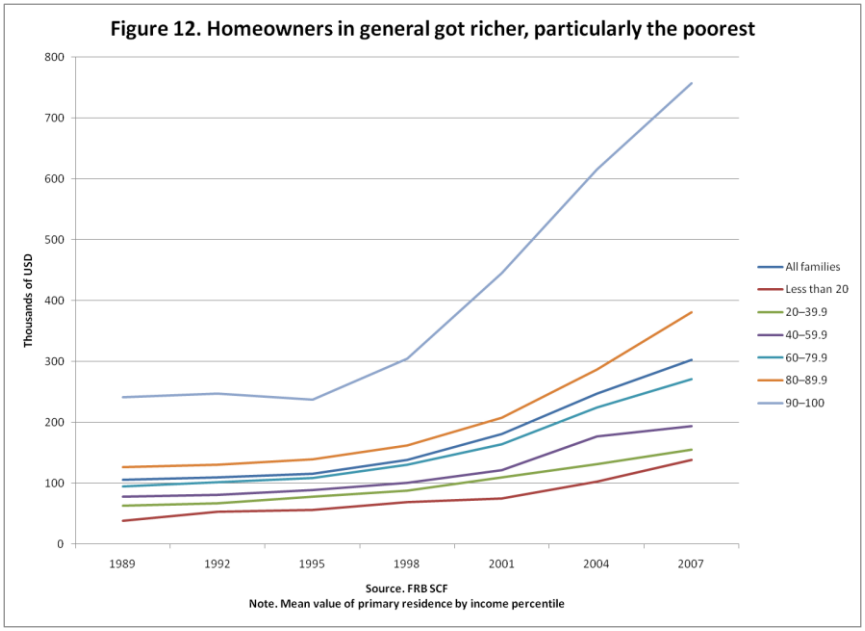
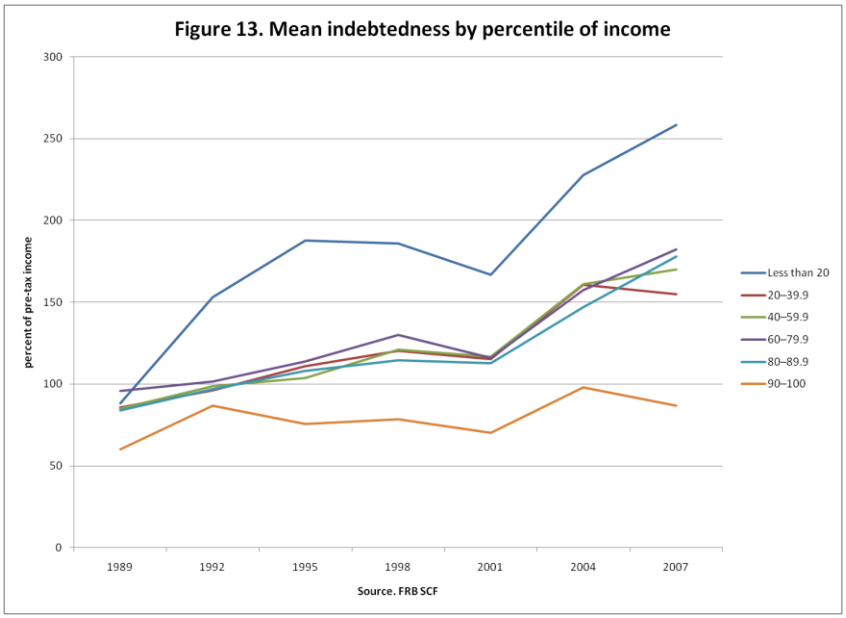


Figure 13 shows what Wolff (2010: 4) describes as the outstanding fact for the 2001-07 period: "exploding debt and a consequent 'middle-class squeeze'". In fact, all households except for those in the top income quintile (who actually slightly decreased their indebtedness in the 1990s)

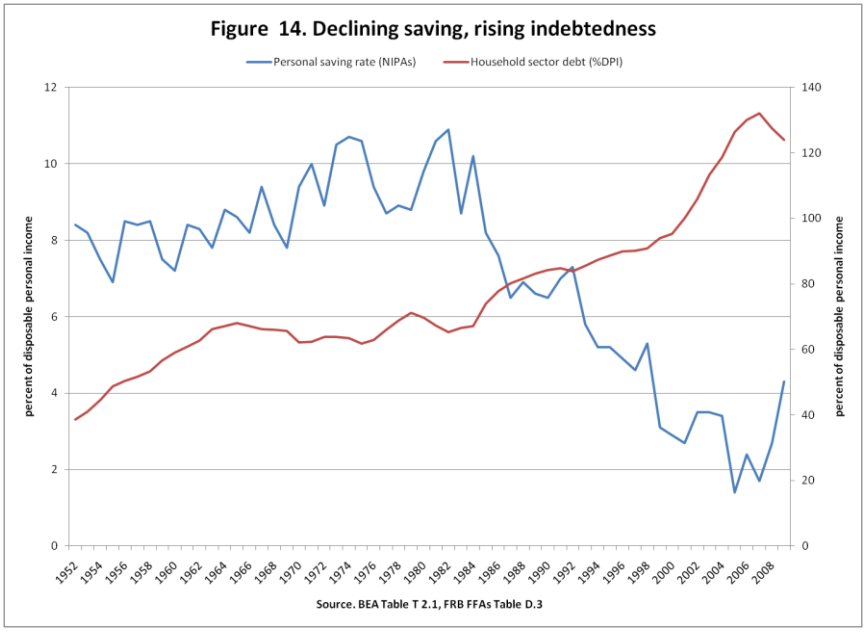
sharply increased their debt relative to income since the 1990s and especially so in the 2000s. Wolff's "middle-class squeeze" hypothesis would seem to be in line with Weller's (2007: 583) conclusion that "the data suggest that the run-up in [household] debt [was] more a consequence of economic necessities than of profligate spending." (See also Barba and Pivetti 2009). An alternative hypothesis by Maki and Palumbo (2001) to be discussed in section 6 below is that profligate spending on the part of the richest households driven by wealth effects alone was responsible for the U.S. consumption boom of the 1990s – while all other households supposedly saved more.



This paper sets out to shed some fresh light on these competing hypotheses concerning the before-mentioned "inequality-spendthrift puzzle". Recall that Post-Keynesian theorizing in general and models of financialization in particular generally presume that redistribution from rich to poor would tend to weaken aggregate demand growth. In actual fact, however, U.S. household spending for long provided the global growth engine no. 1 – before brutally crashing in 2008-9. The next section explores trends in aggregate saving behavior, household indebtedness and net worth.

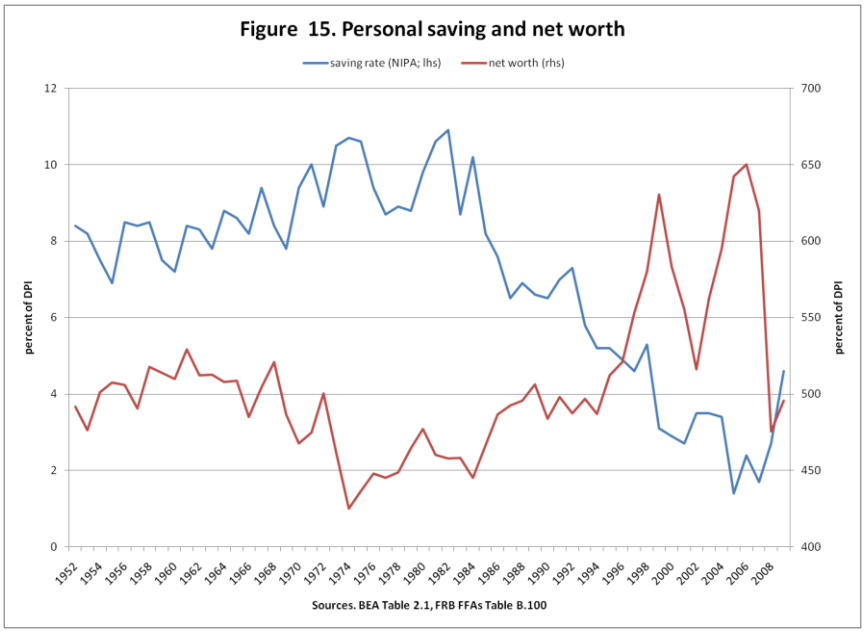
3. Declining saving, rising indebtedness, while getting richer anyway?

We already saw a glimpse of what is probably one of the most discussed macroeconomic trends in the U.S. economy since the 1980s in figure 2 above: the marked decline in personal saving (see Bosworth, Burtless and Sabelhaus 1991; Gokhale, Kotlikoff, and Sabelhaus 1996; Gale and Sabelhaus 1999; Parker 1999; Maki and Palumbo 2001; Ando, Christelis and Kim 2004; Bosworth 2004; Bosworth and Bell 2005, Zezza 2008, for instance). Expressed as a percent of disposable income, personal saving declined from around 10 percent in the early 1980s to below two percent by the mid 2000s (see Figure 14).



As Figure 15 shows, over the same period household indebtedness surged from around 70 percent of disposable income to nearly double that rate. More precisely, indebtedness briefly surged in the mid 1980s, then grew slowly until 1997, after which indebtedness took another astounding leap, peaking at nearly 140 percent in 2007. Since 2007 both the saving rate and indebtedness have reversed quite sharply, but remain far away from their early 1980s levels. Note that much of the decline in the saving rate occurred when indebtedness was only rising slowly. By contrast, the period when indebtedness surged the fastest in the early 2000s saw only little decline in the saving rate.

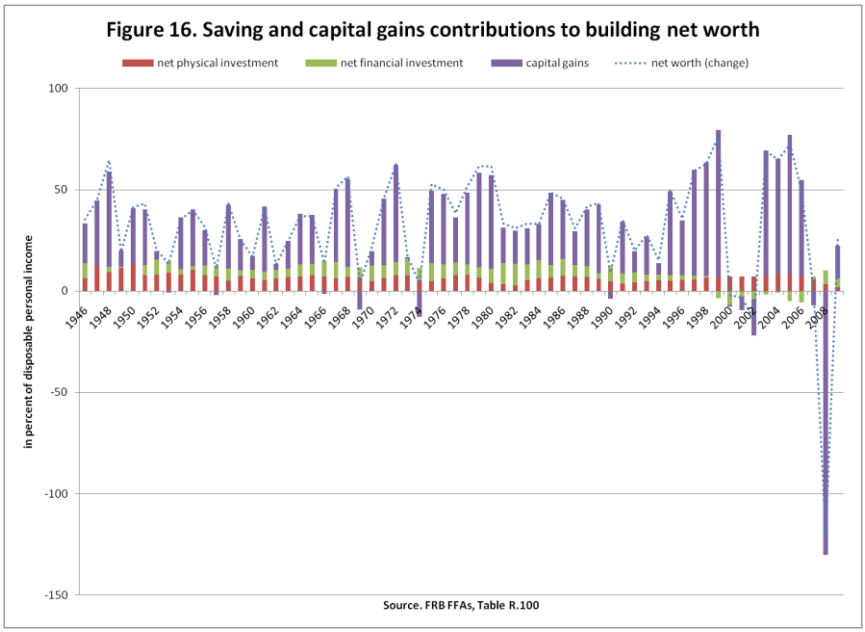
Much of the discussion of candidate causes behind the decline in saving emphasizes "wealth effects", owing to capital gains on equities and real estate in particular. And when looking at the development of household net worth since the 1980s the case can actually be made that house



holds got richer while saving less. In fact, Figure 15 shows that during the period that saw the decline in the saving rate net worth rose from a low of 450% of disposable income (holding on average between the mid 1970s and early 1980s) to a peak of 650% in 2006; a rise that was not a steady one though, since the "dot.com bust" of the early 2000s temporarily crushed net worth to an interim low of 516% in 2002. The two boom-bust cycles in the net worth (to-disposable-income) ratio in the 1990s and 2000s contrast starkly with the prior stability in this ratio. Note here that much of the decline in the saving rate had occurred before the net worth ratio started to take off, rising well above its long-term average of 500%. That said, during the initial phase rising capital gains must have at least compensated for the declining saving (flow) contributions to net worth building. By contrast, during the later phase wild gyrations in capital gains and losses occurred together with relatively small changes in the saving rate. Note here also that even today, and despite the huge capital losses suffered in 2007-8, net worth is still just slightly below the long-term average following a small recovery in 2009.

The role of capital gains in boosting U.S. households' net worth is not an altogether new one. As Figure 16 reveals, though, capital gain contributions to net worth building increased and became

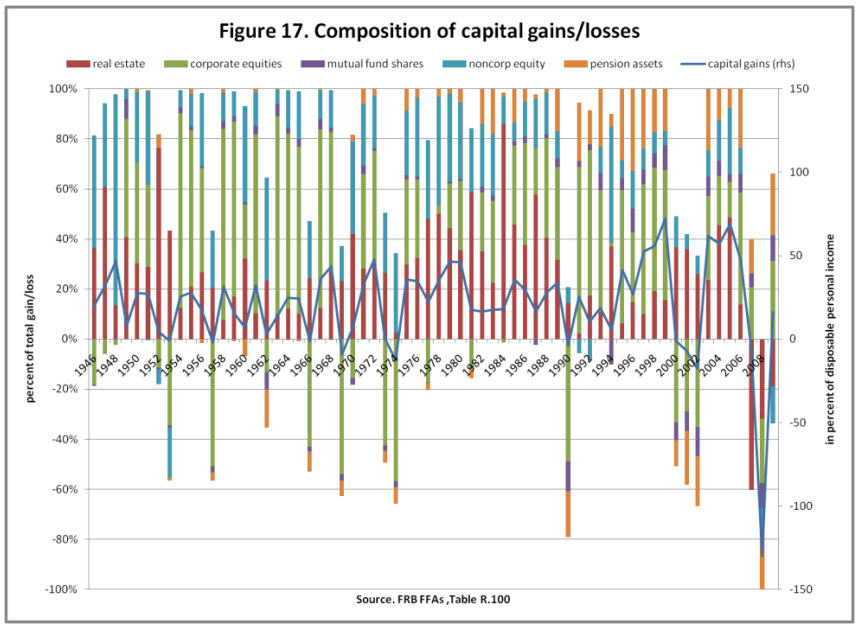
steadier after 1975 compared to the earlier period – until those sharp swings occurred during the last ten years. Figure 16 also shows that while net physical investment (residential investment and consumer durables) made rising contributions to net worth building after a low point in the early 1990s, net financial investment played a shrinking role over the 1990s and even turned



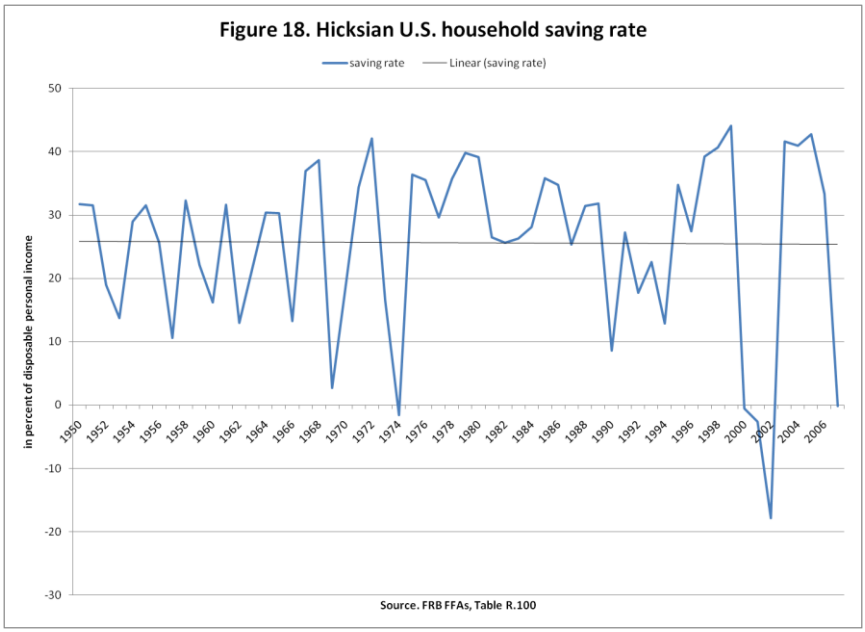
negative in the late 1990s, as financial liabilities increased faster than financial asset acquisitions at that time.[3] As to the sources of capital gains, Figure 16 shows that over time the relative contribution of pension assets has increased very significantly, including here only life insurance and pension fund reserves but not assets held in Individual Retirement Accounts (IRAs).

The bottom line up to this point is that while households apparently reduced their saving out of current income (i.e. flows) sharply after the mid 1980s, this was offset by capital gains (i.e. stock revaluations), leaving households' net worth ratio close to the long-term average of 500% today; despite severe capital losses in recent years. Adding capital gains to both income and saving, the "Hicksian" saving rate (see Hicks 1939) shown in Figure 18 therefore shows no decline over time. However, following a period of reduced volatility from the mid 1970s until the mid 1990s,

[3] Note here that the sum of net physical investment, both residential investment and consumer durables, and net financial investment corresponds to the (broad) flow-of-funds-accounts (FFAs) definition of saving.



the Hicksian saving rate became highly volatile subsequently, reflecting wild gyrations in asset prices and capital gains and losses.[4]



[4] In calculating the "Hicksian" saving rate capital gains were added to both the numerator and denominator. Since at least some realized capital gains are subject to taxation this calculation yields only a rough approximation. 2007 is chosen here as the final year since in 2008 capital losses of some $14tr exceeded disposable personal income of $11tr, which would yield a nonsensical *positive* Hicksian saving rate in that year of severe crisis.

Before we move on to investigate the above trends in saving, net worth and indebtedness any further it seems worthwhile to reflect upon the notion of wealth effects and their supposed impact on behavior and economic performance.

4. Some observations on wealth effects and liquidity

The hypothesis that increases (decreases) in perceived wealth might encourage (discourage) consumption spending is a popular one that has been widely tested. In general, findings suggest a marginal propensity to consume out of wealth in the order of two to ten percent, with wealth effects of residential property found to be somewhat stronger than for equities (Boone and Girouard 2002, Case, Quigley and Shiller 2005, Paiella 2009, Poterba 2000, Maki and Palumbo 2001, for instance). Sharp run-ups in net worth as occurred in the second half of the 1990s and again in the 2000s would therefore be expected to encourage more spending and a declining saving rate.[5]

As a limiting case one may even envision a situation in which households in the aggregate do not save at all anymore out of current income while their net worth continues rising in line with income, as corporations that they own do the (retained-earnings-financed) investing and net worth building on their behalf; with investment-driven corporate profits feeding through to household net worth wholly in the form of capital gains.

It is noteworthy however that *unrealized* capital gains as such do not provide the "cash" needed to effectuate any spending. For households, as for other units, cash flow other than from current income may be obtained either by selling assets and/or taking on debts – both requiring a counterparty taking the opposite position. Actually *realizing* capital gains, too, requires selling the asset that has appreciated in price to another unit; or using the appreciated asset as collateral with quite similar implications. For while one unit's cash flow thereby improves, the counterparty too

[5] Keynes observes that the "consumption of the wealth-owning class may be extremely susceptible to unforeseen changes in the money-value of its wealth" (Keynes 1936, 92-3). Furthermore, in case of a "severe decline in the market value of stock exchange equities" he ventures that for "the class who take an active interest in their stock exchange investments, especially if they are employing borrowed funds, this naturally exerts a very depressing influence. These people are, perhaps, even more influenced in their readiness to spend by rises and falls in the value of their investments than by the state of their incomes" (319).

must have somehow secured the required cash to purchase that asset, either from saving out of current income, or by selling assets and/or taking on debts. The counterparty's first option of obtaining cash by saving more exemplifies the possibility that the increased propensity to spend by one unit may be offset by another unit's decreased propensity to spend. In fact, just as the owner of the asset that has appreciated in price may have reason to feel accordingly richer, the not-yet owner may actually feel so much the poorer since it has become just so much more onerous to acquire the asset. The second and third options of obtaining cash for purchase of the asset at hand involve selling another type of asset or debt to yet another counterparty facing the same kind of cash-raising options. Depending on a set of multifarious factors units may feel more or less inclined to buy assets, take on more debt, or lend more to other units; as captured by Keynes' notion of "liquidity preference" (Bibow 2009a). In general, however, the liquidity constraint at the heart of the matter here may only be relieved for the economy as a whole if banks can be persuaded to take more assets or claims onto their balance sheet, thereby creating the liquidity needed that would allow any planned spending to go ahead (or provide liquidity without actually keeping those assets on bank balance sheets, as the "shadow banking system" discussed below in section 9 learned to facilitate in venturous ways). Needless to say, banks (or shadow banks) willingness to take more assets off the market and onto their balance sheets may be greatly facilitated by rising asset prices, i.e. collateral values. At the same time, from a Keynes-Minsky perspective, banks' (or shadow banks') increased willingness to provide liquidity may also be the very force that makes those asset prices go up in the first place. In short, asset prices, collateral values and liquidity are interdependent, and they together condition spending supposedly driven by so-called wealth effects.

The literature on consumption and wealth effects also features the concept of "liquidity-constrained" households, households that may lack sufficient liquidity buffers to smooth consumption in line with the permanent-income/life-cycle consumption hypotheses when faced with a negative income shock. Yet the fundamental issues of cash flow and collateral are only incompletely addressed in the literature.[6] From a Keynes-Minsky perspective the most critical aspect is

[6] See however Muellbauer and Murphy (1990, 1997) who highlight financial liberalization as a common macro factor driving both house prices and consumption in the U.K. Similarly, for the U.S. Duca, Muellbauer and Murphy (2009: 30) find that "a substantial easing of U.S. mortgage standards, as reflected in the LTV ratios of first-time home-buyers, substantially raised the effective demand for housing the first half of the [2000s]". Hurst and Stafford (2004) focus on property wealth as collateral when households may be liquidity constrained.

that rising asset prices may relax credit constraints, and *thereby* boost spending. Even assets without a ready market can be a source of cash if they are *collateralizable* (or become more so), while households without any assets cannot experience wealth effects in the conventional sense in the first place. On the other hand, even for wealthy households capital gains may have to be realized for "wealth effects" to affect spending (as commonly measured in the literature). At least this is the case when households wish to spend in excess of their current income.[7] Share buybacks represent a special case here, allowing households in the aggregate to realize capital gains and obtain cash from the corporate sector in this way – but then share buybacks are really a substitute for dividends as a way of returning cash to shareholders.

