

**Statement of Janneke Ratcliffe
Executive Director
UNC Center for Community Capital**

**Before the
Subcommittee on TARP, Financial Services, and Bailouts of Public and Private Programs
United States House of Representatives**

**Hearing on
Transparency as an Alternative to Risk Retention
May 11, 2011**

Summary statement (full written testimony follows)

Good afternoon Chairman McHenry, Ranking Member Quigley and members of the subcommittee. I am Janneke Ratcliffe, Executive Director of the UNC Center for Community Capital. I also serve on the Mortgage Finance Working Group, convened by the Center for American Progress to offer a plan for responsible housing finance reform. Please note that the views expressed are my own, and that they focus on the mortgage market aspects of the questions raised.

I am honored be asked to discuss how transparency and accountability can help restore confidence in the once robust US mortgage system. Confidence in that system was shattered, among investors and borrowers at both ends of the system and the taxpayers who find themselves propping it up. Only the full faith and credit of the US government has kept the market open—ultimately, private capital must bear a greater share of that load.

The crisis of was a result of abuses that arose in a regulatory vacuum and a climate of inadequate transparency, lack of accountability and misalignment of interests. The Dodd-Frank act identifies key steps toward a market that is safer for investors, taxpayers and borrowers.

One of these is transparency

Lack of transparency in the private label market enabled adverse selection and under-pricing of risk because issuers knew more than investors. Certainly, better loan level information and product standardization will help usher back in the private market.

But even with good loan level data, private market investors will face potential principal-agent problems and conflicts of interest. Nor will this help borrowers, many of whom took on loans when the true costs and consequences were masked by complexity. The system cannot function well unless borrowers' interests in repaying their loans and investors' interests in being repaid are served by the agents in between them.

Risk retention can help address these principal-agent problems by aligning incentives and holding issuers more accountable, as Dodd Frank intends.

While the regulatory proposal largely mirrors this intent, we ARE concerned that a too-narrow QRM box may discourage private capital participation and possibly disrupt the fragile market. For example, the down payment criteria may put a pro-cyclical damper on the fragile housing recovery, particularly if mortgage insurance is not taken into consideration. That would be a pity, as we have ample experience about the right way to finance lower down payment mortgages.

At UNC, we study a large pool of mortgages made in the decade preceding the crisis under affordable housing and CRA programs. The borrowers had access to prime, fixed-rate, long-term amortizing mortgages that they could afford to repay. These households have experienced low default rates and on average, meaningful equity build up. We found that non-prime loans made to similar borrowers were several times more likely to have defaulted as those in our study. Key factors associated with these higher defaults were adjustable rate, broker channel and prepayment penalties.

These findings underscore that risk-retention should apply to product and process factors that increase risk, not to characteristics of the borrowers. That said, overall, the risk retention provisions will certainly improve accountability.

But even transparency, standardization and risk retention are not, in themselves, enough to return the market to long-term vibrancy and resilience and attract the amount of private capital needed. The system must also provide for

- Broad and constant liquidity to fund an \$11 trillion market
- Mechanisms that limit volatility
- Access to affordable and sustainable financing for homeownership and rental housing, including for underserved segments
- and preservation of the long-term, fixed rate mortgage which provides economic stability at the household and macro-economic levels.

All this can be achieved, with private capital serving the lions' share, with the provision of a limited federal backstop that is highly protected by adequate private capital in the first loss position, and that is explicit and that is paid for. Such a mechanism will provide investors the confidence to deliver a reliable supply of capital for both rental and homeownership options, every day and in every community, over economic cycles, through large and small lenders alike.

In summary, restoring confidence in the mortgage market will require greater transparency AND accountability, though we recommend a broader QRM definition than regulators have proposed. However, the ultimate impact of these measures is highly dependent on the form that the mortgage secondary market takes. As you move forward in this complex process, it is important to bring private capital back and to protect the taxpayer, but it is also important to restore the financial system so that it works better for the American households who rely on it for economic security.

