

Persaud, Avinash

Working Paper

Breaking the Link Between Housing Cycles, Banking Crises, and Recession

CITYPERC Working Paper, No. 2016-02

Provided in Cooperation with:

City Political Economy Research Centre (CITYPERC), City, University of London

Suggested Citation: Persaud, Avinash (2016) : Breaking the Link Between Housing Cycles, Banking Crises, and Recession, CITYPERC Working Paper, No. 2016-02, City, University of London, City Political Economy Research Centre (CITYPERC), London

This Version is available at:

<https://hdl.handle.net/10419/251243>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



CITYPERC Working Paper Series

Breaking the Link Between Housing Cycles,
Banking Crises, and Recession

Avinash Persaud

CITYPERC Working Paper No. 2016-02
City Political Economy Research Centre
cityperc@city.ac.uk / [@cityperc](#)

City, University of London
Northampton Square
London EC1V 0HB
United Kingdom



Breaking the Link between Housing Cycles, Banking Crises, and Recession^{*}

Avinash Persaud¹

¹Senior fellow at the Peterson Institute for International Economics and Emeritus Professor at Gresham College

23 March 2016

The housing market lies at the center of the biggest banking crises across the world. The recessions that follow these banking crises are generally deeper and longer than others. The collapse of housing prices amid rising unemployment is a major source of inequality.

This working paper explains how the nexus between housing, banking, and the economy can be broken. It shows that two modest regulatory changes would result in life insurers and pension funds providing mortgage finance, which would better insulate the economy and homeowners from the housing cycle than financing from banks or markets can.

The reason why the housing market is so systematically important today is that banks fund long-term mortgages with short-term bank deposits or money market funds. In stressed environments banks get squeezed as funding leaves and bank assets are harder to liquidate. Bank regulators' efforts to address this problem have been stymied by the widely held view that borrowing short to lend long is the unchangeable essence of banking. All that can be done, according to this view, is to tighten lending requirements, make assets more liquid by securitizing them, and maintain access to central bank funds in times of crisis.

However, the banking model is not cast in stone. The degree of maturity mismatch between bank borrowing and lending is far greater today than it was historically. The ratio of mortgages to household debt; of bank-funded mortgages to all mortgages; and of real estate lending to total bank lending are all dramatically higher than they were 40 years ago.

The dominance of banks in the mortgage market and of mortgages on the balance sheet of banks and ordinary households is a response to the incentives from bank regulation, not the natural result of market or technological developments. These incentives are so powerful that the banking model followed the regulatory model and allowed banks to outcompete non-banks in the mortgage market.

More capital for banks would make them safer than they were, but it would not sufficiently sever the links between the housing cycle and the economy. Well-capitalized banks are not incentivized to wait for poorly capitalized banks to foreclose. Furthermore, securitizing mortgages increases their liquidity in confident times but not in a housing collapse.

Certain types of mortgages could reduce the sensitivity of the economy to housing cycles and thereby protect the banking system. One is a mortgage that automatically reschedules interest and principal payments during an economic recession, forestalling foreclosures and holding

^{*}A version of this paper was published in March 2016 as *Policy Brief* 16-TBD by the Peterson Institute for International Economics (Washington, DC). The contents of the brief are published here with kind permission.

up household expenditure. Banks cannot provide these types of mortgages, because doing so would add to their already dangerous procyclicality (the fact that their liquidity and asset values rise and fall with the economic cycle).

Institutions that have long-term liabilities, such as life insurers and pension funds, have the capacity to offer mortgages that provide the flexibility that suits homeowners, offset the economic cycle, and meet their own investment objectives. They do not offer them because current and proposed capital requirements make it costly for them to do so.

The natural capacity of life insurers and pension funds to spread liquidity risks over time—and the current inability of banks to do so—needs to be better reflected in financial regulation. The global capital adequacy requirements for insurance assets recommended by the Financial Stability Board must be adjusted to the maturity of the liabilities they are set against. The Basel Committee's long-term stable funding ratio for large international banks, which requires banks to fund illiquid assets with stable funding, must be adopted, and the definition of liquid assets must be narrowed.