By contrast, as long as households are merely reducing their positive saving to spend more, while not spending more than what they earn, there would seem to be no such cash flow issue involved for them, i.e. no need to borrow (or sell assets). Only in this case, then, can "direct" wealth effects be of relevance. In general, household income includes asset income in the form of interest on fixed-income assets and dividends (or share buybacks) on equity claims, with asset income perhaps spent in full just as other forms of income.[8] The SCFs show that asset income and realized capital gains are especially important as an income source for the richest households (see Figure 9 above).

Notice therefore that there might be no increase in debt as the economy moves to a trajectory featuring a higher propensity to consume and lower saving rate. In general, as long as it is households with positive saving rates that reduce their saving, the aggregate saving rate may decline while indebtedness remains stable. The opposite case is also possible, with the aggregate saving rate remaining stable but indebtedness rising. This occurs when some households dissave and consume more while others save more and consume less, with debt facilitating the cash flow between saving and dis-saving households. (Alternatively, if asset sales were used instead, no changes in debt might be recorded unless asset holdings are leveraged.) Finally, we should not overlook the possibility of households taking on more debt to buy more assets rather than spend

[7] Bhaduri et al. (2006) discuss the macroeconomics of "realizing" wealth effects, but their reference to the Hicksian "overdraft" credit is too suggestive of a credit system that is *wholly demand-driven* (much in line with the Post-Keynesian horizontalist endogenous money tradition, but in conflict with the Keynes-Minsky tradition followed here, which stresses active bank behavior.

[8] Baker, Nagel and Wurgler (2007) study the effect of dividends on consumption. For the individual investor selling shares may be an alternative to dividends. From a macro perspective corporate share buybacks are the alternative. As the latter also tend to drive up share prices measurement of wealth effects becomes a fruitless exercise.

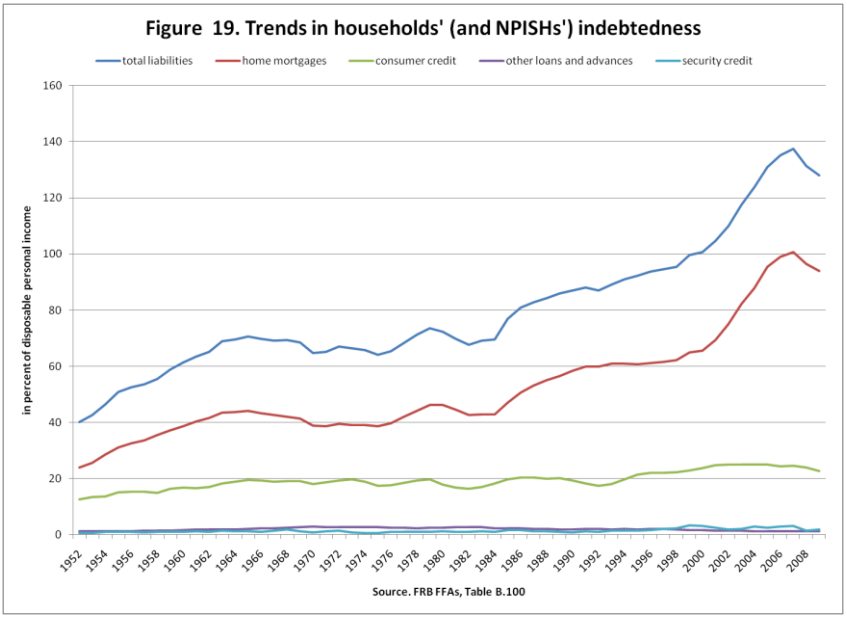
more on current consumption. Among other reasons, this may also be the case when asset prices are outpacing income growth so that purchasing assets requires correspondingly more debt. Broadly speaking, financialization of the household sector allows household spending growth to decouple from disposable income growth. As asset prices, collateral values and liquidity condition household spending, from a Keynes-Minsky perspective the critical issue is whether household indebtedness may turn into a source of financial fragility in the process.

At this point the definition of consumption versus investment becomes critical. In the above we used the traditional definition from the National Income and Product Accounts (NIPAs), which defines saving as current income (more precisely, disposable personal income) minus current outlays, and which classifies residential investment as investment but household spending on consumer durables as consumption. There is an alternative approach to measuring saving used in the Flow of Funds Accounts (FFAs) that aggregates net acquisitions of physical and financial assets minus net increases in liabilities. The FFAs employ two definitions of household saving, a broader one that classifies consumer durables as saving and a narrower one that excludes durables; the latter one being conceptually equivalent to the NIPAs definition (but computed from different data sources; see Gale and Sabelhaus 1999).

Data from the FFAs is especially useful in shedding light on the possibility that households may take on more debt to buy more assets, either physical or financial. The point is that we would expect financialization of the household sector to affect not only the ways in which households may obtain cash other than from current income sources, but also more generally the ways in which they manage their balance sheets. In turn, behavioral changes along these lines may affect the role of asset income and financial obligations in household finances; which however also strongly depend on the general level of interest and the distribution of income and wealth in the economy at hand. Of course, the ultimate question is whether households are thereby allowed to lead an easier, better life, or whether they primarily become more vulnerable as a result. Against the background of these reflections the next section will further scrutinize the evolution of households' balance sheets and saving behavior.

5. A closer look at households' balance sheets and saving behavior

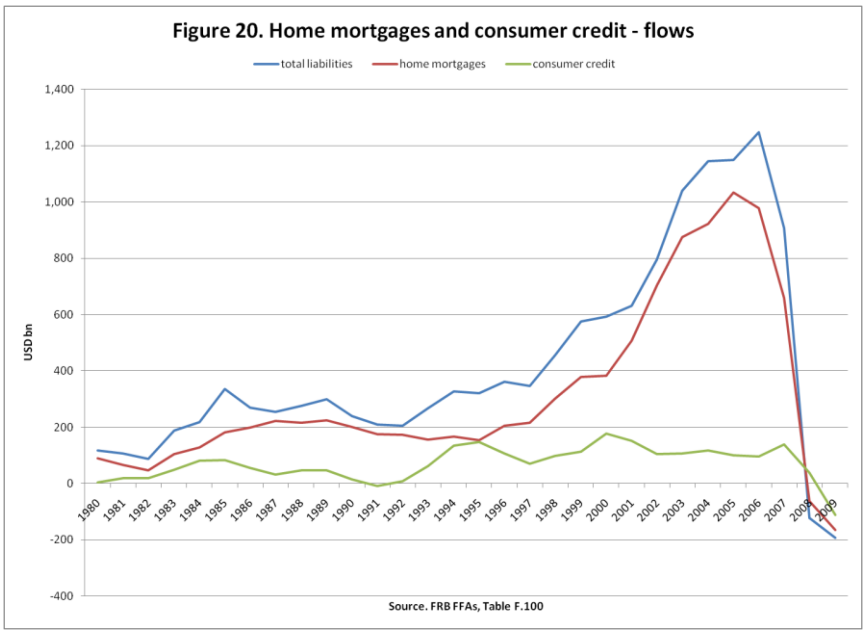
Starting with trends in households' liabilities, Figure 19 shows a long period of stability in home mortgage debt and consumer credit during the 1960s and 1970s that was followed by a surge in home mortgage debt relative to disposable incomes in the second half of the 1980s. It is noteworthy that mortgage debt then stayed stable until the late 1990s, a period that saw a marked decline in the saving rate. Only in the 2000s did an impressive surge in home mortgages drive household indebtedness up to new heights. The picture for consumer credit shows decades of stability around 20 percent of disposable personal incomes, with temporary dips in the early 1980s and early 1990s. The remainder of the 1990s then saw a gradual rise to 25 of disposable incomes by the early 2000s. Home mortgages and consumer credit are by far the most important liabilities of the household sector.[9] Security credit has seen some temporary increases in the late 1990s and mid 2000s, but remains negligible overall.



A look at credit flows (see Figure 20) confirms the relative strength of consumer credit in the mid 1980s and during the 1990s, and the enormous surge in home mortgages taken on by households in the 2000s.

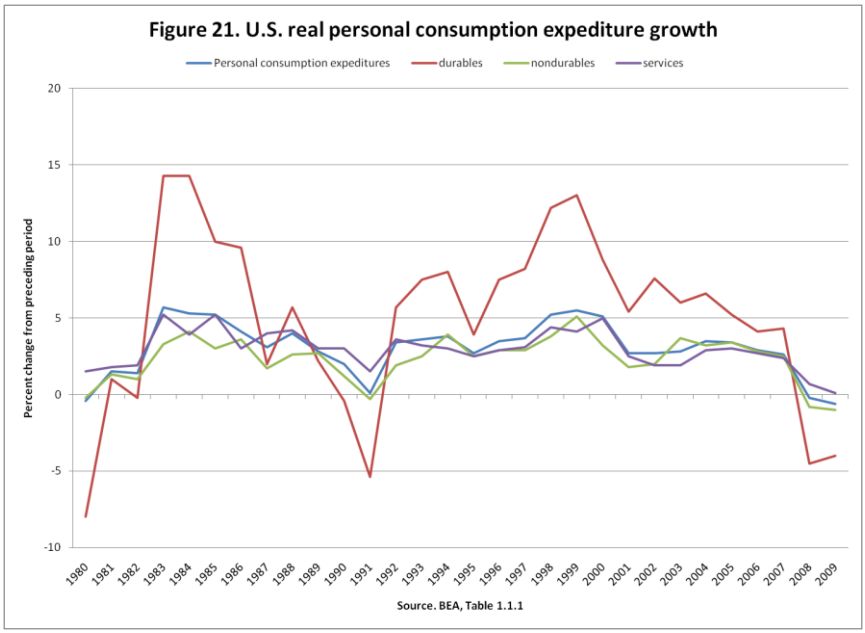
[9] FFAs data for the household sector includes nonprofit institutions serving households (NPISHs) as well as farm households and domestic hedge funds (the latter by default, for lack of data availability).

Apart from revolving credit card debt, the bulk of consumer credit is for the financing of consumer durables through non-revolving installment loans and it is therefore not surprising to see periods of strength in consumer credit correspond to the cycle in spending growth on consumer durables (see Figure 21). This link may have been somewhat less close in the 2000s when households may have been more liberal in using home mortgages for financing of durables instead (or for repayment of consumer credit initially used as "bridging finance"). The issue of

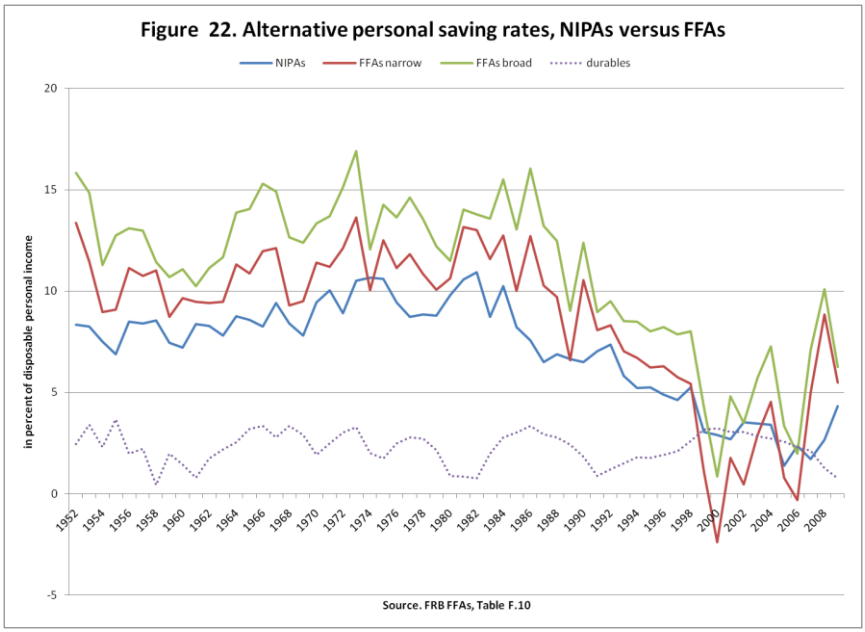


"mortgage equity withdrawals" will be taken up further below. Here we first move on to take a closer look at households' saving behavior as reflected in different saving measures.

As mentioned above, the FFAs provide two measures of the personal saving rate, with the narrower one that excludes consumer durables being conceptually equivalent to the "headline" saving rate based on the NIPAs. All three measures are shown in Figure 22. While the broad trend of a declining saving rate is confirmed by all measures, there are also some marked deviations. In particular, the NIPAs measure indicates a somewhat earlier start and steadier decline in the saving rate, whereas the conceptually equivalent (narrow) FFAs measure suggests a somewhat higher level of the saving rate until the late 1990s when a much sharper decline in the saving rate to below zero in 2000 is indicated. Furthermore, both FFAs measures appear especially volatile during the 2000s. But the essential message sent by all saving measures is the same: most of the decline in the saving rate occurred during the 1990s when household indebtedness rose only

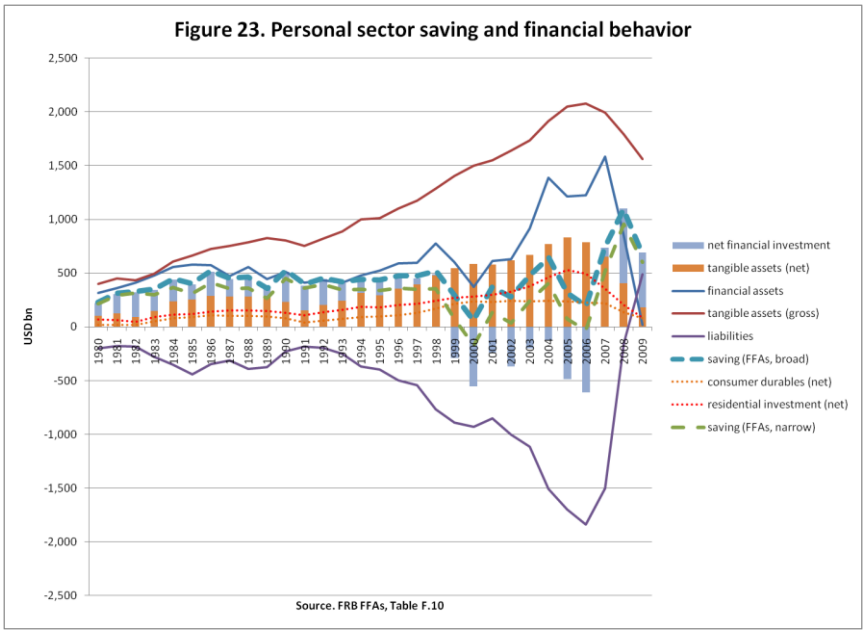


slowly and mortgage debt in particular was stable, while the saving rate did not decline much or remained at a low level during the 2000s when home mortgage indebtedness soared.



In the light of our discussion in section 4 above this finding suggests that household behavior driving these trends was decidedly different in these two periods. During the 1990s predominantly households with positive saving rates appear to have reduced their saving. At the same time the gradual rise in consumer credit indebtedness financed greater acquisitions of consumer du-

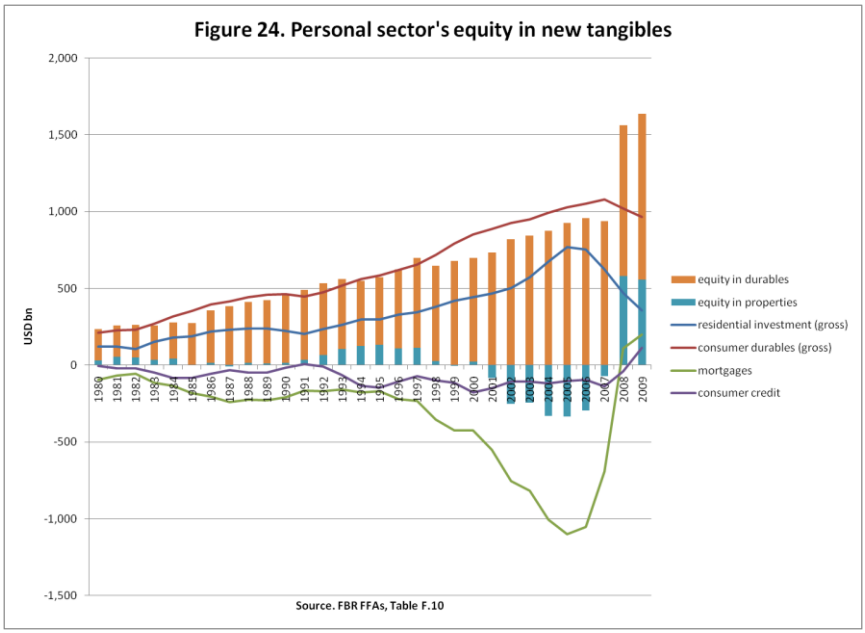
rables, while mortgage indebtedness remained stable. By contrast, the sharp rise in indebtedness during the 2000s may have been partly due to (increased) dis-saving on the part of some households while other households saved more, and it may have been partly due to households taking on more debt in order to acquire assets. In fact, Figure 23 suggests residential investment as the prime mover behind the rise in indebtedness. Conspicuously, as residential investment booms, soaring financial liabilities are also increasingly used for acquiring financial assets although *net* financial investment actually turns negative. Overall, saving drops to zero or even below (on this measure), with volatility in financial asset acquisition apparently driving the volatility of this saving measure.[10]



The residential investment boom came along with the phenomenon of households withdrawing – and thereby liquidizing – equity in their homes. As Figure 24 shows, starting in 2001, households in the aggregate took out mortgages with a principal in excess of residential investment on a significant scale. The aggregate picture therefore contrasts starkly with the 1990s, and also goes far beyond the situation in the second half of the 1980 when households in the aggregate merely

[10] Apart from households and NPISHs, including farm households and domestic hedge funds, the personal sector additionally includes nonfarm noncorporate business and farm business. Noncorporate proprietors' income is transferred to households as part of personal income and thus an element of household saving. Households add or withdraw equity in the firms through proprietors' net investment transactions (FFAs, Table F.228). Proprietors' net investment for the sector is calculated as the difference between sources and uses of funds. While the net balance (i.e. saving) of the personal sector is thus ultimately attributable to households, it is not clear to what extent debt-financed financial asset acquisitions reflect genuine household behavior rather than business decisions.

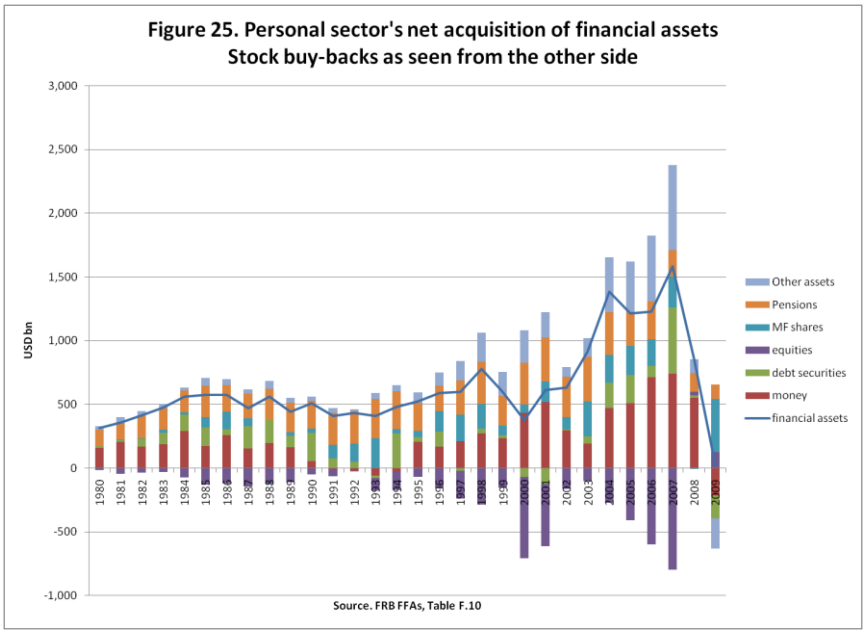
paused increasing their home equity. However, if it is taken into account that conventional mortgage loans require a twenty percent equity share, i.e. a maximum loan-to-value (LTV) ratio of 80 percent, this would imply that if residential investment and mortgages expanded by equal amounts in any given year, at a disaggregated level "mortgage equity withdrawals" (MEWs) should be of a magnitude of some 20 percent of aggregate mortgage loans.[11] Accordingly, if MEWs on this measure reached a magnitude of $250-350bn in the years 2002-6, this would seem to underestimate their true amount quite significantly. One issue here is that while first-time buyers may be challenged to put up 20 percent equity, homeowners at a later stage in the homeownership cycle may choose to make use of the leeway that their equity in their homes in excess of 20 percent affords them. We will return to the issue of MEWs further below in section 8.



Before, we must take a closer look at households' financial asset acquisitions in this period. Figure 23 above showed that, starting in the late 1990s, the personal sector increasingly used debt also to acquire financial assets. In particular, as Figure 25 shows, rising acquisitions of mutual fund shares, monetary instruments and other assets. On the other hand, equity flows are seen as negative in almost all years, and sharply negative in the second half of the 1980s and again after 1996. The financialization literature emphasizes that the corporate sector increasingly distributed

[11] This rough approximation assumes that all new loans have an LTV ratio of 80%. The point is that mortgages with an originating LTV of greater than 80% must secure private mortgage insurance and still bear a higher borrowing rate on the total loan amount.

rather than re-invested corporate profits. Payouts to shareholders may take the form of either dividends or share buybacks. Figure 25 reveals negative net issuance of equities by corporations as seen from the perspective of the personal sector. Large-scale share buybacks and the fact that equity holdings are highly concentrated among the richest U.S. households are relevant for the hypothesis by Maki and Palumbo (2001) that the 1990s consumption boom and fall in the personal sector saving rate may be exclusively attributable to rich households. The Maki-Palumbo hypothesis concerns developments in the 1990s and will be the subject of section 7 below. Before that it is worthwhile to briefly investigate certain developments in the retirement system that occurred in the 1980s.

