



# Introduction to Special Issue: Topics Related to Real Estate Market Efficiency

Daniel Broxterman<sup>1</sup> · Dean Gatzlaff<sup>1</sup> · Mariya Letdin<sup>1</sup> ·  
G. Stacy Sirmans<sup>1</sup> · Tingyu Zhou<sup>1</sup>

Accepted: 27 October 2022 / Published online: 21 December 2022

© The Author(s), under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

## Abstract

The efficiency of the real estate market is a major concern for homeowners, investors, lenders, policymakers, and researchers. Modern academic literature has mostly moved beyond an early emphasis on formal tests of informational efficiency. The Grossman and Stiglitz (The American Economic Review 70:393–408, 1980) paradox holds that perfect informational efficiency is impossible and the joint hypothesis problem implies that market efficiency is not even testable. Instead, researchers now commonly examine the speed, accuracy, and persistence of price movements in response to new information, as the allocative efficiency of a market ultimately depends on its degree of informational (and operational) efficiency. This special issue is devoted to exploring these issues.

**Keywords** Real estate finance · Real estate investment · Real estate brokerage · Information frictions · Market efficiency · Information asymmetry

---

✉ Dean Gatzlaff  
dgatzlaff@business.fsu.edu

Daniel Broxterman  
dbroxterman@business.fsu.edu

Mariya Letdin  
mletdin@business.fsu.edu

G. Stacy Sirmans  
gsirmans@business.fsu.edu

Tingyu Zhou  
tzhou@business.fsu.edu

<sup>1</sup> College of Business, Florida State University, Tallahassee, FL, USA

## Introduction

Focused on the theme of “Topics Related to Real Estate Market Efficiency,” the Real Estate Center at Florida State University, the Kelley A. Bergstrom Center at the University of Florida, and the Dr. P. Phillips Institute for Research and Education in Real Estate at the University of Central Florida jointly planned a research forum to discuss recent work. A call for papers solicited research on the topic covering all major sectors of the real estate market: residential and commercial, equity and debt, private and public, space and capital. In response to the call, manuscripts were received, reviewed, and selected for presentation at a symposium to be held at Florida State University from April 2 to 4, 2020. Unfortunately, the symposium was cancelled due to the COVID-19 pandemic. However, the selected papers were invited to be submitted for publication in this journal through a formal double-blind peer review process. Eight symposium papers were ultimately accepted for publication in this special issue. The papers can be fitted into four topical areas: 1) Risk Perceptions, 2) Novel (Empirical) Estimates, 3) Brokerage Markets, and 4) Related Research on REITs. A ninth paper, a survey of the literature on information frictions in real estate markets, was invited for submission and review to provide a helpful resource for researchers that compares recent results with influential earlier findings.

In the first paper, “Information Frictions in Real Estate Markets: Recent Evidence and Issues,” Daniel Broxterman and Tingyu Zhou review recent work on imperfect and asymmetric information within the private, public and brokerage markets. Empirical researchers will benefit from their coverage of fourteen proxy variables that have been used to identify asymmetric information in studies of the private markets. On the public side, their review discusses whether REITs are more transparent and suffer from fewer agency costs than traditional publicly traded firms. For brokerage, they find that recent research has been obtaining more muted results on conflicts of interest than those that appeared in a set of papers that received significant attention in the popular and academic presses. As they say, “it has been freakonomics versus econometrics, and econometrics is winning.” Lastly, we believe readers will appreciate their suggestions for future research on these and other issues.

## Risk Perceptions

The two papers in this grouping analyze house prices and changes in the perceived risks of environmental accidents and natural disasters. In the first, “Past Experiences and Investment Decisions: Evidence from Real Estate Markets,” Brent Ambrose and Lily Shen examine the price dynamics of homes located near fracking wells in Pennsylvania. Because the shale boom began relatively recently, researchers can assume that information regarding a homeowner’s risk of exposure to negative fracking externalities is imperfect. Motivated by a Bayesian learning framework, they test if familiarity with risks from conventional gas drilling impacts the perception of risks associated with proximity to fracking activities: i.e., does past experience alter the value of new information. They report that houses in fracking areas with existing conventional wells sell for less than similar homes in fracking areas that lack prior drilling activity. This, the authors indicate, “suggests that despite the public fear of fracking-related environmental risks, house price dynamics reflect realized fracking

risks instead of perceived threats.” They also show that while fracking accidents lower house prices, the effect disappears within two to three months if no additional accidents occur, suggesting that buyers rely heavily on recent information while discounting historical data.

