

Housing, the welfare state, and the global financial crisis: what is the connection?

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Abstract:

Analyses of the global financial crisis that assign causality to the erosion of parts of the welfare state that protected individuals miss the importance of macro-level regulation that protected firms and the financial system from itself. Post-Depression macro-level regulation of finance prevented the emergence of mismatched maturities where deposits lacked state guarantees, and thus prevented runs on banks or near-banks. A balance sheet approach shows that macro-regulation linked long duration liabilities in housing finance (mortgages) to long duration assets (pensions). Deregulation permitted the reemergence of mismatched maturities, providing both a necessary and sufficient condition for the current financial crisis.

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Text:

In 25 years as an electrician I have had to tighten and loosen many screws. I only ever broke one screw I was tightening, but I've broken a few hundred of those I was trying to loosen.

Lech Wałęsa to Adam Michnik

The global financial crisis of 2007-2009 seems to belie many predictions by conservative (and some left) critics that the welfare state would bring capitalism to its knees.^{*} Instead, the proximate causes for the current crisis lie in financial speculation around mortgages, and moreover in the United States, which has the most limited formal welfare state of the rich OECD countries and one of the lowest rates of publicly owned housing. This seems to place the origins of the crisis at some distance from the welfare state. I argue that the current crisis did emerge from the welfare state, but not in sense in which this is normally argued. The regulation of housing finance was a central feature of the post-war welfare state, if, like Polanyi, we understand the welfare state as a system for sheltering society and not just individuals from market and life risks.¹ The erosion, rather than the expansion, of this macro-level welfare provision in the United States created the pre-conditions for the crisis. Post-Depression macro-level regulation of finance prevented the emergence of mismatched maturities where deposits lacked state guarantees, and thus prevented runs on banks or near-banks. A balance sheet approach shows that macro-regulation linked long duration liabilities in housing finance (mortgages) to long duration assets (pensions), minimizing mismatched maturities. Deregulation permitted the reemergence of mismatched maturities, providing both a necessary and sufficient condition for the current financial crisis.

Put simply, the erosion of the welfare state in the 1990s and 2000s was not just a story about increased micro- or individual risk.² The erosion of the broad welfare state occurred at both the micro- and macro-level. Deregulation and non-regulation also exposed financial firms to more systemic risk. In arguments that housing served as a substitute for a slowly eroding welfare state for workers, the action all takes place at the micro- or individual level.³ This kind of argument establishes only a necessary, but not sufficient condition for the financial crisis. It explains mounting pressure to enter the housing market and thus the increase in household debt as housing prices adapted to higher demand. But demand side conditions should only have produced a temporary run up in housing prices and then a normal recession, rather than the catastrophic crisis that occurred. The strongest counter-argument in favor of sufficiency coming from erosion of the micro-welfare state is that eroding micro-level social protection had as its mirror image a worsening distribution of income, and that in turn the concentration of income at the top enabled – but did not mandate – the deregulation of finance that allowed dangerously mismatched maturities for assets and liabilities to reemerge in the finance sector.⁴

The usual analyses linking erosion of the micro-welfare state to the financial crisis miss the equally important erosion of the macro-welfare state, which concerns the supply side for housing finance. The macro-level welfare state historically protected banks from each other and from depositors by removing mismatched maturities from banks' balance sheets, protecting banks from ruinous competition, and preventing various forms of legal fraud in the sale of securities. Deregulation removed these buffers against market risk, which as Schelkle (this issue) notes had been a form of social protection for capital.⁵ Deregulation allowed financial firms to recreate dangerously mismatched

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maturities on their balance sheets. Given that maturity mismatches are natural to finance, and that they did not flow directly from an erosion of the micro-welfare state, the erosion of welfare state protection for individuals cannot be seen as a sufficient cause for the crisis. By contrast, deregulation allowed financial firms to link different parts of the financial system in ways that produced a non-linear response to default on subprime mortgages. In essence, deregulation permitted the conditions for a classic bank run to re-emerge, and moreover at the heart of the financial system. By doing so it created sufficient conditions for the crisis.

The contraction of the micro- and macro-level welfare state respectively provided both necessary and sufficient conditions for a massive financial crisis, by allowing financial elites to gamble with households' single biggest liability, and thus banks' single biggest asset. This gambling transformed what otherwise might have been just a normal recession and financial crisis into a near death experience for global capitalism. To be sure, other things mattered as well, most notably China's willingness to recycle American trade deficits and the ratings agencies' mobilization of the wrong mathematical models for default, but these also are simply necessary conditions that I will ignore out of space limitations.⁶

This argument requires four steps. First, I show why housing matters: only the liabilities and assets created via housing finance were large enough to cause a systemic crisis in the core of global finance. Second, I position housing in the usual welfare state literature: housing and more particularly housing finance was an important systemic component of the post war welfare state by virtue of the balance sheet connection between long duration liabilities and long duration assets. Housing finance and pension systems are mutually constitutive because of the need to purge maturity mismatches from banking systems. Third, I briefly show how the erosion of non-housing welfare state provision in the United States, and particularly defined benefit pensions, led to a greater reliance on home equity as a substitute for traditional forms of social protection – the micro-erosion. This increased the volume of mortgage debt, and thus the potential systemic damage from a crisis of mortgage debt. Fourth, I ask why housing finance changed in ways that reintroduced mismatched maturities – the macro-level erosion of the post war welfare state. This mismatch activated the risks discussed in parts two and three. Risk and size combined to make mortgage debt potentially lethal for parts of the financial system, but neither alone was necessarily a problem for the entire financial system. Points three and four are connected. Mortgage assets/liabilities previously were mediated through the state or quasi- state entities in ways that removed risks to individuals and firms. Deregulation allowed financial firms to unbundle those assets on the theory that this would enable individual households and firms to manage risk better. Instead it led to increased systemic risk. But if mortgage assets had been small in relation to GDP, reintroducing mismatched maturities would not have threatened systemic stability as much.

The conclusion argues that sufficient causes must be found in the specific ways in which the financial sector used deregulation to pursue profitability through regulatory arbitrage that linked parts of the financial system to housing finance. Any financial asset could have been the raw material for this regulatory arbitrage. And indeed, up until the 2000s, many other financial instruments were the object of regulatory arbitrage. But as noted in point one, only housing was large enough and prevalent enough in household portfolios to cause a systemic crisis. Housing finance was the last screw holding the old regulatory regime together. Deregulation and non-regulation opened a window for the regulatory arbitrage that recreated mismatched maturities and thus broke that screw.

1: Size matters: Why housing finance was central to a systemic crisis

Three features of the housing finance system made what should have been a garden variety recession into a massive global crisis. Only mortgage debts – which are assets on the balance sheets of financial firms – were large enough to seriously affect the solvency of nearly all major financial institutions in the United States. Only mortgage debt was widespread enough in society to affect more

than a small fraction of the population, and thus affect aggregate demand broadly. And, crucially, housing prices are highly opaque and impacted as compared to prices for equities and industrial bonds. These three factors meant that any crisis emerging from housing related debt would have large and widespread effects that simultaneously were somewhat unknowable, heightening uncertainty.

Size: Mortgage debt, securitized or not, generally constitutes one of the largest or the largest asset in many OECD countries. Table 1 shows where mortgage debt in pre-bubble 2002 exceeded capitalization of the equity market, public debt market or half the private debt market in a wide range of countries. Data limitations mean the exclusion of Australia's, New Zealand's and Norway's bond markets but these are probably in the "Yes" category. As housing prices rose from 2002 through 2007, mortgage debt relative to GDP also increased by roughly one-third, increasing its relative size in financial markets. Any crisis in the mortgage market thus would threaten the stability of the financial system.