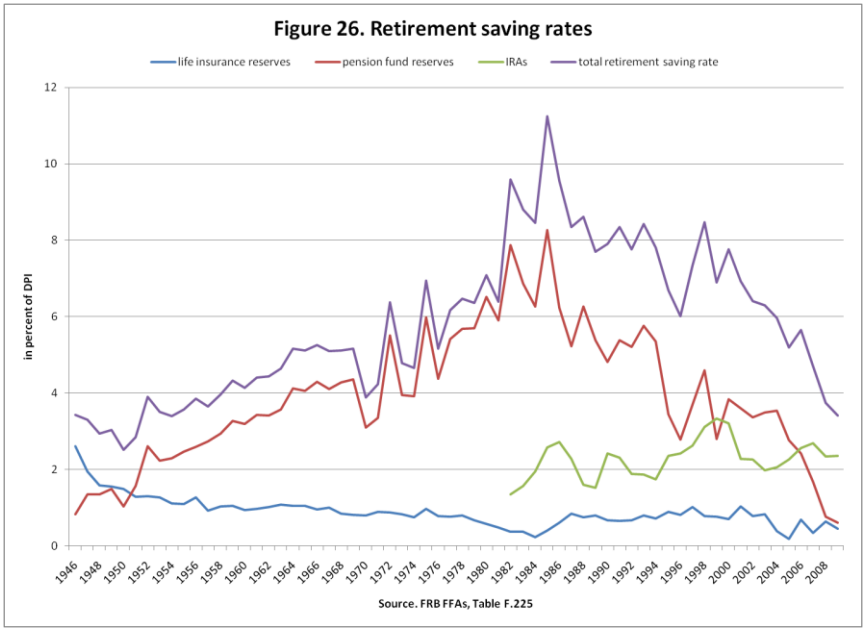


6. Retirement system maturation in the 1980s

Bosworth (2004) identifies contractual retirement accounts, including both employer-provided pension plans and individual retirement accounts (IRAs), as a principal contributor to the decline in the aggregate saving rate. Both the NIPAs and the FFAs classify net additions to retirement saving accounts as part of household sector saving (which contrasts to the treatment of the social security system). In the NIPAs Table 2.1 includes "employer contributions for employee pension

and insurance funds" as part of employee compensation and hence disposable personal income and personal saving. In the FFAs Table F.100 includes life insurance reserve assets and pension fund reserve assets, financial assets the acquisition of which boosts personal saving.

Following a steady rise in the post-WWII period Figure 26 shows retirement saving in percent of disposable personal income reaching a peak in the mid 1980s, since when a drop by over 5 percentage points has occurred. The decline is especially marked in pension fund reserves while retirement saving within life insurance companies held up fairly steady and IRAs have been on the rise since their introduction in 1982. Part of the rise in IRAs is explained by the rollover of em-

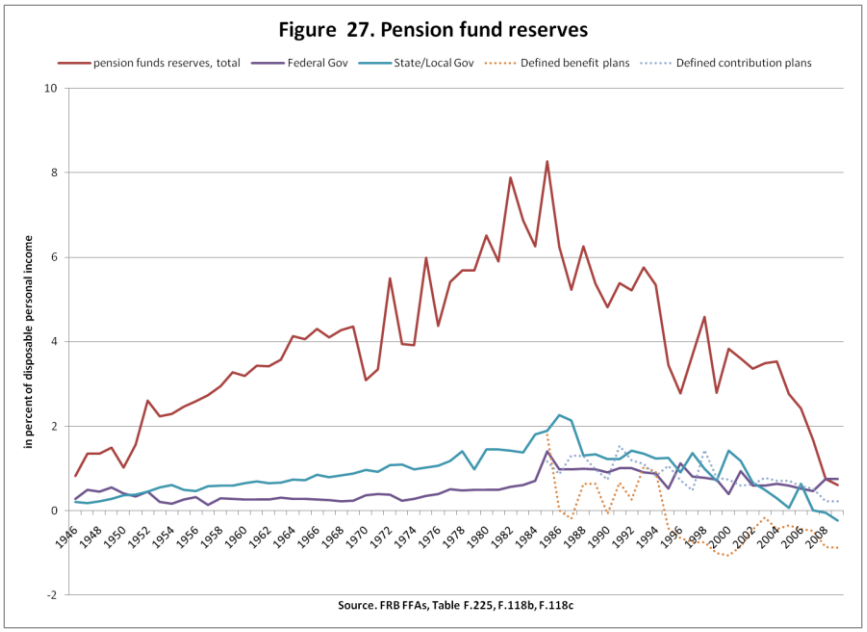


ployer-provided pension accounts occasioned by job termination. Similarly, saving within life insurance companies has been partly sourced from transfers out of other pension plans to finance retirement annuities. Mainly two reasons seem to explain the drop in overall retirement saving: capital gains and maturation of the retirement system.

The rising role of capital gains in contributing to households' net worth building was observed earlier. The issue also applies to retirement saving. This is especially and automatically the case for employer-funded "defined-benefit plans". For when these funds reach an actuarial "over-funded" status due to capital gains, tax rules *prevent* continued contributions. The relevant data is only available since the mid 1980s and a secular trend away from "defined-benefit plans" to-

wards “defined-contribution plans” has occurred since. But with pension saving within defined-benefit plans actually turning negative in the late 1990s (see Figure 27) one suspects that “con

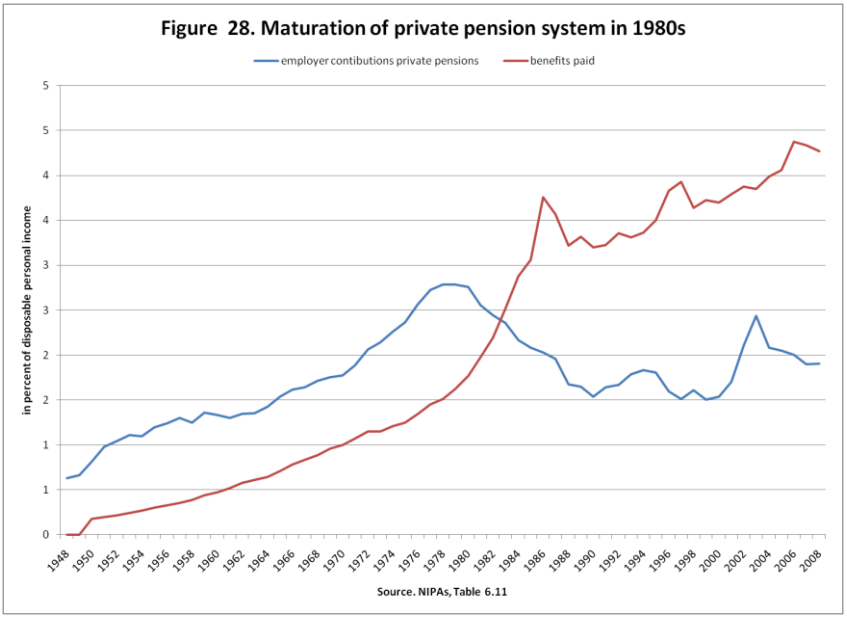
tribution holidays” also played a role in the decline. But Figure 27 shows that the reduced rate of accumulation of pension funds reserves was a general trend that also characterized defined-contribution plans and included the respective schemes for government employees as well. I agree with Bosworth (2004) in attributing the phenomenon to the “maturation” of the overall retirement system (excluding social security).



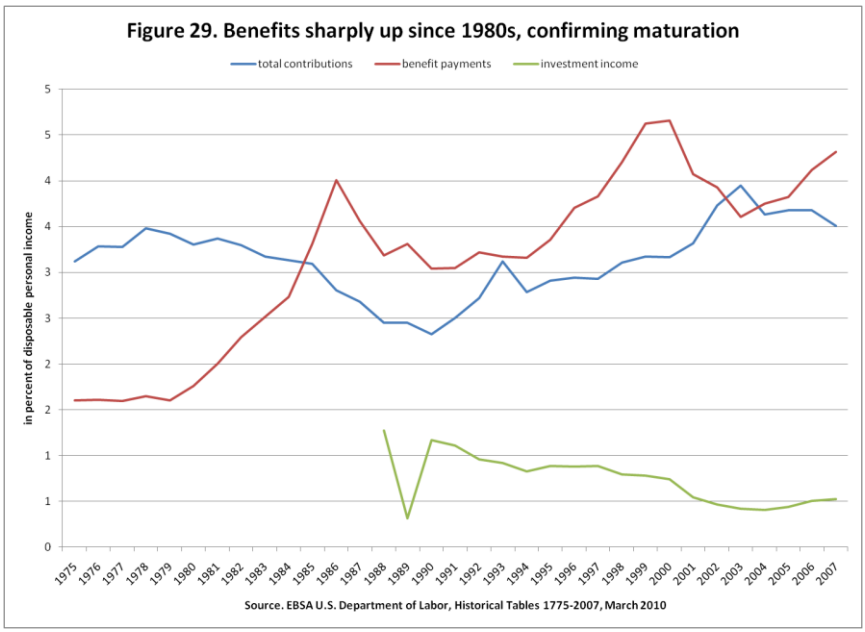
While life insurance policies were known in earlier times, the U.S. pension fund industry gradually emerged in the post-WWII era. The option of individual retirement saving through IRAs (featuring postponed taxation) then complemented the “private retirement system” in the 1980s. At the early stage a newly initiated “funded” retirement system accumulates assets at a fast rate because benefit outflows only kick in with a certain delay. The point is, of course, that covered employees, who are the insured future pension beneficiaries, only gradually reach the stage at which they will receive benefits through aging. Another crucial growth factor is the system’s coverage, which may increase over time and include a rising proportion of employees. With the

stabilization of coverage and aging of the covered employees, the system "matures" as benefit outflows gradually catch up with contributions and investment earnings, causing a slowdown in the rate of pension asset accumulation. The proportion of U.S. employees covered by pension programs has been stable in recent decades. In the 1980s, the U.S. private retirement system reached maturation as rising cohorts of covered employees reached retirement age, leading to increased benefit outflows (see Figure 28).

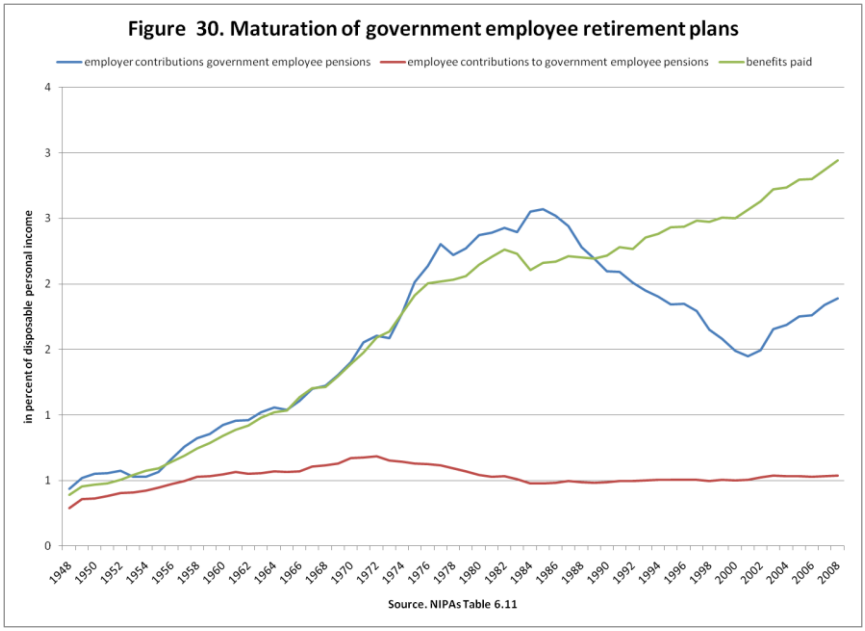
Saving flows into pension fund reserves in the FFAs should be understood as pension funds' net acquisitions of assets resulting from contributions plus (reinvested) asset income (not liable to income tax, and exclusive of capital gains) minus benefits paid.[12] As an alternative source, NIPAs Table 6.11 provides information on contributions for employee pension and insurance funds and benefit paid by these funds. Information for private pension and profit sharing plans only shows employers' contributions while in the case of publically administered government employee retirement plans employee contributions are also provided. While rising asset income in the 1980s is another relevant factor on which information is missing here, Figures 28 clearly suggest that a seachange occurred in the mid 1980s in the private pension system as benefit payments rose sharply relative to contributions, indicating maturation of the system.



[12] Note here that few "flows" in the FFAs are genuine flows but are computed from the level data after excluding capital gains.



The occurrence of a seachange is confirmed by data from the Employee Benefits Security Administration of the U.S. Department of Labor. Figure x shows that benefit payments as a percent of disposable personal income nearly tripled since 1980 without any corresponding rise in total

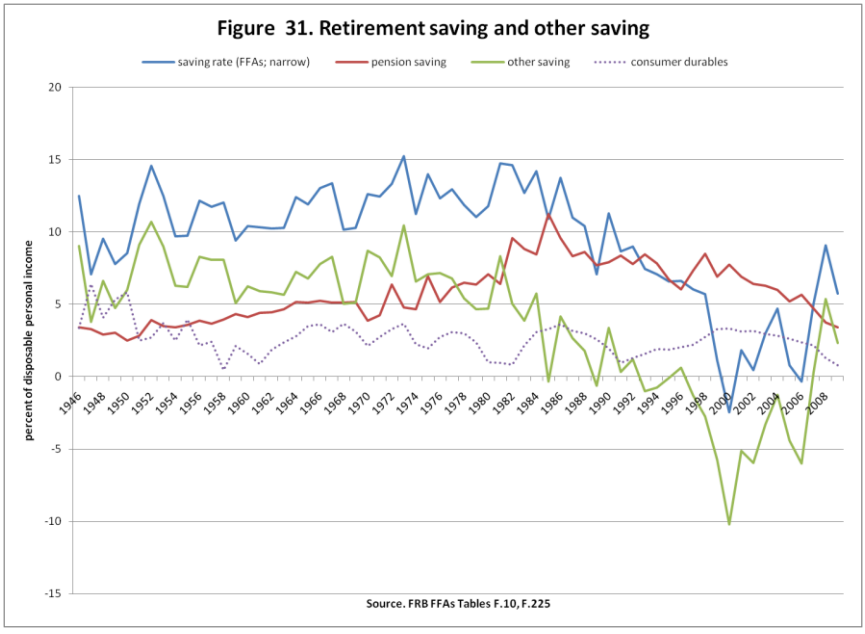


(employer and employee) contributions. Data for investment income is only provided for private pension plans with 100 or more participants (about 90 percent of all plans in terms of numbers of

participants and pension assets under management) starting in 1988. While higher asset income may have provided some offset in the 1980s era of high interest rates and asset income, this factor will not have compensated the sharp rise in benefits in full. Somewhat delayed a similar sea-change would seem to have occurred within the system for government employees as well, as Figure 30 shows.

In conclusion, the overall impression is that the U.S. private retirement system (consisting of life insurance, pension funds, and IRAs, but excluding social security) reached maturation in the 1980s. With coverage of the labor force and other key parameters of the system remaining stable, retirement saving (contributions plus investment income minus benefit payments) of a mature funded pension system should henceforth grow roughly in line with GDP.

While the data sources used here may not allow us to assess household saving in the 1980s at a more disaggregate level, the finding of the maturation of the retirement system in the 1980s nonetheless sheds some interesting light on the extent and timing of changes in aggregate household *behavior*. Separating aggregate saving into retirement saving and "other saving", Figure 31 shows that on the FFAs narrow measure saving outside of retirement accounts already began to



decline strongly in the late 1970s, fluctuated around zero from the mid 1980s onwards for about a decade, before dropping sharply into negative territory in the late 1990s. (Consumer durables are also shown here which would be included in the FFAs broad saving measure.) In other

words, the decline in the aggregate saving rate was delayed as long as rising retirement saving offset the decline in other saving, which had actually started earlier than generally supposed in view of the evolution of the overall ("headline") saving rate.[13]

The timing is certainly of interest here because the identified change in aggregate saving behavior happened at the very time usually seen as the start of financialization era. Furthermore, with the aggregate saving rate outside of pension accounts touching zero by the mid 1980s, this factor may have contributed to the surge in household indebtedness in the second half of the 1980s. But the debt surge at that time also reflected a property boom and rising mortgage debt as well as a spending boom in consumer durables and rising consumer credit. The beginning of strongly negative saving outside of retirement accounts in the late 1990s coincides with the start of the next round of sharply rising household indebtedness, and also with the onset of the property boom that ended in the "subprime mortgage crisis" of the 2000s that will be analyzed further below in section 9. The next section scrutinizes the idea that the 1990s consumption boom was solely driven by the richest households who supposedly stopped saving in the face of large stock market wealth effects.

7. Only the rich stopped saving, really?

Dean Maki and Michael Palumbo (2001) set out to investigate the negative correlation between net worth and the personal saving rate during the 1990s. They find that households with high incomes or who have attained some college education represented the group that benefited most from the equity price boom and who substantially reduced their rates of saving in that environment, a finding which they see as corroborating the "direct view" of wealth effects on consumption. The novelty of their approach is to combine aggregate household sector saving data as measured by the Flow of Funds Accounts and household level balance sheet data for a representative sample of families from the SCFs. Focusing on the period from 1992 through the third quarter of 2000, they construct quarterly time series for saving rates and net worth-income ratios for selected "cohorts" of families, one by income quintiles and another by education attainment.

[13] Note here that we are using the FFAs saving measure. The corresponding NIPAs saving measure would show other saving to be less negative after 1998.

In order to allocate the FFA holdings in each liability and asset category to the respective household cohorts, they employ the following methodology: first, a mapping of the household level SCF raw data into categories compatible with the aggregate FFA data, second, calculation of the respective cohorts' holding "shares" of each asset and liability category based on SCF data, third, allocation of each FFA asset and liability category in line with the SCF computed cohort balance sheet shares. They linearly interpolate between the triennial SCF waves and extrapolate information on household finances for the year 1997 for all subsequent quarters.[14]

In moving from the aggregate FFA *level* data to saving *flows* they then assume that flows are in direct proportion to the calculated balance-sheet shares constructed from the SCF waves. Their rationale for this assumption is that balance sheet shares were found to be rather stable across the SCF waves used. Furthermore, they assume that nonprofit institutions, included in the household sector, had zero net purchases of corporate equities in the years 1997-2000.

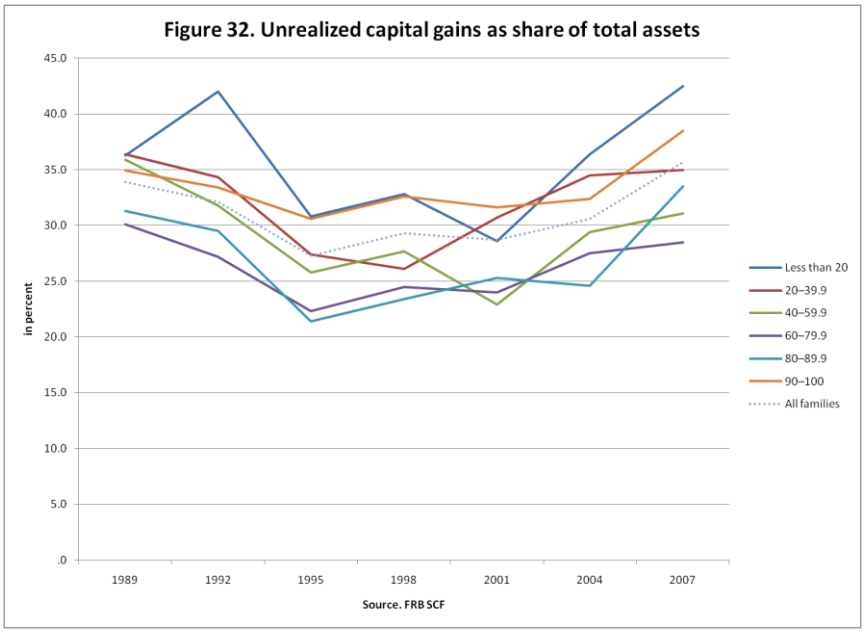
Having reaped 80 percent of the rise in the aggregate net worth-income ratio, on their calculation, the top quintile of the income distribution was responsible for 100 percent of the decline in the aggregate saving rate. They conclude that "all of the consumption boom really can be attributed to the richest groups of households. Between 1992 and 2000, the level of aggregate saving, as measured in our data, fell about $200 billion, reflecting a $240 billion drop in the level of saving by households in the uppermost 20 percent of the income distribution that was only partially offset by a $40 billion increase in saving among those in the lower 80 percent." (Maki and Palumbo 2001: 22).

To be sure, given the stark income and wealth inequalities existing in the U.S., and even rising in this period, a decline in the aggregate saving rate would be barely conceivable without a very sizeable contribution from households with the greatest concentration of income and wealth. Furthermore, since their finding implies that the observed decline in the aggregate saving rate was mainly due to households with previously high saving rates who reduced their saving (rather than dis-saving and going into debt), the finding is in accordance with our discussion in view of

[14] The latest SCF available at the time of their study was the 1998 survey. As interviews are largely held between May and December of the survey year, information on household finances for the year 1997 was used for all subsequent quarters. Methodological differences prevented the use of SCFs earlier than 1989. Because of significant deviations between NIPAs and FFAs saving measures in the years 1989-1991, they chose to start their baseline analysis in 1992. It is noteworthy that even more significant deviations characterize years after 1999.

the moderate rise in household indebtedness during much of the 1990s (largely reflecting the durables boom financed by consumer credit with mortgage indebtedness staying flat); much in contrast to the surge in mortgage debt in the 2000s. At issue is the plausibility of the suggestion that the richest saved massively less while the rest of the population increased their saving. For one thing, the idea that the lower 80 percent of households raised their saving conflicts with the "middle-class squeeze" hypothesis that rising income and wealth inequalities made it harder for these households to sustain their lifestyle.

That is not the only reason why the idea that the profligate rich pulled it off alone seems less than compelling. Recall here that the large and growing role of capital gains was not a new phenomenon of the 1990s stock market boom, but actually began in the mid 1970s (see Figure 16 further above in section 3).[15] During the relevant period too households in general, and not just the richest households, received sizeable capital gain contributions (as opposed to new saving) to their net worth building, as Maki and Palumbo (2001: 14, n20) observe in a footnote). *Unrealized* capital gains as share of total assets are shown in Figure 32.