The housing-banking-economy nexus is not just about the 2008 subprime crisis

Housing booms and busts lie behind the biggest economic and financial crises in recent decades. Between 2006 and 2009, the Organization for Economic Cooperation and Development (OECD) countries that suffered the largest declines in household spending (Denmark, Ireland, Norway, Portugal, Spain, the United Kingdom, and the United States) were those that had the largest increases in household debt over the preceding 10 years (Glick and Lansing 2010). Most of this debt was collateralized with homes in one way or another. When housing prices collapsed, the net worth of these indebted consumers and their banks followed suit, credit lines were cut, consumption fell,

and a fire sale of assets ensued. Personal consumption fell by 20 percent—four times the national average—in the one-fifth of US counties that suffered the largest declines in housing net worth during the period. The collapse of housing prices deepened the recession, not the other way around (Glick and Lansing 2010).

A nexus of housing boom-bust, banking crises, and economic cycles is not unique to the last crisis or its main features, such as subprime mortgages or liar loans; it has been increasingly present in every major banking crisis since the breakup of Bretton Woods in the early 1970s. Banking crises triggered by real estate collapses that were foretold by a previous boom occurred in the United Kingdom in 1973, Spain in 1977, the United States in 1986, Norway in 1987, Finland and Sweden in 1991, and Japan in 1992. Real estate booms begetting financial crises are not unique to advanced economies: Boom and bust in commercial real estate played an important role in the Asian financial crisis of 1997–98, especially in Thailand and Malaysia (Quigley 2001).

What makes bank mortgages systemically dangerous?

Sharp declines in housing prices undermine household wealth and bank balance sheets. In response households reduce consumption and banks stop lending. Economic activity drops and businesses lay off workers. Unemployment rises. The result is more nonperforming mortgages and weaker housing prices.

The housing-banking-economy nexus is stronger the higher the level of mortgage debt as a proportion of household wealth and bank balance sheets. The essential link between housing and the economy comes from foreclosure of nonperforming mortgages, fear of foreclosure, and the risk aversion of lenders triggered by the transformation of their seemingly safe liquid assets to assets that are illiquid and risky. This link is strongly connected to banks funding long-term mortgages with deposits and money market funds that can fly out of the door the next day.

All assets that are purchased with overnight deposits, money market funds, or other short-term funding have to be valued on the basis of the price they would fetch if sold the following day (marking to market). Marking to market is not just a modern legal, regulatory, or accounting requirement, it is a sensible risk management one if funders can ask for their money back the following day, forcing the institution to sell the asset immediately. Insured deposits are traditionally sticky; internet deposits, money market funds, and interbank markets are far less so. Not marking the value of bank loans, mortgages, and other assets to market if funding is short-term will be a cause of speculation over the liquidity and solvency of a bank, which will further undermine its access to liquidity.

During a downturn in economic activity, when a mortgage becomes nonperforming the value of the asset starts a downward spiral amid concerns about fire sales of homes, rising unemployment, and the deteriorating sellability of foreclosed and abandoned homes. In anticipation of these developments, the best course of action is to try and recover as much of the nonperforming loan as soon as possible. This decision is not substantially altered if the bank has more capital, as it is not in the interests of a well-capitalized bank to let undercapitalized banks foreclose on nonperforming mortgages first. If asset prices are falling and funding is drying up, slower sellers end up reporting larger losses than faster sellers. One of the first tremors of the 2008 financial crisis was the February 2007 announcement by HSBC, one of the better-capitalized institutions, that it was taking early action in response to a rise in nonperforming mortgages.¹ When well-capitalized banks inject more capital into troubled subsidiaries, they usually do so to write them down and where possible sell them off to institutions that are more aggressive at foreclosing than they might be. They don't generally do so to allow them to sit back and hang on to nonperforming assets.

¹Carrick Mollenkamp, "In Home-Lending Push, Banks Misjudged Risk," *Wall Street Journal*, February 8, 2007.

The housing-economy link is not just about foreclosure, actual or threatened; it is also about an increase in risk aversion by banks. Financial crises are often caused when assets that regulators, rating agencies, and investors previously considered safe turn bad at the same time. The abrupt overturning of previously strongly held beliefs about market value causes a lurch into risk aversion by banks and other institutions. Bankers in better capitalized banks might be expected to take advantage of their stronger position to increase market share. However, instead, they try to exploit customer fears over which banks will survive by making their previous conservatism a central part of their branding, further emboldening bankers to be risk averse. This risk-averse trend is augmented by the use of regulatory-approved risk models that translate past volatility into future risk (Persaud 2001). Capital buffers are not used to hang on to troubled assets. The descent into risk aversion is one of the reasons why aggressive central bank lending may keep banks alive but does not quickly restore lending and spending. More capital is required, and the more capital the better for banks and taxpayers. But more capital does not sever the link between the housing cycle and the economy as much as might be thought.