To be sure, household mortgage burdens vary widely, as Table 1 shows. For example, Italians and other southern Europeans typically buy houses with large cash payments, perhaps in order to launder untaxed cash income, while Austrians move very infrequently. An extremely difficult foreclosure process and the lack of a covered bond market until 2005 also deterred Italian banks from making mortgages.⁷ But with a few exceptions, mortgage debt in most countries vastly exceeds bank capital. Anything depressing the value of mortgage debt thus potentially puts pressure on the balance sheets of financial institutions.

Scope: Mortgage debt is not only significant in most financial markets, but also affects many households. Every rich OECD economy save Germany had an owner occupied housing rate above the 50 % level in 2002 (Table 1, last column). With some exceptions, owner occupied housing is typically purchased using mortgage debt. While owners generally retire this debt, at any given time a significant proportion of households carry mortgage debt. In the US, for example, roughly one-third of households rent, one-third own homes free and clear, and one-third carry a mortgage. Even though cross national variation means that changes in housing prices or interest rates do not uniformly affect OECD economies, the size and scope of mortgage debt makes interest rates a particularly potent tool for political manipulation of the business cycle, and makes housing macro-economically important.⁸ These effects are particularly strong in the other Anglo-economies, where variable interest rate loans are more common than in the United States and where interest rate changes propagate fairly quickly into mortgage interest payments. All the Anglo-economies, the Netherlands and Norway, and to a lesser extent Denmark and Sweden combine high levels of debt and high levels of homeownership.

The scale and dispersal of housing debt thus presents a much greater threat to the entire financial system and economy than other forms of consumer debt, such as credit cards, student loans, or automobile purchase loans. The 2007-09 global financial crisis demonstrated the effects of even limited losses on mortgage loans. Losses on subprime and Alt-A⁹ mortgages amounted to roughly \$0.5 trillion by August 2008. By wiping out banks' capital, this sufficed to trigger de facto or de jure bank nationalizations everywhere.¹⁰ For this reason, as we will see below, states have intensely regulated housing finance. Reciprocally, only this massive state intervention made widespread debt financed housing purchase possible in a modern economy.

By contrast, total US credit card and automobile debt in 2008 was roughly \$1.5 trillion, less than only the \$1.6 trillion of subprime and Alt-A mortgages outstanding in 2007. Mortgage loans in default at mid-2008 constituted 4.5 % of the \$11.2 trillion in American residential mortgages. The equivalent proportion of consumer loans would be only \$57 billion. This is non-trivial but not enough to trigger a systemic crisis. Similarly, the dot.com bust of 2000-02 obliterated \$5 trillion in US stock market equity. But these losses affected only a small slice of US households, as the top one percent of income earners hold 34 % of US equities, and the top 10 % hold 75 % of US equities. Their losses did not affect spending by the broad mass of the population. Moreover, these losses were largely of unrealized capital gains, and thus not connected to corresponding debts on the balance sheets of financial firms. By contrast, the

crisis centered on mortgage debt affected the balance sheets of financial institutions and, through households, the level of consumer demand.

Table 1: Mortgage debt as a % of various capital market indicators in OECD-19, 2002						
	Mortgage debt as % of GDP, 2002	Mortgages % of total capital market*	Mortgage debt larger than equity market?	Mortgage debt larger than gross public debt?	Mortgage debt more than 50% of private bond market?***	Owner occupation rate, %, 2002
Australia	50.8	n/a		YES	n/a	70
Austria	16.3	3.7	YES			56
Belgium	27.9	2.3		YES		71
Canada	43.1	12.3			YES	66
Denmark	74.3	12.1	YES	YES	YES	51
Finland	31.8	6.6	YES		YES	58
France	22.8	3.6				55
Germany	54.0	8.8	YES	YES		42
Ireland	36.5	7.6		YES	YES	78
Italy	11.4	2.7				80
Japan	36.8	6.0			YES	60
Netherlands	78.8	9.0		YES		53
New Zealand	56.2	n/a	YES	YES	n/a	65
Norway	50.2	n/a	YES	YES	n/a	77
Portugal	50.0	11.2	YES		YES	64
Spain	38.0	9.7			YES	83
Sweden	48.4	9.1			YES	61
UK	64.3	9.1	YES	YES	YES	68
USA	58.0	11.4	YES	YES		69
* total capital market = sum of equity and public and private bond markets; ** 50% is used as the standard because mortgages typically are part of the private bond market and thus cannot exceed that market; n/a = data not available.						
Sources: Author calculations from World Federation of Exchanges, http://www.world-exchanges.org/statistics ; IMF, <i>Global Financial Stability Report</i> , September 2003; OECD, <i>Economic Outlook</i> , # 80, December 2006.						

Pricing: Finally, housing prices are not transparent. While insiders can complicate pricing on stock exchanges through dark pool trading and front running, this does not prevent the emergence of market clearing prices on a daily basis in most OECD equity markets. Roughly speaking the same is true for bond markets. Prices in both markets are published daily (indeed almost instantaneously) and are meaningful at an international level. By contrast, housing prices reflect deeply impacted local knowledge and for the most part only locally relevant. Published prices are usually offer prices and American listing services refuse to publish actual prices for consummated sales. Yet home sale prices are central to understanding the depth and direction of any crisis involving mortgages. Those prices determine whether the collateral behind a given group of mortgages exceeds, equals or is less than the debt those

mortgages represent. This uncertainty was a central feature of the 2007-09 crisis. No one could mark to market or accurately assess the risk involved in buying a given mortgage backed security. Summing up this section, if someone wanted to create a systemic crisis at the heart of the global financial system one of the best places to start would be housing, because of its scale, connection to households and financial firms, and opacity.

2: Housing finance and the welfare state: Why balance sheets matter

2a: Welfare and housing / finance

Despite the salience of housing finance, political science as a discipline largely ignored it before the global financial crisis erupted.¹¹ Even afterward, housing finance receives remarkably little attention. A full text search on 'Fannie Mae' or 'mortgages' in archived American Political Science Association conference papers from 2002 through 2010 shows that out of roughly 1200 papers per year, fewer than five in any given year mention either. Typically, fewer than 10 papers per conference look at housing *per se* and almost all of those examine narrow urban housing policy issues.¹²

Though sparse, a literature on housing as a welfare state issue did emerge three decades ago. This literature posits two kinds of inverse relationships between owner occupied, debt-financed housing and welfare state provision. This literature thus focuses on the micro- or individual level welfare state, asking how housing affects individual preference for and services from the welfare state. But there is also a functional but deeply political relationship systemic or macro-level connection between housing finance and the welfare state that this literature overlooks. This omission blinds the housing literature the causes of the recent global financial crisis.

Jim Kemeny and Frank Castles generated the classic arguments about the inverse relationship between owner-occupied housing and the development of the welfare state.¹³ These arguments focused on the generative effects of housing on later welfare state provision. Kemeny argued that the greater the degree of private ownership, the weaker the entire welfare state would be. Castles' claim was narrower: higher levels of private homeownership produce weaker and smaller public pensions, particularly second tier pensions.

