

August 29, 2012

Honorable Ben S. Bernanke
Chairman
Board of Governors of the
Federal Reserve System
Washington, DC 20551

Honorable Thomas J. Curry
Comptroller
Office of the Comptroller of the
Currency
Washington, DC 20219

Mr. Edward DeMarco
Acting Director
Federal Housing Finance Agency
Washington, DC 20552

Honorable Shaun L. S. Donovan
Secretary
U.S. Department of Housing and Urban
Development
Washington, D.C. 20410

Honorable Timothy Geithner
Secretary
U.S. Department of the Treasury
Washington, DC 20220

Honorable Martin J. Gruenberg
Acting Chairman
Federal Deposit Insurance Corporation
Washington, DC 20429

Honorable Mary L. Shapiro
Chairman
Securities and Exchange Commission
Washington, DC 20549

Dear Ladies and Gentlemen:

We are writing to supplement the record on the rules concerning credit risk-retention pursuant to section 941 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Specifically, we are writing to provide greater detail on the Center for Responsible Lending's (CRL's) opposition to the inclusion of a down payment requirement as part of the Qualified Residential Mortgage (QRM) standard. While a lot of commentary and research was submitted in response to the specific proposed rule to incorporate a 20 percent down payment requirement into the QRM definition, little has been written on the potential adverse impact of a 10 percent requirement. The comments and analysis provided in the attached CRL issue brief are intended to fill that void.

For decades, low down payment loans have been used with great success to promote sustainable homeownership, particularly for low- and moderate-income and minority families. Low down payment loans did not cause the current foreclosure crisis—irresponsible underwriting and toxic loan terms did. We strongly support the restrictions on abusive terms and practices in the proposed rules for Qualified Mortgages (QMs); these restrictions will go a long way toward preventing another crisis. Imposing regulatory down payment requirements on top of the QM restrictions, however, will deny millions of Americans access to affordable loans without a commensurate benefit in

default rates. Research has shown that, once the proposed product restrictions of QM are in place, a 10 percent down payment requirement would have only a marginal impact on default rates—about one percentage point—while locking 30 percent of borrowers out of the mainstream market.

The borrowers that will be excluded from the market include both low-income and middle-class families. For a family with median income, it would take *20 years* to save a 10 percent down payment plus closing costs for a median-priced home. The barriers would be even greater for families of color. For typical African-American and Latino families (i.e., those earning the median income for their respective group), it would take *31 and 26 years* to save enough, respectively. Sixty percent of African-American borrowers and 50 percent of Latino borrowers who are *currently successfully paying their mortgages* would not have been able to access these loans if a 10 percent down payment had been required. As a result, not only would a regulatory down payment requirement exacerbate the already enormous wealth gap between white and nonwhite families, but it could create a new “dual market”, where minority and moderate-income borrowers are relegated to fringe mortgage products served outside the financial mainstream.

Finally, by denying so many borrowers access to affordable mortgages, a regulatory down payment requirement would decrease housing demand and put downward pressure on housing prices. Given the fact that a majority of new households over the next decade will be comprised of minority families and because a down payment requirement would be particularly burdensome for these families, the impact on the housing market would be substantial. Therefore, by slowing, or even reversing, the housing recovery, a down payment requirement could create macroeconomic conditions that actually increase foreclosures, counteracting any marginal benefits to individual default rates.

The pending QM rules, when adopted, will address the loan underwriting weaknesses and abusive loan structures and terms that added undue risk to the mortgage and financial markets. As you know, the Dodd-Frank Act provides that the QRM rule must include the provisions of the QM rule, and the designated rulemaking agencies may, but are not required, to add further requirements. We respectfully recommend that QRM be promulgated to be the same as the QM requirements. This approach would provide the necessary individual loan and systemic protections while providing operational efficiencies at a time when many other regulatory changes are being implemented.

Attached, please find CRL’s issue brief, which provides greater detail and supporting analysis of the impact of the inclusion of a down payment requirement as part of the QRM standard.

Respectfully,

Martin Eakes
Chief Executive Officer
Center for Responsible Lending

Antonio González
President
William C. Velasquez Institute

Lisa Hasegawa
Executive Director
National Coalition for Asian Pacific American Community Development

Wade Henderson
President and Chief Executive Officer
Leadership Council on Civil and Human Rights

Marc Morial
President & CEO
National Urban League

Hilary O. Shelton
Washington Bureau Director & Senior Vice President for Advocacy
National Association for the Advancement of Colored People
Shanna Smith
President & CEO
National Fair Housing Association

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Introduction

Federal regulators are currently debating how to define “Qualified Residential Mortgages” (QRMs), a category of home loans established by the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.¹ Under Dodd-Frank, mortgage lenders that sell their loans into the private secondary market must retain a portion of the loan’s risk unless the loan is designated as a QRM.

Because lenders are strongly motivated to avoid future costs on loans they originate, the QRM standard will have enormous implications for the cost and availability of mortgages. Loans that fall outside the QRM parameters (i.e., “non-QRM loans”) will likely be significantly more expensive than QRM loans. Estimates of the spread range from 80 to 400 basis points, depending in part on what happens with other parts of the risk retention rule.² It is imperative that federal regulators create a QRM standard that balances the need to rein in dangerous loan features with fair access to safe, affordable loans for creditworthy borrowers.