Isn't borrowing short to lend long what banks have always done?

Bankers, among others, have argued that maturity transformation—borrowing short term from depositors and lending long term to businesses and households—is an intrinsic part of banking and the reason why banks are inevitably prone to liquidity crises. However, the degree of maturity transformation today is a feature of only the last few decades of banking. Before the 1930s most bank loans were short term—mainly overdrafts to businesses for working capital or short-term trade finance; mortgages were not a staple part of banking. In 1928 real estate lending as a share of total

bank lending was just 16 percent in the United Kingdom, 15 percent in Spain, 14 percent in Japan, 5 percent in Italy, and 4 percent in France (Jordà, Schularick, and Taylor 2014).

Mortgage lending as a share of total bank lending was higher in the United States than elsewhere in 1928, reflecting the role of small rural banks in the westward land grab. However, at 39 percent, it was still just over half its current level. Moreover, bank mortgages at that time, in the United States and elsewhere, were shorter term than they are today, with maturities typically ranging from three to five years and down payments constituting 50 percent or more of the amount borrowed (US Census 1895 to 1928). Banks were also not the main provider of mortgages in 1928. Life insurers issued 22 percent of US farm mortgages—the main mortgage at the time and the type we have most data on—with commercial banks issuing a mere 11 percent (Snowden 1995). In the United Kingdom, building societies (similar to thrifts or savings and loans in the United States) provided more than 80 percent of mortgages. In Denmark the Mortgage Act of 1850 limited mortgage lending to similar savings institutions and required them to cover long-term lending with long-term bond issues.

Between 1928 and 2008, mortgage lending by banks in OECD countries rose from 18 percent of GDP to a whopping 75 percent. By 2008 the proportion of real estate lending to total lending had almost doubled in the United States to 68 percent; in the United Kingdom it had risen by a factor of 4 to 63 percent; in Italy it had risen by a factor of 10 to 48 percent. The share was 58 percent in Spain, 46 percent in Japan, and 43 percent in France (Glick and Lansing 2010).

Even these sharply escalated ratios underrepresent today's sensitivity of banks to the housing market. Homeownership and home equity play a more critical role than before in credit scores and approvals for credit cards, car loans, and other consumer finance. The dominance of real estate lending for banks and the resulting codependency of real estate finance, banking crises, and economic cycles is a modern manifestation across advanced economies. It was not

a historical norm before the 1970s or even an American one. At least initially it was the unintended consequence of postwar banking regulation.

Given the dangers, why do banks dominate the mortgage market?

Phase 1: The unintended role of banking regulation, 1913–79

Banking regulation is the product of banking crises. The idea of deposit insurance originated from the mutual insurance system of China's Cohong guild of merchants in the 1750s, but it took the debris of 9,000 bank failures in the United States before the Federal Deposit Insurance Corporation (FDIC) was created, by the Glass-Steagall Act in 1933. Henry Thornton and Sir Francis Baring argued over the lender of last resort function in the 1800s, but it was the failure of the London discount house Overend, Gurney & Co. in 1866 that consolidated its previously uneven practice at the Bank of England, one of the earliest practitioners of lender of last resort. The Wall Street panic of 1907 paved the way for the 1913 Federal Reserve Act. By the 1950s the response to disparate, distant crises was a regulatory structure in which in return for greater regulation and oversight of its solvency, a bank's depositors were insured, and in a crunch the bank had ready access to central bank liquidity.

To call it a structure is to imply that there was a plan. In fact, the structure emerged; it was not designed. Its main components arose in response to different crises and were largely independent of one another. Because the banks were the common subjects of the individual components of this structure, they were best placed to see its whole. They saw that if more deposits started leaving than arriving—the critical problem for a bank—its remaining depositors would not be panicked to follow, because they were insured. Furthermore, if the bank could not sell assets to return cash to departing depositors, it could stroll to the cen-

tral bank and borrow funds against the bank's highest-quality loans. Confidence by both depositors and markets that a bank would not have a liquidity problem would help to ensure that there would not be one. In response, banks began to use overnight deposits, for which they paid little or no interest, to fund long-term loans and mortgages, for which they could charge higher interest rates. This interest rate spread was a premium, in part, for taking liquidity risk. The new regulatory structure handed banks this liquidity premium for free.