Kemeny argued for a trade-off between owner-occupied residential property and the quantity and quality of welfare state benefits. Although the total life-cycle cost of owner-occupied or rented housing was the same at any given level of income, the temporal distribution of those costs varied. Would-be owners had to save for a down payment varying from 10 to 50 percent of the purchase price and then faced a front-loaded schedule of payments as they amortized a mortgage over the next 15 to 30 years. Buying a house thus compressed the bulk of the life-cycle cost of housing into a household's early years. Renting, by contrast, involves more level payments across the entire life cycle. The front loading of housing costs for owner-occupiers inclined them against higher taxes for social services and transfers, as these taxes competed in the household budget with saving and amortizing a mortgage. Kemeny thus argued that the level of home ownership was not a natural outcome of rising or high per capita income levels, but instead reflected political choices by voters and parties.¹⁴

Frank Castles narrowed Kemeny's claim, arguing for a specific trade-off between individual homeownership and robust public pension spending.¹⁵ Housing potentially constitutes not only the single greatest item in most retirees' budgets, but also, with food, one of the least substitutable or dispensable. The imputed income from freehold homeownership is a functional substitute for public pension income. Castles makes a causal argument that settler societies with high levels of homeownership prior to the emergence of public pension systems were least likely to develop robust public pensions, because freehold ownership of housing substantially reduced the income requirements of the home-owning elderly. Echoing Kemeny, Castles also noted that better off parts of the elderly population were more likely to own houses and thus were less favorably disposed towards higher taxes to provide cash income to elderly renters. In addition, while both renters and owners bear the cost of

property taxes, these taxes are most visible to owners, and thus draw the most resistance.¹⁶ Private, debt financed homeownership splits the natural elderly constituency for expanded social spending. Castles and Ferrera later expanded this argument to southern Europe, arguing for a distinctive combination of private but debt free homeownership and weak state taxation capacity.¹⁷ Debt free ownership emerged from the combination of a large rural population and considerable tax evasion through the cash purchase of property. In turn, weak taxation capacity limited the universality of public pensions.

Building on Kemeny and Castles' work, Gösta Esping-Andersen, David Malpass and Ben Ansell each present narrower arguments about the partisan use of housing policy to affect individual preferences.¹⁸ Where Kemeny and Castles made unmediated leaps from homeownership to voting preferences, Esping-Andersen looked at how individual homeownership demobilized the working class by pitting owners against renters and creating a psychology of personal gain. Malpass and Ansell, by contrast, separately look at how homeownership affected the politics of cutbacks in mature welfare states, rather than its build-out. They both argue, albeit in different ways, that voting preferences are sensitive to households' asset holdings. In the same spirit as the original arguments, they argue that rising asset values diminish voter preferences for a broader welfare state. All of these arguments focus on individual preferences. But the financial crisis was a systemic crisis. Balance sheets, which aggregate assets and liabilities, are what connect micro-preferences to macro-regulation and thus to the crisis.

2b: A balance sheet approach

Kemeny and Castles make what are essentially political arguments based on cash flows. Ansell moves us one step forward by looking at the consequences of changes in the values of stocks of assets, but still has a micro perspective. These arguments have underspecified political links between objective cash flows out of households and equally objective public and private cash flows back into those households (or changes in asset prices). But an equally compelling and more direct argument for the complementary link between renting and public pensions on the one hand and private indebted homeownership and weak public pensions (or more precisely between private, indebted homeownership and private pensions) on the other hand, can be found in the necessary links between both sides of the balance sheet.

Put simply, all assets on a balance sheet must have a corresponding liability on the other side of the balance sheet. What this means is that mortgages, which are liabilities to the borrower, must show up as assets on someone else's balance sheet. The natural holders of medium and long term mortgage assets are private pension plans or funded public pensions. This removes a potential source of instability from both banking and pension systems by matching maturities for long-term assets and liabilities. Before the Great Depression, the absence of state intervention in mortgage markets in most countries limited residential mortgage finance, because banks had to finance long term assets using short term liabilities. After the Great Depression, states in nearly all OECD countries developed housing finance systems that contained this safer maturity match. Regulation of housing finance was not only part and parcel of the more general regulation of finance, but also, given the scale of housing finance, one of its most important aspects.

Maturity mismatches occur when an organization borrows in credit markets on a short term basis and then reinvests the proceeds into less liquid, longer duration assets. Maturity refers to length of time before a given debt must be repaid. A loan or bond with a one year maturity must be repaid in one year; a ten year loan or bond after ten years. Mismatched maturities are dangerous. If the short term lender calls in her loan from the actor who has borrowed short term in order to lend or invest long term, that long term investor may not be able to generate enough cash to repay the short term loan. What ensues is either a forced or panicked liquidation of the long term asset at a loss, or default on the short term liability. Banks are the classic locus of mismatched maturities in most economies. Indeed, banks exist precisely in order to turn short term liabilities (depositor's money) into long term assets (loans to

homebuyers and industrial firms), which is why they are vulnerable to bank runs. Pre-1940s US banks tried to limit their maturity mismatch by structuring mortgages as three to five year balloon loans, where the whole principal was due at once at the end of term. Even so, the 1930s collapse of farm land and urban housing prices caused many banks to fail, provoking a vicious cycle of bank runs, property liquidation and falling prices for banks' collateral assets.

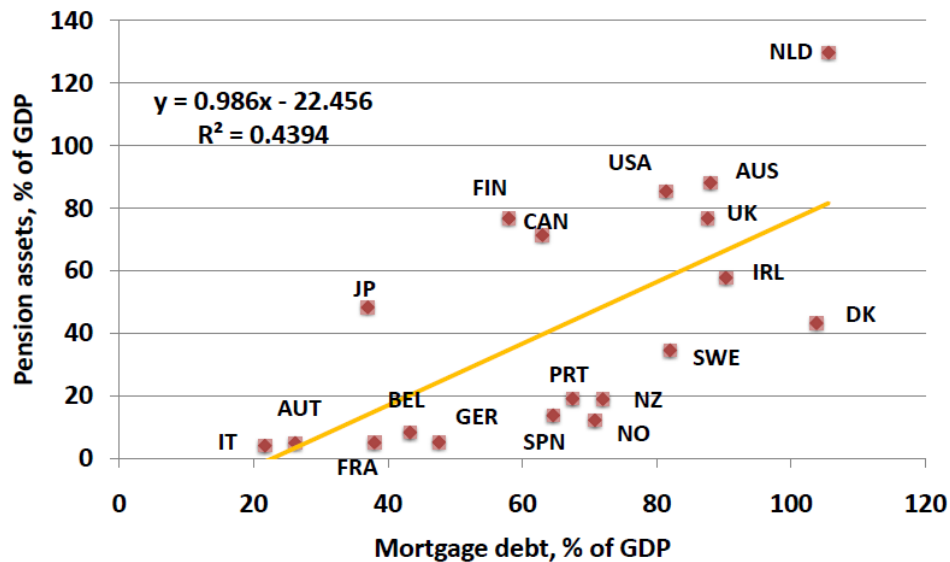
Most analyses focus on state efforts after the 1930s to resolve this core maturity mismatch using depositor guarantees or insurance to stabilize bank deposits. These guarantees were valuable for potentially panicky depositors. But states also segmented financial markets to remove the maturity mismatch from banks' books. They sought to tie housing finance to pensions as a way to match long term assets to long term liabilities. Pension fund balance sheets are the logical place to lodge long term assets like mortgages, and in particular the historically unusual 30 year self-amortizing mortgage that is currently standard in the United States. Pension and insurance funds have stable and predictable long term liabilities to their customers, particularly as rational consumers should opt to annuitize pension income. To fund these liabilities, pension funds need assets that generate a stable and predictable cash flow on the other side of their balance sheet. Mortgages provide that stable and predictable cash flow. Mortgages are not the only way to get stability, but they nevertheless account for a large proportion of pension assets everywhere. While equities have come to comprise an ever larger share of pension assets, their volatility makes them less suitable for annuitization, as Burtless (this issue) shows.¹⁹ Moreover, in the first post-war decades, equity markets were too small to be more than a supplement in most countries. Finally, while government debt is also stable, it is also low yielding.

