

7-2014

Boca Bay: The Impact of Insurance Availability on Residential Property Values

H. Shelton Weeks

Florida Gulf Coast University

Steve P. Fraser

Florida Gulf Coast University

J. Howard Finch

Samford University

Follow this and additional works at: <http://scholarship.sha.cornell.edu/crer>



Part of the [Real Estate Commons](#)

Recommended Citation

Weeks, H. S., Fraser, S. P., & Finch, J. H. (2014). Boca Bay: The impact of insurance availability on residential property values. *Cornell Real Estate Review*, 12, 71-81.

This Article is brought to you for free and open access by The Scholarly Commons. It has been accepted for inclusion in Cornell Real Estate Review by an authorized administrator of The Scholarly Commons. For more information, please contact hlmdigital@cornell.edu.

Boca Bay: The Impact of Insurance Availability on Residential Property Values

Abstract

This case study requires students to determine a method for estimating the valuation impact of the changes in access to flood insurance - specifically, changes in the expense associated with the purchase of insurance in the private market. While these expenses have a high degree of certainty, a unique challenge for students in this case is presented by the lack of comparable market transactions involving properties that have been similarly impacted. Quantifying the change in value requires students to adopt the mindset of informed market participants - individuals aware of the differential in insurance expense and who are considering the purchase of the property.

Keywords

Cornell University, real estate, flood insurance, residential, property, values, Waterfront, valuation, Tax, assessments, Federal, regulation, National Flood Insurance Program, NFIP, Coastal Barrier Resources System, CBRS, estimating, Lee County, Florida, coastal, single-family, homes, appraiser, tax, liability, providers, FEMA, U.S. Fish and Wildlife Service, Consultant, housing, bubble, financial, crisis, Coastal Barrier Resources Act, COBRA, Flood Insurance Rate Maps, FIRMs, interest, rate

Boca Bay:

The Impact of Insurance Availability on Residential Property Values

By: Dr. H. Shelton Weeks, Dr. Steve P. Fraser, and Dr. J. Howard Finch

Case Reprints

The Cornell Baker Program in Real Estate does provide reprints of Cornell Real Estate Case Studies upon request.

Related Resources

A solution to Boca Bay is available upon request by faculty. Please fax or mail your request on appropriate letterhead to the number or address below:

Baker Program in Real Estate
Cornell University
489 Statler Hall
Ithaca, NY 14853
(607) 255-7110 (office)
(607) 255-0242 (fax)
crer.realestate.cornell.edu

This Cornell University Real Estate Case was prepared by By: Dr. H. Shelton Weeks, Dr. Steve P. Fraser, and Dr. J. Howard Finch to stimulate analysis and discussion in undergraduate and graduate real estate courses. While the case is drawn from a range of actual experiences, it is not intended to illustrate correct or incorrect applications.

Copyright © 2014
by the Cornell Baker Program in Real Estate.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means – electronic, mechanical, photocopying, recording or otherwise. Views expressed are those of the authors and do not imply endorsement by the Cornell Baker Program in Real Estate or Cornell University.

Boca Bay:

The Impact of Insurance

Availability on Residential Property Values

ABSTRACT

This case study examines the impact of the availability of various forms of flood insurance on residential property values. The properties affected in this case are 23 single-family, owner-occupied homes located in a Coastal Barrier Resources System (CBRS), as defined by the Coastal Barrier Resources Act of 1982 and subsequent amendments. For over a decade the owners of these properties purchased flood insurance through the National Flood Insurance Program (NFIP). In 2010, the properties were found to be located within a CBRS, and therefore were no longer eligible for insurance coverage through the NFIP. The case requires students to estimate the economic impact of the owners' inability to purchase insurance through the NFIP on the value of properties.

This case study incorporates the following real-estate themes and issues:

Waterfront property valuation

Tax assessments

Flood insurance

Federal regulation



Boca Bay: The Impact of Insurance Availability on Residential Property Values

By: Dr. H. Shelton Weeks, Dr. Steve P. Fraser, and Dr. J. Howard Finch

Author

Dr. H. Shelton Weeks is the Chairman of the Department of Economics & Finance and Lucas Professor of Real Estate at Florida Gulf Coast University. Dr. Weeks received his BS, MA, and PhD in finance from The University of Alabama. He was a member of the FGCU inaugural faculty. He teaches in the areas of corporate finance and real estate. His research interests include pedagogical issues, corporate governance, and real estate. He is a Co-Editor of the Journal of Real Estate Practice & Education and is the former Managing Editor of the Journal of Housing Research. Dr. Weeks has extensive industry experience in valuation of real property with an emphasis on senior living projects.