The situation is different for realized capital gains which, according to SCF data (Table 2), are highly concentrated as a source of income among the top decile of the income distribution, play-

[15] Recall here the result of the previous section that showed that much of the decline in saving outside of pension accounts occurred well before the time of the 1990s stock market wealth effects. See also Dynan et al. 2004.

ing a negligible role for the lowest 75 percent of households in the income distribution (see Figure 9 above). As the flows in each liability and asset category are allocated on the basis of the wealth "shares" found in the SCFs on their methodology, the very high (over 80 percent) concentration of corporate equities within the top quintile of the income distribution appears to be driving Maki and Palumbo's results. In the FFAs stock buybacks translate into reduced saving unless a corresponding rise in other asset categories or decline in debt is recorded. Without any such sufficient offset the assumption about flows being proportional to levels effectively classifies stock buybacks as reduced saving by the rich in particular. Uncertainty arises in view of the observed secular decline in direct stock holdings at the expense of indirect holdings through mutual funds and pension funds etc; asset classes the holdings of which are somewhat less concentrated among the richest households. Furthermore share buybacks, whether conducted as tender offers or as open-market purchases of outstanding stocks, may not distribute cash in proportion to ownership as stockholders have the option to either sell or not. In this regard the snapshot provided by the tri-annual SCFs may not fully capture what went on during the previous three years, especially when the methodology for calculating equity flows in the FFAs is also taken into account, namely to measure flows as the change in levels after deducting estimated valuation gains from the recorded level data. But perhaps the most critical issue is that the Maki and Palumbo (2001) study was based on the SCFs up to 1998, as the latest survey available at that time. At that time the share buyback boom was really only getting started, and they had to extrapolate the available 1997 data until the third quarter of 2000. Sizeable FFAs data revisions occurred in subsequent years (featuring a very volatile saving rate and large statistical discrepancies since the late 1990s).

It is probably for this reason that later researchers following the same methodology pioneered by Maki and Palumbo, but using revised and including more recent data, found somewhat different results. For instance, Hatzius (2006b) concludes that the "decline in the saving rate is entirely due to homeowners". According to his estimates saving rates declined for the *top three* income quintiles of homeowners both during the 1990s and the 2000s. For the bottom two income quintiles of homeowners he finds an increase in saving rates in the second half of the 1990s, followed by a decline in the 2000s. By contrast, saving rates of renters are found to have remained stable all along. These findings are in accordance with a study by Zandi and Ozhabes (2006) that offers comprehensive insights into saving (and dis-saving) behavior of households decomposed by var-

ious SCF characteristics. They show, for instance, that younger households have become far more willing to dis-save and that the "saving rate of lower-income homeowners .. has declined most" (19) in the mid 2000s. A recent update including data up to the last quarter of 2009 is shown in Figure 33.

Figure 33 reveals a broad-based decline in personal saving rates that included the richest households as well as the middle class. The saving behavior of the richest five percent of households does seem distinct though in showing the most pronounced changes during this period, first the very steep decline into negative territory in the late 1990s, then the strong rebound since 2001, followed by another surprisingly sharp decline of late. In the 2000s, the saving behavior of the richest households is conspicuous for running contrary to the saving behavior of the remaining households. As to middle-class households, essentially, their saving rates reached zero by the late 1990s and then declined somewhat more until 2007, when a marked rebound set in. The saving

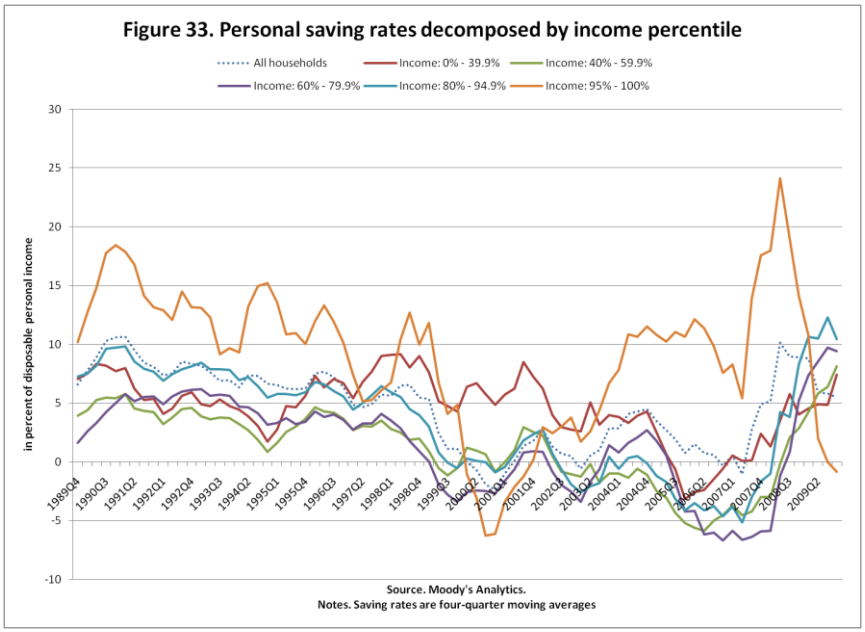


Figure 33. Personal saving rates decomposed by income percentile

Source. Moody's Analytics.
Notes. Saving rates are four-quarter moving averages

behavior of the lowest 40 percent households by income departs from the majority of households in the 1990s, when their saving rate stayed fairly stable, even showing a mild rise in the second half. As Zandi and Ozhabes (2006) observed, in the 2000s the decline in saving rates was sharpest among these households.

In conclusion, Maki and Palumbo (2001) deserve credit for highlighting the decisive role of rich households in the decline in the personal saving rate in the 1990s. This was much in line with

what Keynes had to say on the susceptibility of wealthy households with stock market exposure to fluctuations in stock market values. As long as saving rates were positive consumption driven by "wealth effects" raised no cash flow issues. When saving rates turned sharply negative at the height of the dot.com boom surging corporate share buybacks boosted these households' cash position. The story is a different one for other households and the findings shown in Figure 33 would seem to be in line with the "middle-class squeeze" hypothesis (and contradict Maki and Palumbo's (2001) estimations based on data available at that time). With the decline of middle-class households' saving rates to or below zero since the late 1990s the surge in household debt starting at that time comes into perspective.[16] The discussion on wealth effects and cash flows in section 4 above emphasized that spending in excess of income has to overcome the liquidity constraint, which for the household sector as a whole is about more than simply realizing capital gains (and letting wealth effects drive spending). At this point the role of collateralizable housing wealth becomes crucial for understanding the U.S. consumption boom. Housing wealth shows a far more equitable distribution than equity wealth. The behavior of the middle class in the 2000s would seem to have been of foremost importance given that the richest households were retrenching in the aftermath of the dot.com bust. But the behavior of the lowest 40 percent of households by income too came to the fore. Figure 33 above suggests that the strong labor market in the second half of the 1990s saw these households boost their savings, if only mildly. By contrast, when the U.S. labor market recovered in the mid 2000s following the "jobless recovery" these households too had saving rates around zero. The next section analyzes the U.S. property boom and its relation to the continuation of the consumption boom that had started in the 1990s.

8. Property boom, mortgage equity withdrawals, and subprime mortgages

Developments in the 2000s were rather different from the 1990s, and the 1980s too. A few crucial features have already been pointed out along the way in the above. In particular:

[16] In the light of the analysis in the previous section one should bear in mind that personal saving includes retirement saving, so that saving outside retirement accounts turned negative earlier. However, with nominal GDP growing strongly, also bear in mind that households have to take on debt at a sufficiently fast rate to see their indebtedness rise.

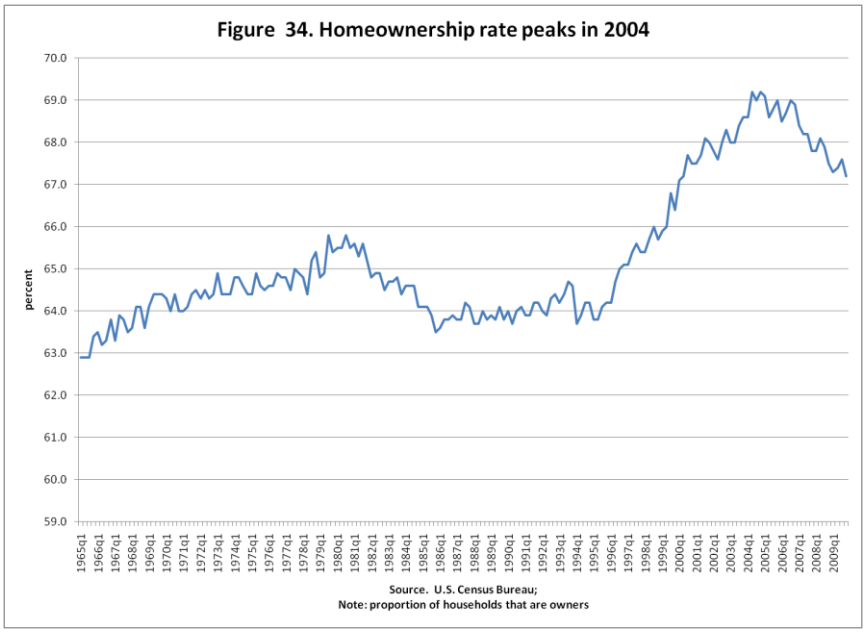
- Providing sizeable growth contributions in the period 1992-05, except for a brief pause in 2000-1, residential investment was an especially important contributor in the years 2002-5 when, in contrast to the 1990s, corporate investment remained subdued.
- During the 1980s personal saving (especially outside retirement accounts) declined relative to income while household indebtedness rose; during the 1990s personal saving declined further relative to income while indebtedness rose only slowly; finally, during the 2000s there was no sizeable decline in the personal saving rate while indebtedness swelled enormously.
- Following a surge in the second half of the 1980s home mortgage debt stayed stable relative to income until the late 1990s, while consumer credit debt rose slowly but steadily during the 1990s, to then remain stable in the 2000s despite strong spending on durables, as home mortgage debt saw another surge.
- The 2000s also saw sizeable mortgage equity withdrawals.

The purpose in this section is to investigate in more detail how the property boom of the 2000s impacted on consumption spending and economic performance more generally. To begin with, we may note here that the homeownership rate rose significantly for a decade starting in the mid 1990s; peaking in 2004 and plunging since 2006 (see Figure 34). Note that most of the rise occurred before 2001. The Joint Center of Housing Studies' 2009 report observes that this rise occurred despite the fact that demographic forces pointed in the opposite direction. Promoting homeownership has been a centerpiece of government social policy since the Great Depression, and homeownership has come to symbolize the "American Dream".[17]

National income accounting treats residential investment as investment rather than consumption and in a closed economy residential investment will largely have personal saving as its counterpart. In an open economy increased residential investment may lack the corresponding increase in personal saving but have an increased current account deficit (foreign saving) as its accounting match instead. For the individual homebuyer residential investment may require some abstention from consumption (upfront saving) to cover any required down-payment. For the economy as a whole an increase in residential investment activity may not require any increased abstention

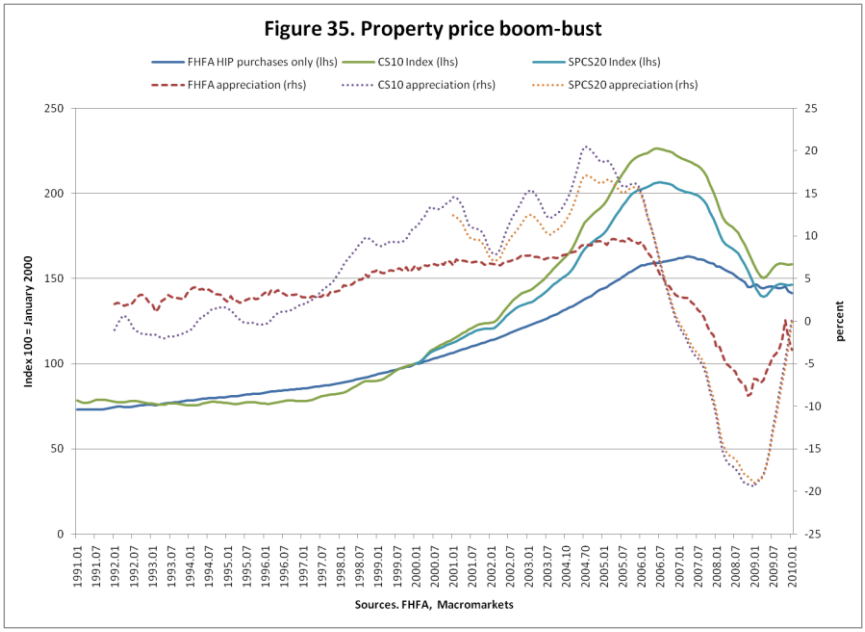
[17] Some aspects of this policy will be discussed below. For critical analyses see: Meyer, Yeager and Burayidi (1994), Shlay (2006), Horn et al. (2009).

from consumption, but may actually take place side-by-side with strong consumer spending. This was certainly the case in the U.S. in the 2000s, and even when, following the 2001 recession, the labor market situation and wage-income growth remained weak for quite some time.

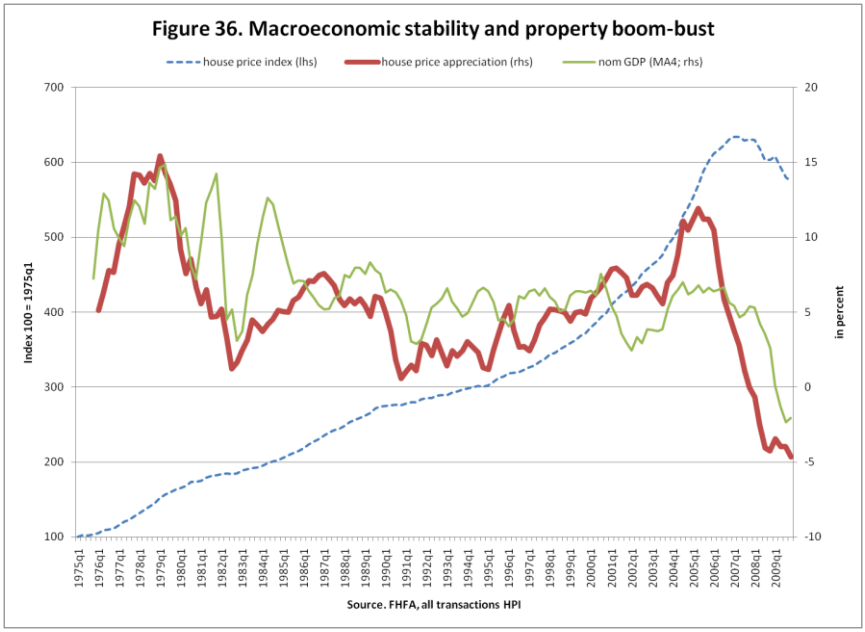


In the FFAs conception of personal saving a residential investment boom shows up as a balance sheet expansion, with net acquisitions of physical assets on the asset side and net increases of financial liabilities in the form of home mortgages on the liabilities side. All else equal, the liabilities side will tend to grow all the more if households withdraw equity from their homes (perhaps for financing consumptive expenditures), when down-payments decline as a share of the property purchase price, and when home prices are rising. All three phenomena played a role in the 2000s U.S. property boom.

Starting with property prices (see Figure 35), the initial years of recovery in residential investment following the boom and bust of the late 1980s and early 1990s saw home prices rising broadly in line with consumer prices. This changed in the second half of the 1990s and by 1998 property price inflation in metropolitan areas covered by the monthly S&P/Case-Shiller composite 10 home price index reached 10 percent. Following a brief cooling down in 2001 home price inflation in metropolitan areas accelerated further subsequently, reaching 20 percent by 2004 as indicated by that index (and 15 percent by the broader S&P/Case-Shiller composite 20 home price index (HPI) available for years after 2000). The broadest available (nationwide) home price



index computed by the Federal Housing Finance Agency (FHFA)[18] shows a milder rise in home price inflation, only reaching 10 percent in 2004-6 (for the monthly "purchases only" HPI).



[18] The FHFA was created on July 30, 2008 as part of the "Housing and Economic Recovery Act of 2008" charged with a regulatory mandate to oversee Fannie Mae, Freddie Mac, and the Federal Home Loan Banks. The law combined the staffs of the Office of Federal Housing Enterprise Oversight (OFHEO), the Federal Housing Finance Board (FHFB), and the GSE mission office at the Department of Housing and Urban Development (HUD).

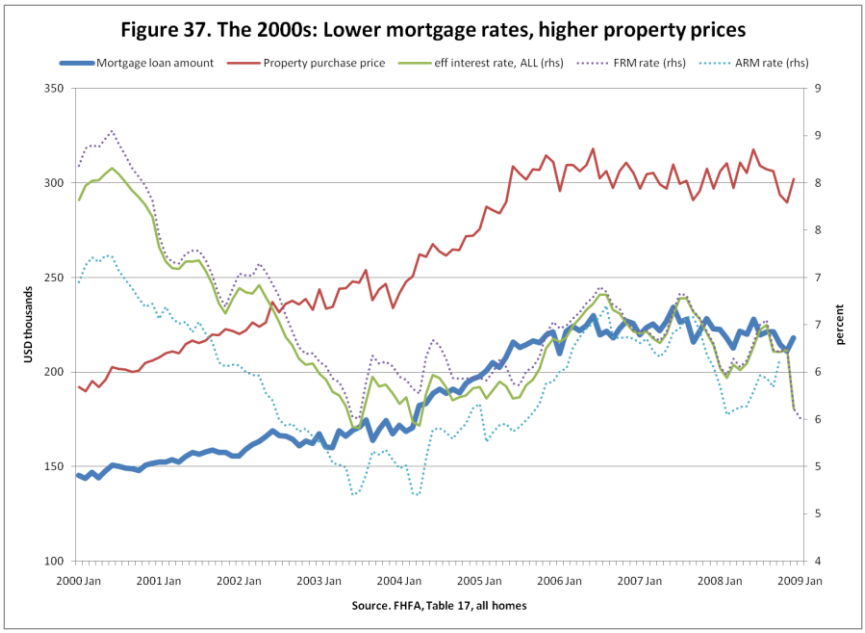
A look at the quarterly "all transactions" FHFA House Price Index[19] in comparison to the growth in nominal GDP is instructive here. Figure 36 shows that nationwide home price inflation generally stayed below nominal GDP growth during the 1980s and 90s, but exceeded it by a large margin in the 2000s prior to the bust. This is one factor that will tend to push up indebtedness. If property prices rise faster than incomes, homeownership – itself rising too – will tend to involve higher indebtedness. And before moving on to discuss the other two factors mentioned above some remarks on mortgage interest rates are in order here. In principle, one might suspect that rising indebtedness comes along with a rising interest burden. However, taking on more debt to buy assets (or purchase assets at higher/rising prices) is made easier by falling interest rates. Put differently, at lower mortgage rates, a certain sum of money (or fraction of income) available to service mortgage debt affords a greater demand for housing services and a larger mortgage. Clearly, then, by raising affordability of debt-financed properties, falling interest rates boost demand and may thereby cause rising property prices in the first place. In short, the key ingredients to booming asset prices: interest rates, income and debt growth, and property prices itself are clearly interdependent.

Figure 37 shows that while rising home purchase prices meant higher mortgage loan amounts, by itself a factor that is pushing up debt service, homeowners at the same time benefited from sharply falling mortgage rates after 2000; a factor working to offset the rising debt service burden.

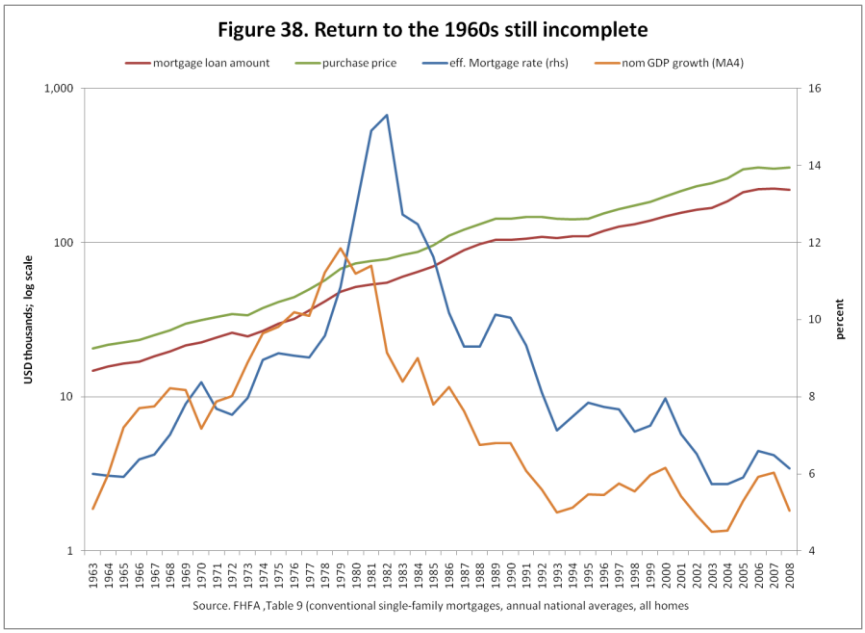
In fact, seen from a longer-term perspective, Figure 38 highlights that in the 2000s American households finally saw the return of the 1960s levels of mortgage rates. This followed a painfully drawn-out realignment process since the 1980s tight money era. And even today, the wide gap between nominal GDP growth and effective nominal mortgage rates that opened up with the "Volcker shock" has still not disappeared in full.[20] Beware also that a look at aggregate (or aver

[19] Designed as a nationwide measure of the movement of single-family house prices since January 1975, the FHFA's "all transactions" HPI measures average price changes in repeat sales or refinancings on the same properties whose conventional conforming mortgages have been purchased or securitized by Fannie Mae or Freddie Mac. The index thus shares the "repeat-valuations approach" with the S&P/Case-Shiller indexes, but the latter have a narrower geographic coverage and only use purchase prices in index calibration but exclude refinance appraisals (as does the FHFA's "purchases only" index). FHFA's valuation data are provided by Fannie Mae and Freddie Mac while the S&P/Case-Shiller indexes use information obtained from county assessor and recorder offices. The FHFA's index weights price trends equally for all properties while the S&P/Case-Shiller indexes are value-weighted, with price trends for more expensive homes having greater influence on estimated price changes than other homes.

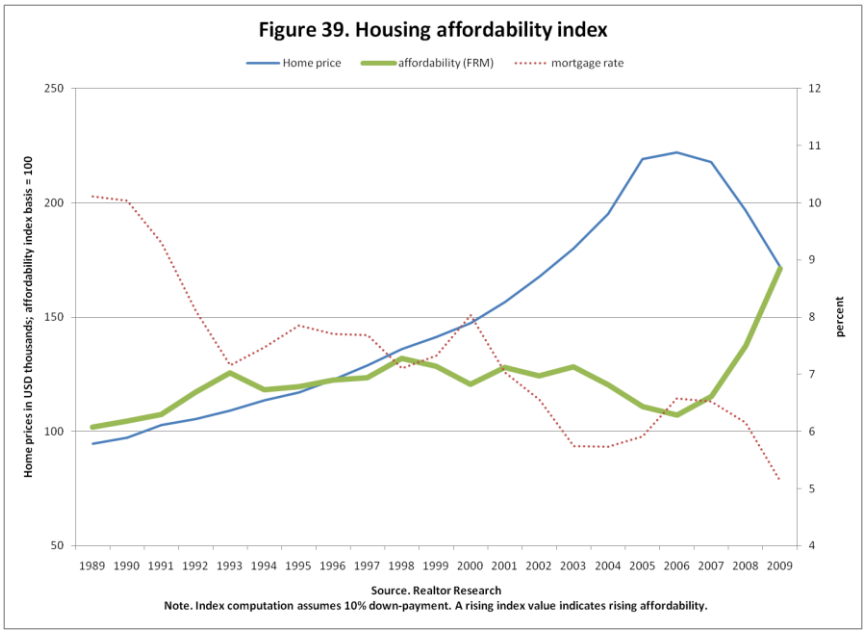
[20] See Barba and Pivetti (2009) for an analysis of these parameters in assessing the sustainability of household debt.