Transparency and confidence throughout the system depends on having informed borrowers who have access to sound, well underwritten loans.

Full written statement follows. I would like to thank Kevin Park for providing assistance with background research for this statement.

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Good morning Chairman McHenry, Ranking Member Quigley and members of the subcommittee. I am Janneke Ratcliffe, Executive Director for the Center for Community Capital at the University of North Carolina at Chapel Hill. I also serve on the Mortgage Finance Working Group sponsored by the Center for American Progress; a group of mortgage finance experts who have authored a plan for a responsible market for housing finance reform. Please note that the views expressed here today are my own, and further, that they focus largely on the housing finance aspects of the questions you have raised.

I am honored to have the opportunity to share some thoughts on the critical question of how transparency and accountability can help restore confidence in the once robust US mortgage system. Confidence in that system was shattered, among both the investors and the borrowers that stand at both ends of the system as well as the taxpayers who found themselves propping it up. The crisis of 2007/2008 was a result of abuses that arose in a regulatory vacuum and a climate of inadequate transparency, lack of accountability and misalignment of interests and incentives.

For the last 3 years, only the full faith and credit of the US government has kept investors in the market, while borrowers remain cautious. It is widely recognized that private capital must bear a greater share of the load going forward. The Dodd-Frank Act identifies several key steps to safety and soundness and avoiding a similar debacle in the future. These steps are necessary if we want private capital to re-enter the market and American families to resume investing in their homes, neighborhoods, communities and futures. Restoring confidence on both sides of the transaction is the first step to returning the housing market to one that is stable, affordable and largely reliant on private capital, while ensuring housing-market stability and taxpayer protection.

This is no small task. Applying lessons learned and keeping the end in sight are key -- Any such future market must be characterized by liquidity, stability, transparency and standardization, affordability, and consumer protection.

Transparency and accountability, as embodied in risk retention standards, are essential to achieving these ends. They must be balanced with each other, but also with reform of the mortgage secondary market, housing policy goals, and the interests of the broader financial market and economy. Importantly, there must be transparency and accountability to the borrower, as well as to the investor, for the system to be sound.

The importance of transparency and standardization.

During the housing bubble, the housing finance system experienced a seismic shift toward complex and heterogeneous products that could not be understood by consumers at one end of the chain to securities that could not be understood by investors at the other. The lack of transparency and standardization set the

stage for adverse selection because the issuers knew more than the investors. Even as the risk on private label securities increased, the yields demanded by investors declined (see Levitan and Wachter, 2010).ⁱ Similarly, for borrowers, complexity and opacity led many to take out loans where the consequences and risks were poorly understood.

These information failures occurred-- and need to be addressed--on several levels. First, underwriting and documentation standards must be clear and consistent across the board so consumers, investors, and insurers can accurately price risk and compare options, and regulators can hold institutions accountable for maintaining an appropriate level of capital. Second, in the pure private market, investors need loan level information, not simply pool level data, to more accurately assess the credit risk of a security. Third, as the private label market boomed, complexity at the security level served to further shroud information.

These concerns are particularly critical for investors who are exposed (either directly or indirectly) to credit risk. As Ginnie Mae, Fannie Mae and Freddie Mac take on 100% of the credit risk for their securities, investor need for transparency is much lower in the conforming and government segments. Moreover, in these sectors, investors can rely on regulations and standards to provide for a relatively homogenous and predictable risk profile, a condition which allows for the TBA market,ⁱⁱ and which also enables borrowers throughout the market to receive mortgages with well-understood terms that they can easily comparison shop. Even outside the US, successful securitization has generally been accompanied by government support, either implicit or explicit, and strict government product regulation. Secondary market transparency and standardization have the added benefit of lowering costs and increasing availability of financing.