Loans with risky product features such as high fees, balloon payments, low teaser rates, or interest-only or negative amortization schedules will automatically be ineligible for QRM status, as will loans that do not verify borrower income (so-called “no-doc” or “low-doc” loans). The Center for Responsible Lending (CRL) supports these restrictions.

However, regulators are also considering imposing minimum down payment requirements as part of the QRM standard. While much has been written on the barriers to homeownership that would result from the 20 percent down payment requirement included in regulators’ April 2011 proposed rule,³ there has been less commentary on a possible 10 percent down payment.

The costs of imposing a mandatory 10 percent down payment are unacceptably high. Not only would such a requirement exclude creditworthy families from homeownership, but it also would undermine the nation’s economic recovery by further depressing the housing market. Consider these facts:

- ***Low down payment loans are not the same as subprime loans and have been successfully used to help families become homeowners for decades.*** The current housing crisis was the result of abusive loan terms and practices in the subprime and Alt-A mortgage markets, not low down payment loans. Low down payments, when paired with responsible underwriting and safe loan terms, have proven to be a successful strategy for expanding sustainable homeownership for decades.

- ***Arbitrary minimum down payment requirements would lock middle-income families out of the mainstream market and widen the wealth disparities that already exist between whites and communities of color.*** Given median housing prices and incomes, it would take over 20 years for the average family to save a 10 percent down payment plus closing costs. The barriers would be even greater for typical African-American and Latino families, for whom it would take 31 and 26 years, respectively, to save enough to meet such a requirement. Again, lending history has shown that many families who don't have the funds for a significant down payment can become successful homeowners.
- ***The high costs of a 10 percent down payment requirement far outweigh sparse marginal benefits.*** Imposing a mandatory minimum down payment requirement would produce a small reduction in default rates, but the marginal benefit would be dwarfed by the cost of denying millions of families the opportunity to become successful homeowners with mainstream mortgages.

Dodd-Frank's protections against the worst abuses of the subprime and Alt-A markets will go a long way to prevent the types of lending that caused the current crisis. As a result, the marginal benefit of reducing defaults through a down payment requirement must be balanced against the cost of restricting access to affordable mortgages. A recent study by the University of North Carolina's Center for Community Capital and CRL suggests that the trade-off is not worthwhile.

Looking at large sample of mortgages originated between 2000 and 2008, the UNC/CRL study shows that, after applying Dodd-Frank's other mortgage protections, a 10 percent down payment requirement would have had a relatively small benefit in reducing defaults. Specifically, while a 10% down payment requirement would have reduced the default rate from 5.8 percent to 4.7 percent, it also would have locked 30 percent of all borrowers out of the market and would have excluded 9 borrowers who are currently successfully paying their mortgage for every foreclosure it would have prevented.⁴ In contrast, the study shows that a three percent down payment requirement reduces the default rate to 5.2 percent while excluding eight percent of borrowers (and would have excluded 6 successful borrowers for every one prevented foreclosure). Furthermore, the impact of a 10 percent down payment standard would be particularly acute for communities of color, as 60 percent of African-American and 50 percent of Latino borrowers who are currently successfully paying their mortgages would have been excluded from the mainstream mortgage market had such a requirement been in place.

- ***The benefit of down payments in reducing individual borrowers' default rates could be counteracted by the toll it would take on the larger housing market and economy.*** Including a down payment requirement in the QRM standard would depress housing demand, threatening the future recovery of the nation's housing market and overall economy. By excluding so many families from accessing affordable mortgages, a high down payment requirement would likely depress home prices, decreasing the home equity of families across the country, and act as a drag on economic growth and employment. In doing so, it could actually undermine its primary objective of reducing individual default rates.

While CRL agrees that borrowers should have “skin in the game” when purchasing a home, how much borrowers need to invest in order to feel adequately committed varies by their financial condition: a three percent down payment for a lower-income family may be just as effective a personal investment as 20 percent for a wealthier family. And, while we recognize that down payments affect defaults, we believe that down payment thresholds should be set and priced by the market, not by the government.