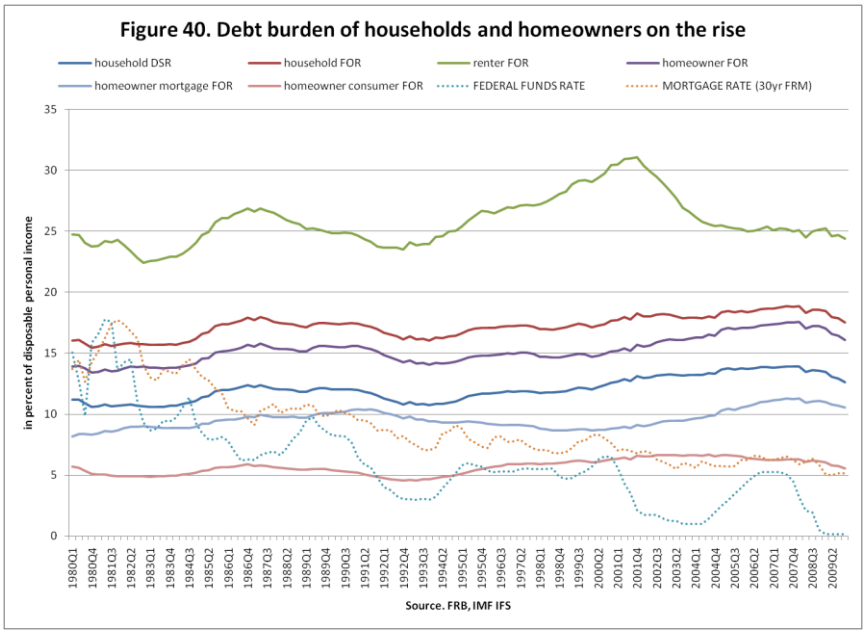
age) income growth relative to the general level of interest ignores the vast increase in income and wealth inequalities since the 1960s, which will be considered momentarily.



The "housing affordability index" computed by RealtorResearch and shown in Figure 39 too neglects distributional changes. Yet, even for the median-income family the index suggests that, after having become easier to purchase (and 90%-mortgage) the median-priced single-family home over the course of the 1990s, rising property prices significantly squeezed the average

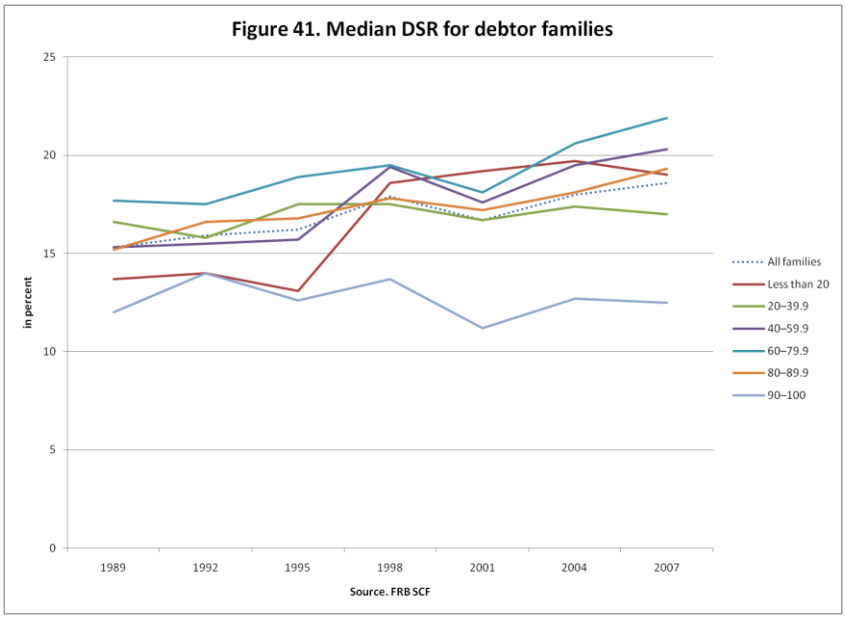


homeowner after 2003; even as mortgage rates remained well below levels seen in the previous decades. Assuming a 10% down-payment, an index value of 100 represents an "affordability



limit" in the sense that at current mortgage rates and property prices the median-income family would need to spend 25% of gross family income to acquire the median-priced home.

A similar message is sent by alternative measures such as the households' "debt service ratio" (DSR) and homeowners' "financial obligations ratio" (FOR) computed by the Federal Reserve.[21] Of these measures the rise in the homeowners' financial mortgage obligation ratio is seen as most pronounced in Figure 40, reflecting the joint impact of rising household mortgage indebtedness at falling mortgage rates, rising property tax payments as property prices boomed, and a rising homeownership rate (see above). The DSR and FOR computed for all households excludes compositional shifts owing to rising home ownership, and they show that the average household experienced the equivalent of a three-percentage-point tax increase over the period of the 1992-2006 consumption boom. This once again alerts us to the issue of how households were able to finance their spending in excess of income; with saving outside of retirement accounts in negative territory after 1998, the years of the property boom.[22]



[21] The household debt service ratio is an estimate of the ratio of debt payments to disposable personal income. Debt payments consist of the estimated required payments on outstanding mortgage and consumer debt. The financial obligations ratio adds automobile lease payments, rental payments on tenant-occupied property, homeowners' insurance, and property tax payments to the debt service ratio. Homeowner and renter shares of payments and income are based on the Survey of Consumer Finances and Current Population Survey. The homeowner mortgage FOR includes payments on mortgage debt, homeowners' insurance, and property taxes, while the homeowner consumer FOR includes payments on consumer debt and automobile leases.

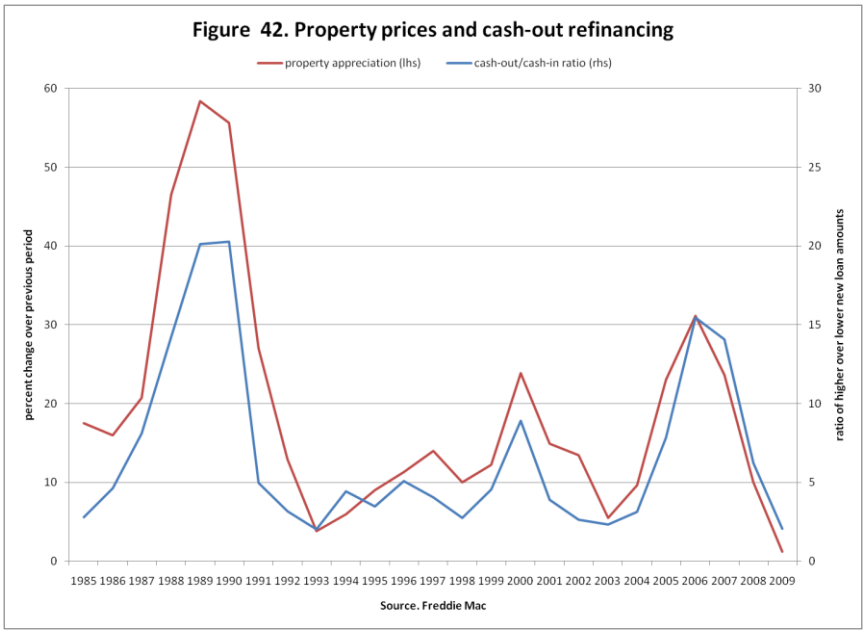
[22] The Joint Center for Housing Studies 2006 report too observes rising pressures on housing affordability, criticizing the lack of rental units affordable to low-income households as a factor.

At the disaggregate level, SCF data reveals that DSRs increased for all households except the top income quintile since the late 1990s, which is much in line with the trends in indebtedness seen above in section 2 (Figure 13).

Apart from the secular decline in mortgage rates since their peak in the early 1980s, Figure 40 also reflects the course of Federal Reserve policy during this period, both the corresponding downward trend in policy rates as well as the cycle in policy stance. The point is that periods of significant Federal Reserve easing tend to induce waves of mortgage "refinancing" as conventional U.S. mortgages include a "prepayment option" (i.e. payments in excess of scheduled principal repayments). An incentive for mortgage refinancing, i.e. taking out a new mortgage for the purpose of prepayment of an existing one, arises when mortgage interest rates fall sufficiently to offset the transactions costs incurred with the refinancing; transactions costs having declined significantly over time (see Bennett et al. 2001; Cynamon and Fazzari 2008). Apart from thereby reducing homeowners' debt burden accordingly, refinancing also offers a convenient opportunity to withdraw – and thereby liquidize – equity in homes. As mortgages rates are generally lower than interest rates on consumer credit loans, mortgage refinancing thereby enables homeowners to use mortgage debt to pay off other more expensive debt[23], *or simply to use the cash flow boost through liquidizing home equity for general spending*. The upshot is that U.S. monetary policy works not only through reducing the interest costs of potential new borrowing as well as any existing adjustable-rate loans, but also by inducing homeowners with fixed-rate mortgages to refinance.

Freddie Mac statistics on conventional first-lien mortgages offer more insight into homeowners' refinancing behavior and the practice of mortgage equity withdrawals (MEWs). In principle, homeowners can use refinancing as an opportunity to either add equity to ("cash in") or withdraw equity from their homes ("cash out"), namely by contracting a new loan amount that is either higher or lower than the unpaid principal balance of the original loan. While lower interest rates provide the incentive to refinance, house price appreciation provides an incentive to cash out. Figure 42 shows a very high correlation between the price appreciation of refinanced properties and the cash-out/cash-in ratio; the ratio of refinances with at least 5 percent higher loan

[23] An additional incentive for this practice arose in 1986 with a change in the income tax code that henceforth restricted the tax deductibility of interest payments to mortgage debt only (see Stango 1999).

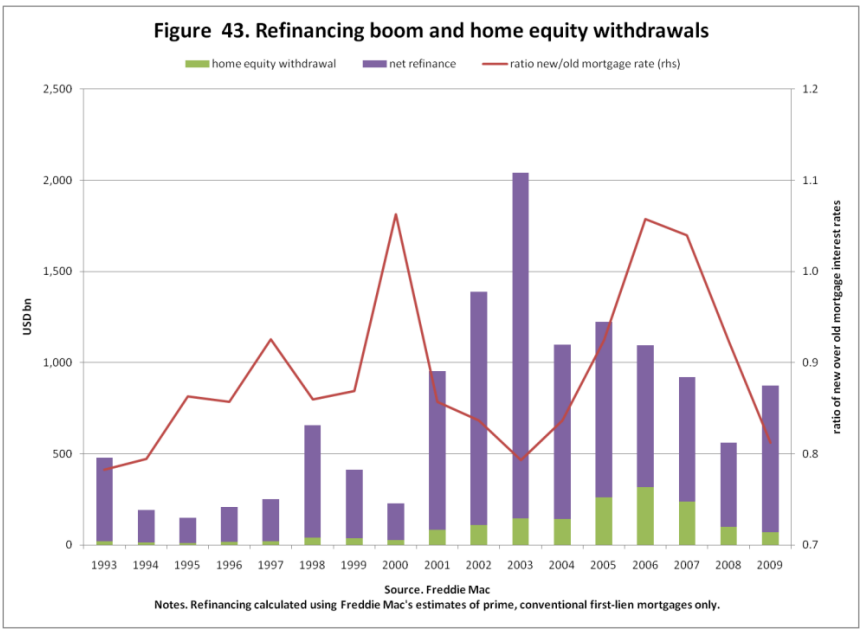


amounts compared to the unpaid principal balance of the original loans over loans with a lower new loan amount. The Fed's easy money response to the 2001 recession is seen in Figure 43 to have triggered an especially strong refinancing boom in 2003.[24] A ratio of new over old mortgage rates of below one means a reduced debt burden. Figure 43 also highlights the prominence of mortgage equity withdrawals in the 2000s. For conventional Freddie Mac mortgage loans alone the amount of MEWs rose from $83bn in 2001 to a peak level of $320bn in 2006.

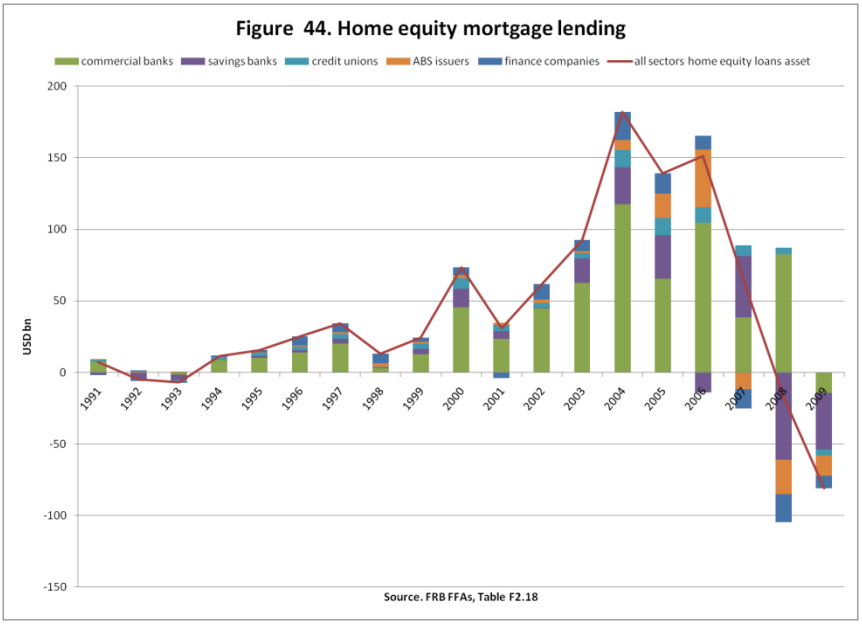
Cash-out refinancing is not the only way to withdraw equity from homes. Home equity loans (HEL), typically second position liens secured by property and also referred to as "second mortgages", provide another avenue for MEWs.[25] Figure 44 shows that home equity loans boomed in the 2000s, reaching a volume of $150bn in 2004-6. In contrast to traditional mortgages commercial banks are seen as the dominant provider in this market, whereas Asset Backed Securities (ABS) issuers only came to play a significant role at the end of the boom.

[24] The "refinance index" computed by the Mortgage Bankers Association based on a weekly survey that covers over 50 percent of all U.S. retail residential mortgage applications shows that about 80% of all mortgage applications were for refinancing in 2003 (and again in early 2009). See Reddy (2009).

[25] While traditional mortgages in the U.S. are "nonrecourse", i.e. secured only by collateral, HEL may be recourse, debt for which the borrower is personally liable. Like traditional loans HEL are lump-sum loans and often fixed-rate loans. More flexibility is offered by home equity lines of credit (HELOC), which provide a line of revolving credit at an adjustable interest rate.



Cash-out refinancing and HELs are alternative ways for homeowners to liquidize equity in their homes without the need to actually sell the property (and properly "realize" any accumulated capital gains in the process). By contrast, the third type of MEWs is related to property turnover



since selling a house and moving into a new one gives the seller the opportunity to make a down payment on the new house that is smaller than the accumulated equity in the current house. Greenspan and Kennedy (2005, 2007) compute MEWs resulting from existing home sales as the aggregate of "first lien mortgages used to purchase existing homes minus the associated debt

cancellation of sellers". Their investigation of MEWs[26] may be the most comprehensive available and their estimates are shown in Table 2 below.

Table 2. Mortgage equity withdrawals								
	1991	1992	1993	1994	1995	1996	1997	1998
Total MEWs	262.2	212.2	193.2	223.4	184.5	277.1	276.0	346.9
Home sales	223.1	175.4	155.5	173.8	141.1	206.0	190.8	249.9
Home equity loans	21.3	11.4	11.2	32.2	30.7	49.2	59.4	50.1
Cash out refinancings	17.8	25.3	26.4	17.4	12.8	21.8	25.9	46.9
	1999	2000	2001	2002	2003	2004	2005	2006
Total MEWs	467.2	553.4	626.9	756.0	1,000.8	1,165.1	1,423.1	1,126.2
Home sales	347.3	389.0	411.6	486.7	645.1	697.1	909.5	685.4
Home equity loans	74.4	131.8	109.4	129.3	182.5	322.3	316.2	267.1
Cash out refinancings	45.6	32.6	105.9	140.0	173.2	145.7	197.3	173.7
Source. Greenspan and Kennedy (2005, 2007)								

While these impressive numbers may be held with some confidence, another challenging issue is to then determine how households may have used the cash obtained through MEWs. Survey results provide some insight. Greenspan and Kennedy (2007) make particular assumptions and estimate that a direct effect on personal consumption expenditures in the order of magnitude of 0.5-2 percent of disposable personal income between 1991 and 2006. If the repayment of non-mortgage debt is added to the direct effect – on the assumption that such debt merely provided bridging finance – personal consumption expenditures was even boosted by up to 3.6 percent of disposable personal income on Greenspan and Kennedy's assumptions.[27]

An alternative starting point is to acknowledge that MEWs are ultimately all based on property as collateral, providing the foremost way in which households can obtain cash to spend in excess of their current income – which is what U.S. households did in the aggregate and on a large scale after 1998 (as their negative saving outside of retirement accounts shows). In a way, Greenspan and Kennedy's cross-checking exercise of calculating a counterfactual personal saving rate based on their estimates of the use of MEWS to finance personal consumption expenditures is in accordance with this conjecture. Interestingly, Greenspan and Kennedy (2007: 11) find that the

[26] They estimate MEWs by deducting from the actual change in total home mortgage debt an amount that they hypothesize would correspond to the case of zero MEWs, namely the flow of mortgage originations to purchase new homes less scheduled amortization.

[27] Mian and Sufi (2009) estimate MEWs of some 2.8 percent of GDP per year from 2002 to 2006, driven by rising house prices and largely used for consumption and home improvement, with particularly strong responses from households that were either young or had low credit scores. Studying the earlier 1991-94 episode, Hurst and Stafford (2004) estimate a smaller stimulus effect of MEWs of only .4%. See also Canner et al. (2002); Debelle (2004); Papadimitriou, Hannsgen and Zezza (2007).

"counterfactual saving rate [that adds MEWs] changed little from 1998 to 2004" – a result that would seem to further corroborate the role of cash flow and collateral as opposed to wealth effects as such in enabling spending, and understanding the U.S. consumption boom.[28]

We may add that the importance of MEWs is not restricted to financing personal consumption expenditures. Alternative uses include investment in second homes (including for speculative purposes) and home improvements, acquisitions of financial assets, and repayment of nonmortgage debts.[29] Except for the last use, MEWs (inclusive of any transaction costs incurred) also contributed to driving up households' indebtedness by enabling homeowners to liquidize equity in their homes. Clearly rising home prices and the attractiveness of MEWs are closely related and part of the overall picture of getting richer while saving less and taking on more debt.

Further above another phenomenon was identified as a third potential contributing factor to rising household indebtedness related to housing markets: a decline in down-payments as a share of the property purchase price (or: rise in loan-to-value (LTV) ratios as a key feature of a relaxation of loan standards). This issue is most relevant with regard to first-time buyers and particularly applies to nonconventional mortgages. Our discussion in the next section will focus on subprime mortgages and other "innovations" that have fundamentally changed the landscape of U.S. housing finance since the 1980s. The aim is to further investigate the *increasing* collateralizability of home properties as the motor behind U.S. households' spending behavior, and to explain rising credit availability in an environment of deregulation, innovation and competition. The growing financialization of the U.S. household sector produced declining saving and rising credit-financed spending, the deleterious cash flow and balance sheet impacts of which having for long been offset by declining interest rates and rising asset prices. Growing household sector financialization was molded by forces unleashed within the dynamic triangle of regulation, competition and innovation, the supply-side of booming credit availability. The subsequent section will then

[28] Recall here Hatzius' (2006b) finding that the "decline in the saving rate [was] entirely due to homeowners" (see also Zandi and Ozhabes 2006). Hatzius' (2006a) estimates for the impact of MEWs on personal consumption expenditures are in the same ballpark as Greenspan and Kennedy's.

[29] The Joint Center for Housing Studies' 2006 report highlights strong investor demand in the boom years (reaching a 10 percent share), followed by especially high defaults for speculative (or, "absentee owners'") properties observed in the 2008 report. Regarding home improvements there are some critical issue in relying on survey answers as respondents' perceptions may not be in line with NIPAs definitions. Regarding repayment of nonmortgage debts, recall that consumer debt stayed flat (relative to income) in the 2000s.

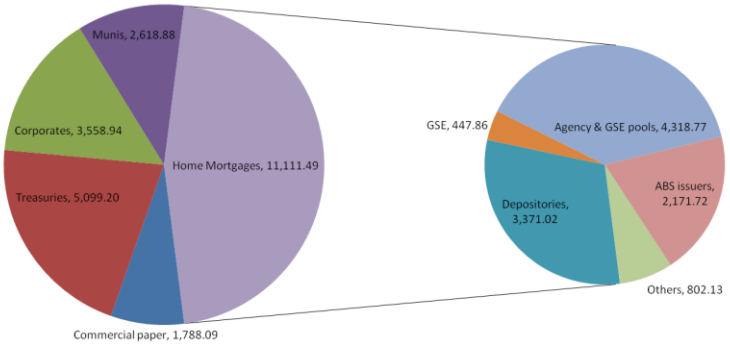
address the demand side, the role of Federal Reserve policy in enticing U.S. households to take on more debt and spend.

9. Deregulation, competition and financial innovation, and the changing landscape of U.S. housing finance

Putting the main U.S. debt markets in perspective, Figure 45 shows that the U.S. home mortgage market is truly huge. At over 11 trillion dollars it is larger than the markets for U.S. Treasury securities and corporate debt securities, 5 trillion and 3.6 trillion dollars, respectively, in 2007. The nature of mortgage markets has changed drastically over time, as an ever larger share of home mortgages became "securitized", i.e. packaged into mortgage pools against which securities backed by mortgage collateral are then issued (see Bernanke 2007b, Kregel 2008, Wray 2009).

