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“The FHA Reform Act of 2010”**

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EXECUTIVE SUMMARY

The Federal Housing Authority (FHA) has long served a pivotal role in expanding housing affordability. However, continuation of its tradition of good works is currently being placed at risk. With all due respect, I cannot agree with Commissioner Stevens' view that it would take a "catastrophic" fall in house prices for FHA to require a taxpayer-funded bailout (HUD [2009] p.1). Recent research (Aragon et al. [2010]), appended to this testimony, indicates that the actuarial review presented to Congress (Integrated Financial Engineering [2009]) understates FHA risk. We cannot measure the full extent of this understatement without greater access to FHA data. In the meantime, literally no one knows the level of FHA risk.

The problems in the actuarial review first came to our attention when Joseph Tracy, Executive Vice President and Senior Advisor to the President of the Federal Reserve Bank of New York, noticed that FHA prepayment behavior changed radically in 2009. Many mortgages that were significantly under water, which traditionally do not prepay, suddenly started to prepay. It is as if a group of particularly sick patients at a hospital suddenly appeared cured. As is so often the case, if it seems too good to be true, it is.

Joe and I were able to discover the cause of this apparent miracle cure, which turns out to be poor record keeping when one FHA mortgage is "streamline-refinanced" into another. To use the hospital analogy, it is as if very sick patients had been moved to a new room for treatment, yet were recorded as having been cured and discharged from the hospital. The room down the hall then took no new measurements, disregarded information from the prior treatment, and treated the patient arriving from the neighboring ward as relatively healthy. With this form of record-keeping, a hospital could boost its apparent success rate by moving patients frequently between rooms. Unfortunately, FHA did just this in its record-keeping, as a result overestimating FHA's success rate.

To be clear, it is the failure to keep track of streamline refinances that is objectionable. Indeed we ourselves proposed such a program to protect borrowers' ability to refinance against falls in house value (Caplin, Freeman, and Tracy [1997]).

The actuarial review has many other shortcomings detailed in the written testimony and our paper, of which I list but two:

- **Delinquency and Modifications are ignored:** The review analyzes only final claims to the FHA's Mutual Mortgage Insurance fund and ignores information about future claims that is contained in current delinquency rates. It also ignores mortgage modifications, including "partial claims", which are costly, increasingly prevalent, and of unknown efficacy. This would be analogous to tracking a disease by monitoring mortality rates, while ignoring information on rates of initial infection, hospitalization, and post-intervention outcomes.
- **Unemployment is inadequately captured:** Highly under-water FHA mortgages are disproportionately located in areas that are experiencing even more unemployment stress than the national average. This is not properly captured in the actuarial review.

The actuarial review has a recent history of over-optimism: the 2009 review began with a litany of reasons that the 2008 review had under-estimated losses. Given the above, there is every reason to expect the same to occur in 2010.

I close with three concrete proposals.

1. It is currently impossible to comment on FHA reform proposals, since their impact on FHA risk cannot be accurately estimated. FHA should immediately work to correct the identified problems and amend its risk assessment methodology.
2. FHA should expand access to its books in the spirit of transparency. The best way to keep FHA risk analysis at the frontier is to open up access to the data to outside researchers. This is also a way to leverage the existing budget that the FHA has to conduct its risk analysis.
3. Joe Tracy and I coauthored a book called “Housing Partnerships” that detailed reasons for introducing equity into the housing finance market some 12 years ago now. The book was subtitled: “A New Approach to a Market at a Crossroads.” Unfortunately, the wrong turn was taken. Rather than introducing equity capital that would involve sharing of risk, recent innovations in housing finance instead acted to increase leverage. This approach has come to a dead-end. It is time finally to go back to the fork in the road and to introduce markets in housing equity as a far safer method of raising housing affordability. The U.S. Federal Government has a positive track record of encouraging innovation in housing finance dating back to the Great Depression, and now is the perfect time to build on that record.