Purely on a balance sheet basis, then, we would expect to see the Castles/Kemeny relationship. Figure 1 shows that even as late as 2009, after years of deregulation and a steady shift of pension assets towards equities, there was still a very strong connection between the size of all pension assets, included funded public pensions, and mortgages relative to GDP.²⁰ Contrary to Castles/Kemeny, though, the issue is not public versus private pensions, but rather whether those pensions are funded. Public and private funded pensions are naturally matched by widespread private indebted homeownership; public Pay As You Go (PAYGO) pensions are naturally matched by widespread rental housing. PAYGO pensions are funded out of current tax revenues, while funded pensions are paid out of the income from capital, i.e. from an explicit asset. The funded parts of pension systems in social democratic Sweden and Denmark, for example, both hold large pools of mortgage debt. The pre-2000 reform Swedish AP pension funds, for example, held assets equal to about 40 % of GDP and were a major source of funding for public housing. In 2000, mortgages constituted 25 % of total assets and 33 % of fixed income assets for the First and Second AP funds.²¹ Covered mortgage bonds similarly constituted 55 % of the assets in Denmark's second tier ATP pension fund in 1998, and even more in multi-employer pension funds and life insurance firms that year.²²

The balance sheet connection between private pensions and mortgages is not simply functional. As Kemeny argues, housing markets reflect political choices about who will be shielded from market risks and how that buffering will be done. But put aside the meaningful differences among OECD welfare states and step back to look at the broader picture. Regardless of their political coloration, all the OECD states regulated their financial markets after World War II. They tried to segment their financial systems in ways that among other things reduced maturity mismatches in the financing of housing and industry. While the matching of housing assets and pension liabilities looks natural, it emerged from deliberate state policy.²³

Private maturity matching had already started in the United States in the 1940s. Pension funds sought long term returns by directly building and operating large real estate complexes. Thus in the 1940s Metropolitan Life Insurance company built over 20,000 apartments in the Stuyvesant Town-Peter Cooper Village and Riverton complexes in New York City. Met Life's customers in effect funded their own pension and life insurance annuities with their rental and mortgage payments. Yet this meant that

Figure 1:
Mortgage debt vs all pension assets, % of GDP, 2009



Source: Author calculations from OECD and European Mortgage Foundation data

Met Life was both exposed to the vicissitudes of the New York real estate market and directly involved in property management. Compare this to the current holdings of the Teachers Insurance and Annuity Association part of TIAA-CREF, the American professors' pension fund. Its holdings of commercial real estate mortgages in the United States provide a match for its traditional guaranteed annuity product. Direct real estate holdings, commercial mortgages, and mortgage backed securities accounted for 45 percent of its assets in March 2010.²⁴ Yet three-fourths of its real estate and mortgage exposure takes the form of mortgage backed securities (MBS). Mortgage securitization bundles large numbers of mortgages together – usually 500 to 1000 – and sells the rights to income from this bundle to the capital market. MBS thus remove the need for direct property management and in principle provide geographic diversification. How was the shift from direct ownership towards MBS accomplished?

As Kenneth Snowden shows, the US federal government responded to the collapse of the housing market and the banking system with a comprehensive set of new institutions on both the supply and demand side of the housing finance market.²⁵ The Federal Home Owners' Loan Corporation refinanced roughly 1 million mortgages after 1933 by exchanging its bonds for mortgages on banks' books. In doing so, it restructured housing finance away from shorter term (3 to 5 years), balloon payment, high down-payment, variable interest rate, interest only mortgages and towards the typical contemporary longer term, low down-payment, fixed rate, self-amortizing US mortgage. The Federal National Mortgage Association (1938, later Fannie Mae) and the Federal Home Loan Banks emerged as successor institutions to the HOLC. They became the primary supply side force in housing finance. On the demand side, the Federal Housing Authority (FHA, 1934) (and to a lesser extent the Veterans Housing Authority and the Federal Farmers' Housing Authority) insured mortgages that met their underwriting criteria.²⁶

Fannie Mae (and later its sister Government Sponsored Enterprise, Freddie Mac) and the FHA standardized and stabilized the demand side of the housing finance market. Underwriting criteria for insurance or mortgage purchase homogenized both home buyers and the houses they bought, creating a relatively uniform asset that could be packaged and resold. Standardized, government guaranteed

mortgages enabled pension funds and insurance firms to distance themselves from property management and instead buy a pure financial asset to balance their books. At the same time, the government took mortgages and thus the maturity mismatch off banks' books. Initially the link occurred through straightforward government debt, albeit based on houses. Like HOLC, Fannie Mae originally bought mortgages from banks. It financed those purchases by borrowing in capital markets. Capital markets thus bought Fannie's (and later Freddie's) debt, rather than an MBS. During the 1970s, Fannie developed the MBS, and began to turn itself into a pure servicer of mortgages on behalf of buyers of those residential MBS.²⁷ This transformed individual mortgages into a kind of corporate bond, replacing the need for Fannie Mae to actually hold mortgages on its books (as assets) and debts to its funders (as liabilities). Federal government interventions thus eventually created a new class of liquid, long-term asset that pension funds could buy, removing mismatched maturities from banks' balance sheets.

In other countries the transformation of housing debt into a liquid financial asset to match pension fund liabilities was somewhat more straightforward, though as Schwartz and Seabrooke note some states used control over housing finance to shift funds towards industry.²⁸ In Norway, *Den Norske Stats Husbank* funded municipalities and cooperative housing associations using government funds, and held mortgages on its own books. It typically supplied more than half of mortgage funding. Like the various US agencies, it not only standardized credit but also the actual physical structures that credit financed. In Iceland the Housing Financing Fund (*Íbúðalánasjóðs*) and its two predecessors were the primary supplier of mortgage credit, and their bonds eventually constituted between 35 and 40 % of private second tier pension assets in the 1990s. In the case that most resembles the United States, the Netherlands, a private but state backed firm, the Homeownership Guarantee Fund (*Stichting Waarborgfonds Eigen Woningen, WEW*) insures residential MBS against default through the *Nationale Hypotheek Garantie*. NGH consolidated a number of municipal schemes insuring mortgages. As Figure 1 shows, the Netherlands has enormous private pension funds. Finally, some states left mortgages on banks' books, but in the form of covered bonds. As with residential MBS, covered bonds are bundles of mortgages that theoretically are sold onward to outside investors. Unlike residential MBS, covered bonds stay on banks' books with a bank guarantee against credit risks. Denmark has Europe's most developed system of covered bonds, and Danish pension funds are heavy purchasers of those bonds.

2c: The macro-welfare state

Why did this macro-regulation of housing finance matter? The most visible and more studied tools of the welfare state – pensions, unemployment insurance, and health insurance – all remove market and life risks from individuals. Government reconstruction of housing finance markets post-war helped to remove risk from the financial system. These interventions resolved both the maturity mismatch problem for deposit taking banks and banks' interest rate risk around long term mortgages.²⁹ Banks taking what inevitably were short term public deposits could not easily transform those deposits into mortgages with the 15 to 30 year maturities typical of post war mortgages.

Micro- and macro-regulation intersected in the homogenization of both the supply and demand side of housing finance. The numbing regularity of the apartments constructed under Sweden's *Miljonprogrammet* is the extreme example of this homogenization. But even in the United States, state regulation of housing finance homogenized the market. On the borrower's side, Fannie Mae's (and later Freddie Mac's) policy of only purchasing loans that conformed to their underwriting standards targeted and created a homogeneous suburban white middle class. Conforming (i.e. 'prime') loans required borrowers to make a 10 percent down payment (i.e. be below a 90 percent loan to value ratio), have a credit rating that put them into the top 75 percent of the population, and expend no more than 28 percent of their gross income on direct housing expenses (principal, interest, property taxes and insurance). In addition the loan amount was capped in most markets at 125 percent of the national median home price. Credit ratings and loan limits respectively set a floor and a ceiling on loan size,

home size, and the incomes of potential Fannie Mae and FHA borrowers. The FHA and VA also regulated quality and size standards for new construction, producing the uniform suburbs of the 1950s and 1960s.³⁰ Both sets of criteria assured very low default rates on mortgages, and easy resale in case of default. Default rates on Fannie and Freddie insured mortgages historically ran at about 0.5 % of loans. This homogenization helped to standardize the MBS constructed from individual mortgages, making them more predictable and thus more attractive to pension funds.