Between the end of World War II and the 1970s, U.S. mortgage markets were dominated by "thrifts" (mainly saving & loan associations), which, encouraged by regulatory and tax consider

Figure 45. U.S. mortgage market in perspective
Source. FFAs, Table L.4, 2007



ations, held about 80% percent of their assets in mortgages which they financed by low-yielding, short-term deposits. The thrifts were originators, servicers and ultimate investors of mortgages in

one, keeping the mortgages they originated in their portfolio until maturity. They were tightly regulated and their deposits government-insured. Fostering and protecting the thrift's business model (for instance, against competition from commercial banks, which were the main alternative source of housing finance) was part of broader government policy to promote homeownership. While this objective as such did not change, the ideological shift in the early 1980s henceforth meant trusting unfettered market forces rather than regulation in its pursuit. The thrift's traditional business model collapsed in the 1980s due to competition unleashed by deregulation and the tight money policies of the Federal Reserve. As short-term rates soared, establishing an inverse yield curve, this undermined the thrifts' previously assured profitability (Barth et al 2007, Wray 1994).

In response to the Great Depression government policy to promote homeownership also included setting up specialized institutions and agencies in housing finance. The Federal Home Loan Bank System was created in the 1930s, enjoying the right to borrow from the Treasury, to provide loans (backed by mortgages) to thrifts and banks (Ashcraft, Bech and Frame 2008). The Federal National Mortgage Association ("Fannie Mae") was established in the 1930s to create a liquid secondary market for government-secured loans made by the newly-created Federal Housing Administration (FHA), the agency that developed and promoted the fixed-rate level payment, fully amortized mortgage. Fannie May tried to provide a liquid secondary market by acquiring FHA-insured loans (as well as loans guaranteed by the Veterans Administration, VA).

Fannie May was later moved off budget and set up as a private, government-sponsored enterprise (GSE)[30] focusing on non-government insured mortgages. At the same time, the Government National Mortgage Association ("Ginnie Mae") became the new government-owned agency charged with supporting the FHA and VA mortgage market. By providing (government-backed) guarantees, Ginnie May also became the key promoter of the "mortgage-backed security" (MBS) in 1970, the same year when the Federal Home Loan Mortgage Corporation ("Freddie Mac") was established as a GSE (specifically catering for the thrifts at the time).

[30] The GSE sector comprises the Federal Home Loan Banks, Fannie Mae, Freddie Mac, the Student Loan Marketing Association ("Sallie Mae", since 1997 a subsidiary of the private company SLM Holding Corporation), the Farm Credit System, the Financing Corporation, and the Resolution Funding Corporation. In the FFAs, the securities issued by the agencies are identified as U.S. government agency obligations, which also include the federally related mortgage pool securities issued by Ginnie Mae, Fannie Mae, Freddie Mac, and the Farm Service Agency.

Both Fannie May and Freddie Mac provide secondary markets for non-government insured mortgages that conform with specific agency underwriting standards (maximum payment-to-income (PTI) ratio, maximum LTV ratio, and maximum loan amount). The GSEs issue securities against the mortgages that they retain on their balance sheets. As "conduits" they purchase "conventional" (conforming) mortgages and package them into "pass-through" MBS. In this case, the issuer is passing the payments from the mortgage pool through to the ultimate investors; as fractional claims on the mortgage payments and with GSE-guarantees of those payments.

"Securitization" fundamentally changed the traditional system of housing finance based on depository institutions as intermediaries that originate and hold mortgages. Standardization is key to marketability and hence securitization. Setting standards that products have to conform with is also, by its nature, discriminatory, denying nonconforming risks access to credit. In the 1980s, private issuers of mortgage pass-through securities backed by non-conforming mortgages emerged using private credit enhancements rather than GSE-backing. Private credit enhancements typically depend on ratings by (government-approved) rating agencies.

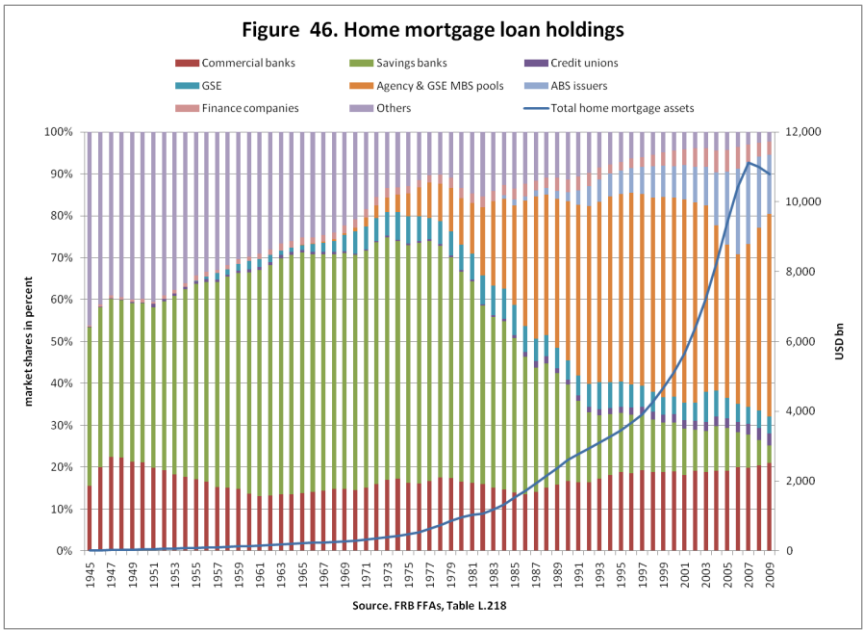


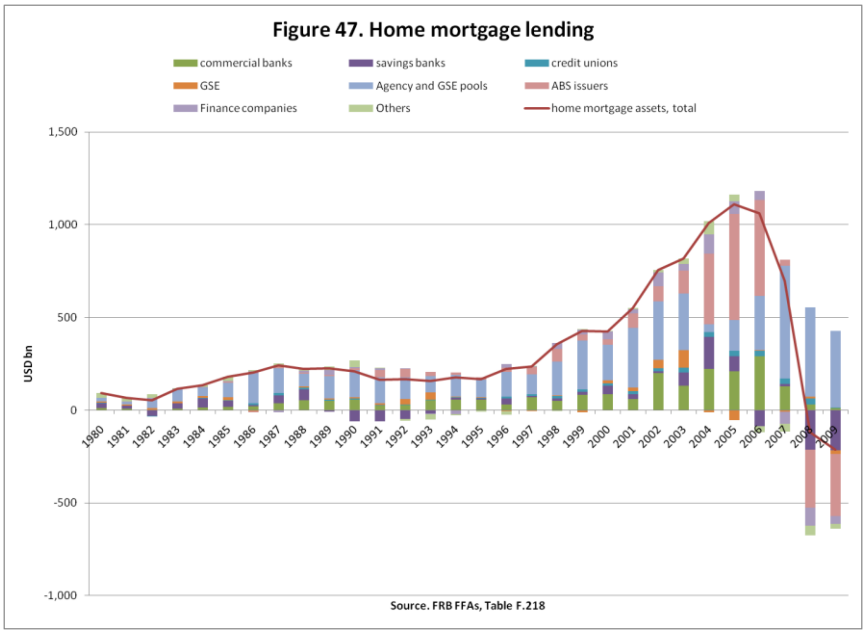
Figure 46 shows the rise and fall of thrifts (while commercial banks' and credit unions' market share held fairly steady around 20 percent). Overall, depositories' market share has declined from over 70% in the late 1970 to below 30% of this 11 trillion dollar market today. The thrifts' role in housing finance was largely taken over by Agency & GSE MBS pools since the 1980s. In

the 1990s, private ABS issuers too began to capture market share, most significantly so during the peak years of the housing boom and at the expense of Agency & GSE MBS pools. Private ABS issuers are entities established by contractual arrangement as "special-purpose vehicles" (SPVs) to hold assets and issue debt obligations backed by these assets. In the process the securitized assets have been transferred from the balance sheets of the loan originators to the balance sheet of the SPVs. While Agency & GSE debts provide a favored investment outlet for foreign official sectors (as quasi-Treasuries they are held as foreign reserves of central banks), private ABS issues have attracted keen buyers among global private investors.

"Structured finance" innovations brought more change to the MBS market. Whereas plain vanilla pass-through MBS divide their mortgage pool's cash flows on a pro rata basis to all securityholders alike, MBS may also be "structured" so that there are several classes of bondholders. Creating a prioritized capital structure of claims against the collateral pool, the "tranches" carry varying cash flow promises and risk attributes. With this structured type of MBS, the price/yield relationships of the various customized tranches are different from the price/yield relationship of the underlying mortgage pool. In particular, use of a prioritization scheme in structuring claims allows creating safe assets from risky collateral as part of the tranches are far safer than the average asset in the collateral pool. Again, ratings take on a pivotal role, not just in assessing credit risks of underlying mortgage pools, but also of the "slicing and dicing" of risks and their repackaging into customized securities supposed to meet the appeal of different investors (see Coval et al. 2009).

As regards lending flows, Figure 47 highlights that (private-label) ABS issuers' activity surged after 2000, while Agency & GSE MBS issuance actually shrank drastically in the years 2004-05[31] – before becoming the sole source of home mortgage lending as other sources reined in their lending in the crisis. The remarkable spurt in activity of non-agency issuance after 2000 coincided with the high growth of "nonconforming" – Jumbo and nonprime – loans. The distinction between prime and nonprime borrowers is not as clear-cut one as it might appear, although a Fair Isaac and Company (FICO) credit score of 720 represents a kind of threshold level. In general, jumbo loans meet prime underwriting standards except that they exceed the maximum loan

[31] Blundell-Wignall (2007) reports that Fannie and Freddie were constrained by the authorities in these years due to accounting problems.



amount (of $417,000 for single family homes since 2006). Nonprime loans fall into "Alt-A" and "subprime" categories. Again, no precise borderline exists. Alt-A (short for: "Alternative A-paper") loans may often even meet the agency requirements with regard to credit score, but fail the prime standards in other respects (high LTV and/or DTI ratios, lack of income documentation, property type, etc). The even more elevated credit risk of subprime loans typically stems from both nonconforming mortgage characteristics, similar to Alt-A loans in this regard, as well as blemished credit histories (FICO credit score below 620). Moreover, subprime loans are often home equity loans rather than mortgages for purchasing a home (FRBSF 2001), whereas Alt-A loans are more frequently used to purchase investment rather than owner-occupied properties. As Gramlich (2007: 106) observes, subprime loans are a recent innovation:

> "Back in the early 1990s there were no subprime mortgages, but then a number of forces combined to lead to incredible growth. From essentially zero in 1993, subprime mortgage origination grew to $625 billion by 2005, one-fifth of total mortgage originations in that year, a whopping 26 percent annual rate of increase over the whole period. These were subprime mortgages, and the growth was largely first-time home-buyers, largely racial and ethnic minorities, largely lower-income households. America's overall homeownership rate rose from 64 percent to 69 percent, putting the United States in the top tier of countries in the world in terms of ownership rates. This new boom in homeownership

was also the subject of intense cheerleading from the White House, both Presidents Clinton and Bush."[32]

As to the "forces that combined to lead to incredible growth", these included cost-reducing technological advances in credit assessment (use of credit scores) and the advent of securitization (with automated underwriting) as well as government policies. Gramlich (2007) mentions regulatory measures such as the Depository Institutions Deregulatory and Monetary Control Act of 1980 and the Community Reinvestment Act of 1977. In 1992, Congress laid down "affordable housing goals" for Fannie and Freddie to help bringing the American Dream into closer reach of a wider population, and in ways that would not require direct budgetary support.[33] The Joint Center for Housing Studies underscores the strong racial concentration of subprime loans among African-American and Latino households.

However, and rather surprisingly, given that subprime loans carry substantially higher interest rates, it was also found that in the boom years an increasing proportion of subprime loans actually went to borrowers with credit scores high enough to often qualify for conventional loans with far better terms – raising the issue of widespread mortgage misuse as compensation structures of mortgage brokers may have encouraged particularly aggressive marketing practices at the expense of borrowers (Brooks and Simon 2007, Morgenson 2007). Earlier Gramlich (2004) had noted that "fraud, abuse and predatory lending problems have also been a troublesome characteristic of the subprime market." Three years later, in reference to lax or absent supervisory conditions, he described the subprime market as "the Wild West" (Gramlich 2007: 106). A closely related issue is the remarkable growth in "exotic" or "accordable" loan products. As part of the general rise of adjustable-rate mortgages (ARMs) at the expense of traditional FRMs, reaching almost a two-third share of mortgage originations in 2006, "hybrid" ("2/28", "3/27") loan products, featuring fixed lower ("teaser"[34]) rates for the first two or three years followed by higher ("exploding") adjustable rates after reset, as well as "option ARMs" and "interest-only" (IO)

[32] Bernanke (2007a) observes that "the expansion of subprime mortgage lending has made homeownership possible for households that in the past might not have qualified for a mortgage and has thereby contributed to the rise in the homeownership rate since the mid-1990s."
[33] Goals were laid down for the three loan or support categories of: "Low- and Moderate-Income", "Special Affordable", and "Geographically-Targeted"; see HUD (2008), Leonnid (2008), Roberts (2008), Wallison (2009).
[34] The so-called "teaser" rates on hybrid subprime mortgages were lower than rates on subprime FRM but exceeded corresponding rates on prime mortgages. Chomsisengphet and Pennington-Cross (2006) find a typical "subprime premium" of around 200 basis points.

loans featuring negative amortization attained prominence (Kiff and Mills 2007). The focus of exotic mortgages was to minimize the initial monthly payment.

While ABS issuers were the key drivers of the growth of nonconforming loans, since 2001 Fannie Mae and Freddie Mac too have substantially increased their engagement in the subprime market. Traditionally, the market for mortgages to low-credit borrowers (including many first-time buyers) was served by FHA lending/insuring and securitization via Ginnie Mae. The increased engagement of Fannie Mae and Freddie Mac in non-government insured mortgages of subprime credit arose as innovative "structured finance" products enabled the GSEs to purchase the senior (AAA-rated) tranches of private label ABS backed by subprime loans (BIS 2006). The GSE were under pressure to meet their three federally-mandated "affordable housing goals". Meanwhile, by easing its rules of insuring loans, including loans with down payments as low as 3.5 percent, for instance, the FHA too contributed to increasing competitive pressures in the subprime market.[35]

In the 1990s the structured-finance principles mentioned above were taken to a new level with the creation of innovative products known as credit derivatives, namely collateralized debt obligations (CDOs) and credit default swaps (CDSs).[36] CDOs are backed by a pool of MBS or, rather, MBS tranches. They are considered derivatives since they derive their cash flow from the underlying MBS (tranches). They are also structured products because a tranching process is applied to the cash flows derived from the underlying pool of MBS tranches, so as to create a new layer of tranches that again carry varying cash flow promises and risk attributes. With regard to structured MBS backed by subprime mortgage the challenge was to find willing investors for the "mezzanine" tranches (rated below triple A but still investment grade) in the capital structure. The attractiveness of ABS CDO structures lies in using a pool of mezzanine MBS tranches that is unattractive to most investors and turn a substantial part of them into new triple-A-rated tranches with high appeal to investors. If alchemy may be suspected in this financial engineering

[35] The share of loans backed by the FHA fell from about 16 percent in 2000 to less than 3 percent in 2005 and 2006 See Avery et al. (2008), Kiff and Mills (2007).

[36] Collateralized Mortgage Obligations were an early application of structured-finance principles focusing on the prepayment risk of standard MBS and creating tranches that catered after investors' varying maturity preferences. The practice of "stripping" fixed-income securities is also akin to this earlier innovation focusing on prepayment or maturity risk. By contrast, credit derivatives focus on structuring and/or transferring credit risk. On CDOs see Blundell-Wignall (2007), Coval et al. (2009). On CDS see Das (2008), Mengle (2007).

process, do not miss here that the allure of these triple-A securities was to promise a substantial premium over other triple-A-rated securities, say, Treasuries.

The advent of CDOs was vital for the securitization and marketing of subprime mortgage pools since they allowed the creation of triple-A-rated securities from other underlying securities backed by collateral of subprime riskiness that barely met investment grade standards. Otherwise subprime mortgages would not have found willing buyers among institutional investors required by regulation to invest in highly-rated securities.[37]

The arrival of CDOs was widely applauded as these derivatives seemed to provide for an efficient means to transfer and allocate credit risk. In fact, the demand for subprime MBS CDOs and the credit risks the represented was such as to encourage more layering: pools of mezzanine MBS CDO tranches were formed to engineer "CDO-spared", thereby creating even more triple-A-rated securities out of the underlying material of subprime quality! Yet another variation was to add CDSs referencing individual MBS to the pool of cash MBS to create "hybrid CDOs", or form a portfolio wholly consisting of CDSs to create "synthetic CDOs".[38]

CDS are derivative financial instruments that can serve as insurance products. In this case, the buyer of a CDS pays a premium to the seller to purchase insurance against the default risk associated with the referenced security. If a "credit event" as defined in the "swap" contract occurs, the insuree and protection buyer receives a lump sum payment from the seller of the CDS. Das (2008) quotes Alan Greenspan as exuberantly observing that CDS were "probably the most important instrument in finance. … What CDS did is lay-off all the risk of highly leveraged institutions – and that's what banks are, highly leveraged – on stable American and international institutions." No doubt CDSs too played a vital role in finding a home for subprime mortgage risks in the portfolios of regulated institutional investors keen to enhance their exposure to credit risk that afforded attractive yields despite top ratings. In a report on "Credit Risk Transfer" the Joint Forum at the Basel Committee on Banking Supervision observes that

[37] See Ashcraft and Schuermann (2008) on the securitization of subprime mortgages and the role of ratings.

[38] And the latter type can also be designed as to mimic the performance of CDO-squared, which feature layering as enhancing the built-in leverage. In a "Moody's Primer" of March 2005, Moody's Investor Service (2005, p. 4) observes about 2004 market developments that "the CDO-squared deals, which first appeared in 2003, were extremely popular and represented more than half of all synthetic CDOs. This is primarily due to the fact [that] such structures (via further leverage) provide the yield that investors are seeking."

> "CDO managers and underwriters used synthetic exposures to meet the growing investor demand for ABS CDOs and to cater to investors' preference to have particular exposures in the portfolio that may not have been available in the cash market. CDO managers and underwriters were able to use CDS to fill out an ABS CDO's portfolio when cash ABS, particularly mezzanine ABS CDO tranches, were difficult to obtain. … mezzanine CDOs issued in 2005-07 used CDS to take on significantly greater exposure to the 2005 and 2006 vintages of subprime BBB-rated RMBS than were actually issued. This suggests that the demand for exposure to riskier tranches of subprime RMBS exceeded supply by a wide margin" (BIS 2008: 5).

In the old thrift-centered housing finance system credit risks stayed on the mortgage originators' balance sheets regulated for their safety; shielded from competition with assured but not too generous profitability. More than just asset securitization was involved in the transformation of U.S. housing finance since the 1980s. Keen to economize on capital and apply leverage lightly regulated investment banks helped to facilitate the shift of growing chunk of housing finance onto a new largely unregulated platform dubbed the "shadow banking system".[39] In the new system unregulated mortgage brokers play a prominent role in marketing innovative mortgage products to borrowers the credit risk assessment of whom is largely automated based on credit scores and whatever information else may be provided.[40] The mortgage originator indulges not too ea-

[39] Paul McCauley of PIMCO coined the notion at the 2007 Jackson Hole meeting. On the changing nature of financial intermediation and the structure of U.S. housing finance see: Kregel (2008), Adrian and Shin (2010), for instance. Referring to the global transformation of housing finance, Frankel argues that the new system of U.S. mortgage finance is "not a by-product of a regulatory reform initiative; it is largely a market-based response to incentives generated by very buoyant housing markets" (Frankel 2006, 77). It seems to us ironic to exclude deregulation and the competitive forces unleashed thereby as conditioning factors of buoyant housing markets. Moreover, one should not overlook the particular incentives for securitization provided by bank capital standards. On this matter, Caprio et al. (2008, 13) judge that "on the demand side … the SEC and bank regulators set rules that fed an outsized demand by trusteed investors for investment grade and other highly rated debt [while,] on the supply side, risk-shifting created arbitrage profits for institutions able to service this demand." On their view, global competition not only encouraged deregulation but also reduced the effectiveness of supervision.

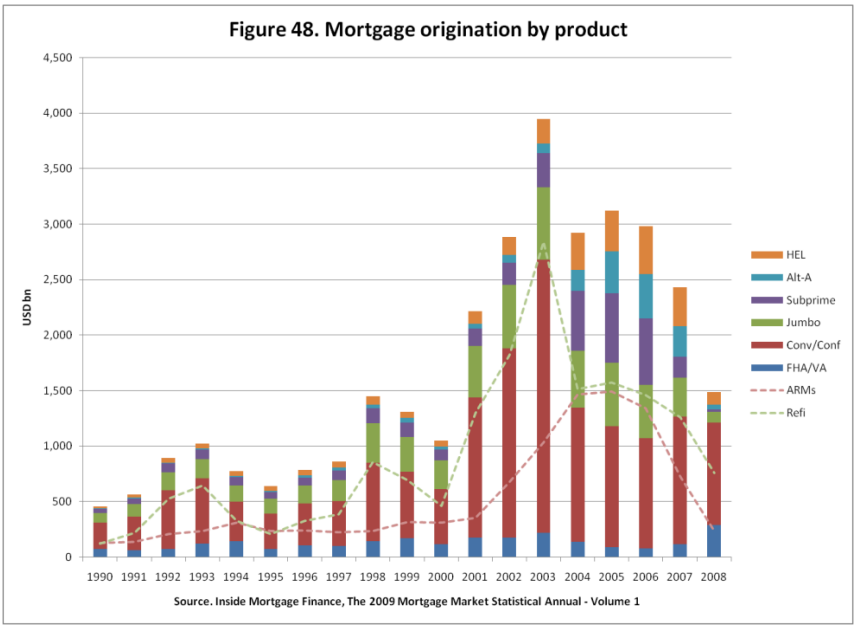
[40] Apart from the prominent involvement of unregulated and not systematically supervised parties, the ongoing blame game among the various U.S. federal and state regulatory and supervisory authorities has revealed that federal "preemption" of state anti-predatory lending laws contributed to making sure that lax federal standards for national banks were not interfered with at the state level. In particular, in 2004 the Office of the Comptroller of the Currency issued sweeping preemption rules to this effect – as the subprime boom suited the administration's housing policies rather well, one may venture. See Berner and Grow (2008), Wilwarth (2009), and Center for Community Capital (2010).

gerly in concerns for actual credit risk that is quickly flipped and distributed into other hands.[41] This is done as mortgages are pooled in MBS, to be purchased, repackaged and carved into tranches by ABS issuers, with the CDOs (and CDO-squared etc.) created in subsequent rounds of layering finding a home partly with regulated investors keen for AAA-rated securities offering an attractive yield and partly with unregulated players. As a result, some part of the underlying credit risks may end up on the books of investment banks that finance their engagements through repos and commercial paper held by commercial banks and money market funds, for instance; another part on the books of hedge funds that in one way or another rely on banks for their leverage too.[42] Or the banks, especially Europe's universal banks, may be the sponsors of apparently free-standing off-balance sheet "Structured Investment Vehicles" (SIVs) or conduits that issue asset-backed commercial paper against their mortgage risk exposures of AAA-rated but utterly opaque subprime substance. Credit derivatives facilitate the credit creation within this yield-hungry shadow banking system while rating agencies attest to the quality of what is being created, sliced and diced, and wildly distributed through so many hands that everyone feels safe that ultimate risks must rest elsewhere.