Focus

This case study requires students to determine a method for estimating the valuation impact of the changes in access to flood insurance - specifically, changes in the expense associated with the purchase of insurance in the private market. While these expenses have a high degree of certainty, a unique challenge for students in this case is presented by the lack of comparable market transactions involving properties that have been similarly impacted. Quantifying the change in value requires students to adopt the mindset of informed market participants - individuals aware of the differential in insurance expense and who are considering the purchase of the property.

Setting

This case study considers the impact of property owners' inability to continue to purchase insurance through the National Flood Insurance Program (NFIP) on the values of properties that are part of a waterfront community located on a barrier island in Lee County, Florida. The community is fully developed, and features 23 single-family homes (see Exhibit 1). Originally, the owners of the properties purchased flood insurance through the NFIP. However, in April of 2010 the property owners learned that their properties were no longer eligible for coverage through the NFIP because of a discovery made by an insurance representative using newly digitized maps (Flood Insurance Rate Maps (FIRMs)) maintained by the Federal Emergency Management Agency (FEMA), administrators for the NFIP. The new maps suggested the properties were located within a Coastal Barrier Resources System (CBRS) and therefore were ineligible for coverage under the NFIP. The owners were thus required to seek private-market flood insurance, which is considerably more costly than insurance offered through the NFIP.

The property owners believed that the increased cost to insure their properties negatively impacted their values. Naturally, they reasoned that such a reduction in property values should in turn reduce the owners' property tax liability. However, the property appraiser's assessed value for the properties did not appear to consider such a reduction. In response, the property owners appointed a consultant to determine the valuation impact of the increased cost of flood insurance, which was subsequently presented to local taxing authorities in an effort to reduce their tax liability.

Background

The community of Boca Bay is located on Gasparilla Island, in an unincorporated portion of Lee County, Florida. The community includes 23 single-family homes, was developed by CSX Real Estate in the early 1990's and was completed by 1999 (see Exhibit 1). Throughout the development period, property owners purchased flood insurance through the NFIP (see Exhibit 2).

In early 2010, one of the 23 homes went under contract to be sold. During the transfer of ownership, an insurance agent questioned whether the property was actually eligible for flood insurance under the NFIP. The insurance agent used a newly digitized FIRM maintained by the FEMA. FEMA is the administrator for the NFIP. As explained in Exhibit 3, properties located within a CBRS are ineligible for coverage under the NFIP. Specifically, the flood map (FL-70P) for Lee County showed that a portion of the properties were located within what is designated as a CBRS.

As a result, owners of properties situated in such areas wishing to obtain flood insurance must purchase coverage through private providers. The coverage available through private providers differs significantly from coverage provided under the NFIP, the most noteworthy difference being the cost of the policies. For example, for homeowners seeking \$1,000,000 in coverage, the cost for flood insurance under the NFIP would be approximately \$1,400, while the annual cost from private providers could be as high as \$44,000. In addition to the premium variances, there are two additional differences in policies issued under the NFIP versus private policies. First, NFIP policies include coverage for contents, while the private policies do not cover contents. Second, the NFIP policies carry a \$1,000 deductible, while private policies in this case carry \$25,000 deductibles.

Following the discovery by the insurance agent that the properties were considered as being situated within a CBRS, the homeowners sought relief from the U.S. Fish and Wildlife Service (Wildlife Service) through their congressional representative. The Wildlife Service acts as the administrator for the Coastal Barrier Resources Act (CBRA), which established the CBRS. The Wildlife Service noted that while the FEMA FIRMs depict the CBRS boundaries, they are for informational use only. The Wildlife Service maps, and not the FEMA FIRMs, are the maps that are used to determine whether a given property is within a CBRS.

In their response to the homeowners, the Wildlife Service confirmed that based upon their maps the 23 homes were indeed situated within the CBRS. The homeowners were also informed that the Wildlife Service CBRS maps are “outdated technologically and difficult to use” and that the Secretary of the Interior had been directed to modernize them using digital technology. However, they were advised that this process would not be resolved quickly and that it would ultimately have to be approved by Congress prior to being implemented.