As for the pure private market, more granular loan level information and more standardization in product structures will help enable the re-emergence of a competitive and efficient private mortgage-backed securities market. Loan level data would enable investors, insurers and ratings agencies to better evaluate the impacts of layered risks on individual loans, for example. The Project on Residential Securitization Transparency and Reporting launched in July 2008 by the American Securitization Forum calls for loan level reporting of some 160 data points on each loanⁱⁱⁱ as well as new standards for bond level reporting and strengthening reps and warrants.^{iv} The additional transparency should be an important element in ushering a new and better mortgage market.

But not all by itself. Even with loan level data, investors will still be exposed to principal-agent problems and conflicts of interest. Originators and Issuers will still have access to greater information than investors can observe. Among the problems that will not be solved by provision of data is adverse selection – where originators/issuers may choose a different execution for loans they know to be of different risks. Potential conflicts of interest also arise with issuers who are also servicers and/or second lien holders. More blatantly, there remains the risk of misrepresentation, particularly with poor mechanisms for redress or in the case issuers are not financially able to fulfill rep and warrant obligations. These problems cannot be fully solved with data and standardization. (For a discussion of principal-agent problems see Goodman et al, 2010, pp 10 – 27.)^v

Besides principal-agent risk, the mortgage market is prone to systemic, correlated risks and large risk tails which full information alone cannot fully correct. Detailed information does not assure that the right conclusions will be reached and the right decisions made. Weaknesses in the ratings process of the credit rating agencies^{vi} and the fact that investors and insurers misapplied sophisticated financial models^{vii} are well documented. For example, AIG believed “...that their risk models indicated that the underlying securities would never go into default.” (Donnelly and Embrechts, p. 14).

These concerns confirm that transparency in the form of greater information is only part of the solution. Two other elements that go hand in hand with transparency are: 1) product and underwriting standards,

and 2) greater accountability for agents (namely, originators and issuers). Dodd-Frank recognizes the importance of these elements in the call for risk retention, in the designation of a Qualified Residential Mortgage and in prohibiting extension of mortgages without evaluating ability to repay.

The importance of accountability.

Risk retention at a 5% level is aimed at addressing the principal-agent problems mentioned previously, and at better aligning the interests of borrowers and investors with the agents in between them: originators, lenders, and issuers.

The recently released regulatory proposal implementing risk retention demonstrates, however, just how complex the issue is. The proposed QRM definition excludes nearly 70% of the loans acquired by the GSEs in 2009 (generally that share is above 75%) and an even higher percentage of FHA loans, suggesting that today, the vast majority of single family mortgages originated would require risk retention, as would a similarly large share of the multifamily market. Yet the implications for this sweeping provision remain unclear. What are the implications for capital requirements? Borrowing costs? The ability of many types of lenders and securitizers to make non-QRM loans? Will non-QRM loan risk concentrate on the balance sheets of large banks with both explicit deposit insurance and an implicit TBTF guaranty? Or will it all flow to the FHA, which is 100% taxpayer backed? Today, the GSEs – Fannie Mae and Freddie Mac – meet the risk retention requirement because they “hold” 100% of the risk of their issues, and the condition of conservatorship ensures that this position is solidly backed. (Note that this is not the same as an exemption from the risk retention requirements. The GSEs are just exempt from the premium recapture account provisions and the hedging restrictions). However, what will be the treatment of successor institutions? How will the rule ultimately consider certain types of third-party guarantees that are demonstrated to add safety and soundness? What will be the preferred form of non-QRM loans – that is, will they carry layered non-QRM risk factors such as adjustable interest rates? Will regulators adapt the QRM standards as de facto safety and soundness guidelines? With all these unknowns and potential unintended consequences, it is not clear whether the proposed risk retention standards will adequately protect against conflicts of interest.

