

Financial Fragility with SAM? (Non-Technical Summary)
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The housing crash of 2008-2011 imposed an enormous financial burden on US households. As house prices fell by 30% nationwide, roughly one in four US homeowners was pushed underwater, eventually leading to seven million foreclosures.

This experience led economists and policymakers to ask whether different mortgage contracts might have prevented some of this damage. One popular policy proposal — currently being piloted by the fintech industry — is the Shared Appreciation Mortgage, or “SAM.” This contract would index mortgage debt to house prices so that a borrower’s mortgage payments, principal balance, or both, would fall as house values decline. It would reduce the borrower’s debt burden in bad times, reducing the likelihood of default and foreclosure.

However, on the flipside, lenders would have to endure losses from debt forgiveness when house prices fall. These new losses may come at times when the financial sector is already weak. As was made painfully clear in the 2008-2011 episode, any increase in financial fragility (the likelihood of financial crisis) should be a primary concern for policymakers. Our paper uses a quantitative model of the US mortgage market, including the financial sector, to examine the performance of SAM contracts. We find that the typical SAM proposal, which indexes mortgages to house prices at the local (i.e., city or ZIP) level, combines two distinct mechanisms — indexation to overall US house prices, and indexation to local house prices *relative* to the national average — which have dramatically different effects on financial fragility.

On the one hand, indexation to national house prices raises lenders’ exposure to undiversifiable house price risk, leading to large financial sector losses when these prices fall. Facing declines in net worth and the potential of failure, banks contract lending, causing a credit crunch that actually *worsens* the decline in house prices. At the same time, the untargeted nature of this debt relief, with borrowers in virtually unscathed Boston receiving the same forgiveness as those in hugely affected Las Vegas, implies only a moderate reduction in foreclosures.

In sharp contrast, indexing mortgages to the performance of local house prices relative to the national average is effective at limiting foreclosures *and* lenders’ exposure to risk. Under such a contract, mortgage payments would fall in the hardest-hit areas (e.g., Las Vegas) during a crash, while payments would actually *rise* in the least affected areas (e.g., Boston). The key to this scheme is that these risks are *diversifiable* for national lenders. At the same time, the flow of debt relief to the most affected areas reduces the overall foreclosure rate substantially. Hence, indexation actually *strengthens* banks during crises by diminishing a major source of their existing mortgage risk.

We believe that understanding these two forces is important for the appropriate design of indexed mortgages, even if real-world proposals combine both types of indexation. Our main takeaway is that designing novel mortgage contracts requires careful consideration of their impact on financial fragility. Lastly, we identify a potential obstacle to indexed mortgage contracts: the distribution of gains to different economic actors. Banks in our model often prefer contracts that *increase* financial fragility, as these schemes allow them to earn high profits in good times, but use government assistance (e.g., the FDIC) to limit their downside risk in crises. As a result, our work implies that improving financial stability under SAMs could likely require a change in how bank regulators measure and manage financial sector risk.