THE RECENT RISK ASSESSMENT

FHA is mandated to conduct an actuarial review on an annual basis and simultaneously to report to Congress. The most recent report (Integrated Financial Engineering [2009]) indicates that there will likely be no need for a taxpayer funded bailout. This analysis supports the conclusion of Commissioner Stevens as expressed to the Subcommittee on Housing and Community Opportunity U.S. House Committee on Financial Services of October 8, 2009:

“Let me simply state at the outset that based on current projections, absent any catastrophic home price decline, FHA will not need to ask Congress and the American taxpayer for extraordinary assistance – we will not need a bailout.” (HUD [2009] p.1)

To the extent that the above assessment is based on IFE [2009], there are clear reasons for worry. The most recent report details the extent to which the 2008 review underestimated the ensuing losses on all prior FHA books of business (IFE [2009], p.27). This makes one curious as to the robustness of the methodology and the thoroughness of the risk assessment. Further worry is caused by a first look at the IFE methodology, which is entirely at the loan level. Researchers Diego Aragon and Joseph Tracy of FRBNY had been studying prepayment and default behavior of FHA mortgages and noticed that the prepayment model started to go very wrong in 2009. This result surprised them since there had been no mention in the actuarial review of any problems in estimating their models.

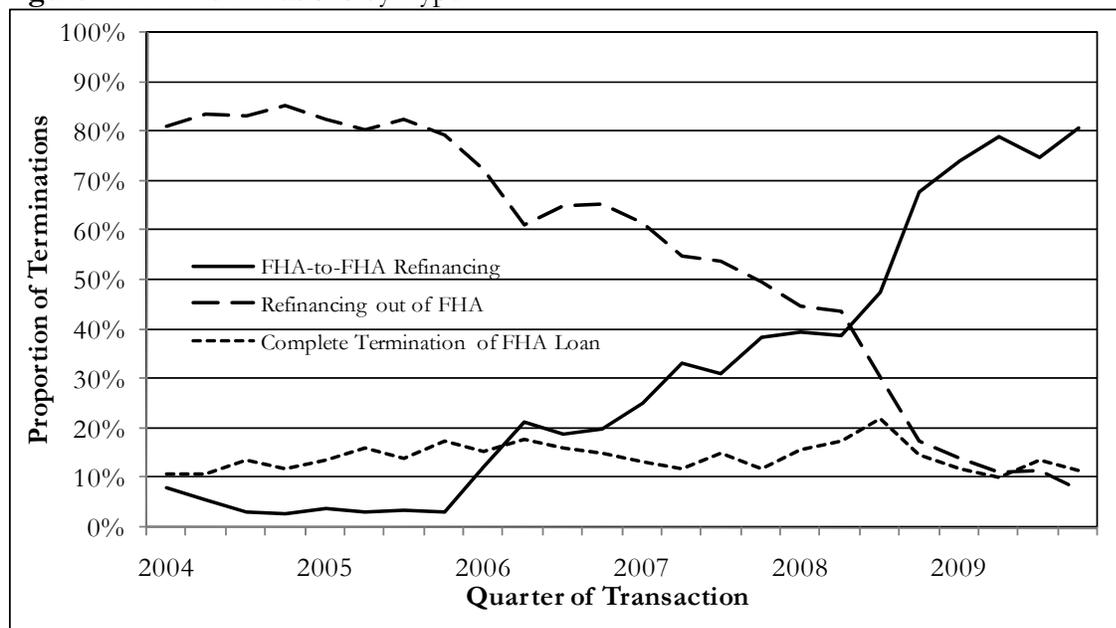
At the same time that the researchers at FRBNY noted the failure of their prepayment model, I was participating with a group of collaborators in economics and computer science at NYU on methods for improving house valuation. First American CoreLogic (FACL) put together a unique for property-level data set for LA County that aggregates liens to the house level. To our knowledge, there is no other property-level data set that contains information on mortgages by type, including whether or not loans are FHA insured. As long time collaborators and friends, Joseph Tracy and I quickly spotted that our LA data may be useful in advancing the analysis of FHA mortgages beyond the loan-level, and therefore beyond the level of the actuarial review. We were more right than we could have known. We quickly identified the cause of the instability of loan-level prepayment estimates was a radical change in the pattern of mortgage terminations. This change was not correctly accounted for in the actuarial review, which caused fundamental, and to this day uncorrected, errors in risk assessment.

SHORTCOMINGS OF THE ACTUARIAL REVIEW: THE ARAGON ET AL. PAPER

In the early 2000's, FHA loans typically terminated when the borrower sold the house and moved, or took out a new loan from a competitor on superior terms. Both forms of prepayment entirely removed the risk from the FHA books. Yet in 2009, terminations were dominated by “streamline

refinances,” which involve no new underwriting and in which the risk stays with FHA.¹ Figure 1 illustrates the changing pattern of mortgage terminations in LA County.

Figure 1 FHA Terminations by Type



Note: Aragon et al. 2010.

