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Evaluating Corker-Warner

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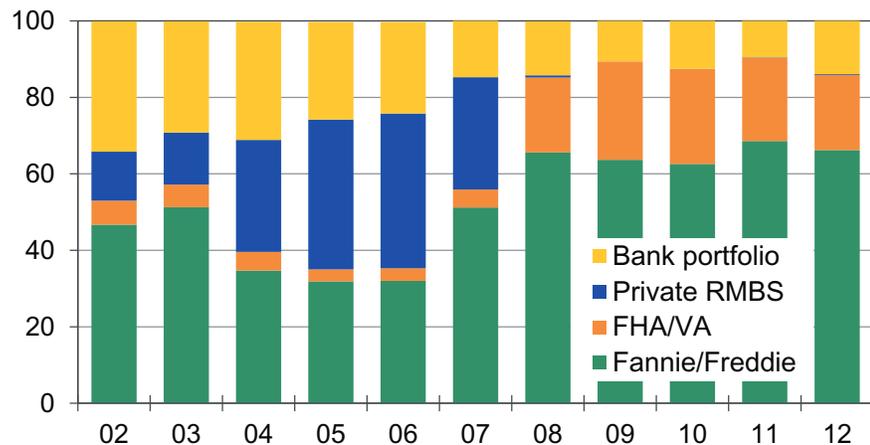
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Housing finance reform received an important boost last month with the introduction in Congress of the Housing Finance Reform and Taxpayer Protection Act of 2013.¹ The bipartisan legislation, written by Senators Bob Corker (R-TN) and Mark Warner (D-VA), represents a serious plan to resolve Fannie Mae and Freddie Mac and fix the nation's broken housing finance system.

The system's current dysfunction is evident: Nearly nine out of 10 U.S. mortgage loans today are being made by the federal government via Fannie Mae, Freddie Mac, the Federal Housing Administration, and the Department of Veterans Affairs (see Chart). Taxpayers are thus taking on the risks inherent in about \$1 trillion in mortgage loans originated each year.² This is unnecessary, given that private financial institutions are willing, and with some guidance from regulators, able to safely make these loans.

Who's Making Mortgage Loans

% of residential mortgage originations



Source: Moody's Analytics

The Corker-Warner Plan

The Corker-Warner reform plan is straightforward.³ Fannie and Freddie, the mortgage giants taken over by the government during the financial crisis in 2008, would be wound down, and a number of private financial institutions that issue mortgage securities would take their place. These securities could be backed by the government for a fee but only in the case of financial catastrophe. Short of that, private institutions and investors would absorb losses on the securities before the government stepped in.

The government would retain an important role in housing finance, but this role would be significantly reduced, explicit, and paid for by mortgage borrowers rather than taxpayers.

The Federal Mortgage Insurance Corp., a new independent government agency, would screen all the players in the housing finance system and make sure they played by the rules. The FMIC would also insure eligible mortgage securities, just as the Federal Deposit Insurance Corp. insures deposits in the banking system.

Similar to the way the FDIC administers a deposit insurance fund financed by the banks, the FMIC would tap a mortgage insurance fund financed by issuers of private mortgage securities in case of financial catastrophe. The FDIC was established during the Great Depression to stop debilitating runs on banks. Similarly, the FMIC would step in if needed to stop future runs on the mortgage securities market.

Catastrophic backstop

A catastrophic government backstop to the housing finance system is necessary if 30-year fixed rate loans are to remain a mainstay of the mortgage market.⁴ Without it, private investors will be unwilling to take on both the credit risk and interest rate risk inherent in long-term, fixed-rate loans—at least not at mortgage rates most American households could afford. Indeed, long-term, fixed-rate loans are rare in other nations, as they do not directly backstop their mortgage markets.

It is important to point out that even if the government does not provide an explicit backstop for the housing finance system, it will do

so implicitly. The difference is that mortgage borrowers will pay for the explicit backstop created by the Corker-Warner reform; the implicit one will be covered by taxpayers, at a higher cost, when a crisis eventually strikes. If we have learned anything from the Great Recession, it is that policymakers will not turn a blind eye to their constituents and allow the housing market to fail in times of crisis.