Segmentation of US housing finance thus reduced the probability and potential severity of systemic financial stress coming from the housing market. *Pari passu*, this regulation was even greater in Europe. By matching maturities in the supply and demand for mortgages as long term assets and liabilities, regulation reduced the risk and consequences of bank runs. To be sure, risk could not be eliminated. Borrowers who did not meet the underwriting criteria of the federal agencies also wanted access to housing finance. The US sub-prime market emerged to service this demand, naturally at much higher interest rates. But banks could not easily move these loans off their books into the Fannie Mae-pensions complex. The segmentation of the market both forced banks to be cautious about extending these kinds of loans, and protected the rest of the housing finance system from them. Segmentation put a circuit breaker between housing finance and the rest of the financial system. It protected bankers from each other.

Finally, macro-regulation and financial market segmentation also shielded the financial system from the dangers of a broad economic downturn. Pension funds and insurance firms have relatively stable cash inflows from contributions and premia. This money has to go somewhere. By connecting those flows to housing finance, regulation assured a steady flow of capital to an economic sector whose interconnection with other goods producing sectors and whose labor intensity made it macro-economically significant. Normal monetary policy in the United States worked most effectively through its effects on housing demand, helping to stabilize what would otherwise be a fairly unstable part of the economy.³¹ As the 2008-2010 recession showed, when consumers panic they understandably defer purchases of durables and structures. They generally cannot defer consumption of non-durables. The segmented housing finance system was thus self stabilizing until the deregulation of finance in the 1990s and the non-regulation of finance in the 2000s.

3: Erosion of the welfare state and the accretion of housing debt

With the role played by macro-regulation now established, we can turn to the micro-level arguments about welfare erosion, housing and the crisis. The stylized fact behind arguments linking erosion of the welfare state to rising debt and in particular rising mortgage debt looks something like the arguments advanced in other papers in this issue: faced with stagnant wages and a falling real value of pensions, health insurance coverage, and other buffers against risk, households increasingly used credit and in particular housing based credit as a substitute buffer. As welfare state opponents succeeded in shifting risk off the fisc and onto individuals, housing moved to the forefront of individual strategies for attaining economic security.³² Home equity became a source of current and future consumption, emergency cash, and disguised retirement savings.

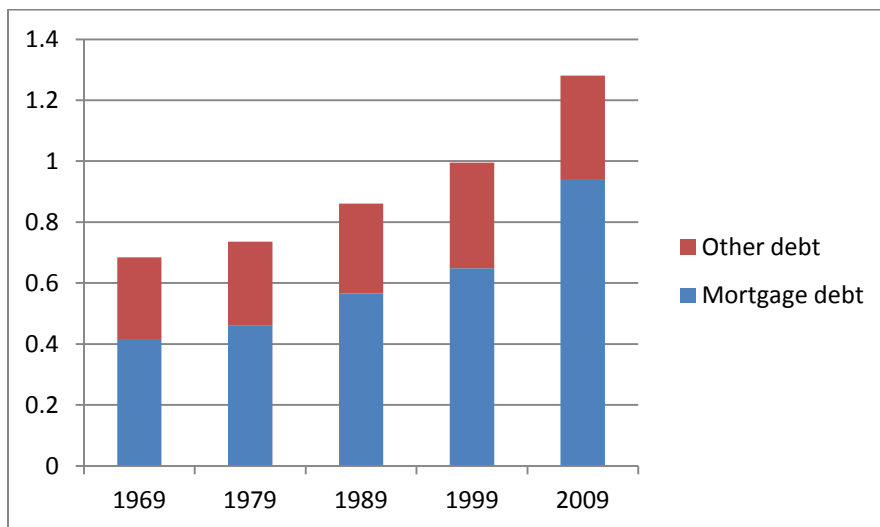
This argument is plausible, but does not constitute a sufficient condition for the crisis. First, the distribution of homeownership and home equity does not match the distribution of financial stress. All other things being equal, younger and poorer families or individuals are more exposed to the risk of unemployment or uncovered health care expenses, yet these are precisely the populations that are least likely to own homes with substantial equity. Only 55 % of US households with incomes under \$50,000 (about 52 % of all US households) lived in owner occupied housing in 2007, versus 83 % of households with incomes over \$50,000.³³ Most of the poorer homeowners were the elderly. So we would expect to see a disproportionate increase in non-housing related forms of debt as work/welfare stress increased in the United States during the 1990s and 2000s. It was precisely the lowest income deciles that saw the

smallest income gains and suffered most from cutbacks in the formal US welfare state. And indeed, their debt levels increased disproportionately, 1992 to 2007. Average household debt for the bottom 40 % of the population grew by \$23,100 per household those years.³⁴

Perhaps the rise in mortgage debt was driven by the increasingly difficult straits in which the upper income deciles (excluding the top decile) found themselves? While the erosion of the visible and invisible welfare state for higher income deciles was not as drastic as for the bottom, it can be linked more closely to the scale of rising mortgage debt. Two major forms of social protection eroded in the 1990s and 2000s. The percentage of non-elderly Americans with private health insurance declined 4 percentage points from its average level in the 1990s to 67 % by 2007. This gradual decline conceals an even larger rescission of coverage in terms of insurable events and out of pocket costs. Employee health insurance contributions increased four times faster than employee earnings from 1999 to 2007.³⁵

And indeed, absolute debt for deciles 40 through 80 grew even faster than for the bottom 40 %, at \$108,000 per household. (For the top 20 % by income, household debt actually declined, though entirely because of falling debt among the top 1 % by income.³⁶) So if households were substituting mortgage debt for public forms of social insurance, this occurred mostly in the upper half of the income distribution. While non-mortgage debt also rose quickly, it did not rise as quickly as mortgage debt, reflecting rising housing prices and thus home purchase debt, as well as cash out of home equity by incumbent owners (Figure 2). From 1950 through 1986, non-mortgage debt typically comprised around 38 % of household liabilities. But from the mid-1980s on and even more quickly after 2000, the share of non-mortgage debt fell more or less continuously, hitting 27 % in 2006.³⁷

Figure 2: US Mortgage and other debt relative to household income, \$ trillions, various dates



Source: Calculated from Federal Reserve Board, *Flow of Funds Accounts of the US*, Table B.100

More ominously, and more directly tied to housing debt, a massive shift from defined benefit to defined contribution pensions occurred in those decades (see Table 2). This transformation of pensions increased the importance of privately owned housing for retirement income security. Defined contribution pensions are inherently more volatile, as Burtless's article in this issue notes. One rational individual response is to shift resources into homeownership and home improvement. Rising prices then make it possible to realize those savings by trading down to a smaller house after retirement. Ansell's work suggests that steadily rising nominal house prices in the 1990s inclined voters toward this

individual strategy rather than a collective demand for a more robust public or publicly supported private pension system.³⁸ Even in the bottom quartile of US households by income, the median family had \$80,000 of home equity in 2007, almost as much as the next two quartiles.³⁹ Yet, as noted above, to trigger a systemic crisis this rising demand for housing as a savings vehicle not only had to find a corresponding supply of mortgage funding, but also do so in a way that contaminated the entire financial system.