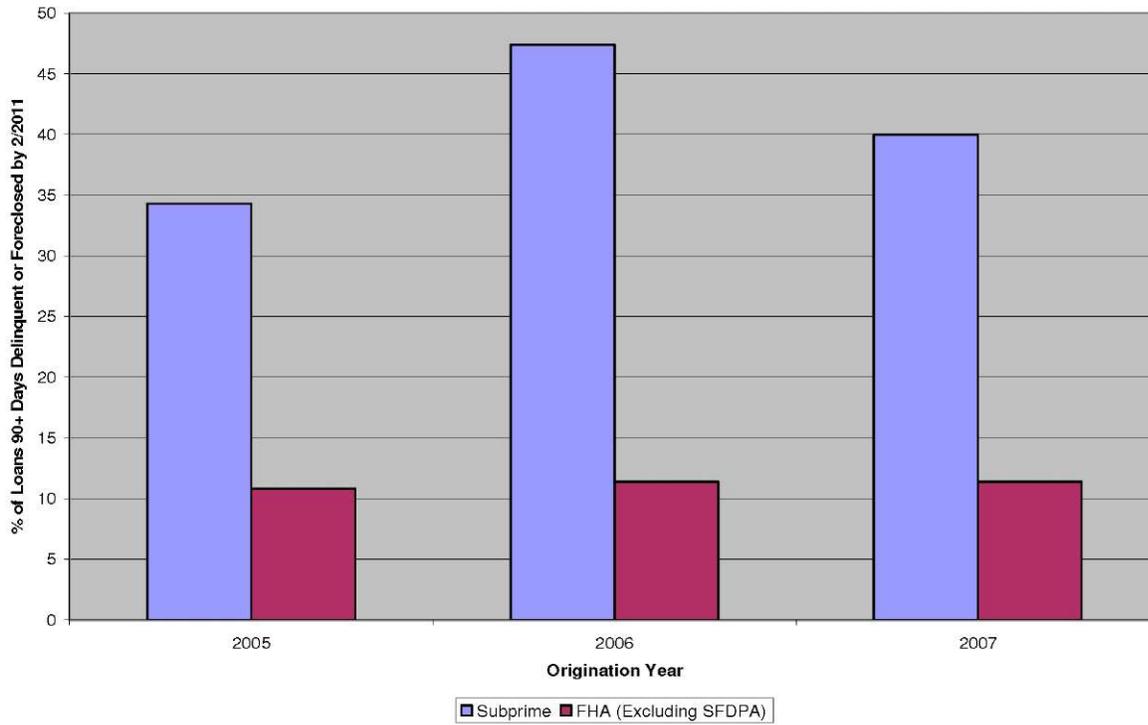
Below, we expand on our objections to a 10 percent down payment requirement as part of the QRM standard.

I. Low down payment loans are not the same as subprime loans and have been successfully used to help families become homeowners for decades.

The abusive loan terms and practices of the subprime and Alt-A markets caused the foreclosure crisis. Irresponsible practices—such as not documenting borrowers’ income and not escrowing for taxes or insurance—and toxic loan terms, including exploding ARMs with low initial teaser rates and prepayment penalties, dominated subprime lending. Meanwhile, mortgage brokers, through yield-spread premiums, received kickbacks from lenders to steer borrowers into more expensive loans than they qualified for. It was the aggressive use of these terms and practices that resulted in millions of borrowers being trapped in unsustainable mortgages. And, while it is true that many subprime loans had low down payments,⁵ low down payment loans have successfully been originated outside the subprime market for decades. It is therefore important not to conflate efforts to allow flexible underwriting for lower-wealth families with subprime abuses.

The performance of FHA loans gives some insight into the importance of making this distinction. Figure 1 below demonstrates the difference in default rates between subprime and FHA loans among borrowers with similar credit scores and debt-to-income ratios. All these loans have LTVs of greater than 90 percent and FICO scores between 580 and 680. Generally speaking, these subprime loans contained a battery of risky loan features, including lack of underwriting to fully-indexed or maximum interest rates, lack of documentation of income, prepayment penalties, and interest-only payments. FHA loans, on the other hand, lacked these risky features, but most also had low down payments. As the graph shows, the FHA loans performed much better than the subprime loans, with subprime default rates *three to four times higher* than those for FHA loans made to comparable borrowers.⁶

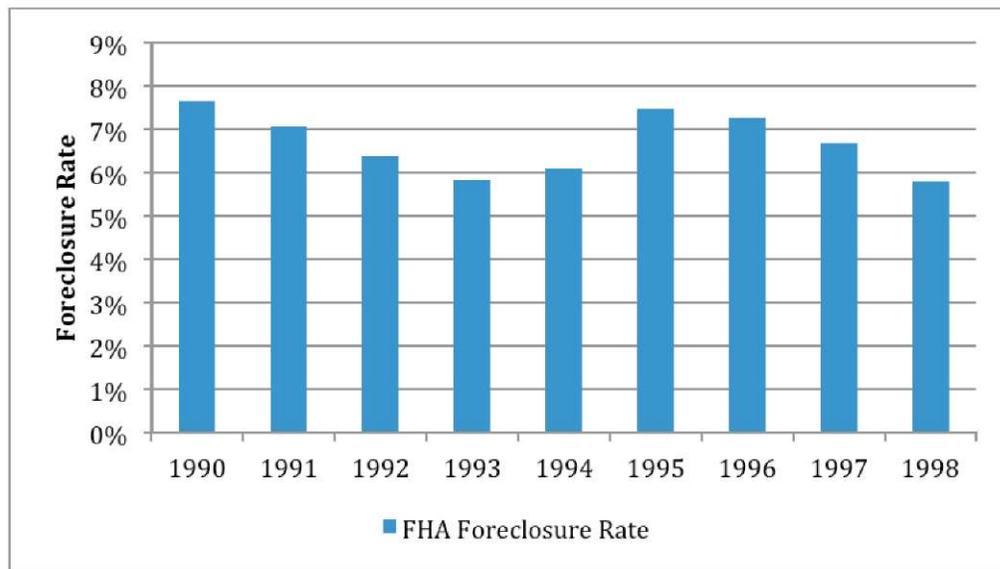
Figure 1. Comparison of Subprime and FHA loans
 (Excluding Seller-Financed Down Payment Assistance Program Loans)⁷



Source: CRL calculations of data from LPS Analytics loan-level database and BlackBox Logic loan-level database.