One thing is clear – there is a high probability that risk retention requirements linked to a too-narrow QRM box will discourage private capital participation and possibly disrupt the limited market that exists today, which by all determinations is some of the safest lending in recent memory,^{viii} and is overwhelmingly non-QRM. As the regulation itself states: “The Agencies recognize that many prudently underwritten residential mortgage loans will not meet the proposed definition of a QRM.”^{ix}

Our own research confirms this point and suggests that the restrictions on LTV – which were not called for in the Dodd-Frank Act -- and likely on debt to income as well, could quite possibly and unnecessarily act as a damper on the housing market.

We have ample evidence that many households who may not fit the “20 percent down, established credit, 36 percent debt-to-income” model can become successful long-term homeowners, when given access to well-underwritten, standard, affordable, fixed-rate financing.^x At UNC, we follow a portfolio of nearly 50,000 mortgages made by banks across the country over the decade preceding the crisis; loans made under affordable housing and CRA programs. The median borrower earned \$30,792 a year, more than half of them had credit scores of 680 or below, and 69 percent put down less than 5 percent on their home purchase. The delinquency and default rate on these loans is a fraction of that of subprime mortgages. In fact, the households have on the median, and over the period, managed to build more assets than through any other available mechanisms. They were able to do so because they had access to prime, fixed-rate, long-term amortizing mortgages that they could afford to repay.

In fact, by comparing the performance of these borrowers with those of similar borrowers who received non-prime loans, we were able to isolate the risk introduced by terms and conditions of the loans rather than the borrowers. Non-prime loans made to similar borrowers were three to five times as likely to have defaulted as those in our study population. Key factors associated with the increased risk were adjustable rate, broker channel and prepayment penalty.^{xi}

These findings underscore that the principal-agent problem is best addressed by the risk-retention requirement as applied to product and process factors, not to characteristics of the borrowers. Meanwhile, the Dodd-Frank provisions requiring underwriting for ability to repay should lead agents to use common sense and proven approaches to qualify borrowers for loans.

Importantly, the borrower-based criteria of the QRM are likely to have unintended consequences. As noted, most mortgages made today are non-QRMs. It is particularly unclear why the regulators sought to impose an LTV standard when it was not called for in the Dodd-Frank Act.

Access to safe and affordable financing for low down payment home purchases is critically important because home ownership continues to be the cornerstone of household wealth in the United States. At a macro level, real estate holdings comprise the largest element of household assets in the United States.^{xii} Its value to individual families is equally profound, and increases as you go down the income spectrum, with home equity comprising more than three quarters of the wealth of low-income families.^{xiii} Moreover, homeownership continues to be one of the best potential answers to the persistent racial wealth gap. The median wealth of black families is a fraction of that of the median white family (\$5,000 vs. \$100,000, respectively as of 2007).^{xiv} This gap is echoed in homeownership rates: As of the end of 2009, roughly 72 percent of white households owned their own homes, less than half of African-American and Hispanic households owned theirs. Among Hispanic and Black households, owners have 39 and 85 times the wealth of renters, respectively.^{xv}

According to the National Association of Realtors® the median sales price of a single-family home in the US in 2009 was \$172,100; making a 20 percent down payment required \$34,420 in assets, greater than the entire annual income of roughly a third of all U.S. households.^{xvi} Restrictions on the availability of higher LTV loans will raise a substantial barrier to new households starting up the ladder of homeownership, to repeat buyers hoping to move up it, and to recovery of the housing market.

There is a right way to do high loan-to-value lending

It is well understood that low equity is associated with higher risks; if a borrower with little home equity loses their job, for example, they cannot easily sell the house to pay off the mortgage. But even in the wake of the foreclosure crisis, we have evidence that this risk can be managed through financing that has enabled hundreds of thousands of working families with modest incomes to become successful homeowners. This was accomplished not through exotic mortgages that created only an illusion of homeownership, but through consumer-centric policies and practices that removed barriers to homeownership for first-time, minority and low-income families, responsibly. These programs did not develop out of financially engineered sleight of hand that failed to account for risk. They evolved through decades of careful innovation, such as Community Reinvestment Act lending programs, new approaches introduced by mortgage insurance companies and GSEs, adjustments to underwriting guidelines, pre-purchase counseling, and down payment assistance programs. These efforts paid off in a steady increase in homeownership rates between 1995 through their peak in 2004. Note that the subprime boom was just getting into full swing then, and that during the peak years of the housing bubble, 2004 – 2007, homeownership rates actually leveled off and started to decline through the foreclosure crisis.