The response from the congressional representative’s office indicated to the homeowners that the situation was not likely to be resolved in a timely manner. Realizing this, and appreciating that the value of their properties had been negatively impacted by the insurance agent’s discovery, they contacted a local real estate professor to serve as a consultant, and tasked him with estimating the valuation impact of their sudden inability to obtain NFIP flood insurance. Their intention was to use the findings of the consultant’s report to seek a reduction in their property taxes with the local taxing authorities.

Estimating the Valuation Impact

The Boca Bay residences are located on a barrier island. Therefore, the expense associated with obtaining flood insurance is a factor that will be taken into consideration by any prudent buyer who considers the purchase of any of these homes. Cole, Stephan, Chouinard, Finch, and H. Weeks (2011) show that a change in flood status results in a diminution of value that may be interpreted as a form of external obsolescence. In this case, one can interpret the discovery that the properties lie within a CBRS in a similar manner. Therefore, the change in the insurance expense must be reflected in the market valuation of the properties.

Ideally, there would be an active market with a large number of comparable properties

Author

Dr. J. Howard Finch is a Professor of Finance and serves as Dean of the Brock School of Business at Samford University in Birmingham, AL. Prior to his appointment in 2011, he held the Alico Chair in Financial Management and Planning at the Lutgert College of Business at Florida Gulf Coast University from 2000-2011, and was Professor of Finance at the University of Tennessee at Chattanooga from 1991-2000. His research interests include asset valuation, real estate finance, entrepreneurship and financial education.



Author

Dr. Steve P. Fraser is an Associate Professor of Finance in the Lutgert College of Business at Florida Gulf Coast University in Fort Myers, FL. Previously, he served on the faculty of the United States Air Force Academy in Colorado Springs, CO from 1998-2000 and again from 2003-2007. He teaches a variety of graduate and undergraduate courses in the areas of corporate finance and investments. His research interests include investment policy and asset allocation, retirement planning, institutional investors, and real estate finance.



transacting between informed market participants, which would thus provide a wealth of information that could be utilized for the purpose of determining the value of the properties. The value of some of these properties would likely be impacted by the owners' inability to obtain flood insurance, while some would not be impacted. A sufficient volume of transactional activity would allow the responses of market participants to the insurance expense variable to be observed directly and an estimate of the impact on the value of the subject properties to be formed based on the actual market response.

During the 1992-2010 timeframe, there were 40 sales transactions involving the 23 properties. Two of these properties were involved in three transactions each during the aforementioned period. Sale price and price per square foot data for each transaction is depicted in Exhibit 4 (full information available for 39 of the 40 transactions). Unfortunately, none of the Boca Bay properties have been involved in transactions since the discovery of the CBRS boundary issue, resulting in a lack of reliable data upon which to base an assessment of the impact of the increase in insurance costs.

Without a functional market for the existing properties, calculating the change in property value is a task that is made considerably more complex. Furthermore, the feedback from the congressional representative's office suggested that the period during which the homeowners would face the increased flood insurance expense was unknown. Any map revisions that would exclude the subject properties from the CBRS will require an act of Congress; therefore the estimate of the valuation impact must reflect the likely response by the market to this uncertainty.

Assessed values for the properties at the time of the discovery of the CBRS flood insurance issue are presented in Exhibit 5. The assessed values for the 23 properties in the development represent 85% of the properties' respective market values.

Any analysis of cash flows will ultimately require application of an appropriate discount rate to properly reflect any present value implications. It is important to note the timeframe of the discovery of the CBRS-related flood insurance issue. Prices of residential real estate in southwest Florida in 2010 had declined significantly from the pre-financial crisis levels of 2006. Again, see Exhibit 4 for an illustration of the impact on the few Boca Bay properties that changed hands during the crisis. Interestingly, given the fact that the Boca Bay properties are on the water, the effects of the housing bubble might be smaller than on similar properties not situated on the water. Smersh, Dumm, and Sirmans (2012), using data from south Florida, suggest that waterfront properties appreciated more from 2001-2007 and depreciated less from 2008-2010 than properties not situated on the water.