Figure 2 shows the solid performance of FHA loans over time. The 10-year cumulative foreclosure rates for FHA loans originated in the 1990s ranged from 5.8 to 7.7 percent.

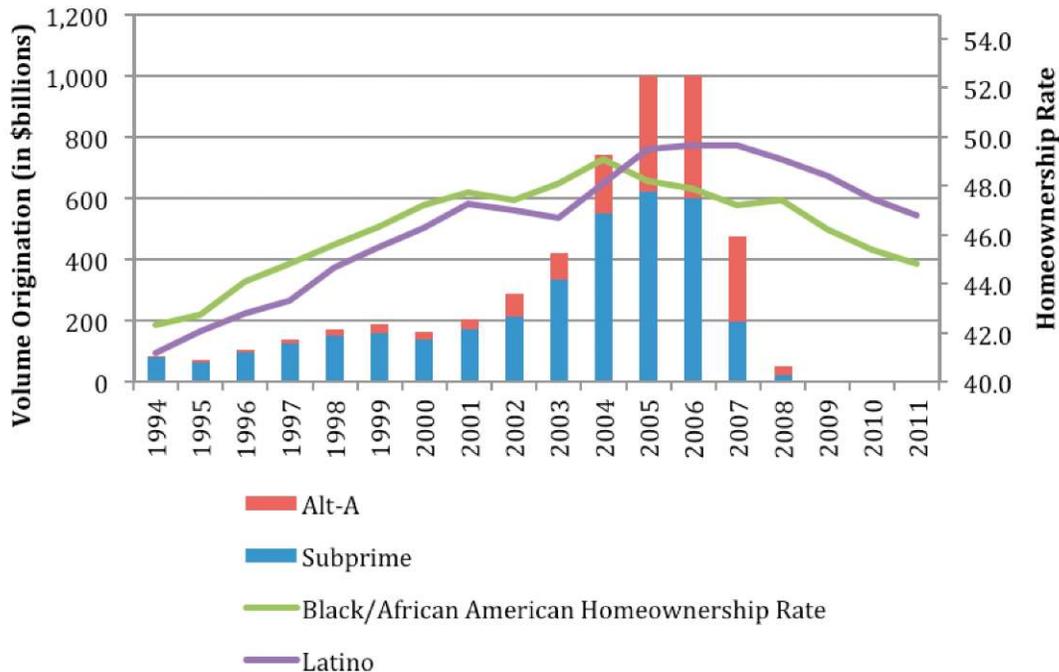
Figure 2. 10-Year Cumulative Foreclosure Rates, FHA 30-Year FRMs



Sources: Cumulative foreclosure rates calculated based on Actuarial Review of the FHA Mutual Mortgage Insurance Fund Forward Loans for Fiscal Year 2011, Appendix G-7.

In fact, research has shown that flexibility in mortgage finance, including reduced down payment requirements, helped drive sustainable homeownership during the 1990s, particularly for low-income and minority families.⁸ From 1994 through 2004, years that preceded the subprime boom, the homeownership rate for African-American households grew tremendously. However, this positive trend was reversed beginning in 2004, as foreclosures from subprime abuses, which were disproportionately concentrated in minority neighborhoods, began to materialize.⁹ A similar pattern is seen for Latinos, who saw strong, sustainable homeownership gains prior to the subprime boom, only to have these gains erased by the predatory and abusive terms that dominated the subprime and Alt-A markets.

Figure 3. Minority Homeownership and Subprime/Alt-A Lending



Sources: Inside B&C Finance and Census Bureau Housing and Vacancy Survey.

II. Arbitrary minimum down payment requirements would lock middle-income families out of the mainstream market and widen the wealth disparities that already exist between whites and communities of color.

Requiring 20 or 10 percent down payments would take direct aim at the wealth-building opportunities for middle-class families across the country. In 2010, the median home value in the U.S. was \$158,100. Should regulators mandate a 10 percent down payment for QRM, for example, it would take a household with median income *21 years* to save enough to cover the down payment and closing costs.