It is critical for regulators to recognize this distinction: fostering responsible lending to households who, despite low wealth or low income can still participate in the benefits of homeownership, is very different

from encouraging the extension of risky loans that put households in financial jeopardy and seed systemic risks.

In the mid-2000's, private-label mortgage backed securities grew to surpass Fannie Mae and Freddie Mac's market share, as the GSEs new business as a share fell from 57% in 2003 to just 37% in 2005 and 2006.^{xvii} Eventually, Fannie Mae and Freddie Mac increased purchases of non-traditional loans, which generated substantial losses. For example, Alt-A loans represented just 7% of Fannie Mae mortgages from 2004 and earlier, but increased to about 20% in 2005 and 2006.

Such purchases were not driven by policy concerns. Alt-A mortgages are generally characterized as loans to borrowers with good credit but using nontraditional underwriting standards. For example, Alt-A loans often use no or limited documents of income and assets. A Federal Reserve review states that 50% to 60% of Alt-A loans generally involves low documentation, but that share increased to 78% by the end of 2006.^{xviii} Loans without income documentation, particularly if used as a way to inflate income, are less likely to be claimed to be to lower income borrowers. In fact, according to the GSE's second quarter 2008 credit supplements, the average loan amount for an Alt-A loan purchased by the GSEs was above \$170,000 and only a small share – 5% - of these loans had LTV above 90%. Further, the average FICO score on Alt-A mortgages was a reasonably strong 715 for Fannie Mae and 724 for Freddie Mac.

There are also reasons to believe Alt-A loans are not targeted toward underserved neighborhoods. Using the average outstanding balance and mark-to-market LTV, the average value of property behind a Fannie Mae Alt-A loan was over \$250,000 in 2007, substantially greater than other “non-traditional” loan categories and over 15% greater than the median sales price for all existing single-family homes that year. These Alt-A loans led to substantial losses. In the first half of 2008 (the half preceding conservatorship), Alt-A loans accounted for nearly 11% of Fannie Mae's single-family book of business, but accounted for over between 43 and 49% of their credit losses.

Meanwhile, data from FHFA shows Fannie and Freddie purchased roughly 9.5 million loans between 2005 and 2007 that qualified for one or more affordable housing goals. Nearly 73% of these had loan-to-value ratios of 80% or less. Less than 17% had LTV ratios over 90%.^{xix} Applying the reported ever 90-day delinquency rate of all GSE loans by LTV categories, the estimated default rate of loans purchased in this time period by Fannie and Freddie with this distribution of LTV ratios is barely above their overall default rate for all loans purchased over the period. Even if we conservatively apply the default rate for loans under 660 within each LTV bucket, this increases the roughly estimated default rate for these loans to a level substantially below the comparable default rate for all loans financed by private-label securities, regardless of LTV or FICO. Further, in comparisons of rates of serious delinquency between the GSEs and the private label market in all categories of LTV and credit score for loans originated and acquired from 2001 through 2007, GSE loans outperform private label MBS loans, usually by huge margins.^{xx}

Taken together with our research findings on a large portfolio of loans originated under Community Reinvestment Act and Affordable Housing programs, these results support the conclusion that the use of prime-market-rate, fixed-rate mortgages for lending to low- and moderate-income borrowers lead to lower defaults than non-traditional loans by private origination channels.