While the expansion of mortgage credit in the 1990s was still largely based on more traditional securitized products, starting in the early 1990s, and not at all unwelcomed in view of government housing policy goals, market creativity turned toward nourishing the riskier subprime segment, which except for the refinancing boom of prime mortgages of 2002-03, was to become the key growth market and profit generator of the 2000s. Figure 48 shows the rising role that non-prime mortgages came to play in the 2000s, the business field of private-label ABS issuers. In particular, subprime loans saw a six-fold rise from their 2000 level of $100 billion to $600 billion in the final boom years of 2005-6. Figure 49 shows that by that time they were securitized at the same rate as conventional Fannie/Freddie loans. It is noteworthy that "piggyback lending"

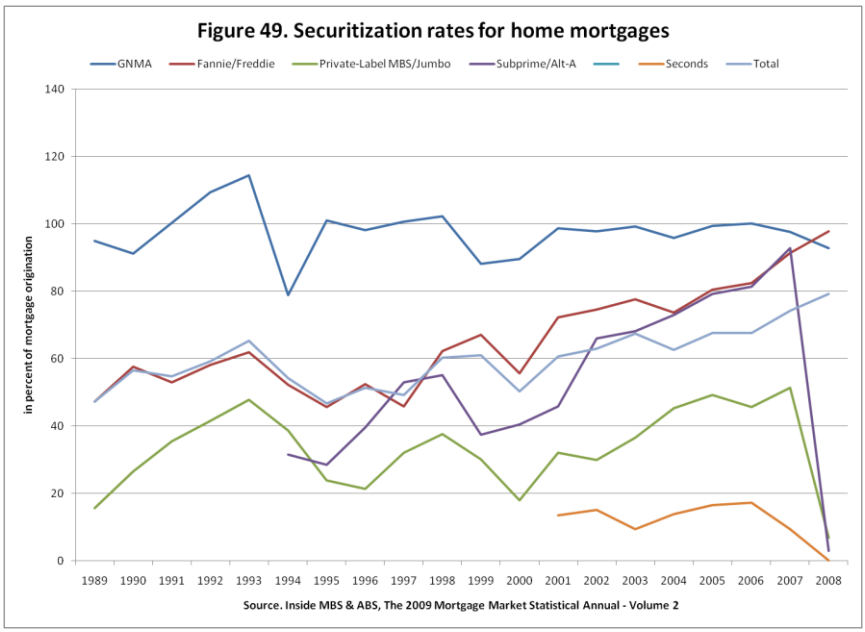
[41] Dell'Ariccia et al. (2008) show that lending standards declined more: in areas that experienced larger credit booms and house price increases, in areas with higher mortgage securitization rates, and in markets that saw entry of new large lenders. Keys et al. (2010) find evidence that securitization led to lax screening in subprime lending. Purnanandam (2009) provides empirical evidence in support of the view that the originate-to-distribute model resulted in origination of inferior quality loans by the banks. By contrast, Gerardi et al. (2009b) propose too optimist house price expectations as an alternative explanation for the subprime crisis. In our view these factors were closely related in that credit expansion boosted house prices which in turn fed house price expectations as well as credit availability.

[42] "During the boom, risky assets, including ABS and CDOs, were increasingly accepted as collateral via so-called triparty repo arrangements, under which they were sometimes grouped with more innocuous securities with similar ratings. This effectively financed the inventory of dealers and other leveraged investors. Demand was strong" (Tucker 2010).



practices were common in the subprime sector, with borrowers simultaneously receiving a first-lien mortgage and a junior-lien (piggyback) loan that finances the portion of the purchase price not being financed by the first mortgage. First-lien loans cannot exceed 80 percent of the value of the collateral to both avoid paying for private mortgage insurance and to be eligible for sale to the GSEs. Piggyback loans of up to 20 percent of the property purchase price were thus critical to financialize low-net-worth first-time buyers. Needless to say these loans are then the first to hit trouble when property prices fall, given the lack of any equity cushion. Independent mortgage companies (brokers) played an especially prominent role in this business. Avery et al. (2008, A120) also report that "in most piggyback loan transactions one or both loans were sold by the lender."

In summary, rising credit availability that allowed the spending boom of the 2000s owed importantly to the emergence of the shadow banking system, a system largely outside the purview of regulation and supervision but subject to fierce competition in profitable new markets reliant on innovative credit derivatives. The growth of the subprime segment and use of innovative credit derivative products was long applauded as an advance in efficiency in housing finance, allowing both a "democratization of credit" and wider homeownership as well as a more efficient allocation of credit risk. Ideologically-blinded talk along these lines may well have encouraged complacency and risk-taking. Financial innovation paired with creative accounting certainly meant that the actual allocation of credit risk in the financial system became utterly opaque – like



stealth products invisible to the radar of the regulators.[43] Rather than dispersing credit risk widely through the system, innovative layering through securitization and structured-finance processes that featured both lengthening of intermediation chains as well as increased intertwining of intermediaries and markets led to risk concentration in core intermediaries.

Ranking among the top private mortgage conduits throughout the 2000s property boom, it so happened that Wall Street securities firm Lehman Brothers ended up with a lethal CDO dose of subprime risk exposure, the plunging value of its CDOs (for long grossly overvalued by use of creative accounting; from "marking to model" to "marking to myth") then also having lethal implications for the CDS insurer AIG[44], the downfall of which, in turn, would have spelt trouble to players all round that thought they had insured their own subprime exposures. Too late for Lehman, but preventing an even worse credit meltdown, the Treasury's "Troubled Asset Relief Program" (TARP) thus came on line – and the Federal Reserve's Maiden Lane II LLC and Maiden Lane III LLC today testify to the legacy of AIG's adventures into the unregulated arena of global insurance underwriting via CDSs.

[43] Van Duyn (2010) reports that of the $160bn of mortgage-backed CDOs sold in the second half of 2006 (exclusive of synthetic CDOs), 74 per cent had defaulted by October 2009 while of the $186bn sold in 2007, 86 per cent had defaulted.

[44] See Tett (2009) on how American International Group, as an insurance company not subject to capital rules that apply to banks, got involved in the CDS business via its London unit AIG Financial Products.

There were also winners though. Hedge fund "Paulson & Co" illustrates that CDSs can be used other than for insurance purposes. Mr. Paulson's firm profited from the subprime crisis by placing timely bets against CDOs. In pursuit of this strategy Mr. Paulson asked banks to create synthetic CDOs to then take short positions on them. Sender (2010) reports that "to facilitate the creation of these instruments, Mr. Paulson also offered to buy the tranches that would be paid off last – the 'equity' pieces, which offer the highest rates of interest. Such CDO slices are difficult to sell, which means that an offer to buy them would be of great help to a bank seeking to market the CDOs." As Mr. Paulson ramped up huge profits by this strategy, gains on his short positions made possible by him being long in those equity pieces must have exceeded his losses on the latter. In practice, unregulated hedge funds can take gambles of this kind while relying on regulated banks for their leverage. Today, the SEC is examining whether the big players in the CDO underwriting business may have taken negative positions on the CDOs at the same time they marketed them to investors – a twice-profitable practice that at least some would consider fraudulent.[45]

This ends our narrative of the changing landscape of U.S. housing finance that served to highlight *increasing* collateralizability of home properties as the motor behind U.S. households' spending behavior. As to subprime mortgages, the crucial point is that subprime business not only afforded a key profit booster to players in the shadow banking system. It also gave vital stimulus to the U.S. economy at a time when other willing spenders were apparently hard to come by. Enhancing the collateralizability of home properties, subprime loans were partly used for home purchases, reaching potential first-time buyers who were the marginal buyers in a property boom that facilitated household spending more generally. And subprime loans were partly HELs that as MEWs financed personal consumption spending. Arguably, without the subprime boom, U.S. labor markets – and the stimulus that U.S. domestic demand gave to the rest of

[45] For instance, Goldman Sachs defends its crucial decision to reduce its exposure to the U.S. mortgage market in December 2006, when many clients were still buying mortgage-backed securities brokered by the bank by saying that this "was simply prudent risk management" (Guerrera and Baer 2010). George Soros (2010) describes the issue with CDS as insurance rather well: "because they are freely tradable, they can be used to mount bear raids; in addition to insurance they also provide a licence to kill. Their use ought to be confined to those who have an insurable interest in the bonds of a country or company."

the world in that period – would have been so much weaker as to have caused persistent headaches to U.S. policymakers, not least so at the Federal Reserve.[46]

This may at first seem an incredible hypothesis given that subprime was only a small segment in the huge U.S. mortgage market, merely reaching $1.2-1.4tr or 12 percent market share of outstanding home mortgage debt at its peak (Center for Responsible Lending 2007, Greenlaw et al. 2008). Initial estimates of prospective "subprime losses" thus appeared trivially small[47], particularly in comparison to bank balance sheets judged utterly healthy due to years of strong earnings growth. Today we know that these early assessments grossly misread the vast role of the subprime "niche" sector in sustaining U.S. and global growth – and the vast impact on the housing market, financial system, and the wider economy which the subprime implosion was going to have.

The U.S. financial industry accelerated its adventures into the subprime sector as other business got harder to grow profitably at the time. From a macroeconomic perspective an untapped (hitherto credit constrained) subprime borrower pool provided the marginal home buyers needed to sustain (and accelerate) the property price boom that had started in the late 1990s. At the peak of the boom subprime and Alt-A borrowers together made up little less than forty percent of home buyers.[48]

The expectation of continued property price increases was the lynchpin in the debt-financed spending regime. Rising property prices provided a key parameter for credit risk modeling at the rating agencies; cavalierly assuming that mortgage credit risk could be treated as uncorrelated since nation-wide property price declines had not been observed since the Great Depression. And rising property prices were also critical to the self-validation of improved credit ratings that were the basis for rising credit availability and the spending financed thereby. In short, the increased collateralizability of home properties largely spawned by the shadow banking system was the

[46] Gramlich (2007, 108) remarks "I am not sure what the exact share is, but a lot of the so-called stimulatory impact we got in the early 2000s when rates were low was due to subprime borrowing and housing spending."
[47] See Kiff and Mills (2007), for instance. According to Greenlaw et al. (2008, 22): "as recently as July 2007, Federal Reserve Chairman Bernanke noted that losses on subprime mortgages could total $50-$100 billion."
[48] A rather sobering verdict on homeownership as social policy is provided by Gerardi and Willen (2009) who conclude that contrary to common beliefs that subprime lending substantially boosted homeownership the main impact was to generate greater turnover in properties owned by minority residents.

crucial connection between credit and spending; particularly as labor markets and wage growth remained subdued for long.[49]

I remarked above that the *non*occurrence of the subprime boom would have presented headaches to the Federal Reserve in the early 2000s. This is not to deny that the occurrence of the subprime boom too came to cause serious headaches for central bankers in due course, headaches that persist until today, and not just in view of unsatisfactory economic performance. For today the Federal Reserve is widely blamed for tolerating or even causing the property boom that ended in a bust. Criticism directed at the Fed refers to both its regulatory and supervisory performance as well as to monetary policy. While regulatory policies and supervisory lenience provided an important ingredient in the supply-side mix that nourished rising credit availability, monetary policy more directly relates to the demand for credit, and the ability and willingness to spend. The role of the Federal Reserve's monetary policy in enticing debt-driven U.S. household spending is the subject of the next section.

10. The dollar and U.S. macroeconomic policy: Enticing the U.S. consumer

Although the U.S. Treasury is in charge of dollar policy, Federal Reserve monetary policy cannot be properly understood without due consideration of the global environment and the U.S. dollar's special status in the world economy. In fact, there are important global dynamics of financialization still left to be considered in this study of the financialization of the U.S. household sector. Therefore, this final section will investigate the financialization of the U.S. household sector in a global context. A related aim is to shed some light on the idea that persistent U.S. current account deficits may be understood as a "byproduct of financialization" (van Treeck, Hein and Duenhaupt 2007) and that the influx of foreign capital might explain the "puzzling case" observed during the dot.com boom as financialization simultaneously depressed the accumula-

[49] The Minskyan property of self-validating processes of enhanced/reduced credit availability as drivers of asset prices and spending has spawned numerous empirical studies of late. For instance, using Zip code level data, Mian and Sufi (2008) find more rapid home price appreciation in areas with stronger nonprime lending growth. Goetzmann, Peng, and Yen (2009) focus on the role of past house price appreciation as affecting house price expectations. They find that in the nonprime market past price appreciation positively affected both demand (borrowers) and supply (lenders), while prime lenders did not accommodate rising demand in areas with higher past housing returns. See also Klyuev and Mills (2006), Wheaton and Nechayev (2008), Mayer and Pence (2008).

tion rate while increasing the profit rate; namely, as redistribution of income from firms to rentiers (through dividends, share buy-backs), while depressing investment directly, increased consumption sufficiently, so that the resulting boost in profits indirectly also supported investment (van Treeck 2008). The role of global forces also features prominently in Bernanke's "global saving glut hypothesis". It turns out that these issues are closely intertwined with the special status of the U.S. dollar in the global economy and the policies of the U.S. Federal Reserve in pursuit of its "dual mandate" to promote the two equally-ranked goals of maximum employment and price stability.[50]

Today, a hotly debated issue is whether Federal Reserve monetary policy is to blame for the housing bubble and "subprime mortgage crisis" that ushered into the global crisis of 2007-9 (see Dokko et al. 2009). Did the Greenspan Fed keep its policy stance too loose for too long? Should it have better taken a more pro-active stance on asset prices in pricking the bubble before it burst on its own after reaching dimensions that have proved so damaging? Former Federal Reserve Chairman Alan Greenspan defense of Fed policies provides a good starting point. Greenspan (2007b) observes:

> "I do not doubt that a low U.S. federal-funds rate in response to the dot-com crash, and especially the 1% rate set in mid-2003 to counter potential deflation, lowered interest rates on adjustable-rate mortgages (ARMs) and may have contributed to the rise in U.S. home prices. In my judgment, however, the impact on demand for homes financed with ARMs was not major. Demand in those days was driven by the expectation of rising prices – the dynamic that fuels most asset-price bubbles. … We will never know whether the temporary 1% federal-funds rate fended off a deflationary crisis, potentially much more daunting than the current one. But I did fret that maintaining rates too low for too long was problematic. The failure of either the growth of the monetary base, or of M2, to exceed 5% while the fed-funds rate was 1% assuaged my concern that we had added inflationary tinder to the economy. In mid-2004, as the economy firmed, the Federal Reserve started to reverse the easy monetary policy. … We had presumed long-term rates, including mortgage rates, would rise, as had been the case at the beginnings of five previous

[50] Originally specified by the Federal Reserve Act of 1913, the Federal Reserve's mandate was clarified by an amendment to the Federal Reserve Act in 1977 the actual wording of which requires the Federal Reserve "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

> monetary policy tightening episodes, dating back to the 1980s. But after an initial surge in the spring of 2004, long-term rates fell back and, despite progressive Federal Reserve tightening through 2005, long-term rates barely moved. In retrospect, global economic forces, which have been building for decades, appear to have gained effective control of the pricing of longer debt maturities."

Greenspan emphasizes that the dot.com crash and acute deflation threats forced the Federal Reserve to take out insurance by cutting its key policy rate to just 1%; representing a historical low at the time (see also Bernanke 2010). His comments on ARMs have to be seen in the context of a particular criticism directed at him personally due to his apparent advice in early 2004 on the attractiveness of ARMs. We argued above that reduced interest costs on new borrowings as well as ARMs and refinanced FRMs provided one source of relief to borrowers and one channel of monetary stimulus. The other source and channel was MEWs; on which Greenspan is quiet here despite his own important research contributions in this area. His reference to monetary aggregates is interesting and might perhaps appease monetarist-minded critics. To us the alleged usefulness of traditional monetary aggregates appears even less compelling when credit and liquidity creation occurs in unaccounted ways within an unregulated shadow banking system; though ultimately hinging on the liquidity provided by the Federal Reserve and core banks, just levered up in innovative ways. Keynes (1930, 1936; see Bibow 2009a) referred to liquidity both as a financial instrument of predictable monetary value and as the ease at which trading occurs in markets without much impact on price. His concept of liquidity preference implies that liquidity is plentiful when players are at ease to part with liquidity. This may show up in securities prices, trading volumes, spreads and easy credit etc, rather than the quantity of some particular monetary aggregate. By contrast, liquidity becomes scarce when players prefer to hold on to it, causing asset prices to plunge and spreads to rise (or markets and credit to seize up in the extreme). In practice, the liquidity of the shadow banking system became increasingly sourced through overnight repo and commercial paper markets, with key players rolling over a large part of their balance sheets every night (Brunnermeier 2009, Shin 2010).[51] In July 2007 Citigroup's former Chief Executive Officer Charles O. Prince III famously remarked "When the music stops, in

[51] Adrian and Shin (2010) calculate that the sum of the stock of repos of U.S. primary dealers and the stock of financial commercial paper reached over 80 percent of M2 by August 2007, up from just 35 percent in 1994. They note that while M2 has grown by a factor of 2.4 since 1994, the stock of overnight repos has grown almost sevenfold and the stock of financial commercial paper fivefold.

terms of liquidity, things will be complicated. But as long as the music is playing, you've got to get up and dance. We're still dancing." The music stopped playing on August 9 2007 as wholesale funding markets seized up.

Perhaps of greatest interest is Greenspan's reference to the failure of long-term rates to follow suit when the Fed embarked on tightening, which he says was in contrast to the historical record and which he attributes to "global economic forces" beyond the Fed's control. Note here that the record low fed-funds rate in the early 2000s meant a very steep yield curve. It is in this way that monetary policy boosts banks' (and shadow banks') profits since banks are in the business of maturity transformation – encouraging easy credit and "carrying" (or "carry trading") of all sorts of assets. As long-term rates did not follow suit in the mid 2000s, Fed tightening quickly established a flat or even slightly inverse yield curve, shutting off the bank profit/capital channel just depicted. Interestingly, as the Federal Reserve was done with tightening, the U.S. property bubble was finished too. From a liquidity preference theoretical perspective the failure of bond rates to follow the fed-funds rate upwards reflected benign interest rate expectations held by market players, apparently grasping that a highly indebted economy would not be able to bear higher interest rates when there was no prospect of rising inflation. In view of vast new global supply-side opportunities and general weakness in labor markets inflation risks were indeed notable for their absence. Even as some pseudo-inflationary pressures finally showed up in *headline* inflation measures in 2007, reflecting global commodity resource constraints and commodity speculation, bond yields stayed low as markets apparently judged that the global boom and monetary policy tightening cycle were already at or past their peak, so that those pseudo-inflationary pressures would soon abate again. Perhaps the experiences of the 1990s played a role, with utterly pessimistic NAIRU estimates for long encouraging inflation fears that never came to realize even as unemployment dropped below 4 percent.[52] An important issue is that Greenspan's "bond market conundrum", on which he elaborated more fully elsewhere (see Greenspan 2007a), reflects flawed ideas about interest rate theory, ideas that are the same as those underlying Ben Bernanke's "global saving glut" hypothesis.

According to Bernanke (2005): "over the past decade a combination of diverse forces has created a significant increase in the global supply of saving—a global saving glut—which helps to ex-

[52] For thoughtful discussions of the NAIRU see: Galbraith (1997), Stiglitz (1997), and Setterfield (2005).

plain both the increase in the U.S. current account deficit and the relatively low level of real long-term interest rates in the world today." Bernanke goes on and asserts that "in practice, these countries increased reserves through the expedient of issuing debt to their citizens, thereby mobilizing domestic saving, *and then* using the proceeds to buy U.S. Treasury securities and other assets. Effectively, governments have acted as financial intermediaries, channeling domestic saving away from local uses and into international capital markets" (Bernanke 2005; italics added).

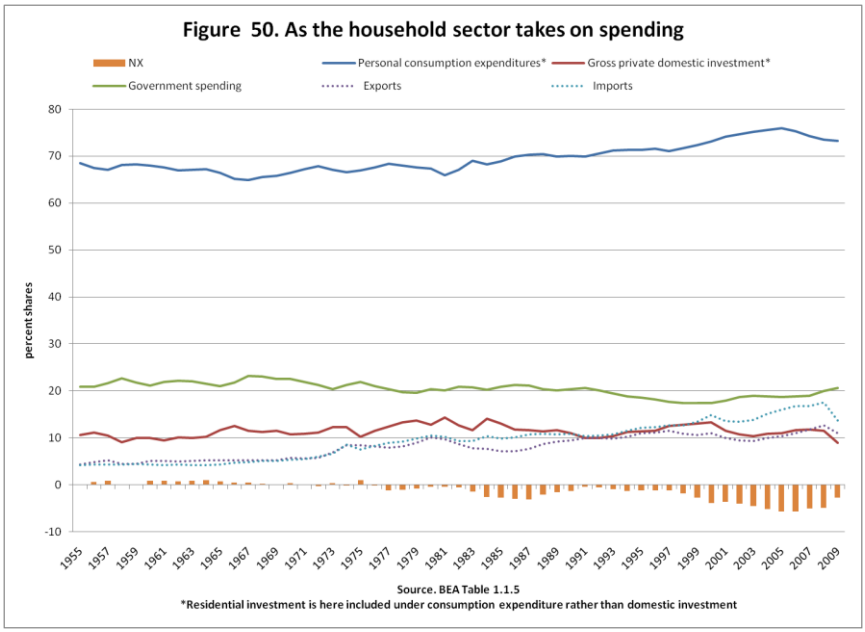
These statements clearly reveal loanable funds theory as the theory of interest behind Bernanke's conjectures about a perceived global saving glut and how that glut supposedly depressed interest rates. Following the classical vision of saving as leading and somehow financing investment, Bernanke's saving glut idea presumes that those "excess savings" in the developing world are already there, waiting to be collected (through national debt issuance) *and then* invested (in U.S. Treasuries), with developing world governments as intermediaries channeling the saving from poor to rich through international capital markets.