Initially the proportions of this free lunch were heavily constrained by other regulatory restrictions. For instance, the amount of mortgage lending was constrained by the amount of deposits, which was limited by exchange controls and domestic restrictions on the level of interest banks could charge (Regulation Q in the United States and the Corset in the United Kingdom). During the 1950s/70s, banks were able to use the advantage regulators had given them to pull mortgage business away from non-banks only slowly.

Removal of these restrictions one by one, in the name of greater competitiveness, substantially expanded the size of the free lunch available to banks and their ability to outcompete nonbanks in the provision of mortgages. By the 1980s banks were able to fund 30-year mortgages with wholesale money market funds that were 1 to 2 percent cheaper than retail deposits (the average gross retail deposit rate minus the three-month Libor rate) and came without the cost of branch networks, check processing, and customer acquisition. In the United Kingdom, where building societies had previously handled the majority of mortgage lending, the proportion of mortgages provided by banks rose from 4 percent in the 1970s to 34 percent in less than a decade (Glick and Lansing 2010).

Phase 2: The deliberate role of banking regulation, 1980–99

It is arguable that up to the 1980s banks were merely taking advantage of a regulatory framework forged in the heat of the Great Depression and before. Over time, however, as a housing-

banking complex grew, banks began to exert an influence on regulation that further entrenched the provision of mortgages by banks.² This influence was exerted in part over the Basel Committee on Banking Supervision, established by the Group of Ten in the wake of the crisis brought on by the Herstatt Bank collapse in June 1974.

The Basel Committee's remit was to set guidelines and minimum standards of regulation for internationally important banks. At the very beginning the committee was concerned that the uncoordinated mix of regulation and liberalization had contributed to a reduction in the liquidity of bank assets, in particular a shift away from government securities, which are highly liquid (Goodhart 2011). But the committee was persuaded that maturity transformation, backed from time to time by an aggressive injection of central bank liquidity, was the essence of banking and that as long as bank regulators and supervisors ensured that banks were solvent, liquidity would follow.

The committee's doubts over the effects of liberalization in the 1970s were replaced in the 1980s and 1990s with a conviction that greater bank exposure to markets on both their asset and liability sides would improve their safety. The first and second Basel Accords are testament to this belief. Under Basel I, in the calculation of the amount of risk-weighted assets a bank had to fund with capital, securitized mortgages had a risk weight of 20 percent while nonsecuritized mortgages had a risk weight of 50 percent. This allowed banks to earn fees and net interest margins on holding 2.5 times more credit risk in real estate than they had before without any increase in their capital requirements (Acharya, Schnabl, and Suarez 2012). This marketization of bank balance sheets did not make the financial system safer (Persaud 2002, 2004), but the point is that it should be no surprise that it was from this time that the growth of mortgage lending at banks outstripped the growth of the rest of their lending.

²The idea of a housing-banking complex is a mirror of the military-industrial complex that President Eisenhower warned in his farewell address to the nation on January 17, 1961, was exerting unwarranted influence

Phase 3: Basel II and the denouement of mortgage dominance, 2000--06

Basel II went farther than Basel I in fashioning a market-based approach to banking. It enabled banks to leverage their exposure to the housing market beyond their balance sheet. Rating agencies were brought into the regulation of credit risk and required to disclose their rating practices. Banks used these disclosures to select a set of existing mortgages on their balance sheet that, as a diversified package, would elicit a higher credit rating from the agencies than the average of the individual mortgages. This “building-to-rating” of credit instruments invalidated the statistical estimates that lay behind their credit rating, making them riskier than their rating.³

If banks offered a commitment to buy back these securities—what became known as the liquidity backstop—regulators and investors treated the securities as liquid, rated instruments that mutual funds and others could hold without capital. Banks could then sell these instruments to mutual funds, pocketing a premium for their superior credit rating and liquidity while reducing their own capital requirement. Circuitously, because of the supposed superior liquidity and credit rating of these instruments, Basel II did not require banks to put up capital for the liquidity backstop they offered the buyers of these instruments, even though it was the backstop that made the instruments liquid.

Financial booms can be defined as periods in which stupid briefly looks clever. By 2006 mortgage dominance was entrenched in Basel-compliant jurisdictions. Households had high levels of mortgage debt relative to their incomes. Mortgages were securitized and held by banks or institutions with a bank backstop. And banks did not do much other than hold real estate assets and other high-yielding products sold to homeowners.