Transparency and Accountability are just part of the solution

Clearly, rebuilding the US financial system is no easy task, but learning from the past – both what worked well and what failed - offers the opportunity to establish a more stable system than ever before. Accountability and transparency are two critical elements, and coupled with consumer protection measures of Dodd-Frank, comprise part of the overall solution. But alone, they will not replenish the flow of capital needed to support a robust housing market over the long term and through business cycles. In fact, even as the pure private market gradually returns, a sole reliance on pure private markets will put the

housing market recovery at risk in the short term. In the long-term, it will leave some markets in some economic cycles cut off from a liquid supply of mortgage credit on fair and sustainable terms and the entire economy exposed to bubble-bust cycles. To return to long-term vibrancy and resilience, the system must also provide for liquidity on a broad and constant basis; stability; and access to affordable financing for homeownership and rental.

Broad and constant liquidity to fund the \$11 trillion US mortgage market

A substantial share of the market can be served mostly by private capital with the provision of a limited federal backstop that is highly protected by adequate private capital in the first loss position, and that is explicit and paid for. Such a mechanism will provide investors the confidence to deliver a reliable supply of capital for both rental and homeownership options, every day and in every community, during all kinds of different economic conditions, through large and small lenders alike.

Financial stability instead of volatility

As we have been reminded, when left to its own devices, the mortgage market is inherently inclined toward extreme bubble-bust cycles, which cause significant wealth destruction that brings with it devastating repercussions not only for homeowners and lenders but also for neighborhood stability, the financial system, and the broader economy. Mitigating that tendency requires strong, consistently enforced underwriting standards and capital requirements that are applied equally across all mortgage financing channels for the long cycle of mortgage risk, and mechanisms that assure countercyclical funding availability.

Affordable and sustainable financing for both homeownership and rental housing

Liquidity and stability are essential to affordability and, for most families, the lower housing costs produced by the modern mortgage finance system over the past half century (before the recent crises) enabled them to build equity, save, and invest.

A pillar of this housing system is affordably priced long-term, fixed-rate, fully self-amortizing, prepayable mortgages. The long term provides borrowers with an affordable payment while the fixed-rate, the option to prepay, and self-amortization features provide the financial stability and forced savings that are critically important to most families, while retaining the opportunity for mobility. Multifamily rental housing also gains stability from long-term, fixed-rate financing as it results in more affordable and stable rents.

In the absence of government policies designed to explicitly support long-term, fixed-rate mortgages, it is likely that this type of mortgage would largely disappear from the U.S. housing landscape or become unaffordable to the nation's middle class, which has been so effectively served by 30-year residential mortgages, and to the nation's many renters who rely on multifamily property owners' ability to finance and refinance their apartment buildings.

Liquidity, stability and the efficiently priced long-term fixed rate mortgage contributed to the building of a strong middle class and has been an important guiding concept in modern U.S. housing finance policy—and a key component of the American socioeconomic mobility of the 20th century. It has not always been available to all qualified borrowers, however.

Broad access to such sustainable financing for all qualified homeowners and renters can be achieved in the future -- if successors to certain GSE functions are structured to be able to make non-QRM mortgages. With adequate capitalization, standardization and oversight, GSE successors should facilitate certain non-QRM mortgages in a way that protects taxpayers while adding stability to the housing market.

In conclusion, restoring investor confidence in the mortgage market will require much greater transparency than in the past. It will also require more accountability on the part of agents, as envisioned by the Dodd-Frank Act's risk-retention provisions. However, regulators should proceed with care to avoid putting an unintended and pro-cyclical damper on the fragile finance system. In particular, our research suggests that a broad QRM definition will better balance the value of risk-retention with the goal of reducing the government role in the market from current levels and protecting the taxpayer over the long run. Our research suggests that it is more appropriate to apply risk retention requirements to mortgages with features that in and of themselves increase risk, rather than to borrower characteristics. Finally, the ultimate impact of these measures is highly dependent on the form that the mortgage secondary market takes. As you move forward in this complex reform process, it is important to bring private capital back and protect the taxpayer, but it is also important restore the financial system so that it works better for the American households who rely on it for their economic security. You cannot have true transparency and valuable information at any level if, at the origination level, the risks are not understood by the borrower.