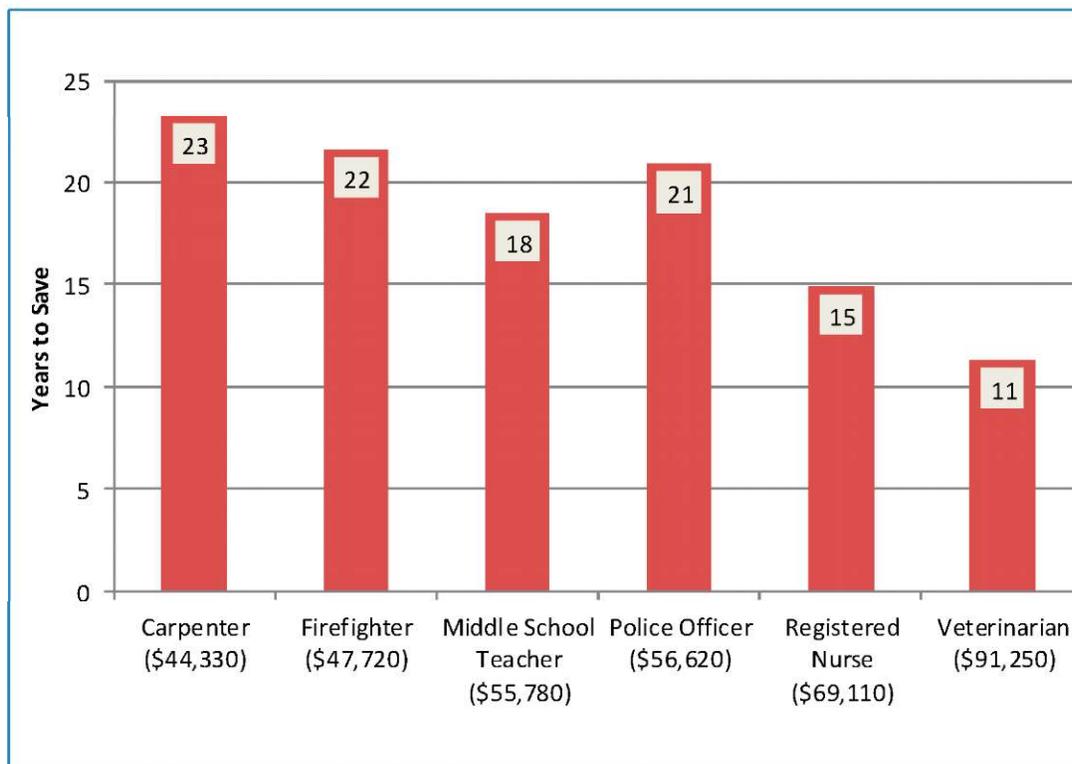
Table 1. Years to Save by Down Payment Requirement

	Down Payment Requirement			
	20%	10%	5%	3%
Cash Required for Down payment	\$ 31,620	\$ 15,810	\$7,905	\$ 4,743
Cash Required for Closing Costs ¹⁰	\$4,662	\$4,820	\$4,900	\$4,931
Total Cash Required at Closing	\$36,282	\$20,630	\$12,804	\$9,674
Number of Years Required to Save Required Cash	36	21	13	10

Notes: Based on purchase of a 2010 median priced house (\$158,100) by borrower with median income in 2010 (\$50,046). We assume an annual savings rate dedicated for down payment of 2%.¹¹

As Figure 4 below shows, based on median incomes for various occupations, it would take at least 20 years for middle-class workers such as carpenters, firefighters, and police officers to save the necessary funds to meet a 10 percent requirement.

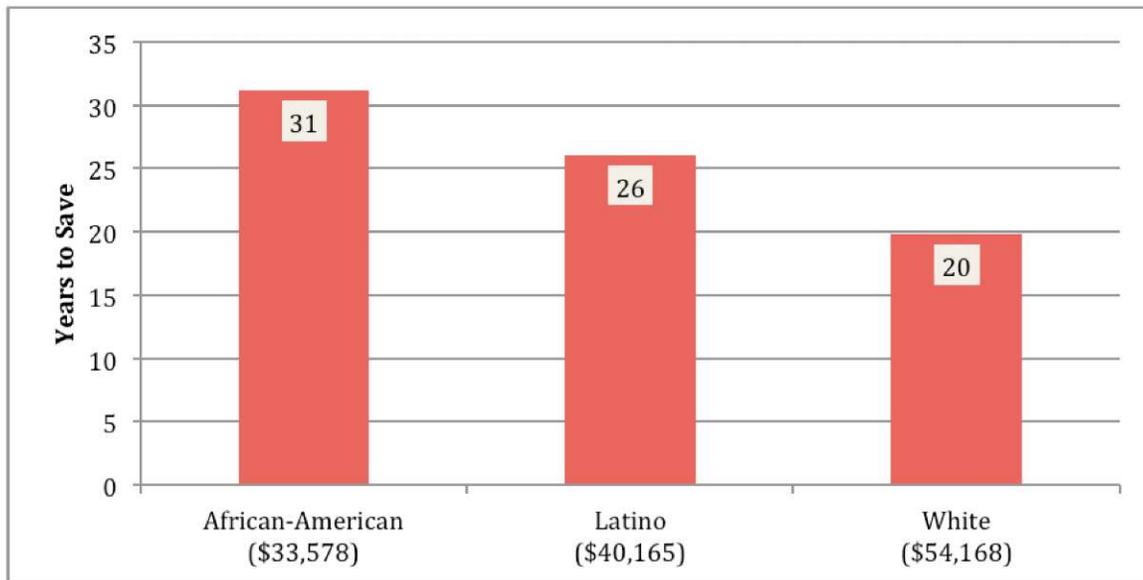
Figure 4. Years to Save for 10 Percent Down Payment, by Occupation



Source: CRL calculations based on median income by occupation from Bureau of Labor Statistics, May 2011.

Finally, the repercussions of such a requirement would be particularly dire for families of color. Given their lower incomes, it would take *31 and 26 years*, respectively, for African-American and Latino families with median incomes to save enough to purchase a home with a 10 percent requirement.