The legislation creatively encourages multiple sources of private capital to come into the housing finance system in front of the government's backstop. These include insurance sources such as private mortgage insurance and mortgage bond insurance, and capital market sources such as senior-subordinated security structures and credit linked notes. Each source can provide first loss capital to the housing finance system, allow for the separation of credit and interest rate risk necessary to support 30-year fixed rate mortgage lending, and provide for equitable access to the secondary mortgage market. The legislation recognizes that the housing finance system will be more stable and provide more mortgage loan choices to homeowners at a lower cost in different housing and economic environments if it is based on multiple sources of private capital.

Contentious issues

The Corker-Warner plan reasonably handles several contentious issues in the debate over housing finance reform. The bill provides a mechanism to allow small financial institutions to benefit from the government guarantee. Small lenders are appropriately nervous that they may be put at a disadvantage if they have to go through larger firms to obtain the guarantee, and they will not support change unless they can keep the kind of access they have with Fannie and Freddie in the current system.

The legislation also establishes a transparent, dedicated and sustainable funding mechanism, the Market Access Fund, to promote affordable single-family and rental housing. Government efforts to subsidize affordable housing via Fannie and Freddie were opaque and costly, and ultimately contributed to the demise of the institutions. But the need is

even greater now that the foreclosure crisis has undermined many households' finances, making it harder for private markets to serve all those able to manage prudent mortgages. The Corker-Warner bill clearly outlines a mechanism for providing affordable housing subsidies without distorting incentives or mixing prudent risk management with social policy.

The Corker-Warner plan would wind down Fannie and Freddie and sell off their assets, making space for other private financial institutions to issue government-backed mortgage securities. Other reform plans recapitalize Fannie and Freddie using their fees for guaranteeing mortgages, or gfees, and reprivatize them.⁵ Under these proposals, they would compete against other private financial institutions in issuing and insuring mortgage securities, and in purchasing a catastrophic government guarantee for an explicit government gfee.⁶ Although winding down Fannie and Freddie and transitioning to the future housing finance system would be more difficult in the Corker-Warner plan, Fannie's and Freddie's descendants would be much less likely to dominate the future system and once again become too big to fail.

Incompletes

The legislation does not adequately address some aspects of the debate over housing finance reform. For example, it puts Fannie's and Freddie's multifamily guarantee businesses into the FMIC. Asking a regulator to also run a business is a stretch, and appears to be a placeholder that policymakers will address once the thornier issues around the single-family business are resolved.

The plan fails to add much countercyclical-ity to housing finance regulation. A good way to do this would be by sizing the mortgage insurance fund via stress-testing, similar to what banks are required to do for their balance sheets. In good times, when lenders are lowering their underwriting standards, the government would increase gfees, making them more costly and cooling off the housing market. In bad times, when lending standards are tight, such as now, the government would ease its gfees to support the market.

Table 1: Mortgage Rate Impact of Safeguarding the Housing Finance System

	First 15 Years	After 15 Years
Total mortgage rate impact	100-125 bps	85-105 bps
Current Fannie/Freddie gfee (consistent with 5% capitalization)	50 bps	50 bps
Corker-Warner:	50-75 bps	35-55 bps
Increase in gfee for capitalization to 10%	30-45 bps	30-45 bps
Funding for Mortgage Insurance Fund	15-20 bps	0
Surcharge for Market Access Fund	5-10 bps	5-10 bps

Note:
This is for a typical borrower with an 80% LTV and 750 credit score.