Table 2: Share of US workers with defined benefit and defined contribution pensions

	1983	1997	2007
Defined benefit only	62	29	17
Defined contribution only	12	56	63
Both	26	15	19

Source: Boston College Center for Retirement Research,
http://crr.bc.edu/images/stories/Frequently_Requested_Data/frd_figure_1.pdf

Here is the last point at which a micro-level argument for sufficiency can be made. The crisis obviously stemmed from defaults on subprime and, to a lesser extent, Alt-A mortgages. Even today, while default rates on Fannie and Freddie prime mortgages are high by historical standards, at 5 % for loans made in 2006 and 2007, these rates remain well below the 50 % default rate on privately issued subprime mortgages for those years.⁴⁰ And while Fannie and Freddie's default rates were high enough to push them into bankruptcy in 2008, these rates did not start climbing until well after defaults on subprime and Alt-A mortgages had triggered the crisis, the recession, and a substantially higher unemployment rate. Fannie and Freddie's bankruptcy was a consequence rather than a cause of the crisis. The subprime market is precisely where precarious employment intersected with efforts at self-protection, given weak access to employer provided health insurance and pensions. Subprime borrowers were making a rational choice, albeit one resting on the irrational assumption that housing prices could only continue to rise.

Yet, as noted above, subprime borrowers' demand for mortgage money had to meet some supply. US public policy had created a minimal flow of mortgage credit into poor neighborhoods through the Community Reinvestment Acts of 1977 and 1995. The CRA bound only depository institutions – i.e. those whose deposits were covered by federal deposit insurance. The CRA produced a modest improvement in minority homeownership, which reached 42.3 % of all black households and 41 % of latino households by 1994.⁴¹ CRA lending accounted for only 6 % of the total volume of subprime lending in 2007, and CRA loans did not default at rates above the entire pool of subprime loans, indicating that they were not excessively risky.⁴²

Instead, the problems with subprime clearly emerged from the Republican Party's deregulation of depository institutions and *non-regulation* of non-bank financial firms – the overwhelming source of subprime lending – after 2000.⁴³ Absent these non-bank financial firms, the scale of subprime lending would have been much smaller, and the surge of subprime lending characteristic of 2005-2007 would not have occurred. This is why the sufficient conditions for the crisis have to be found at the macro-level, in deregulation of the financial sector. Deregulation and non-regulation allowed supply to meet demand in ways that connected previously segregated parts of the financial system, and in ways that inverted the old system of maturity matching in pensions and housing.

4: Deregulation, non-regulation and the re-emergence of maturity mismatches

Sufficient causes for a systemic financial crisis can be found in the end of the macro-welfare state that segmented and regulated finance. Deregulation and conscious non-regulation allowed US

financial firms to reconstruct their businesses as comprehensive financial platforms linking all the important segments of the financial sector: insurance, retail banking, commercial finance, investment banking, and trading on their own account. This increased the probability that any given crisis would implicate all parts of the financial system. Banks' efforts to trade on their own account created the trigger for the crisis. This trading, done through structured investment vehicles (SIVs) domiciled offshore, constructed the actual maturity mismatch. Banks' SIVs connected the broader commercial funding market to the housing finance market by borrowing short term in the money market to fund their purchases of nominally long term mortgage assets. Banks connected the insurance industry to their SIVs by purchasing insurance via credit default swaps⁴⁴ against the possibility of SIV default.

The critical act of deregulation occurred in the Financial Services Modernization Act of 1999, which effectively repealed the 1933 Glass-Steagall Act. Glass-Steagall had segmented the financial system, building firewalls between the five core activities list in the prior paragraph. The Financial Services Modernization Act permitted American banks to begin constructing enterprises that looked like European universal banks. Yet universality, per se, was not the problem. European universal banks did not generate the subprime crisis, although their role in the Euro crisis remains understudied. The prevalence of the PAYGO-rental model meant that most European banks could not expand mortgage lending into the lower income deciles. European banks' inability to transfer risk through market based securitization made it impossible for them to generate outsized volumes of risky mortgages. The crisis required not just universality, i.e. connectivity, but securitization in the context of a private pension-indebted home purchase system for matching maturities. In this regard, it is notable that Dutch and British banks were among the hardest hit by the crisis.

Pre-deregulation securitization differed from post-deregulation securitization, and public securitization differed from private. The majority of new mortgages were already being securitized in the 1980s, as Fannie and Freddie moved to a model in which they insured MBS rather than held mortgages. From 1988 to 2006, new issues of residential MBS rose from \$165 billion to \$2047 billion. But the originators of and the vehicles for securitization changed as financial deregulation permitted investment banks and other financial firms to enter Fannie and Freddie's territory. Private securitizers took ever increasing shares of the market, rising from 9.1 % in 1988 to 55.7 % in 2006.⁴⁵ Private securitizers generated residential MBS in ways that individuated risks for other financial firms rather than socializing them. Fannie and Freddie's residential MBS had socialized risk. Losses were distributed pro-rata across the financial firms buying a slice of any given pool of mortgages. By contrast, private-label Collateralized Debt Obligations (CDOs) sliced mortgages and MBSs into tranches with differing risk profiles and maturities. CDOs concentrated risk into the lower rated tranches of the CDO. Here, losses could wipe out an investor holding those riskier tranches – as happened in 2007-08.

Both commercial and investment banks – a distinction that became increasingly meaningless in the 2000s) – traded CDOs on their own account. They did so by creating SIVs offshore. SIVs were the point at which all parts of the financial system met. SIVs inverted the usual matched maturities found in the pension-mortgage match-up. SIVs borrowed short term – for 90 to 180 days – in the commercial paper market (i.e. money market mutual funds), and then turned around and bought CDOs composed of long term, subprime mortgages. This allowed them to arbitrage between the 3 to 4 % interest rate on short term loans and the 7 % interest rate that subprime mortgages generated in their first two years. SIVs were gambling that those subprime mortgages would be refinanced before the money market funds called back their loans to the SIVs. And they were gambling with other people's money, as they typically used leverage ratios in excess of twenty to one.

Leverage and arbitrage could potentially generate double and triple digits returns on SIVs' limited equity. But it was also extremely risky. The banks that owned the SIVs understood this. Their solution to the risk connected a third segment of the financial sector to housing finance. Banks bought insurance against default in the credit default swap (CDS) market from, *inter alia*, firms like AIG. Non-

regulation of derivatives also meant that uninvolved third parties could bet against banks and the subprime mortgage market by buying 'naked' credit default swaps, i.e. credit default swaps where you were insuring against someone else's loss rather than your own. By 2007, then, deregulation and non-regulation had blurred the difference between commercial and investment banks, and those banks' pursuit of above average gains led them to connect short term finance, the insurance industry, and the housing finance system together. Banks consciously recreated the mismatched maturity around housing finance that had existed before the Great Depression.

The risks involved in this mismatch did not go unnoticed. But the George W. Bush administration had partisan political motivations for exercising regulatory forbearance. Subprime lending was concentrated in electorally critical states like California, Arizona, Nevada and Florida. Mortgage lenders generated a big and rising share of campaign contributions, and subprime lenders in particular were big contributors to the Republican Party.⁴⁶ A series of well publicized events in 2001 showcased the head of the Office of Thrift Supervision, which is one of several US federal government regulators of savings banks (i.e. *sparkassen*), and the Federal Deposit Insurance Company using a chainsaw to cut through a stack of regulatory manuals with the help of representatives of bank lobbying associations. Lenders regulated by the Office of Thrift Supervision originated about one-sixth of the entire stock of subprime loans, and perhaps the riskiest sixth.⁴⁷

No one outside the finance industry understood the implications of the SIV investment structure described above. But as the outsized scale of subprime lending became apparent, voices in the Office of the Comptroller of the Currency (another bank regulator) and the Federal Reserve were warning that rising defaults on these loans posed a considerable threat to the financial system.⁴⁸ The Bush administration made a conscious decision in 2005 *not* to regulate the rapidly proliferating non-depository financial institutions that were originating the bulk of the subprime and Alt-A loans. As Lawrence Lindsey, Bush's first chief economic advisor, said, "No one wanted to stop [the housing] bubble. It would have conflicted with the president's own policies."⁴⁹ The Bush administration also pressured Fannie Mae and Freddie Mac to securitize more subprime mortgages as a way of rescuing increasingly troubled private mortgage originators. All this allowed the scale of the maturity mismatch to grow to unstable proportions.