In the second paper, “The Impact of Distant Hurricane on Local Housing Markets,” Lu Fang, Lingxiao Li, and Abdullah Yavas consider whether property prices in Florida are affected by Hurricane Sandy, which made landfall in New Jersey in 2012. Hurricane Sandy embodied public concerns that the effects of global climate change were exposing new areas to flood risk and increasing property risk in existing flood-prone areas. The authors examine if the arrival of this information affects market perceptions of the latter hazard by raising awareness and concerns about possible similar events in a distant, unimpacted area considered vulnerable to hurricanes. Using data from 2004 to 2014 from Miami-Dade County, they report that this major hurricane event at a distance raises home buyers’ perceptions of flood risk, relative to base expectations, but only for a short period (i.e., one-quarter). That they find no persistent effect of Sandy for the US metro area already most at risk of experiencing a hurricane impact still leaves open the possibility that property owners in other areas, especially along the northeastern seaboard, may have updated their risk perceptions based on Sandy.

## Novel (Empirical) Estimates

A common method used to estimate land value in a built-up area with few vacant land sales is the land residual model, which is based on the cost approach to appraisal. In this method, the depreciated replacement cost of the improvements is subtracted from the appraised value or transaction price of a property to extract the value of the land. A critical assumption underlying the land residual model is that the values of land and structure are additively separable and evolve independent of each other. This assumption is questioned by John Clapp, Jeffrey Cohen, and Thies Lindenthal in their paper, “Are Estimates of Rapid Growth in Urban Land Values an Artifact of the Land Residual Model?” They develop an option value model which they argue improves market information (and efficiency) by producing better estimates of real estate risk, where risk is an increasing function of the land value ratio, as documented in the land leverage literature.

Land valuation, naturally, has important implications for assessment and property taxation. Furthermore, imperfect information about land values can move the market away from Pareto-efficient outcomes in the sense that transactions are typically efficient only in the presence of accurate (i.e., perfect) information. More accurate estimates of land values, such as those proposed by Clapp, Cohen, and Lindenthal, can lead to greater confidence that real estate markets allocate structure and land inputs according to their market prices and marginal productivities.

In “After the Boom: Transitory and Legacy Effects of Foreclosures,” Geoffrey Turnbull and Arno van der Vlist examine the short- and long-term effects of foreclosure information on house prices in Orange County, Florida. They use almost 20 years of data to examine the effects of nearby foreclosures on home sales during the 2016 to

2019 period. As expected, they find that recent and past foreclosures are associated with lower house prices and that the effects are mostly transitory. At, 0.4% to 0.8%, *legacy* effects (discounts) on surrounding prices are modest, about one-tenth the size of the marginal effect of a nearby *recent* foreclosure. This appears to be the first published paper to test for long-run effects of nearby foreclosures on house prices.

## Brokerage Markets

The next two papers study listing strategies and brokerage networks, respectively. In “Why Disclose Less Information? Toward Resolving a Disclosure Puzzle in the Housing Market,” Xun Bian, Justin Contat, Bennie Waller, and Scott Wentland examine listings from the Richmond, VA metro area and find that only 30 to 40% contain the maximum number of photos allowed by the local MLS. Thus, the question as to why a broker would disclose less information when marketing a property is raised. To address this question, the authors turn to the theory of ordered consumer search. They argue that although reducing information in a listing tends to reduce the arrival rate by increasing uncertainty regarding the property’s condition, under-disclosing a property’s taste-specific features may increase the arrival rate. Thus, for higher priced homes which feature more customization, incomplete disclosure may be an optimal seller strategy because quality is more readily presumed. Empirical testing confirms that less information disclosure is associated with higher sale prices and shorter time on the market for higher-end home, *ceteris paribus*. From an efficiency standpoint, results in this paper provide a new example of sellers behaving strategically in a market where search is costly and information asymmetric.

David Scofield and Jia Xie, in “Network Formation and Effects: Observations from US Commercial Real Estate Markets,” examine whether commercial real estate brokers make transactional connections randomly or through their professional networks, in other words, do brokerage networks matter in the commercial property market? To answer this question, the authors fit a dynamic network formation model to an extensive dataset drawn from the investment sales side of the commercial brokerage market. They off three main findings. First, while there is substantial variation across geographies and property types, most sales (67%) are facilitated by networked brokerage relationships. Second reliance on network relationships is counter-cyclical, *i.e.*, higher (lower) during periods of contraction (expansion). Lastly, firms with smaller networks are more likely to trade with firms with larger networks. These findings, interesting on their own, raise important questions for future research regarding the completeness of the information shared across public/private networks, search mechanisms, and the potential for principal-agent conflicts.