Source: Moody's Analytics

The Corker-Warner bill is also somewhat opaque regarding the appropriate mix of private capital in front of the government guarantee. Given the complexities involved, the legislation is wise to leave the details up to the FMIC in this regard, but there is the risk that without some legislative guidance, capital markets could drive out insurance solutions. In good times, euphoric capital markets would likely be willing to provide capital more cheaply than insurance companies, but in bad times, nervous capital markets may be unwilling to provide capital at a reasonable price. Insurance companies are more likely to provide capital during thick and thin times, but they will not be able to unless they can do business in the good times when mortgage losses are low and build up the reserves they need to weather the bad times when losses are high.⁷

Issuers and guarantors

One design feature of the Corker-Warner housing finance system should also be considered more carefully. In the system as envisaged, a financial institution could originate and service mortgages, issue mortgage securities, and collect the requisite private capital that goes in front of the government guarantee. This is potentially too much for one institution; even Fannie and Freddie are restricted from originating mortgage loans.

Under the Corker-Warner plan, no single financial institution can account for more than 15% of mortgages eligible for the government guarantee. But there is an exception for institutions that securitize their own mortgages. The risk is that the Corker-Warner system

could become dominated by large financial institutions, potentially limiting competition and increasing worries about too-big-to-fail.

To address this potential problem, issuers of mortgage securities should be restricted from also owning the institutions that collect the private capital needed to obtain the government guarantee.⁸ Big banks would be able to originate and service mortgages, as well as issue mortgage securities, but they would be prohibited from owning the institutions that ultimately guarantee the timely payment of principal and interest on those mortgages.

This approach has a number of benefits in addition to reducing the size and market heft of players in the housing finance system. More private capital is likely to come into the system if big banks are unable to dominate it. Some are concerned that the system will fail to attract sufficient private capital at a reasonable cost. But judging by the amount of capital currently flooding into the private mortgage insurance industry, this seems a modest risk, particularly if the structure of the new system and the timetable for moving to it is well defined.

Separating mortgage securities issuers from guarantors would also ensure that more due diligence would be applied to the mortgage loans and securities being originated. Independent guarantors would be especially careful in their underwriting, given how much skin in the game they would have.

Worries about regulatory overlap between the FMIC and banking regulators would also be addressed. Under any circumstance, the FMIC

would need to coordinate with the Federal Reserve, the Securities Exchange Commission, the Office of the Comptroller of the Currency, the Consumer Financial Protection Bureau, and other agencies, but the regulatory burden would be significantly reduced if issuers, who can be heavily regulated depository institutions, are not permitted to own guarantors.

Mortgage rate impact

Arguably the most significant issue with Corker-Warner is the impact it would have on mortgage interest rates. Moving from the current system to Corker-Warner would increase the interest rate for the average mortgage borrower by 50 to 75 basis points. To be more precise, this would be the average increase in mortgage rates for the typical borrower in the first 15 years after Corker-Warner became law; the increase would drop to between 35 and 55 basis points after that. We assume that the typical 30-year fixed-rate mortgage borrower has an 80% loan-to-value ratio and 750 credit score.⁹

The increase in mortgage rates is driven by three factors. First is the 30- to 45-basis point cost of increasing the housing finance system's capitalization from its current level, approximately 5%, to the 10% required in Corker-Warner. Second is the 15- to 20-basis point cost of building up the mortgage insurance fund to 2.5% of outstanding eligible mortgages over a 15-year period.¹⁰ Third is the five- to 10-basis point cost of the Market Access Fund to finance affordable housing initiatives (see Table 1).

Increasing the system's capitalization to 10% means that private financial institu-