5: Conclusion: Maturity mismatch

Housing was the weak pillar of the welfare state and of the welfare state literature. But to put the main point bluntly: it was not the continual *expansion* of the tax and spend side of the welfare state that brought capitalism to its knees. Rather, efforts to unscrew individual and system level social protection respectively created the necessary and sufficient conditions for crisis. The increasing individuation of risk in the liberal economies forced people in the United States and elsewhere to rely ever more on homeownership as a substitute for social risk sharing mechanisms. Individual efforts to replace public cash and public services with homeownership pushed home prices up to clearly unsustainable levels. By 2006 the ratio of US median housing prices to median income was 60 % higher than the average level from 1987 to 1998.

At the same time, this increased demand for housing had to meet an increased supply of mortgage credit. Individual desires for goods they cannot afford do not imply a corresponding increase in available credit. The old welfare states supplied credit in a systemically safe way, funding long duration liabilities with money from actors desiring to hold long duration assets. They protected themselves from unsustainable prices and bad risks by screening their borrowers. The unscrewing of financial regulation, of the macro-welfare state, thus dismantled social protection for firms. It removed barriers to a systemic crisis. Deregulation permitted financial firms to connect all parts of the financial system. In prior crises, usually only one segment of finance found itself in danger, as with the 1980s Savings and Loan crisis. Individual firms failed, but other segments of the financial system were

unaffected. Left to their own devices, financial firms reconnected formerly segmented parts of the financial system inside individual financial firms. Any crisis that brought down the firm would spread the crisis to other segments in which the firm was active.

Non-regulation permitted a race to the bottom in terms of borrower quality. Regulated mortgage markets had their flaws, most notably pervasive racial segregation. But they did successfully match low risk borrowers to investors seeking low risks and predictability. Left to their own devices, financial firms actively sought out risky borrowers, or pushed borrowers into risky loan products. They thus magnified the risks to the entire financial system. Banks in countries where regulation and custom limited the subprime market, like Australia or Germany, found themselves implicated through their participation in American follies, rather than folly in their own domestic market.

Finally, left to their own devices, financial firms recreated and magnified the very maturity mismatches that were at the center of the banking collapse in the Great Depression. Worse, they connected investors seeking relatively risk-free investment in money markets to the extremely risky subprime mortgage market. This maturity mismatch between unguaranteed short term lending and long term investment provoked the modern version of a bank run, albeit one including financial firms as well as individual depositors. The precise timing of that crisis, as with any crisis, was not predictable. But the inevitability of a crisis was. And when it came, the sheer size of the mortgage market and the new interconnections between all parts of the financial system meant that the crisis would be big, while the macro-economic importance of housing meant that recovery would be protracted.

The salience of the macro-welfare state becomes clear only when we look at both sides of the housing finance balance sheet. A balance sheet approach makes two things clear. First, the connection between private, indebted homeownership and both smaller public old age pensions and a smaller visible welfare state is not simply a matter of individual voting preferences. It also reflected efforts to protect financial firms and the financial system from itself by removing a key maturity mismatch from the financial system. Second, it helps us determine which causes of the global financial crisis were necessary and which were sufficient. In turn, that knowledge allows more precision in addressing those causes so as to prevent any future crisis.

NOTES

¹ Karl Polanyi, *The Great Transformation* (Boston: Beacon Press, 1957).

² Jacob Hacker, *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream* (New York, NY: Oxford University Press, 2008).

³ Raghuram Rajan, *Fault Lines* (Princeton: Princeton University Press, 2010) makes a similar argument; Elizabeth Warren and Amelia Tyagi, *The Two Income Trap* (New York, NY: Basic, 2004) point strongly to the centrality of housing in families' strategies for (inadequately) coping with risk; Peter Hall, "The Political Origins of Our Economic Discontents: Contemporary Adjustment Problems in Historical Perspective," in Miles Kahler and David Lake, eds., *Politics in the New Hard Times: The Great Recession in Comparative Perspective*, (forthcoming, Ithaca, NY: Cornell University Press, 2012) and Monica Prasad, *The Land of Too Much* (unpublished manuscript, Northwestern University, 2011) provide different broad historical surveys.

⁴ Simon Johnson and James Kwak, *13 Bankers* (New York, NY: Pantheon, 2010).

⁵ Waltraud Schelkle, "Consumer Protection – Social Policy in Disguise or on Display? Attempts at Regulating Mortgage Credit in the EU and the US."

⁶ See Herman Schwartz, *Subprime Nation: American Power, Global Capital, and the Housing Bubble* (Ithaca, NY: Cornell University Press, 2009) for the first argument, and two papers by Donald MacKenzie, "The Credit Crisis as a Problem in the Sociology of Knowledge," unpublished paper, University of Edinburgh, September 2010,

http://www.sps.ed.ac.uk/_data/assets/pdf_file/0019/36082/CrisisRevised.pdf and "Knowledge Production in Financial Markets: Credit Default Swaps, the ABX and the Subprime Crisis," unpublished paper, University of Edinburgh, November 2010

http://www.sps.ed.ac.uk/_data/assets/pdf_file/0010/55936/ABX13.pdf for the second.

⁷ Herman Schwartz and Leonard Seabrooke, "Varieties of Residential Capitalism in the International Political Economy: Old Welfare States and the New Politics of Housing," *Comparative European Politics* 6, no. 3 (2008): 237-261 provide a more nuanced discussion of the causes and consequences of variations in the scale of mortgage debt and of homeownership in the OECD.

⁸ See Jeffrey Ladewig, "Housing Starts and the Political Business Cycle," *American Politics Research* 36, no. 5 (2008): 776-98, and Edward Leamer, "Housing and the Business Cycle," Federal Reserve Bank Symposium on "Housing, Housing Finance, and Monetary Policy," Jackson Hole, Wyoming, August 2007 on the United States. See Schwartz, *Subprime Nation*, chapter 4 for an extended discussion of the differences in housing finance markets across the OECD.

⁹ In the United States, prime mortgages are those qualifying for Fannie Mae or Freddie Mac purchase. Mortgagors must have a credit score over 620 (about 25 percent of households fall below 620), commit no more than 28 % of their gross household income to principal, interest, property tax and insurance payments and no more than 34 % of household income to all debt service, and make a 10 % down payment (i.e. 'purchase money'). Alt-A mortgages are typically those in which the debt service-to-income limits are breached, i.e. the mortgager has good credit but takes on too much debt. Subprime mortgages are those in which two or more characteristics are deficient.

¹⁰ Yalman Onaran, "Banks' Subprime Losses Top \$500 Billion in Writedowns," *Bloomberg* 12 August 2008, <http://www.bloomberg.com/apps/news?pid=20601087&sid=a8sW0n1Cs1tY&>.

¹¹ Economics also largely ignored housing and housing finance; see Leamer, "Housing and the Business Cycle," 1-2.

¹² http://apsanet.org/content_43579.cfm?navID=840 accessed 15 April 2011.