We are not against the streamline refinance program: indeed we ourselves proposed such a program to protect a borrower’s ability to refinance against falls in house value (Caplin, Freeman, and Tracy [1997]). While it may be good policy to allow these high LTV mortgages to refinance to a lower interest rate given that the FHA already owns the credit risk, it is important that the audit analysis properly distinguish between these loan modifications and other prepayments of FHA mortgages. A streamline refinance is not the same as a termination that removes all risk from the FHA books. Unfortunately the original FHA mortgages that undergo a streamline refinance are treated in the audit analysis no differently than FHA mortgages that in fact pay off and represent no further credit risk to the FHA.

I want to emphasize what a fundamental error it is to model a streamline refinance as equivalent to a permanent exit from FHA, and how profoundly it compromises the actuarial review. The competing risk model used to simulate future losses allows for a three way classification of FHA-insured mortgages at any point in time: a “Bad” group that terminate with a claim on the MMI Fund; a “Good” group that terminate without such a claim; and an “Ongoing” group that may in future end up either in the “Bad or “Good” group. Including streamline refinances in the “Good” group, as the

¹ Like the HARP program for GSE mortgages, the streamline refinance program is designed to allow high loan-to-value (LTV) FHA mortgages to refinance to a lower interest rate when they otherwise would not qualify for a refinance. In a streamline refinance, an existing FHA mortgage is refinanced into another FHA mortgage. No new underwriting is undertaken for these refinances. To qualify, a borrower must be current in all payments and is not allowed to take cash out. Part of the mortgage insurance fee for the former FHA mortgage is refunded to the borrower (see <http://www.fha.com/refinance.cfm>.)

actuarial review does, artificially inflates the size of this group, and affects the coefficient estimates that are used to predict the probabilities that mortgages in the Ongoing group will terminate in the “Good” group in the future.

To use the hospital analogy, it is as if very sick patients had been moved to a new room for treatment, yet were recorded as having been cured and discharged from the hospital. The room down the hall then took no new measurements, disregarded information from the prior treatment, and treated the patient arriving from the neighboring ward as relatively healthy. With this form of record-keeping, a hospital could boost its apparent success rate by moving patients frequently between rooms. Unfortunately, FHA did just this in its record-keeping, as a result overestimating FHA’s success rate.

The inappropriate treatment of streamline refinancing is but one part of a larger problem with model specification. A simple model with two competing terminal risks is inadequate to the task of modeling FHA risk in a world in which there are so many intermediate events. In addition to streamline refinancing, a robust model of FHA risk would take account also of the various stages of mortgage delinquency, other forms of mortgage modifications (such as “partial claims”), and other events that cannot be classified either as “Good” or “Bad” terminations, yet are profoundly informational.

Misclassification of streamline refinances not only compromises the loss model, but also results in underestimation of underwater mortgages (those with LTV above 100%). The recent audit report incorrectly records the initial LTV on new mortgages that result from a streamline refinance ignoring changes in house values since issuance, which have typically been negative, often significantly so. The difference this makes is dramatic. Applying the methodology used in the actuarial review to nationwide data indicates that only 1.5% of streamline refinanced mortgages in 2009 started out with negative equity. Yet, when we use the FHFA price indices, some 33.4% of streamline refinances involved mortgages with negative equity. With all other house price indices, the proportion in negative equity is even higher.

The impact of house valuation on LTV estimates is a particular concern of the NYU team, which has been researching index-based errors for some years. There is no justification in the actuarial review for the use of the FHFA index: in our limited sample from LA County we find this index to significantly underestimate declines in house values. In contrast, the actuarial review includes no analysis whatever of these errors. This is clearly an area in which the risk assessment needs to be beefed up. So too are estimates of house price volatility around the index. Again, our LA County data suggest that this volatility, which increases losses to the FHA insurance fund, is significantly underestimated. The actuarial review is entirely silent on this subject.

Aragon et al. [2010] note a number of omissions from the FHA risk assessment:

- **Delinquency is ignored:** The review analyzes only final claims to the FHA’s Mutual Mortgage Insurance fund and ignores information about future claims that is contained in current delinquency rates. This would be analogous to tracking a disease by monitoring mortality rates, while ignoring information on rates of initial infection, hospitalization, and post-intervention outcomes.