Table 2: Realized Residential Mortgage Loan Losses
Billions \$

	2006	2007	2008	2009	2010	2011	2012	Total 2006-2012	Debt outstanding yr-end 2007	Losses as a % of debt
Total	17.1	38.5	136.5	216.1	190.0	161.8	159.9	919.9	11,207	8.2
Government backed	7.1	7.7	17.9	31.8	51.4	46.3	44.2	206.4		
Fannie Mae & Freddie Mac	0.8	1.8	10.3	21.3	37.3	31.4	26.0	128.9	4,820	3.7
Fannie Mae	0.6	1.3	6.5	13.4	23.1	18.3	14.4	77.6		
Freddie Mac	0.2	0.5	3.8	7.9	14.2	13.1	11.6	51.3		
Federal Housing Administration	6.3	5.9	7.6	10.5	14.1	14.9	18.2	77.5	449	17.3
Privately backed	10.0	30.8	118.6	184.3	138.6	115.5	115.7	713.5		
Mortgage insurers	1.5	6.9	10.8	9.6	6.6	6.0	6.0	47.4		
Depository institutions	2.7	7.3	35.0	54.9	48.2	35.3	33.3	216.7	3,729	5.8
Private-label mortgage securities	5.8	16.6	72.8	119.8	83.8	74.2	76.4	449.4	2,209	20.3
Subprime	5.6	15.5	55.9	71.6	39.0	34.7	35.5	257.8		
Alt-A	0.2	0.9	11.3	28.0	24.0	20.5	20.1	105.0		
Option ARMs	0.0	0.2	5.2	17.9	17.4	14.8	16.5	71.9		
Jumbo	0.0	0.0	0.4	2.3	3.4	4.1	4.3	14.6		
Securitized HELOC	0.2	1.5	5.1	5.1	3.4	2.1	1.6	18.9		

Sources: Fannie Mae, Freddie Mac, HUD, FDIC, Federal Reserve, Moody's Analytics

tions must have enough capital backing their mortgage securities to withstand a 10% loss before the government's guarantee kicks in.¹¹ This is an extraordinarily high loss rate, which would occur only in the rarest of financial calamities. Consider that during the Great Recession, Fannie, Freddie, and the private mortgage insurance companies had a combined loss rate of less than 5% (see Table 2).¹²

Fannie and Freddie were clearly unprepared for the Great Recession. Prior to the downturn, they were charging gfees of 20 basis points, which we calculate is enough to withstand a loss rate of no more than 2% (see box for a description of the gfee calculator). However, they would be prepared now; their current average gfee is closer to 50 basis points, sufficient to withstand a loss close to 5%.¹³

The cost of increasing the housing finance system's capitalization to 10% depends on many factors; the key ones being the source of additional private capital

and the required rate of return. If it comes from a private mortgage bond insurer with a required return on equity of 15%—the amount private mortgage insurance companies currently require—then based on the gfee calculator the cost would increase by an additional 45 basis points.

It could be less expensive if the extra capital came from capital markets. Since the likelihood of losses greater than 5% is so low, investors would likely be willing to invest in a security covering the additional 5% of required capital at a low interest rate, say 125 basis points over 10-year Treasury yields. For context, the average historical spread between yields on Fannie Mae securities and Treasuries is just over 100 basis points.¹⁴ In a full-employment economy, 10-year Treasury yields should be near 4.75%, and thus investors would require a 6% yield to provide the 5% of additional capital.¹⁵ The impact on mortgage rates would be 30 basis points (.06 * .05).

It is important to note that increasing the system's capitalization would have a meaningfully larger impact on mortgage rates for borrowers that are less credit-worthy than average, although still eligible for a government guarantee, and during economic recessions. For example, the increased cost of moving from a 5% to a 10% capitalization to a borrower who is at the edge of eligibility during a typical post-World War II recession would be closer to 80 basis points.

Is 10% necessary?

Capitalizing the housing finance system to withstand a 10% loss is not necessary—the odds of losses this large are extremely remote, and the system's current 5% capitalization is more than adequate to weather future financial storms—but it has some benefits.

The principal cost of requiring such a high 10% capitalization is a higher mortgage rate for borrowers. Even if mortgage rates

increase by only 50 basis points, monthly mortgage payments for the average mortgage borrower would rise by \$75, a 5% increase in the monthly payment of the average new mortgage borrower. Of course, this also represents a misallocation of a significant amount of capital—about \$250 billion—that could go to more productive uses in the economy.

However, the benefit of such a high capitalization is that it would provide a fortress financial foundation for the housing finance system. It would all but eliminate taxpayers' exposure to risk, and should allay any concern about the government charging too little for its guarantee.¹⁶ Under most circumstances, the government's gfee should be very small.¹⁷

Higher capitalization should also dispel any moral hazard concerns that private financial institutions would lower their underwriting standards and take on too much risk thinking that the government

guarantee would bail them out. It is hard to conceive that this would be a problem in the Corker-Warner housing finance system, since private capital has so much skin in the game. If the government guarantee is needed, private investors would have suffered devastating losses.