- ¹³ James Kemeny, "Home Ownership and Privatisation," *International Journal of Urban and Regional Research* 4, no. 3 (1980): 372-88; Francis Castles, "The Really Big Trade-off: Home Ownership and the Welfare State in the New World and the Old," *Acta Politica* 33, no. 1 (1998): 5-19.
- ¹⁴ James Kemeny, "'The Really Big Trade-Off' between Home Ownership and Welfare: Castles' Evaluation of the 1980 Thesis, and a Reformulation 25 Years on," *Housing, Theory, and Society* 22, no. 2 (2005): 59-75 at p. 60.
- ¹⁵ Sociology also has a small literature on this issue; see Dalton Conley and Brian Gifford, "Home Ownership, Social Insurance, and the Welfare State," *Sociological Forum* 21, no. 1 (2006): 55-82.
- ¹⁶ Isaac Martin, *The Permanent Tax Revolt: How the Property Tax Transformed American Politics* (Stanford: Stanford University Press, 2008).
- ¹⁷ Francis Castles and Maurizio Ferrera, "Home Ownership and the Welfare State: Is Southern Europe Different?" *South European Society and Politics* 1, no. 2 (1996): 163-85.
- ¹⁸ Gösta Esping-Andersen, *Politics Against Markets: The Social Democratic Road to Power* (Princeton: Princeton University Press, 1985); Peter Malpass, "Housing and the New Welfare State: Wobbly Pillar or Cornerstone?" *Housing Studies* 23, no. 1 (2008):1-19; Ben Ansell, "Nest Eggs and Negative Equity: The Political Economy of Ownership," unpublished paper, 2011.
- ¹⁹ Gary Burtless, "Can Improved Financial Market Access Offer a Reasonable Substitute for Public Pensions? Lessons from the Economic Crisis."
- ²⁰ Looking at only private pensions does not change the relationship much; the correlation only drops to 0.407. A graph with only private pension assets is archived at <http://www.people.virginia.edu/~hms2f/PAS-figure2.pdf>.
- ²¹ Ellen Immergut and Karen Anderson, "Sweden," in Ellen Immergut, Karen Anderson and Isabelle Schulze, eds., *The Handbook of West European Pension Politics* (New York, NY: Oxford University Press, 2007), p. 365.
- ²² Carsten Andersen and Peter Skjodt, "Pension Institutions and Annuities in Denmark," World Bank Policy Research Paper 4437, December 2007, p. 14-15. The multi-employer pension fund LD still had 35% of its assets in covered bonds in 2008; LD *Annual Report*, 2008, p. 14.
- ²³ And as Kenneth Snowden, "Long-Run Impacts of Responses to the Mortgage Crisis of the 1930s in the U.S.," presented at 'Never Waste a Good Crisis': The Social Policy Dimension of Regulatory Crisis Management in the EU & the US, Social Science Research Center Berlin, 19-20 November, 2010 p. 11 notes, banks themselves had already begun agitating in the 1920s for some Federal agency to help move mortgages off banks' books. Sarah Quinn, "Government Policy, Housing, and the Origins of Securitization, 1780 - 1968" (PhD Dissertation, University of California, Berkeley, 2010) also addresses securitization.
- ²⁴ TIAA-CREF, *TIAA Traditional Annuity: Adding Safety and Stability to Retirement Portfolios*, Spring / Summer 2010.
- ²⁵ Snowden, "Long-Run Impacts of Responses to the Mortgage Crisis of the 1930s in the U.S." pp. 16; see also Leonard Seabrooke, *Social Sources of Financial Power* (Ithaca, NY: Cornell University Press, 2006) and Sarah Quinn, "Government Policy, Housing, and the Origins of Securitization."
- ²⁶ See Figure 2 in Snowden, "Long-Run Impacts of Responses to the Mortgage Crisis of the 1930s in the U.S."
- ²⁷ Edward Gramlich, *Subprime Mortgages: America's Latest Boom and Bust* (Washington D.C.: Urban Institute, 2007), p. 14.
- ²⁸ Schwartz and Seabrooke, "Varieties of Residential Capitalism in the International Political Economy."
- ²⁹ Interest rate risk is the risk that a bank funds a long term, fixed interest rate mortgage using short term deposits. The interest rate on those short term deposits might rise, shrinking the spread between

the rate on the mortgage and the deposits used to fund that mortgage. Indeed, deposit rates could rise above the mortgage rate, as happened in the 1980s US savings and loan crisis.

³⁰National Institute of Building Sciences, *Study of the HUD Minimum Property Standards for One- and Two- Family Dwellings and Technical Suitability of Products Programs*, http://www.huduser.org/Publications/pdf/mps_report.pdf.

³¹ Leamer, "Housing and the Business Cycle," 2007: 8-11, 16.

³² For arguments on the desocialization and the individuation of risk, see respectively Herman Schwartz, "Small States in Big Trouble: The Politics of State Reorganization in Australia, Denmark, New Zealand and Sweden in the 1980s," *World Politics* 46, no. 4 (1994): 527-555 and Hacker, *The Great Risk Shift*.

³³ Author's calculation from U.S. Census Bureau, *American Housing Survey* (2009), Tables 3.12 and 4.12.

³⁴ Calculated by Edward Wolffe, Economic Policy Institute, from Federal Reserve Board, *Survey of Consumer Finances* data.

³⁵ Kaiser Family Foundation, <http://kff.org/insurance/snapshot/chcm030808oth.cfm>.

³⁶ Calculated by Edward Wolffe, Economic Policy Institute, from Federal Reserve Board, *Survey of Consumer Finances* data.

³⁷ Author's calculation from Federal Reserve Board, *Flow of Funds Accounts of the US*, Table B.100, at <http://www.federalreserve.gov/releases/z1/>.

³⁸ Ansell, "Nest Eggs and Negative Equity," 2011. An unbelievable 81 % of US respondents still thought homes were the best possible investment as of April 2011, according to a Pew Research Center poll; <http://pewresearch.org/pubs/1960/homeownership-still-thought-best-long-term-investment-by-big-majority>.

³⁹ Harvard Joint Center for Housing Studies, *State of the Nations Housing* (Cambridge, MA: Harvard JCHS, 2009), p. 14.

⁴⁰ Fannie Mae "Fannie Mae 2010 Third-Quarter Credit Supplement," 5 November 2010, http://www.fanniemae.com/ir/pdf/sec/2010/q3credit_summary.pdf.

⁴¹ Harvard University Joint Center for Housing Studies, p. 37.

⁴² E. A. Duke "Stabilizing the Housing Market: Focus on Communities," 16 February 2009 at <http://www.federalreserve.gov/newsevents/speech/duke20090216a.htm>.

⁴³ Non-bank financial firm is a term of art for a lending entity that is not legally chartered as a bank, and thus cannot take deposits from the public or participate in the Federal Deposit Insurance Corporation.

⁴⁴ A credit default swap, or CDS, is insurance against default by some debtor. The purchaser of a CDS is typically a creditor insuring themselves against default by their debtor. The issuer of a CDS is thus gambling that default will not occur. It is possible to buy 'naked CDS,' i.e. for a third party to gamble on default by an unrelated debtor. This obviously creates incentives to push that debtor into default.

⁴⁵ Author's calculation from Federal Reserve Board, *Flow of Funds Accounts of the US*, Tables L.1 and L.2, at <http://www.federalreserve.gov/releases/z1/>.

⁴⁶ Atif Mian, Amir Sufi and Francesco Trebbi, "The Political Economy of the U.S. Mortgage Default Crisis," *American Economic Review* 100, no. 5 (2010): 1967-98. Nolan McCarty, Keith Poole, Thomas Romer, and Howard Rosenthal, "Political Fortunes: On Finance and its Regulation," *Daedalus* 139, no. 4 (2010): 61-73.

⁴⁷ Binyamin Appelbaum and Ellen Nakashima, "Banking Regulator Played Advocate Over Enforcer; Agency Let Lenders Grow Out of Control, Then Fail," *Washington Post* 23 November 2008, p. A01 at http://www.washingtonpost.com/wp-dyn/content/article/2008/11/22/AR2008112202213_pf.html

⁴⁸ Gramlich, *Subprime Mortgages*; Edmund Andrews, "Fed and Regulators Shrugged as the Subprime Crisis Spread," *New York Times* 18 December 2007, A1.

⁴⁹ Jo Becker, Sheryl Stolberg, and Stephen Labaton, "The Reckoning: White House Philosophy Stoked Mortgage Fire," *New York Times*, 20 December 2008, <http://www.nytimes.com/2008/12/21/business/21admin.html>.