- **Modifications and “Partial Claims” are ignored:** Mortgage modifications, including “partial claims” are increasingly prevalent, yet they are not incorporated in the risk analysis. Nor is anything said about how cost effective these strategies are in relation to available alternatives. Haughwout *et al* [2009] demonstrate that reducing the monthly payment by cutting principal is much more effective at lowering the post modification default rate than an equivalent reduction in the monthly payment achieved by cutting the interest rate and extending the term. There should also be consideration given to equity sharing methods, in which equity is exchanged for debt, both to reduce the need for an immediate write-down, and to allow FHA to benefit from any later appreciation there might be.
- **Unemployment is inadequately captured:** The FHA portfolio of mortgages is being exposed to a rapidly rising risk of income shocks from job loss. Moreover highly under-water FHA mortgages are disproportionately located in MSAs that are experiencing relatively more unemployment stress than the national average. The loan level risk analysis in which unemployment is recorded as insignificant needs to be supplemented by aggregate risk analysis that properly captures the relationship between unemployment and default.
- **The Worst Case House Price Scenario is Optimistic and Unsupported:** The worst case “stress test” analysis in the actuarial review involves house prices rising continuously from 2011 and on. It is hard to see how this is appropriate as a worst case event for a mono-line insurer such as FHA. House prices are random, and are never “certain” to increase in future, especially as a worst case. In fact, there are many reasons for concern going forward, including the large shadow inventory of houses in process of foreclosure, the fragility of private sector mortgage lending, and the weaknesses in the commercial real estate sector.

CONCLUDING REMARKS

I make three concrete proposals by way of conclusion.

1. FHA should immediately work to correct the identified problems and amend its risk assessment methodology. It is currently impossible to comment on FHA reform proposals, since their impact on FHA risk cannot be accurately estimated.
2. FHA should expand access to its books in the spirit of transparency. The best way to keep FHA risk analysis at the frontier is to open up access to the data to outside researchers. This is also a way to leverage the existing budget that the FHA has to conduct its risk analysis. It will also enable risks to taxpayers and to borrowers to be assessed and reduced to the necessary minimum.
3. FHA should set up a parallel work track to identify durable solutions to problems of housing affordability that are less risky than the methods relied on to date. Together with Sewin Chan of NYU and Charles Freeman, now of Citibank, Joe Tracy and I coauthored a book called “Housing Partnerships” some 12 years ago now. The book detailed reasons for introducing equity into the housing finance market. It was subtitled: “A New Approach to a Market at a Crossroads.” Unfortunately, the wrong turn was taken. Rather than introducing equity capital that would incentivize sharing of risk and therefore accurate risk assessment, recent innovations

in housing finance instead acted to increase leverage. This approach has come to a dead-end. It is time finally to go back to the fork in the road and to introduce markets in housing equity as a far safer method of raising housing affordability. The U.S. Federal Government has a positive track record of encouraging innovation in housing finance dating back to the Great Depression, and now is the perfect time to build on that record.

BIBLIOGRAPHY

Aragon, Diego, Andrew Caplin, Sumit Chopra, John V. Leahy, Yann LeCun, Marco Scoffier, and Joseph Tracy, 2010, "Reassessing FHA Risk" NBER Working Paper No. 15802.

Caplin, Andrew, Charles Freeman, and Joseph Tracy, 1997. "Collateral Damage: Refinancing Constraints and Regional Recessions," *Journal of Money, Credit, and Banking*, vol. 29(4), 496-516.

Caplin, Andrew, with Sewin Chan, Charles Freeman and Joseph Tracy, 1997, *Housing Partnerships: A New Approach to a Market at a Crossroads*, MIT Press.

Haughwout, Andrew, Ebiere Okah and Joseph Tracy. 2009. "Second Chances: Subprime Mortgage Modification and Re-default," Federal Reserve Bank of New York, Staff Report No. 417.

Integrated Financial Engineering, Inc. (IFE), 2009, *Actuarial Review of the Federal Housing Administration Mutual Mortgage Insurance Fund (Excluding HECMs) for Fiscal Year 2009*. November 6, 2009, Prepared for U.S. Department of Housing and Urban Development, Washington, D.C.

Integrated Financial Engineering, Inc. (IFE), 2008, *Actuarial Review of the Federal Housing Administration Mutual Mortgage Insurance Fund (Excluding HECMs) for Fiscal Year 2008*. October, 2008, Prepared for U.S. Department of Housing and Urban Development, Washington, D.C.

U.S. Department of Housing and Urban Development (HUD), October 8, 2009, *Written Testimony of David H. Stevens for Hearing before the Subcommittee on Housing and Community Opportunity*. Washington, D.C. http://www.house.gov/apps/list/hearing/financialsvcs_dem/stevens_testimony_hud.pdf

U.S. Department of Housing and Urban Development (HUD), 2009, *Mortgagee Letter 2009-15*, May 29, 2009. Washington, D.C.