Conclusion

Lawmakers are in danger of becoming complacent about resolving Fannie and Freddie and fixing the housing finance system. The housing market is recovering and mortgage credit is flowing. Fannie and Freddie are making profits again, benefiting the Treasury. There is no burning political pressure for change.

But the status quo is quickly becoming a problem. Fannie and Freddie's limbo status makes it difficult for them to quickly address impediments that limit the availability of mortgage credit. This has not been a problem to date, but it will be as mortgage rates

rise and the housing recovery becomes more dependent on credit-constrained first-time homebuyers. Concerns that policymakers will use Fannie and Freddie for purposes other than housing are legitimate. Last year's payroll tax holiday was funded in part by higher Fannie and Freddie gfees.

The Corker-Warner plan is a serious step forward. It would preserve access for creditworthy borrowers to a wide range of mortgage products in good times and bad. It would explicitly fund efforts to promote affordable single-family and rental housing. It would significantly reduce the government's role in the system and make that role explicit and transparent. And it would cost taxpayers nothing.

Corker-Warner may not be what the interested parties would do if they wrote the legislation on their own, but in the spirit of bipartisanship, it gracefully weaves together the interests of the many parties involved.

Description of Guarantee Fee Model

Guarantee fees are determined through a net-present-value computation of cash flows, in order to meet conditions for both solvency and return on equity.

Under the solvency condition, the capital held by the insurer plus the guarantee fee (or premium) income paid by the insured entity must be greater than or equal to a specified level of stress losses:

$$\sum_{t=1}^T \beta^t UPB_t^S \times \frac{\phi}{1200} + K = \sum_{t=1}^T \beta^t SL_t$$

Where

$$\beta^t = \left(\frac{1}{1+r_t}\right)^t$$

t = age of loan in months

T = term of loan in months (for example, 360)

r_t = discount rate at time t (for example, Libor)

UPB_t^S = unpaid principal balance at time t (in stress loss case)

UPB_t^E = unpaid principal balance at time t (in expected loss case)

K = initial capital

φ = annualized guarantee fee

EL_t = expected loss at time t

SL_t = stress loss at time t (selected loss capitalization level)

ROE = pre-tax return on equity demanded by insurer (providers of capital)

tax = marginal tax rate of insurer

Investors in the insurance company provide capital to guard against stress losses, demanding a certain return on equity to compensate them for their risk. The guarantee fee must cover expected losses as well as this cost of capital:

$$\phi = K \times \frac{ROE}{(1 - tax)} + \frac{\sum_{t=1}^T \beta^t EL_t}{\sum_{t=1}^T \beta^t UPB_t^E}$$

Models for expected and stress losses can be estimated based on the historical default performance of previous mortgages. Expected

losses may be derived based on the historical distribution of losses or, alternatively, may be simulated based on the distribution of economic drivers in the loss models (for example, house prices, interest rates, unemployment, etc.). A level of stress losses must be chosen, against which the insurer must capitalize. This selection may be guided by historical experience or through simulation exercises, but neither of these processes ensures that they represent the true underlying distribution of losses. If the realized economic draw exceeds the stress loss assumption, the insurer will have capital reserves insufficient to cover losses and become insolvent.

Given parameterization of r_t, ROE and tax along with expected and stress loss estimates, the guarantee fee is derived by iterating on a solution that meets both criteria.

