



# UCLA Economic Letter

## Real Estate and the Macroeconomy

UCLA Ziman Center for Real Estate and the UCLA Anderson Economic Forecast

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Monthly condensed analyses of crucial real estate and economic issues offered by the UCLA Anderson Forecast and UCLA Ziman Center for Real Estate. Here, three Ziman and Anderson economists analyze whether geographical diversification can help mitigate the risks associated with another contraction in housing.

# Can Metropolitan Housing Risk Be Mitigated Through Diversification?

## A Cautionary Tale from the Recent Boom and Bust

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Geographic diversification has been fundamental to risk mitigation among investors and insurers of housing, mortgages, and mortgage-related derivatives. Indeed, it long has been held that spreading housing investments among diverse geographic regions would serve to substantially diminish risk associated with investment in this asset class. The now bankrupt housing GSEs, Fannie Mae and Freddie Mac, built portfolios and provided credit guarantees assuming non-synchronous performance among geographically-stratified markets. Wall Street employed similar logic in assembling mortgage-backed CDOs and related derivative securities. The principle of geographic diversification also has been instrumental in the investment strategies of multi-family REITs and single-family housing investment funds.

However, in the wake of the recent implosion in housing and housing finance, anecdotal evidence suggests that geographic diversification offered few benefits. The efficacy of such strategies would be limited if metropolitan housing markets exhibited high or increasing levels of return integration or contagion, with return integration defined as the proportion of metropolitan housing returns explained by a common set of national economic and financial market fundamentals. In such circumstances, investors in housing, in mortgage-backed securities, or in residential mortgage derivatives could face substantial losses owing to widespread and contemporaneous negative co-movements in returns across geographically-distinct markets. As became apparent in the wake of the crash, neither analysts on Wall St. nor their federal regulators well anticipated the magnitude of the recent house price cycle, its geographic ubiquity, or its seeming metropolitan contagion.

## Housing Risk Deserves More Scrutiny

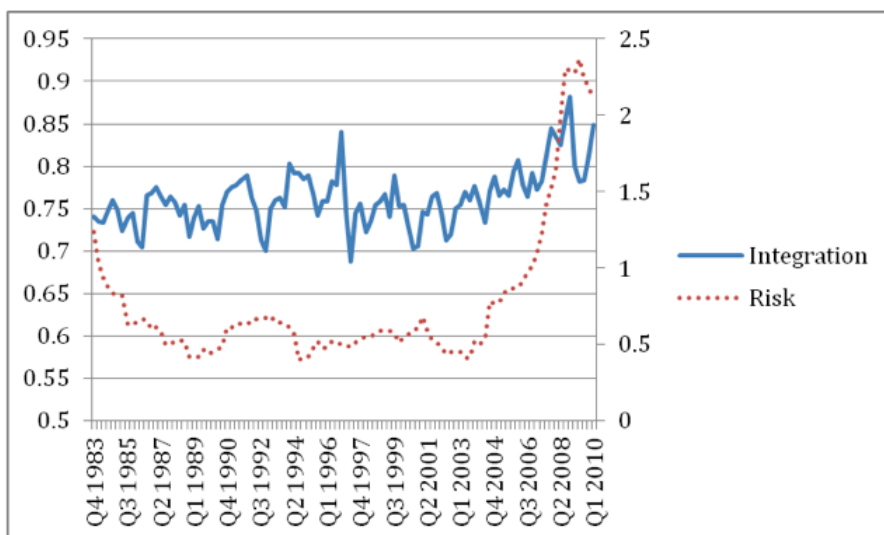
Despite the prevalence of geographic diversification of holdings among investors and insurers of mortgages and housing, few studies have explicitly examined such strategies. For example, little is known about the potential for geographic risk diversification and whether related benefits have been eroded over the recent housing boom and bust. Indeed, while the finance literature has addressed issues of correlation and integration among global equity markets, little attention has been paid to the same issues among metropolitan housing markets. We are unaware of any prior study documenting and analyzing the magnitude or trend in housing market integration, as evidenced by the relative exposure of metro housing returns to fluctuations in the national economy, or about related trends in housing portfolio risk.