Figure 5. Years to Save 10 Percent Down Payment, by Race/Ethnicity



Source: CRL calculations based on median income by race and ethnicity from the 2010 American Community Survey.

III. The high costs of a 10 percent down payment requirement far outweigh sparse marginal benefits.

The marginal benefit of reducing default rates by imposing down payment requirements is dwarfed by the cost of denying millions of families the opportunity to become successful homeowners with mainstream mortgages. As mentioned earlier, the foreclosure crisis was caused by bad underwriting and abusive loan terms. Fortunately, Dodd-Frank addresses these problematic terms and practices. Among the most important mortgage reforms:

- *Ban on YSPs:* Loan originators can no longer receive more compensation for putting borrowers in higher rate loans than they qualify for.¹²
- *Restrictions on Prepayment Penalties:* Prepayment penalties that lock borrowers into bad loans are significantly restricted.
- *Mandatory Income Verification:* Lending without income documentation (so called “no-doc” or “low doc” lending) is prohibited.
- *Mandatory Escrows:* Escrows of taxes and insurance are required for higher interest rate loans.¹³
- *Underwriting to Fully-Indexed Rates:* Adjustable-rate loans must now be underwritten to their fully-indexed, not just the teaser, rate.
- *Limitation on High Up-Front Fees:* For all loans, up-front fees are limited to 5 percent or the loan becomes a disfavored HOEPA loan.¹⁴

In addition, the proposed guidelines for “qualified mortgages” (QMs)—such as requiring full amortization, banning balloons, not allowing short-term teaser rates, and capping fees at 3 percent—will keep the riskiest mortgages largely out of the market place. Restricting these risky terms will reduce default rates without decreasing borrower access to mortgage markets, and the QRM standard will include all of these restrictions.¹⁵

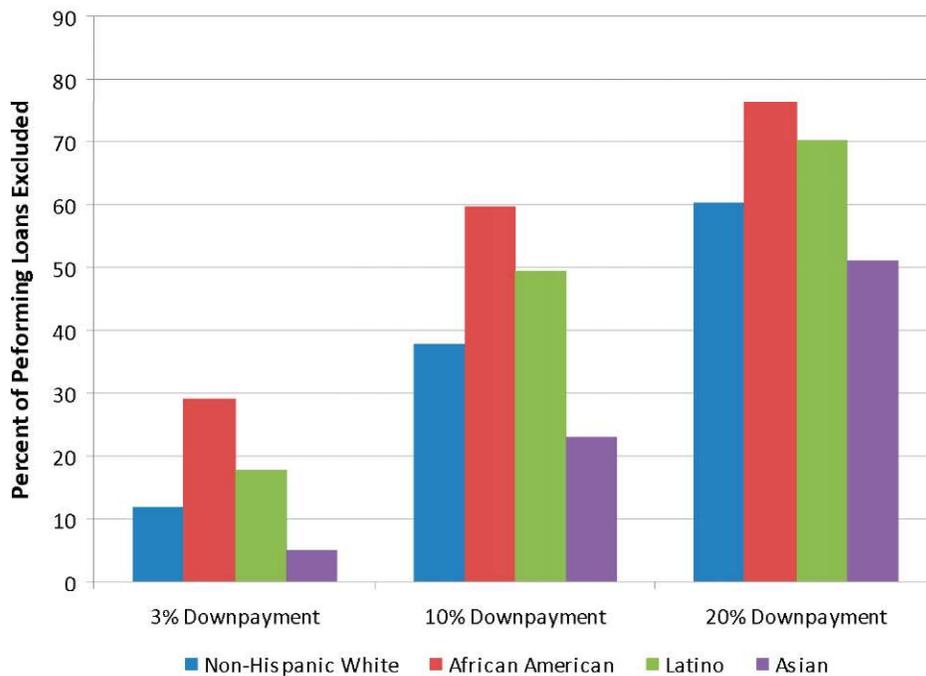
Imposing down payment requirements is a step too far, however. While down payments, like other factors, do have an impact on default, access to mainstream mortgages will be extremely sensitive to the existence and size of any down payment requirement in QRM. Those who cannot save sufficient funds to meet the down payment plus closing costs will be forced to pay a higher price for non-QRM loans, if such loans are available at all. Because of their lower levels of wealth, lower-income borrowers, African-American and Latino borrowers will be much more likely to be relegated to this non-QRM market. We have already seen the damage that can result from a mortgage market where minority families are disproportionately served outside the mainstream, so regulators should be concerned about the creation of a new “dual market.” Therefore, given the fact that other parts of Dodd-Frank will address the abuses of subprime and Alt-A lending, it is imperative to analyze the marginal benefit of reducing defaults with a QRM down payment requirement with the cost of denying otherwise qualified borrowers access to the mainstream mortgages.

The report “Balancing Risk and Access: Underwriting Standards and Qualified Residential Mortgages” provides a useful analysis for doing this. Analyzing nearly 20 million mortgages made between 2000 and 2008, the Center for Community Capital at the University of North Carolina at Chapel Hill and CRL looked at the marginal impacts on defaults and access resulting from setting underwriting guidelines for QRM that are stricter than the proposed product restrictions for QM loans. The authors find that, for loans already subject to QM product restrictions, requiring a 10 percent down payment¹⁶ rather than no down payment does reduce the overall default rate by roughly one percentage point (from 5.8% to 4.7%), but at the cost of locking 30 percent of all borrowers out of the market. In contrast, a 3 percent down payment requirement would have reduced the default rate to 5.2 percent while only excluding 8 percent of successful borrowers.