The structure may be generalized to the case where there are two insurers, as in the proposed hybrid model, where an MSIC cov-

ers a first-loss position and the government covers losses beyond a pre-specified stress level. In this case, the overall solvency condition is written as:

$$\sum_{t=1}^T \beta^t UPB_t^S \times \left(\frac{\phi_p}{1200} + \frac{\phi_G}{1200} \right) + K_p + K_G = \sum_{t=1}^T \beta^t SL_t$$

The conditions for the private and government insurers are, respectively:

$$\sum_{t=1}^T \beta^t UPB_t^S \times \left(\frac{\phi_p}{1200} \right) + K_p = \sum_{t=1}^T \beta^t SL_t \times D_t^{SP}$$

$$\sum_{t=1}^T \beta^t UPB_t^S \times \left(\frac{\phi_G}{1200} \right) + K_G = \sum_{t=1}^T \beta^t SL_t \times (1 - D_t^{SP})$$

Where

- α = prespecified stop loss level ("attachment point") covered by private insurance
- K_p = initial capital held by private insurer to cover losses up to α
- ϕ_p = annualized guarantee fee for private insurance
- K_G = initial capital held by the government to cover losses up to SL level
- ϕ_G = annualized guarantee fee for government
- D_t^{SP} = 1 if $\sum_{t=1}^T \beta^t SL_t \leq \alpha$
= 0 otherwise

The return conditions can similarly be expanded for the private and government insurers as:

$$\phi_p = K_p \times \frac{ROE_p}{(1 - tax_p)} + \frac{\sum_{t=1}^T \beta^t EL_t \times D_t^{EP}}{\sum_{t=1}^T \beta^t UPB_t^E \times D_t^{EP}}$$

$$\phi_G = K_G \times ROE_G + \frac{\sum_{t=1}^T \beta^t EL_t \times (1 - D_t^{EP})}{\sum_{t=1}^T \beta^t UPB_t^E \times (1 - D_t^{EP})}$$

Where:

- ROE_p = pre-tax return on equity demanded by private insurer

- tax_p = marginal tax rate of private insurer
- ROE_G = pre-tax return on equity demanded by the government
- D_t^{EP} = 1 if $\sum_{t=1}^T \beta^t EL_t \leq \alpha$
= 0 otherwise

Given analogous parameterization of the discount rates and returns on equity, the guarantee fee for the private and government insurers may be derived by iterating on a solution that meets the criteria.

We note that the discounted cash flow approach taken in this analysis is highly simplified and stylized. A more complete analysis would consider a wide variety of mortgage products in a portfolio subjected to multiple economic stress environments. That said, the approach is similar to that taken by the FHFA in regulating the GSEs and can provide meaningful comparisons of the relative magnitude and impact of the proposed models of housing finance. In the spirit of full disclosure and transparency, we enumerate the assumption of the model below:

- » The approach considers the pricing of a new, single loan (or pool of homogeneous loans) rather than considering a portfolio of loans of varying quality and age.
- » The approach considers an instantaneous shock in house prices without consideration for house price movement before the shock. A relatively benign interest rate environment is assumed across scenarios with attention focused on house price shocks.
- » The approach does not consider shocks to other economic factors such as unemployment, assuming

these to be correlated and perfectly captured by house price movements.

- » The approach assumes that the vector of outstanding balances is equivalent under both stress and expected economic scenarios. That is, a similar stream of guarantee fee income is assumed under both scenarios, although incurred losses are allowed to vary substantially.
- » The model assumes that the guarantor would continue to receive guarantee fee income once the stop loss level has been reached. As catastrophic insurance is applied exclusively to securities, under certain scenarios, the guarantor may continue to be solvent and functioning even though it may no longer be covering losses on a given bond. Alternatively, one could assume that any paid premiums received after the stop loss is reached would be forwarded to the catastrophic insurer.
- » The model computes the amount of capital required initially to insure solvency of the guarantor and the government insurance fund up to the prespecified stress levels. A more complex version of the model may consider solvency conditions at varying points in time and provide for the release of capital as collected guarantee fee income exceeds the amount of capital needed to insure solvency.
- » The model is based on the assumption that the level of stress losses is known and predetermined. Should the economy deteriorate beyond the specified catastrophic level, collected premiums will be insufficient to cover incurred losses.