³Avinash Persaud, Jakob Vestergaard, and Jean-Louis Warnholz, “Credit Rating Firms,” VOX, March 2009; Avinash Persaud, “The Assets Made Combustible When Regulators Call Them Safe,” *Financial Times*, June 1, 2015.

A different kind of mortgage would better insulate the economic cycle from the housing cycle

The transmission from housing cycle to banking and economic crisis is not immutable. One way of working out what needs to change to disrupt this transmission is to identify what kind of mortgage would insulate mortgagees and the economy from cycles in the housing market and then ask why that mortgage does not exist.

In a world in which housing prices, consumption, and employment feed off one another but downturns normally flow into upturns over a couple of years, the ideal mortgage is one in which a measure of weakness in prices, consumption, or employment automatically triggers its rescheduling. When a regional housing price index falls 20 percent from its level at the time the mortgage was issued, for instance, interest and principal repayments could be automatically rescheduled.

Lower-income people not only are more vulnerable to a material change in their circumstances in a recession but also spend the largest proportion of their income on housing costs—often more than 50 percent. Consequently, moderating interest payments, as automatically happens with variable rate mortgages in a downturn, or even the more aggressive reductions in interest and principal payments in the shared responsibility mortgage proposed by Mian and Sufi (2014), will not be enough for people who lose their jobs, are forced to work part time, or are gripped by fear of either outcome. To prevent cheating, the trigger for the self-rescheduling feature should be related to the circumstances of the mortgagees but outside their influence, such as a regional housing price or employment index.

The rescheduled amount could be repaid at the same rate by extending the repayment period if the event took place late in the term of the mortgage or by raising the repayment rates if it occurred early. This self-rescheduling feature would reduce the amount of forced or feared homes sales, which push down housing

prices, curtail consumption, and reduce employment. It could buoy household expenditure as income is released from mortgage payments. If the mortgagee still had difficulty servicing the mortgage after the grace period ended, the ability of the mortgage company to recover its asset would be greater than if it had tried to do so in a period of fire sales.

It might be better for individuals and the economy if the rescheduling feature were automatic and not voluntary, in order to forestall the increase in savings that compounds recessions and remove any opprobrium or loss of credit score for people who volunteered to reschedule. The self-rescheduling mortgage is in the interests of the mortgagee, the mortgagor, and the financial and economic system.

Why do the self-rescheduling mortgage and similar products not exist?

A bank cannot offer the self-rescheduling mortgage or even the similar but more moderate shared responsibility mortgage. From the perspective of the individual bank, its balance sheet is already too correlated with the economic cycle; offering self-rescheduling mortgages would make it more so. At the trigger point of these automatically rescheduling mortgages, the value of the bank's other assets would likely be falling. Bank customers would be drawing down on overdraft facilities, and money market funds would be withdrawing their funding in response to redemptions. Banks would therefore be short of liquidity. A similar story applies to any other lender with short-term liabilities, such as money market and mutual funds. Moreover, moments of internal recriminations for bad underwriting and a lurch to risk aversion are not a time that lenders with short-term liabilities can easily extend loans to people in difficulty unless they can enforce onerous terms.

Fortunately, not all institutions hold short-term liabilities. Life insurers and pension funds have long-term liabilities. The ideal asset for them would be one that has a high likelihood of meeting their liability in 30 years' time but

offers a higher yield than a 30-year government bond, not because of additional credit risk but because in the intervening years the income from the asset might be deferred, rolled up, volatile, or uncertain. This extra yield is the liquidity risk premium. Life insurers and pension funds do not need liquidity long before their liabilities come due. Ideal instruments for them are private equity infrastructure investments with government guarantees, a diversified portfolio of public equities, and self-rescheduling mortgages. If they do not want to get into the mortgage origination business, they could provide the flexible funding required for other institutions to provide these mortgages.

Life insurers and pension funds do not offer self-rescheduling mortgages today because of regulation. The new insurance regulation promoted by the Financial Stability Forum and modeled on Europe's Solvency II Directive penalizes them for earning the liquidity risk premium. It defines the riskiness of assets in the same way it is defined for banks: in terms of short-term price volatility. Consequently, investments in private equity, public equity markets, and instruments like the self-rescheduling mortgage, all of which have short-term volatility, require onerous levels of capital, whereas next to no capital is required for investments in short-term government bonds (Persaud 2015a). This requirement does not make investment sense for institutions with long-term liabilities.