Further, there exists only limited analysis of measures of contagion or spatial correlation in metropolitan house price returns. Measures of housing integration, portfolio risk, spatial return correlation, and contagion provide important indications of potential benefits to portfolio diversification. Those measures are relevant for the full spectrum of market participants, be they portfolio lenders, housing and mortgage investors, homebuilders, and the like. Further, such information is vital to policymakers seeking to re-structure the housing finance system and to mitigate catastrophic risk associated with market implosion.

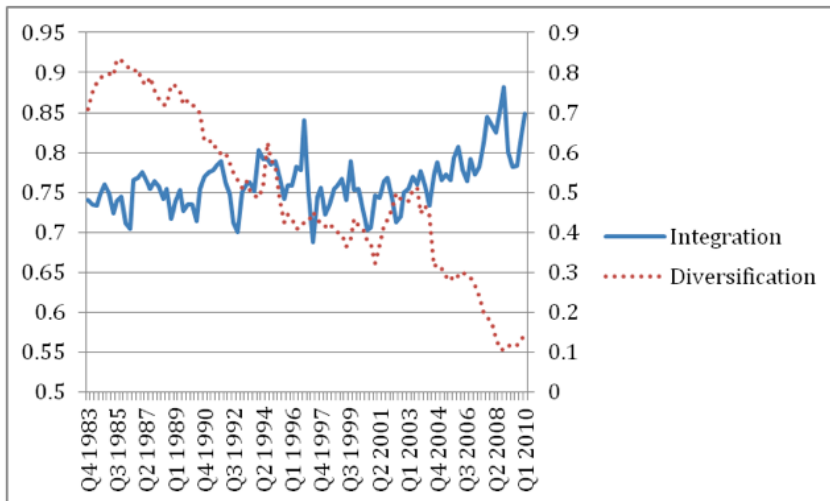
We assessed housing market integration based on the proportion of a metropolitan statistical area's (MSA) housing market returns that can be explained by an identical set of national economic and financial market fundamentals. We identified variation in integration over time and across MSA markets. We also characterized the temporal incidence and spatial correlation of metropolitan house price and extreme (jump) price returns. Results of the integration analysis were then employed to comprise alternative metropolitan housing investment portfolios and to assess related portfolio risk over the recent period of boom and bust.

**Panels A and B** provide evidence of portfolio risk, integration, and diversification for the cohort of U.S. metropolitan areas. The level of integration is measured by the R-squares from a multi-factor housing returns model fitted for the full sample of MSAs using a 20-quarter moving window indicated by the primary vertical axis. Portfolio risk is measured using the standard deviation of housing returns for a 20-quarter moving window indicated by the secondary vertical axis. The portfolio is constructed for an equally weighted grouping assuming each portfolio's MSAs are in the database. Diversification measures the degree of risk mitigation of the portfolio relative to the average risk of the MSAs.

Panel A: Integration and Portfolio Risk for US MSAs



Panel B: Integration and Diversification for US MSAs



As shown in **Panel A**, results of the analysis indicate high and increasing levels of integration among US housing markets over the decade of the 2000s. Further, as shown in **Panels A and B**, portfolio analysis reveals reduced diversification potential and increased risk in the wake of estimated increases in metropolitan housing market integration. High levels of housing market integration suggest that local fundamentals are less important to reduction in risk than previously thought. Taken together, our findings offer a cautionary tale about portfolio geographic diversification as a mechanism to mitigate housing risk.

The results have far-reaching implications for policymakers. Indeed, regulatory mechanisms must be designed so as to assure liquidity and financial stability during a period of catastrophic housing risk. In the absence of such capacity, credit losses associated with a severe housing downturn may result in the withdrawal of mortgage funding liquidity from the marketplace.

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