Endnotes

- 1 The Corker-Warner legislation was introduced on June 25, 2013 and can be found at http://www.corker.senate.gov/public/_cache/files/1bc94e87-5a8a-4f07-a709-30bb19f15873/06-25-13%20BILL%20TEXT.%20Housing%20Finance%20Reform%20&%20Taxpayer%20Protection%20Act%20.pdf.
- 2 This is the estimated long-run trend level of annual mortgage originations.
- 3 An outline of the Corker-Warner plan can be found at http://www.corker.senate.gov/public/_cache/files/f6951d82-1a9c-40d2-9291-dcdd5c153cbe/06-25-13%20GSE%20reform%20Summary.pdf.
- 4 Approximately three-quarters of first residential mortgage loans outstanding are fixed-rate loans.
- 5 Under the current conservatorship agreement between the Treasury Department and Fannie and Freddie, the government-sponsored enterprises are not permitted to recapitalize themselves, as any profits they earn are immediately paid to the Treasury.
- 6 Housing finance reform that involves recapitalizing and reprivatizing Fannie and Freddie is well expressed by Jim Millstein in April 24, 2013 testimony before the House Financial Services Committee. <http://financialservices.house.gov/uploadedfiles/hhrg-113-ba00-wstate-jmillstein-20130424.pdf>.
- 7 Capital markets are composed of many types of investors, many of whom are opportunistic and thus willing to reduce their required returns when times are good and increase them substantially when they are tough. Insurance companies, particularly monoline companies, generally have higher required rates of return through good and bad times, but their return requirements are more stable.
- 8 This is the proposal in "A Pragmatic Plan for Housing Finance Reform," Seidman, Swagel, Wartell and Zandi, June 19, 2013. <http://www.economy.com/mark-zandi/documents/2013-06-19-A-Pragmatic-Plan-for-Housing-Finance-Reform.pdf>.
- 9 The average credit score for all Americans with scores is closer to 700.
- 10 The cost of building the MIF significantly depends on the duration of eligible mortgages, which can vary substantially.
- 11 The protection to taxpayers is 12.5%. This includes the 10% in private capital and the 2.5% in the mortgage insurance fund. In other words, losses on mortgage securities backed by the government would have to be more than 12.5% before taxpayers would be called upon to support the system. A financial cataclysm that would result in these kinds of losses would be almost three times as severe as the Great Recession.
- 12 The losses through 2012 are less than 5%, but foreclosures are still high, and thus more losses are coming.
- 13 This also includes the insurance premiums charged by private mortgage insurance companies for Fannie and Freddie loans with loan-to-value ratios above 80%.
- 14 This spread is necessary to compensate investors for the prepayment risk in a mortgage security that does not exist in a Treasury bond. It is possible the spread would be narrower in the housing finance system envisaged in Corker-Warner, given that the government guarantee would be explicit. However, investors may demand a larger spread until it is clear how the reforms to the system are working out and liquidity is fully established.
- 15 The 10-year Treasury yield consistent with an economy operating at full employment and growing at its potential is estimated to be 4.75%. This equals the sum of 2% inflation and 2.75% annual potential real GDP growth. Potential real GDP growth is equal to the sum of 1% labor force growth and 1.75% labor productivity growth.
- 16 This concern is expressed well by Peter Wallison in a July 1, 2013 Wall Street Journal op-ed "The Corker-Warner Housing Finance Reform Won't Work." <http://online.wsj.com/article/SB10001424127887323873904578569820608849816.html>.
- 17 Concern that the government's gfee would be inadequate to compensate taxpayers should also be allayed since the legislation requires the FMIC to increase its gfee if the MIF is expected to fall below its 2.5% minimum.

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Mark M. Zandi is chief economist of Moody's Analytics, where he directs economic research. Moody's Analytics, a subsidiary of Moody's Corp., is a leading provider of economic research, data and analytical tools. Dr. Zandi is a cofounder of Economy.com, which Moody's purchased in 2005. He is on the board of directors of MGIC, the nation's largest private mortgage insurance company, and The Reinvestment Fund, a large CDFI that makes investments in disadvantaged neighborhoods. Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360° Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by the New York Times as the "clearest guide" to the financial crisis. Dr. Zandi earned his B.S. from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania. He lives with his wife and three children in the suburbs of Philadelphia.

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