The daily volatility of an insurance company's assets does not determine the risk of its assets falling short of its liabilities in 30 years' time. A diversified portfolio of equities is certainly riskier than a similarly sized portfolio of sovereign bonds over the next quarter, but the equity portfolio has a better chance of outperforming inflation over the next 30 years. The new insurance capital regime will herd insurers with long-term liabilities into assets that yield low returns because they protect them from something they do not need protecting from—short-term price volatility and illiquidity.

The reason why self-rescheduling mortgages, shared responsibility mortgages, and similar products do not exist is regulation. Bank regu-

lation has encouraged banks, which do not naturally have liquidity, to take liquidity risks (like 30-year mortgages funded by overnight money market funds). Insurance regulation has urged institutions that do have liquidity, like life insurers and pension funds, not to take liquidity risks. It incentivizes them to concentrate their funds in the kind of liquid investments that banks should invest in. This story is not just about mortgages but also about the overall allocation of liquid and illiquid assets across the financial system (Persaud 2015b).

Improving the capital requirements of life insurers and pension funds

The best way to fix this system is to use regulation to ensure that the risks of liquidity mismatches are properly reflected in the investment decisions of all financial firms. If mismatches carried higher capital reserve or even tax requirements, it would encourage institutions with liquidity (life insurers, pensions funds, and others with long-term liabilities) to provide it through instruments like the self-rescheduling mortgage. It would incentivize them to innovate similar but alternative instruments that might be beyond our current imagination but would also reduce the amplitude of the economic cycle. It would encourage banks to sell their illiquid assets to institutions with liquidity, reduce their dependency on short-term funding, or both (Persaud 2015b).

The opportunity for such wholesale change to the system of regulation has passed. However, two modest steps—one that already has the general support of regulators and one that would be simple to make—could go most of the way toward this safer ideal.

There are more than 1,000 pages of rules and guidelines in the proposed new international regulation of large insurance firms recommended by the Financial Stability Board. Only one line needs changing to make it better for insurers, their customers, the financial system, and the economy. The assessment of the riskiness of assets should change from being based on the historic 12-month volatility

of asset prices to being based on the statistical likelihood that the value of the assets falls short of the liabilities they are set against when the liabilities fall due. This "shortfall risk" depends on the maturity of the liabilities the assets are set against. A firm with a diversified portfolio of equities would have to put aside more capital if its liabilities were the risk of some event that could take place tomorrow and less capital if its liabilities were to deliver a pension pot in 25 years and not before.

This formulation also saves regulators from the worry that an insurance company is being regulated as an insurer but is really conducting investment banking business—often referred to as the AIG problem. Under the proposed formula, what matters is the insurance company's actual liabilities, not what it calls itself. This formula does not just capture future AIGs. There are many life insurers and pension funds whose liabilities are not—or perhaps are no longer—long term.

Reducing liquidity risk at banks

In december 2009 the Basel Committee proposed that the ratio of long-term funding to long-term assets at banks—what the committee calls the long-term stable funding ratio—should be 1. This step must be implemented. However, if this ratio is to make any difference the definition of long-term assets needs to be narrowed. Unsecuritized loans with maturities of more than a year have a long-term weighting of 100 percent, whereas securitized mortgages, of equal maturity, have a weighting of just 20 percent. The argument is that the marketability of freely trading securities makes them more liquid. Defining long-term assets is a challenge but this is suspect. The evidence is that if the underlying asset, like a house with a mortgage on it, is illiquid in a crisis, the securitized mortgage also becomes less liquid. Moreover, this definition will not alter the current regulatory incentives of a bank to fund securitized 30-year mortgages with money market funds.

What one is trying to measure in determining whether an asset is functionally long term or short term is its convertibility into cash in a

stressed environment. I call this systemic liquidity (Lagana et al. 2006). A 30-year government bond, for instance, is a short-term asset even though it has a long-term maturity, because in a stressed environment it can easily be sold for cash—indeed its cash price often rises. In contrast, a 30-year mortgage security is not short-term, because the homes that act as collateral for the mortgages behind the security become illiquid in times of stress. This liquidity risk leads the price of the security to collapse. An asset that is easy to sell in good times and hard to sell in bad times is an illiquid or long-term asset that is best funded over the long term, lest its forced sale by short-term investors add to losses and market stress.