Bernanke's intuition about the relevance of foreign policies in inducing certain developments in the United States may not be altogether wrong. It is important to see though exactly how certain market mechanisms and policy adjustments come into play. Bernanke singled-out financial crises in emerging markets as inducing the observed shift in developing-world current account positions and the related spurt in reserve accumulation. In practice, the said policy shift meant that crisis countries, following currency depreciation, made it their policy priority to *maintain* a competitive exchange rate vis-à-vis the U.S. dollar, paired with an eagerness to add to their depleted dollar reserves as a precaution or "self-insurance." To think of any saving glut emerging here that would depress interest rates is confusing matters profoundly, a "nonsense theory" as Keynes explained in his *General Theory*. Instead, for the United States as trade counterparty, a widespread tendency in the rest of the world to focus on exporting paired with an eagerness to "self-insure" by accumulating dollar reserves, causes upward pressures on the U.S. dollar which, in turns, produces deflationary forces in the domestic economy (Bibow 2009a). Given the Federal Reserve's dual mandate, the resulting weakness in U.S. labor markets and downward pressures on wages and prices in general will induce easing of the Fed's policy stance.

The essential point is that it is not any saving glut that depresses interest rates in any imaginary (classical) capital market, but deficient demand in *U.S. product and labor markets*—arising from other countries' export-oriented (cum self-insurance) growth strategies—that triggers low interest rate policies from the U.S. Federal Reserve. From a liquidity preference theoretical perspective, low U.S. interest rates resulted from the Federal Reserve's expansionary policy stance and financial markets that went along with it, rightly perceiving vastly expanded global supply potential and a lack of inflationary pressures in labor markets. The dollar's key global reserve currency status is important here. In principle, low Federal Reserve interest rates encourage private U.S. capital outflows, which should weaken the dollar and transmit the easy monetary policy stance set at the center to the global economy. Peripheral countries are facing the choice of either following suit or accepting currency appreciation against the center currency (Bibow 2008).

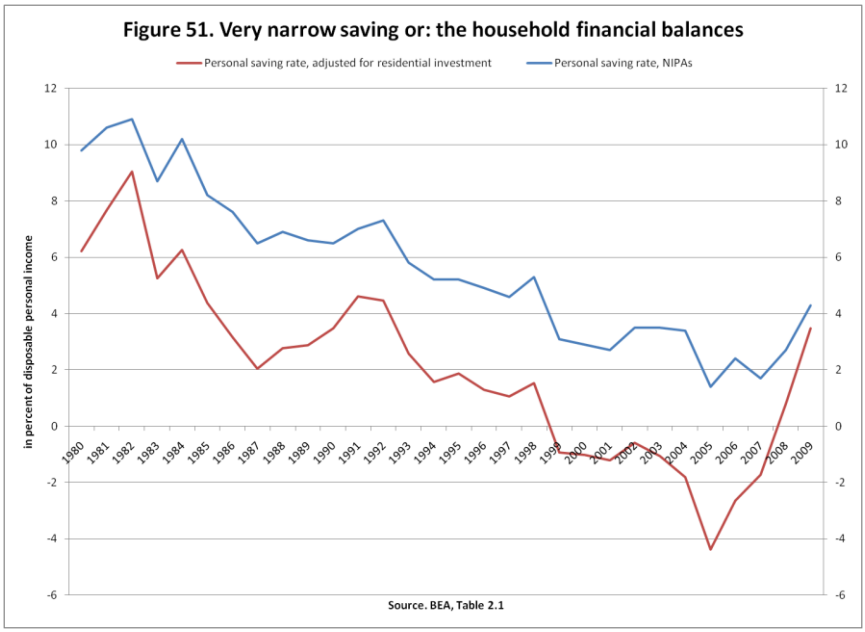
In actual fact, and this is the aspect correctly identified by Bernanke (2005), following the late 1990s emerging market crises, many countries chose an intermediate course that featured reserve accumulation to maintain a competitive exchange rate while continuing to pursue export-led growth. Amplified by U.S. private capital outflows, the resulting *global dollar glut* sourced from both U.S. current account deficits and private capital outflows sponsored the record five-year global boom of 2003–07. Encouraged by a steep U.S. yield curve, this meant plentiful liquidity in global financial markets: a *global dollar glut* (Bibow 2009a, 2010).

The global boom of the 2000s represented the latest stage of global arrangements in place since the 1980s that relied on U.S. spending as foremost driver of global growth – briefly interrupted in the late 1980s when Japan and Western Europe, for once, came to carry the torch. The Reagan expansion of the 1980s featured a prominent role for fiscal policy, while in the 1990s dot.com boom the U.S. corporate sector provided substantial impetus for expansion too. But the most profound and continuous factor in all this was the U.S. household sector's rising propensity to spend. This was reflected in that conspicuous decline in the personal saving rate since the 1980s and surging household indebtedness in the 2000s; the latter financing both residential investment as well as personal consumption expenditures at a time when growth in disposable incomes and especially wage income remained subdued (Bibow 2007).



Perhaps an instructive way of looking at the matter is to include residential investment spending in household consumption rather than fixed investment. Figure 50 shows that during the period in focus here household consumption – broadly defined – increased from a previously steady two-third share in GDP to a peak level of three-quarters in 2003-6. The point is that while residential investment certainly allows households as owner-occupiers to enjoy housing services over many years, it does not add anything to the economy's production potential and is thus fundamentally different from properly productive investment undertaken by the corporate sector and infrastructure investment undertaken by the public sector. Furthermore, while the increased spending propensity of households provided a significant boost to GDP growth, a good part of which actually occurred outside of the U.S., at issue is a *temporary* adjustment process that allows temporarily elevated growth rates until the adjustment is complete. While both policymakers and private actors may in practice easily miss the temporary character of this elevated-growth transition, an important issue concerns the sustainability of households' debt burden once the economy returns to its lower long-run GDP growth rate. In principle, higher indebtedness is made more bearable by a lower level of interest – a factor of paramount importance concerning trends in asset prices and debt since the high-interest era of the 1980s. In the event, the U.S. economy did not experience any smooth growth slow-down, but a growth collapse and deep recession – which would seem to underline that the processes driving the economy prior to the

crisis had become gravely unsustainable as the key asset price went from overshooting to crashing.



Treating residential investment as household consumption implies a very narrow definition of personal saving that not only excludes consumer durables but also residential investment. Figure 51 shows very narrow saving as negative from 1999 to 2007. Note here that very narrow saving conceptually resembles the "household sector financial balance".[53] Note also that this approach follows the spirit of the Levy Economics Institute's Strategic Analysis based on the path-breaking research of the late Wynne Godley, who back in 1999 identified that the U.S. household sector was at the heart of processes in the U.S. and global economies that would prove unsustainable *in the medium term* (5-10 years; see Godley 1999). Figure 51 shows an extraordinarily sharp reversal in household spending/saving behavior amounting to eight percentage points of disposable income since 2005.[54]

Let me thus summarize and highlight how *global* financialization facilitated the vital role that U.S. households came to play in the global economy since the 1990s. It is indeed crucial that the

[53] This version of the sectoral financial balance provides another indirect proxy measure of the share of MEWs used for personal consumption expenditure, namely, as the excess of personal consumption expenditures over disposable income given that consumer credit grew in line with incomes during this period.
[54] Independently, Jan Hatzius of Goldman Sachs used the same approach in his presentation at the 19th Minsky conference held in New York City, 14-16 April 2010. See also McKelvey (2010).

global monetary (non-)order is dollar-centered and that U.S. financial institutions enjoy a stalwart position in global finance, partly owing to the dollar's status. Yet, as global financial integration has progressed without any concomitant increase in global financial regulation and supervision these developments seem to have encouraged ever more countries to rely on exports for their growth, which in the absence of any monetary order proper presents itself as a defensive macroeconomic policy option. For the country at the hub of the global order this means dollar overvaluation and a tendency for labor market weakness and disinflation. In particular, sectors exposed to foreign competition – U.S. industry – will feel the brunt of the dollar's global role while the U.S. financial industry will enjoy the profitable liberties afforded to it by unfettered global finance. Domestically the financial sector is encouraged to shift away from the corporate sector, which is under pressure from global competition, and towards the household sector, including new or underserviced market segments. With consumer credit as a junior partner, credit expansion towards households hinges on home properties as households' foremost *collateralizable* asset. In avoidance of regulatory capital charges this is most profitably done through securities and derivative markets.

From a Keynes-Minsky perspective, credit expansion towards households boosts property prices, with enhanced credit availability in this direction becoming self-validating in this way. While the wider economy and the corporate sector benefit *indirectly* as household spending lifts the economy. This regime will favor the wealthy over those with little wealth to appreciate in value. And it will promote those whose incomes are favorably impacted by greater exposure to the global economy over those whose incomes become more pressurized from global competition. Except for lower-skilled employees at risk of outsourcing, the U.S. financial industry will be twice-favored by financializing the household sector and by expanding the industry's global reach.

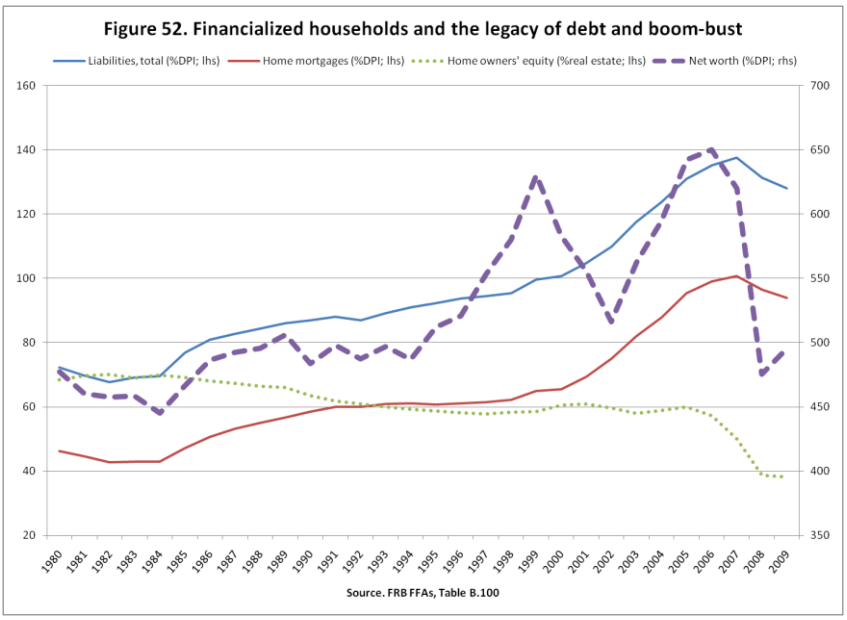
The above financialization processes were far advanced when the 2001 recession hit, leaving unemployment at an elevated level in its trail. In order to attain the 3-4 percent GDP growth needed to reduce unemployment, U.S. policymakers had to entice extra spending in the order of $500-600bn (excluding trade leakages). This was a steep task given that the corporate sector in general was in deleveraging and retrenchment mode. The subprime mortgage sector offered new willing borrower-spenders at a time when better-off households may have been licking their financial wounds in the aftermath of the dot.com bust. Arguably, in providing marginal buyers for

homes subprime lending crucially assisted the property boom in making it through the 2001 recession. With employment and wages under pressure until 2004, it is rather telling that every forth new job created in the years 2001-6 was in construction.[55] Consumer spending on durables and consumer goods in general may have increasingly favored foreign industrial producers. But residential construction remains largely shielded from foreign competition (though reliant on migrant labor). U.S. policymakers had the choice to either focus their worries on the labor market explicitly featuring in their monetary policy mandate, or to suspect that subprime lending might not be a flawless adventure, which concerns their responsibilities in financial stability policy which are shared with numerous other U.S. authorities. Arguably, in an ideological climate that blindly trusts the wisdom of unregulated markets in the pricing of risks and achieving efficient outcomes, that was an easy choice to make. Especially as the "democratization of credit" in fulfillment of the American dream of homeownership at the same time also helped to gloss over rising inequalities – neither any child nor any potential borrower was to be left behind in the trickle-down society practicing its free market gospel in new and innovative ways.[56]

In conclusion, in view of the Federal Reserve's dual mandate it seems rather futile to blame monetary policy for causing the housing bubble. Monetary policy is the first line of defense in the U.S. macro policy regime; fiscal policy and public debt are generally frowned upon except in acute recessions. Monetary policy encourages private spending by lowering interest rates, easing credit, and boosting asset prices. The Fed would have failed on both counts of its mandate if it had not eased its policy stance sufficiently. In actual fact, the Fed battled the jobless recovery following the 2001 recession with fervor, keeping rates at low levels for a sustained period of time. Rising household indebtedness seemed fine as long as net worth kept on rising, too.

[55] Weller (2009, 374) even estimates that "from March 2001 through December 2005, job growth in construction and related sectors, accounted for 54.1% of all newly created jobs and for 68.8% of all new private sector jobs."

[56] Homeownership promotion as social policy features in the ongoing controversies concerning financial re-regulation. Following the failure of a Republican amendment to change underwriting standards of the GSEs, Tennessee Republican Bob Corker is reported as commenting: "It no longer is the American dream that someone owns a home – it's the American entitlement" (Braithwaite 2010). When publically mauled by the Financial Crisis Inquiry Commission in early April 2010, Polini and Rappeport (2010) report "Mr. Greenspan said that it was likely that Congress would have blocked any attempt by the Fed to rein in the subprime mortgage industry, since it was bolstering home ownership across the country. He said lawmakers were now suffering from 'amnesia' about their stance on the issue", quoting Greenspan himself: "If the Fed as a regulator had tried to thwart what everyone perceived as an unmitigated good, then Congress would have clamped down on us … [If] we had said we're running into a bubble and we need to retrench, the Congress would say: 'We haven't a clue what you're talking about.'"



After recovering from the tech bust and reaching new heights, household net worth was, once again, severely hit in 2008-9, and crushed to the early 1990s level relative to disposable income. Alas, as Figure 52 reveals, driven by home mortgages household indebtedness is today at a much higher level, while households' home equity shares are substantially lower.

The U.S. macro policy response to the crisis was no doubt apt in stopping the impending melt-down of the financial system and freefall of the economy. But it our view it would seem unwise today to simply try to resuscitate the old growth model based on the financialization of the household sector, "forever" indulging in credit-financed consumer spending made possible by liquidizing home equity; when "forever" is not possible. For better or worse, the model worked temporarily in helping the U.S. economy to grow at an elevated rate as households' spending propensity shifted up. As is all too clear from the statistics presented in section 2 above, the model did not distribute the fruits of growth equally. In any case, when pushed against its debt limits, the model crashed badly.

11. Concluding observations on the financialization of the U.S. household sector

Following the Keynes-Minsky tradition the financialization literature has largely focused on corporate investment behavior whereas the financialization of the household sector has remained relatively underexplored. In view of actual developments featuring U.S. households as global growth engine, it is highly tempting to adapt the Minskyan framework for the purpose of its application to household behavior and residential investment. As the property bubble and crisis have indeed closely followed the script of Minskyan boom-bust cycles (see however Palley 2009). The point is though, that residential investment is fundamentally different from corporate investment and public infrastructure investment. While raising incomes in the short-run, residential investment does not lead to any increase in (potential) incomes and cash flows in the long-run. For this reason it may be better to treat residential investment as consumption rather than investment, and as enlarging the potential for consumption bubbles that must burst at some point. The increased collateralizability of home properties represented the key element in the financialization of the U.S. household sector – and also the cause of the severe crisis that hit as the bubble burst.

Financialization of U.S. households has turned volatile capital gains into the foremost driver of net worth building. The secular decline in the level of interest since the 1980s has helped keeping debt burdens in check to some extent, while rising asset income including capital gains has come at the expense of wages. It would however be wrong to conclude that all aspects of financialization are wholly detrimental to economic performance and household well-being. There may be value in developing hitherto missing markets and financial services or producing them more efficiently. But on top of their heightened exposure to labor market risks, uncontrolled financialization also exposes households to financial instabilities that unnecessarily burden society as a whole as well, while benefiting only the few.

Importantly, the financialization of the U.S. household sector needs to be understood in a global context. Unfettered global finance has strengthened the global forces that require "overspending" on the part of the issuer of the key global reserve currency. In avoidance of stagnation or worse, persistent U.S. current account deficits are the result – in this sense, they are a "byproduct of financialization" (van Treeck, Hein and Dűnhaupt 2007). In practice, the U.S. met this

requirement for long successfully by monetary policy-enticed private spending. More specifically, with U.S. industry hammered by foreign competition owing to an overvalued dollar, the onus of spending fell squarely on the household sector. Financialization of the U.S. household sector was thus instrumental in allowing the U.S. to counter deflationary forces arising from "export orientation" in much of the rest of the world. Regulating global finance may be one part of the solution to the underlying global systemic issues. But the other part is that of establishing a global monetary order that encourages and enables countries to pursue domestic demand-led growth, while punishing those that rely on export-led growth instead. Contrary to the "global saving glut" hypothesis, the key mechanism in transmitting global influences is that deflationary forces in U.S. labor and product markets, arising from "export orientation" in much of the rest of the world, trigger monetary policy easing by the Federal Reserve.

The distribution of income from firms towards keen-to-spend wealthy rentiers through share buybacks (as cash flow provider) may have been a significant factor in the 1990s (van Treeck 2007), but is hardly sufficient to explain developments in the 2000s. Instead, it took heavy borrowing by the household sector at large to assist both the profitability of the U.S. corporate sector – and particularly the financial sector – as well as the global requirement of U.S. over-spending. In other words, credit creation and debt-financed spending are the heart of the matter regarding both the investment-profit puzzle and the inequality-spendthrift puzzle. Strength in consumption spending and the rise in the propensity to consume explain why corporate profitability held up even as corporate investment activity was generally weak. But the inequality-spendthrift puzzle seems inexplicable without due consideration of credit creation based on the rising collateralizability of home properties. [57]

[57] Post-Keynesian financialization models with a focus on households would not seem to capture these aspects all too well, partly owing to the fact that closed-economy modeling is the rule. For instance, there was no initial transfer of purchasing power from rich to poor involved, as in Palley (1994), but creation of new purchasing power that was essential for maintaining GDP growth. Dutt (2005, 2006) and Bhaduri et al. (2006) may capture the element of a rising debt burden falling upon lower-income households, but a crucial fact is that the U.S. as a whole did not run into any such problems on account of rising external indebtedness (as the counterpart to rising households indebtedness) since "dollar leveraging" (Bibow 2010) kept the external debt burden at bay. It is precisely the position of the financial industry as intermediating these internal and external imbalances (and related financial flows) that supercharged industry profits (and especially at the managerial top through super-generous bonuses). Boyer (2000) sketches an insightful model of a "finance-led growth regime", but in view of actual outcomes one surely has to conclude that the regime proved less than viable.

Regarding the declining personal saving rate and rising household indebtedness we emphasized that developments in the 2000s differed fundamentally from those in the 1990s and 1980s. We found that saving outside of retirement accounts already began to decline in the late 1970s, which was not immediately reflected in the overall saving rate due to a continued rise in retirement saving until the mid 1980s; with the latter factor then reversing in the second half of the 1980s owing to the maturation of the private retirement system. Indebtedness first surged in the mid 1980s due to booms in both housing and consumer durables. Indebtedness then only rose moderately in the 1990s while the saving rate declined sharply. Evidence suggests that both rich as well as middle-class households were behind the decline in saving in the 1990s, but not low-income households. The latter only turned less thrifty in the 2000s in conjunction with the housing boom that also sparked a sharp spurt in indebtedness. This occurred as rich households, in the aftermath of the dot.com bust, reverted to saving again. It would seem that the subprime mortgage boom played a critical part in sustaining the post-2001 jobless recovery when new pockets of willing borrower-spenders had to be found. All along, U.S. over-spending was required to offset "export orientation" in much of the rest of the world.

As to the pre-crisis capital inflows that were the counterpart to the income generated abroad by U.S. over-spending, but not the initial source of spending, which was credit creation in the U.S., we may suitably distinguish private and official inflows. The latter type primarily targeted investment in Treasuries and semi-Treasuries (GSE MBS). By contrast, the former type also found their way into riskier asset classes, including credit risks related to the U.S. subprime mortgage sector and property markets generally. It turns out that European banks were especially eager in their adventures into U.S. subprime risks. Their eagerness to purchase innovative financial instruments churned out by the U.S. shadow banking system were crucial in making the "originate to distribute" model work. European banks' credit risk exposures built up in this way were also crucial in turning the U.S. subprime crisis into a global financial crisis (Bibow 2009b).

The bottom line is that both the U.S. domestic and global financialization processes were closely intertwined with the special status of the U.S. dollar in the global economy and the policies of the U.S. Federal Reserve in pursuit of its "dual mandate". There is no solution to these issues other than at the global systemic level. As long as the dollar retains its key reserve currency sta-

tus and global finance unfettered, the forces that led to global imbalances and paradoxical global capital flows in the past are likely to remain in place in future too.

It would be a mistake to interpret the findings of this investigation as a plea to change the Federal Reserve's dual mandate. Rather, an important upshot is that monetary policy has become greatly overburdened in enticing sufficient private (over-)spending to meet that mandate because alternative policy options are shunned for ideological reasons. The latest crisis experience underlines that it may not be a good arrangement to have monetary policy engineer extreme yield curve shapes to generate enough traction in unregulated financial markets prone to exhibit exuberant behavior once fired off toward expansion. Yet, to have monetary policy target asset prices so as to avoid bubbles seems self-contradictory if monetary policy alone is charged with steering the economy toward full employment while other policies are taking the backseat. An alternative approach would be to regulate markets for greater stability and take recourse to fiscal policy to achieve full employment and deliver on global over-spending at the same time. Bibow (2010) argues that a "Bretton Woods 3" regime based on U.S. public debt rather than private debt might under certain conditions provide a more sustainable global order in case the global forces prevailing prior to the global crisis reassert themselves. Besides, fiscal policy may be more easily tuned in ways that achieve more equality in wealth and incomes – which is precisely why ideological resistance against this alternative is so strong.

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