

# Omitting market risk factor creates critical flaw in case-shiller home price indices

May 27 2015

---

The method used to calculate Standard & Poor's Case-Shiller Home Price Indices, the most trusted benchmark for U.S. residential real estate prices, contains a flaw that likely could lead to misstating its monthly estimates, according to a newly published study led by faculty at Florida Atlantic University.

The paper published in the *Journal of Real Estate Research* identifies an important deficiency in the Weighted Repeated Sales (WRS) method developed by economists Karl Case and Robert Shiller, which compares repeat [sales](#) of the same homes in an effort to study home pricing trends both nationally and in 20 metropolitan areas across the country.

The critical flaw in Case-Shiller's method, the paper's authors contend, is its omission of the market risk factor. Ping Cheng, Ph.D., professor of finance in FAU's College of Business, explained what initially got him and his colleagues thinking about the index methodology was an assertion by Case and Shiller in their original work, in which they stated that over longer time intervals, the price changes for an individual home are more likely to be caused by factors other than market forces.

'It just seemed strange that a study aimed at monitoring market price changes will assert that market forces has no bearing on such changes,' said Cheng.

Cheng and his colleagues then conducted a closer examination on the Case-Shiller methodology and concluded that the omission of the market

risk factor by Case and Shiller is 'mathematically and conceptually unjustified.' They propose an alternative weight model that properly incorporates the market risk factor.

Traditionally, it's widely accepted that security asset price in an efficient market follows the so-called random walk, a theory that states that the past movement or direction of a stock or overall market cannot be used to predict its future movement. In their 1989 paper, Case and Shiller conclude that the [real estate](#) market is not efficient because property prices clearly do not follow the random walk.

'If the housing market is inefficient, price changes over the time intervals between the paired sales cannot be described as random walk,' Cheng said. 'So how do you measure and quantify the impact of the holding period (time interval) on return, the risk, property price and volatility?'

'Case and Shiller did not try to answer this question,' he added. 'Instead they simply asserted that market risk has no bearing on the weight estimation, and ignored it.'

The study's authors tackle this question and present extensive empirical evidence on the relationship between real estate market risk and the holding time (or the time interval between paired sales). The findings are presented in what they call risk lines—direct observations from a wide range of the real estate market and submarket indices without resorting to complex statistical manipulations.

To see whether the methodological modification makes a difference in the resulting indices, Cheng and his fellow researchers use a large sample of repeat sales from the Washington, D.C. area and construct three repeat sales indices using the original regression methodology developed in 1963 by Bailey, Muth and Nourse (BMN), the Case-Shiller's

Weighted Repeated Sales (WRS) method and their modified WRS method. Their comparison shows that market risk clearly affects index performance. In times of high [market](#) volatility such as the recent housing boom and bust period, the Case-Shiller index was found to perform worse than the original BMN [method](#).

'Our results suggest that, while weighting the paired sales is important, not weighting properly can be worse than not weighting at all,' Cheng said. 'Given that the indices are the basis for huge amount of tradable housing derivatives (futures and options), there could be real money at stake in the indices' accuracy.'

Provided by Florida Atlantic University

Citation: Omitting market risk factor creates critical flaw in case-shiller home price indices (2015, May 27) retrieved 27 April 2024 from <https://phys.org/news/2015-05-omitting-factor-critical-flaw-case-shiller.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.