There are objective measures of how liquid an asset is in stressed times like an economic downturn. One is the degree of covariance with the economic cycle. Such a measure would show that some long-term corporate bonds are more liquid than often thought and some sovereign government bonds are less liquid. Assets too young for their covariance to be measured could automatically be deemed long-term assets until proven otherwise. Combining this shift in banking regulation with the shift I recommend in insurance regulation would reduce the systemic nature of housing finance by switching the provision of mortgage finance to insurers and pension funds. Banks would fill the void left on their balance sheets by returning to the business of short-term business loans and overdrafts, another plus for the economy.

What are the opposing arguments?

Life insurers and pension funds would favor switching to the proposed definition of riskiness. It would also lead to a switch in asset allocation that most borrowers and issuers of instruments would favor. But enthusiasm would be muted. Insurance firms have already largely switched out of private and public equity and shortened their overall liabilities in response to oncoming regulation. This proposal would offer them better investment opportuni-

ties rather than reduced capital requirements, but their lobbyists appear more focused on reducing regulatory capital. The proposal also favors institutions with long-term liabilities over institutions holding short-term liabilities. The same industry bodies represent both, complicating their response.

A long-term stable funding ratio of 1 would require banks to change their business model. But banks are no exception to not liking change. US banks have been particularly vociferous in their criticism of the current inoffensive version of the ratio, which may have contributed to the endless revisions and delays in its implementation.⁴ Banks would argue that insurers cannot replace banks in providing mortgages and that the proposed change would impede the ordinary person from buying a home.

In fact, life insurers and pension funds have the assets to take the place of banks in the mortgage market. In 2014 life insurance companies in the OECD had an estimated \$23 trillion in assets and pension funds had an estimated \$37 trillion—together about the same as the total assets held by the geographically wider group of globally, systemically important banks.

More homes not more finance is the solution to housing inequality

More fundamentally, if the problem is that housing prices are high relative to median incomes, the solution is more affordable homes (or higher wages), not more finance. Homebuilders make more money from building ex-

⁴In an interview with the *Financial Times*, Jamie Dimon, chief executive officer of JP Morgan Chase, argued that Basel's new liquidity proposals were "anti-American," because they considered covered bonds—a European market feature—as highly liquid but discounted government-backed mortgage-backed securities, a core activity of US investment banks. He argues that the United States should consider pulling out of Basel if it adopts such rules ("JP Morgan Chief Says Bank Rules 'Anti-US,'" *Financial Times*, September 12, 2011).

pensive homes, so they don't build cheaper ones. Despite tax incentives for builders, between 1989 and 2013 only 9.5 percent of newly constructed housing units in the United States targeted the lowest income quintile, while 33 percent of units were aimed at the highest income quintile (McCarthy and Peach 2015). If affordable housing is limited, more finance merely pushes the price of homes up, maintaining the high ratio of median house prices to median incomes. Moreover, when lower-income households do get on the housing ladder, they are highly leveraged and have almost all of their assets in housing. When a downturn comes, they end up foreclosed on and wiped out. In contrast, higher-income households hold a larger proportion of their wealth in other financial assets and proportionally take less of a hit. They are better able to recover and even to pick up cheap housing assets before lower interest rates pump housing and asset prices back up.

Much of the motivation for the dangerous current structure of housing finance is the need to support homeownership, particularly among lower-income households. The two regulatory steps proposed here would reduce the danger of housing finance. But unless policymakers address housing inequality, there will be political pressure for easy financing that could unintentionally reintroduce systemic dangers. The authorities should have an annual target for the new supply of affordable homes. Planning laws, fiscal policy, and direct building could be used to help ensure that the target is met. More finance without more homes merely deepens housing inequality.

There are many indications that a more direct intervention in the building of low-cost housing is required. The severe housing shortage in the United Kingdom has fanned concerns about the levels of immigration. Yet only 13 percent of UK land is built on. Builders find it profitable to buy up land as soon as it is released for development and sit on it, waiting for prices to rise. According to company accounts in 2015, the nine home-builders in the United Kingdom's FTSE 100 and FTSE 250 stock listings hold 615,152 housing plots in their land

bank—four times the total number of houses built every year.