In addition, the authors calculate an “exclusion ratio,” which is the number of performing loans that would be excluded for each default prevented by requiring a minimum down payment. They find that setting a 10 percent down payment requirement would have denied homeownership to nine borrowers who are *currently performing* on their mortgage to prevent just one foreclosure; the exclusion ratio for a 3 percent down payment is, by contrast, 6:1.

Finally, using a smaller dataset of 2004 - 2008 originations that also includes borrower demographic information, the authors show that the cost of a mandatory 10 percent down payment requirement would be particularly acute for African-American and Latino home buyers. Such a requirement would have excluded about *60% of African-American and 50% of Latino borrowers* who are *currently successful* homeowners from obtaining mainstream mortgages.

Figure 6. Percent of Performing Loans Excluded from the QRM Mortgage Market, Alternate LTV Definitions, by Borrower Race/Ethnicity¹⁷
(2004 – 2008 Originations)



Source: Figure 8 from “Balancing Risk and Access: Underwriting Standards and Qualified Residential Mortgages, available at <http://www.responsiblelending.org/mortgage-lending/research-analysis/Underwriting-Standards-for-Qualified-Residential-Mortgages.pdf>.

IV. The benefit of down payments in reducing individual borrowers’ default rates could be counteracted by the toll it would take on the larger housing market and economy.

Recent studies suggest negative equity is not a sufficient condition for default.¹⁸ Most borrowers do not default simply by virtue of being underwater but, rather, because they are underwater *and* experience a negative “trigger” event that makes monthly payments unaffordable. These triggers can be life events, such as unemployment, illness or divorce, or a payment shock created by risky loan terms themselves. The product restrictions of QM that will automatically be included in QRM will help decrease the incidence of payment shocks by restricting the availability of loans with teaser rates, interest-only and negative amortization. Other Dodd-Frank reforms, such as requiring income documentation and restricting prepayment penalties, will also help ensure the overall affordability of originated mortgages and will, therefore, also decrease the impact of default triggers.

A down payment requirement would not decrease the incidence of payment shocks but rather would make it less likely for an individual borrower to fall into a negative equity position. On a micro-level, this would indeed reduce defaults by some extent. However, because the down payment requirement would result in fewer people qualifying for mainstream mortgages, overall housing demand would fall, putting downward pressure on housing prices. Given that minority families will comprise the majority of new households over the next decade and that a down payment requirement would pose particularly

high barriers to homeownership for African-Americans and Latinos, the impact of a down payment requirement on home prices could be substantial. Therefore, on a macro-level a down payment requirement could actually expose homeowners to an increased risk of negative equity.

Furthermore, by weakening the housing market, traditionally a driver of economic growth, the down payment requirement could hinder not just the housing recovery but the overall economy, adversely affecting the income and employment for all homeowners. These macroeconomic effects could actually counteract any marginal benefit to individual default rates resulting from a down payment requirement.

Conclusion

Dodd-Frank's ban on loans with the highest risk of default—for example, those with no income documentation—and restrictions on features like prepayment penalties, teaser rates and yield-spread premiums—will go a long way towards avoiding the conditions that caused the current housing crisis. Adding a 10 percent down payment requirement to the QRM definition, however, would be a mistake. Such a requirement would do little to reduce defaults while excluding a large number of creditworthy home buyers from the mainstream market. The impact would be particularly acute for middle-class and minority borrowers, for whom it would take decades to save enough to meet the down payment requirements to access QRM loans. As a result, these borrowers would be relegated to a costly, second-tier, non-QRM market, to the extent that such market exists.

Finally, while low down payments may increase the risk of default for individual borrowers, that additional risk should be priced by the market. A government-set down payment requirement would depress housing demand and home values, undermining the housing recovery, jeopardizing broader economic growth, and could actually increase foreclosures

Notes

¹ Federal regulators in charge of defining QRM are the Federal Reserve, Office of the Comptroller of the Currency, Federal Deposit Insurance Corporation, Federal Housing Finance Agency, Securities and Exchange Commission the Department of Housing and Urban Development, and the Department of the Treasury.

² Moody's Analytics originally estimated that non-QRM loans would cost 75-100 basis points more, but revised this estimate to 100-400 basis points depending on the interpretation of premium capture provision by regulators. See deRitiz and Zandi, "A Clarification on Risk Retention," Moody's Analytics, September 2011. The National Association of Realtors has estimated the spread to be 80-185 basis points. See "Risk Retention/Qualified Residential Mortgage (ARM) Proposed Rule," National Association of Realtors, August 2011.

³ See Federal Register Vol.76, No.83, available at <http://www.fdic.gov/regulations/laws/federal/2011/11proposedAD74.pdf>.

⁴ Roberto Quercia, Lei Ding, and Carolina Reid (2012). Balancing Risk and Access: Underwriting Standards for Qualified Residential Mortgages. University of North Carolina, Center for Community Capital Working Paper. Available at <http://www.ccc.unc.edu/abstracts/QRMunderwriting.php>.