ⁱ Levitan, Adam and Susan Wachter, 2010. Information Failure and the US Mortgage Crisis. University of Pennsylvania Law School Institute for Law and Economics.

ⁱⁱ The TBA or To Be Announced Market allows conforming, conventional mortgages to trade more efficiently and allows borrowers to lock rates in advance of closing. For an excellent description, please see James Vickery and Joshua Wright, 2010, TBA Trading and Liquidity in the Agency MBS Market. Federal Reserve Bank of New York Staff Report no. 468.

ⁱⁱⁱ http://www.americansecuritization.com/uploadedFiles/ASF_Project_RESTART_Final_Release_7_15_09.pdf

^{iv} See <http://www.americansecuritization.com/story.aspx?id=3461>.

^v Amherst Mortgage Insight, May 20, 2010. Lori Goodman, Roger Ashworth, Brian Landy and Lidan Yang. The Elephant in the Room--Conflicts of Interest in Residential Mortgage Securitizations. Amherst Securities Group LP.

^{vi} SEC (2008). Summary report of issues identified in the commission staff's examinations of select credit rating agencies. July 8 2008, United States Securities and Exchange Commission.

<http://www.sec.gov/news/studies/2008/craexamination070808.pdf>.

^{vii} Donnelly, Catherine and Paul Embrechts, 2010. The Devil is in the Tails: Actuarial Mathematics and the Subprime Mortgage Crisis. RiskLab, ETH Zurich, Switzerland.

^{viii} See for example Statement of Edward J. DeMarco before the US House of Representatives Subcommittee on Capital Markets, Insurance and Government Sponsored Entities, March 31, 2011 regarding Credit Quality (p. 2) and Written Testimony of David H. Stevens, "FHA Capital Reserve Ratio," before the Subcommittee on Housing and Community Opportunity, US House Committee on Financial Services, October 8, 2009.

^{ix} Interagency Notice of Proposed Rule Making on Credit Risk Retention. March 28, 2011.

^x Abromowitz, David and Janneke Ratcliffe, April 1, 2010. Homeownership Done Right-What Experience and Research Teaches Us, Center for American Progress. Available via http://www.americanprogress.org/issues/2010/04/homeownership_right.html

^{xi} Ding, Lei, Roberto Quercia, Wei Li and Janneke Ratcliffe, 2010. Risky Borrowers or Risky Mortgages: Disaggregating Effects Using Propensity Score Models. http://www.ccc.unc.edu/abstracts/091308_Risky.php

^{xii} Board of Governors of the Federal Reserve, Balance Sheet of Households and Nonprofit Organizations (2010) available at <http://www.federalreserve.gov/releases/z1/Current/z1r-5.pdf>

^{xiii} Di, Zhu Xiaou Housing Wealth and Household Net Wealth in the United States: A New Profile Based on the Recently Released 2001 SCF Data (Cambridge: Joint Center for Housing Studies, Harvard University, 2003).

^{xiv} Thomas M. Shapiro, Tatjana Meschede, and Laura Sullivan, The Racial Wealth Gap Increases Fourfold. (Waltham: Institute on Assets and Social Policy, 2010).

^{xv} Joint Center for Housing Studies, Harvard University, State of the Nation's Housing 2009; Appendix W-5 (2009).

^{xvi} U.S. Census Bureau 2010 Statistical Abstract. 35.5 percent of U.S. households earned less than

\$35,000 (2007 dollars).

^{xvii} http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/2010-0409-GSEs.pdf Figure 11

^{xviii} <http://research.stlouisfed.org/publications/review/10/01/Sengupta.pdf>

^{xix} http://www.huduser.org/portal/datasets/GSE/profiles_05-07.pdf

^{xx} Calculated from FHFA available here: data <http://www.fhfa.gov/Default.aspx?Page=313>