## Related Research on REITs

The final two papers in this special issue present related research in the publicly traded sector. In “The Cost of Financial Flexibility: Information Opacity, Agency Conflicts and REIT At-the-Market (ATM) Equity Offerings,” George Cashman,

David Harrison, Shelly Howton, and Benjamin Scheick study the effect of establishing a new equity raise channel, at-the-market-offering (ATM), on the cost of capital for REITs. ATMs provide financial managers with flexibility and control, enabling a smoothing of the typically “lumpy” issuance process. This enables managers to better match the timing of their capital raising activities with investment opportunities.<sup>1</sup> However, an increase in managerial control of the capital raising process could increase potential agency conflicts that may offset the flexibility and lower capital raising costs. Using a sample of ATM announcements from 2006 to 2015, the authors find REITs that raise capital through ATMs, as opposed to SEOs, face a higher cost of capital. The implied cost of capital is 130 basis points greater (per annum) during quarters in which the firm has an open ATM program. The findings in the paper suggest that the market is efficient in pricing a risk premium for ATMs, as it signals greater firm opacity and discretionary manager activity. The authors show that more informationally opaque REITs that pursue ATMs face a higher increase in capital costs than their more transparent peers, supporting the notion of an informationally efficient market.

Lastly, in “Narrative Investment-Risk Disclosure and REIT Investment,” Dongshin Kim, Dongkuk Lim, and Jonathan Wiley investigate the line between investment-risk disclosure (extracted from 10-K filings) and investment (tracked in the S&P Global Market Intelligence property database) using a sample of REIT firms. REITs are examined because they offer a sector with quantifiable asset risk, making it easier for researchers to identify the effects of disclosure changes separate from changes in firm fundamentals. In particular, they evaluate the impact of “excess” narrative information on return volatility, trading volume, and forecast revisions surrounding annual filings. In contrast to findings in the literature for general firms, the authors do not find any statistically significant effects of investment-risk disclosure on volatilities or analyst forecast revisions. However, they report a strong positive liquidity impact—conditioned on increased investment, trading volume increases for firms with high investment-risk disclosure.

Accurate information disclosure should enhance market efficiency and the results in Kim, Lim, and Wiley on liquidity are consistent with this notion. Their finding that volatility and analyst forecast revisions are not significantly affected by this disclosure is an interesting result. It supports the notion that REITs (highly regulated, invest in a single-class asset, etc.) are relatively more transparent compared to traditional public firms, and raises questions regarding the informational content provided to analysts. This paper contributes to the debate on whether REITs have lower information asymmetries relative to non-REIT stocks.

---

<sup>1</sup> The alternative to ATMs are seasoned equity offerings (SEOs) which require outside underwriting and have higher issuance costs (5% for SEOs versus 2.2% for ATMs).

## Summary

So, what do these papers tell us about the responsiveness of the real estate market to new information? Here are a few broadly written conclusions from the papers in this issue. First, house prices, though privately negotiated, respond quickly to new information regarding indirect catastrophic events (e.g., major hurricane with an unusual track), environmental exposures (e.g., fracking boom), and disruptive market events (e.g., foreclosure wave). However, it appears that these effects are not sustained, but dimmish over time (i.e., the market's memory may be limited). Findings suggest that it is likely that market participants may overweight recent information and underweight historical information. Second, in a market where search is costly and information asymmetric, information can be employed strategically. For example, high-end customized residential properties may benefit from limited information disclosure in their listings and the use of trading networks may provide large commercial real estate firms with bargaining advantages. Finally, REIT research indicates that corporate finance decisions are priced by an informationally efficiency market, generally consistent with the broader stock market, but that the effects of information asymmetries in the REIT market are muted relative to non-REIT stocks.

Together, the nine papers in this special issue provide a broad examination of topics related to real estate market efficiency. In addition to raising new questions, we are confident that you will enjoy the papers and find them useful in better understanding how information is synthesized in the real estate markets.

## References

Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. *The American Economic Review*, 70(3), 393–408.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.