⁵ For a discussion of trends in the loan-to-value ratios (LTVs) of subprime loans, see Chomsisengphet and Pennington-Cross, "The Evolution of the Subprime Mortgage Market," Federal Reserve Bank of St. Louis Review, January/February 2006, 88(1).

⁶ It should be noted that it is not just FHA loans that performed better than subprime loans. Researchers have shown that high LTV loans given to borrowers with subprime characteristics exhibited much lower rates of default when these loans did not have risky features such as prepayment penalties and adjustable rates. See "Risky Borrowers or Risky Mortgages: Disaggregating Effects Using Propensity Score Models," available at <http://www.ccc.unc.edu/documents/Risky.Disaggreg.5.17.10.pdf>.

⁷ These FHA default rates are adjusted to exclude loans made through the since-terminated Seller-Finance Down-payment Assistance Program (SFDPA). SFDPA (approved by HUD in 1998) was fraught with abuse, including seller fraud, that severely increased default rates for reasons unrelated to the borrower's creditworthiness or actual loan-to-value ratios. The allowance for SFDPA was terminated under the Housing and Economic Recovery Act of 2008 (HERA). For this reason, we have excluded SFDPA loans from the pool shown here.. According to the *Federal Register* (Vol. 73, No. 116), the ratio of SFDPA loans to other FHA loans on expected lifetime claim rate is 2.33. SFDPA loans accounted for 37 percent of all FHA purchase loans with LTV>90 percent in FY 2007. Therefore, when excluding SFDPA in Figure 2, the default rate is estimated as the default rate of all FHA mortgages divided by 1.4858.

⁸ Retsinas, Nicolas. Low-Income Homeownership: Examining the Unexamined Goal. Brookings Review Press, September 2002.

⁹ For a more detailed account of the impact of subprime lending on minority neighborhoods, see "Lost Ground: Disparities in Mortgage Lending," available at www.responsiblelending.org/mortgage-lending/research-analysis/lost-ground-2011.html.

¹⁰ According to a 2012 survey, the average closing cost on a \$200,000 mortgage was \$3,754 excluding escrow for taxes and insurance. We assume this can be decomposed into a 1% origination fee plus \$1,754 in fixed fees. Using the 2009 national median property tax rate of 1% and the current average homeowner insurance premium of \$853, we estimate an additional \$1,643 is required at closing to cover escrows for insurance plus six months of taxes. See www.bankrate.com/finance/mortgages/2012-closing-costs/ for survey of closing costs; for insurance information see <http://homeinsurance.com/rates-in-your-state/>; for median tax rate, see <http://www.nahb.org/generic.aspx?sectionID=734&genericContentID=155396&channelID=311>.

¹¹ Median income for 2010 is from American Community Survey, available at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_1YR_S1903&prodType=table. Our savings rate assumption is derived from the Bureau of Economic Analysis's annual savings rate for April 2012 of 3.9 percent. However, since BEA's rate is based on take home, not gross, income, it translates to a 2.8 percent rate for gross income, assuming a combined federal, state and local tax rate of 28.3 percent (see effective tax burden for the middle quintile of households at <http://taxfoundation.org/sites/taxfoundation.org/files/docs/wp1.pdf>,

page 14). We then assume that, of this 2.8 percent, 2 percentage points can be dedicated toward a down payment, leaving families with the remainder of savings (0.8 percentage points) for retirement, college and emergencies.

¹² Compensation cannot vary according to the terms and conditions of the loan (except for principal balance).

¹³ Rural community banks are exempt.

¹⁴ However, interest rates can rise to 6.5 percent over the conventional rate without the loan hitting these limits.

¹⁵ QRM, by statute, cannot be less restrictive than QM. Therefore, QRM will necessarily have the same product restrictions on terms as QM.

¹⁶ The authors actually look at both refinance and purchase loans so they model restrictions based on LTV rather than the more limited down payment.

¹⁷ Loan status as of February 2011.

¹⁸ There are two basic theories of mortgage default: the "default option model" and the "double trigger model." In the default model, borrowers simply seek to maximize their wealth by defaulting when their home is worth less than their outstanding mortgage. Specific types of default models vary in their assumptions about the transaction costs and alternative housing options of defaulting borrowers, but all basically predict that borrowers will default when the negative equity in their homes reaches or exceeds a specific threshold. By contrast, the "double trigger" theory of loan default holds that negative equity, while necessary, is not a sufficient condition for default. Rather, there must be an additional "trigger" event that makes the monthly payments on the mortgage unaffordable. Such triggers can be internal to the loan product (such as a payment shock caused by a rate reset, negative amortization schedule, or prepayment penalty) or external, such as unemployment, illness or divorce. Empirically, the double trigger theory appears to have more validity. See Campbell and Cocco (2010) "A Model of Mortgage Default" NBER Working Paper #w17516; Schelkle (2011) "Mortgage Default During the U.S. Mortgage Crisis" London School of Economics Job Market Paper; Bhutta, Dokko and Shan, "The Depth of Negative Equity and Mortgage Default Decisions," Federal Reserve Board of Governors, May 2010.