The proposed changes would require no changes to US government-sponsored enterprises

The proposed steps could be carried out in the United States without any reforms to the Federal National Mortgage Association (Fannie Mae) or the Federal Home Loan Mortgage Company (Freddie Mac). It is likely that reducing the regulatory incentives for the supply and demand of securitized mortgages would shrink these government-sponsored enterprises and make them less systemically important. Doing so could provide an opportunity for them to sharpen their focus on those mortgages that need most secondary-market support. A fruitful partnership could develop in which life insurers and pension funds put up the funding for Fannie and Freddie to manage portfolios of low-income mortgages. Requiring them to maintain the same long-term stable funding ratio I propose for banks would support that development.

Conclusion

Liquidity risk shares common features with pollution: If the full costs are not taken into account, both will be overproduced. By not reflecting liquidity risks in capital requirements, banking and insurance regulators have conjured up a dangerous system in which financial firms without liquidity take liquidity risks and financial firms with liquidity fail to do so. Two simple regulatory steps could change this system. Financial firms need to maintain a long-term stable funding ratio, and the regulatory risk weightings of assets should take into account the maturity of liabilities. These changes would encourage institutions with liquidity (life insurers, pension funds, and others with long-term liabilities) to provide it through instruments

such as the self-rescheduling mortgage. They would also encourage banks to sell their illiquid assets to institutions with liquidity or lighten their dependency on short-term funding. The financial system as a whole would then be able to take long-term risks more safely. History suggests that safer housing finance would do more to make the financial system resilient than all the other recent initiatives put together.

Bibliography

Acharya, Viral, Philipp Schnabl, and Gustavo Suarez. 2012. Securitization without Risk Transfer. *Journal of Financial Economics* 107, no. 3: 51536.

Glick, Reuven, and Kevin J. Lansing. 2010. Global Household Leverage, House Prices and Consumption. *Federal Reserve Bank of San Francisco Economic Letter*, January 11.

Goodhart, Charles. 2011. *The Basel Committee on Banking Supervision: A History of the Early Years 1974-1997*. Cambridge University Press.

Jordà, Ò, M. Schularick, and A. M. Taylor. 2014. *The Great Mortgaging: Housing Finance, Crises, and Business Cycles*. NBER Working Paper 20501. Cambridge, MA: National Bureau of Economic Research.

Lagana, M, M. Perina, I. von Koppen Mertes, and A. Persaud. 2006. *Implications for Liquidity from Innovation and Transparency in the European Corporate Bond Market*. ECB Occasional Paper Series, No. 50 (August). Frankfurt: European Central Bank.

McCarthy, Jonathan, and Richard Peach. 2015. Differences in Rent Inflation by Cost of Housing. Liberty Street Economics blog, Federal Reserve Bank of New York, November 4.

Mian, A., and A. Sufi. 2014. *House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again*. Chicago: University of Chicago Press.

Persaud, Avinash. 2001. *Sending the Herd off the Cliff Edge: The Disturbing Interaction between Herding and Market Sensitive Risk Management Practices*. Jacques de Larosiere Prize Essay. BIS Paper 2: 22340. Basel: Bank for International Settlements. Available at www.bis.org/publ/bppdf/bispap021.pdf.

Persaud, Avinash. 2002. Banks Put Themselves at Risk in Basle. *Financial Times*, October 17.

Persaud, Avinash. 2004. Credit Derivatives, Insurance Companies and Liquidity Black Holes. *Geneva Papers on Risk and Insurance* 29, no. 2: 30012.

Persaud, Avinash. 2015a. *How Not To Regulate Insurance Markets*. Policy Brief 15-5. Washington: Peterson Institute for International Economics.

Persaud, Avinash. 2015b. *Reinventing Financial Regulation: A Blueprint for Overcoming Systemic Risk*. Apress.

Quigley, John M. 2000. Real Estate and the Asian Crisis. *Journal of Housing Economics* 10: 12961.

Slovik, Patrick. 2011. *Systemically Important Banks and Capital Regulation Challenges*. OECD Economics Department Working Paper 916. Paris: Organization for Economic Cooperation and Development.

Snowden, Kenneth. 1995. Evolution of Interregional Mortgage Lending, 1870-1940: The Life Insurance-Mortgage Company Connection. In *Coordination and Information: Historical Perspectives on the Organization of Enterprise*, ed. N. Lamoreaux and D. Raff, 209-47. Chicago: University of Chicago Press.

US Census. 1895 to 1928. *Report on Mortgages*, vol. 12. 1890 to 1928. Washington.