In response to the housing bubble and the related financial crisis, the U.S. Congress and the Federal Reserve took extreme measures that greatly affected the interest rate environment at the time. Exhibit 6 depicts the two notable rates of interest, which gives one a perspective on rates at the time. The 10-year Treasury rate reflects no default risk, while the 30-year mortgage rate reflects both default risk and an additional term premium. Finance theory traditionally values any stream of cash flows based on the risk associated with those cash flows.

Emrath (2009) suggests that roughly half of single-family homeowners live in their homes for at least 10 years. Stansel, Jackson and Finch (2007) report that the average tenure in one residence for full-time residents in Florida is just over 11 years. The economic downturn associated with the Great Recession caused many residential properties to decline significantly in value, resulting in even longer average holding periods due to loss of equity that results in property owners being "under water" on their mortgages. Thus, a 10-year holding period assumption to value residential property would be considered conservative.

Ultimately, this case study involves determining the effect of changes in insurance premiums on property home values. After an informed judgment has been made regarding

the appropriate discount rate to use, one still needs to compute an appropriate insurance premium to estimate those cash flows. Such an estimate must include computing the market value of the property, as well as incorporating an insurance cost factor, taxes, and inspection and processing fees. Exhibit 7 illustrates the buildup of a hypothetical premium for one of the properties.

The Consultant's Task

The task for students is to assume the role of the consultant appointed by the property owners and to estimate the valuation impact of the increased flood insurance expense. The following questions should be addressed in the students' analysis:

What is the cash flow stream associated with the increase in insurance expense that is under consideration for a single property?

What is the likely duration of this stream of cash flows? How is this likely to be viewed by a potential buyer?

Discuss the obligations of a listing agent and a property owner with respect to disclosure of the CBRS designation to potential buyers.

How is the knowledge of the lack of eligibility for participation in the NFIP likely to impact properties in Boca Bay that are currently offered for sale?

What is the cost to insure parcel 1 (as identified in Exhibit 5) using private insurance? What is the change in the cost to insure parcel 1 assuming insurance under the NFIP was available for \$1,400 per year?

What discount rate should be used to determine the valuation impact of the increased cost to insure the property? Provide a justification for the rate.

What is the estimated market value of parcel 1 given the change in the cost to purchase insurance?

How sensitive is your estimate of the valuation impact to the interest rate selection? Use your second best rate choice to demonstrate this sensitivity.

How should the change in market value impact the property taxes for parcel 1? Provide an estimate of the property tax bill for parcel 1 based on your estimated market value. Assume a millage rate of 15.5262.

What is the overall change in valuation for this community (all 23 parcels) as a result of the new regulatory enforcement prohibiting the purchase of NFIP insurance coverage? Assuming the taxing authority accepts your estimate of reduced property values, what is the overall impact on property tax valuation and receipts? Use your answers to summarize the macroeconomic impacts, which may result from the determination that these properties are no longer eligible for NFIP insurance coverage. Assume a millage rate of 15.5262.

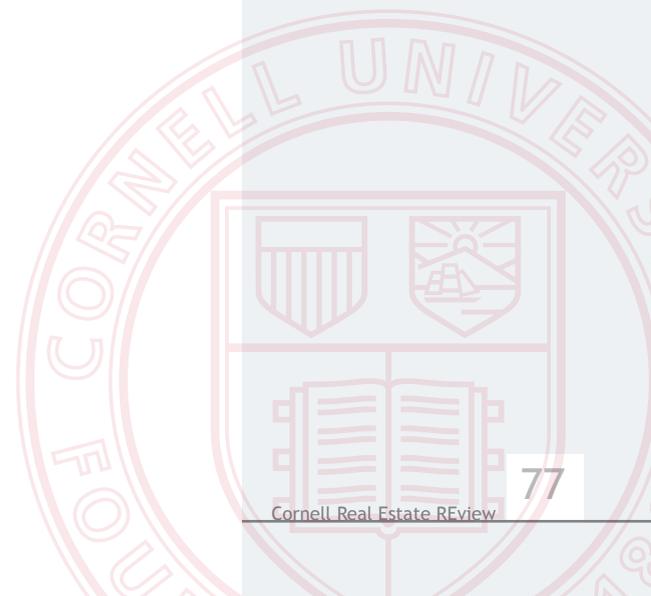


Exhibit 1

Map of Property



Source: <http://gissvr.leepa.org/geoview/> (last accessed 5/7/2012)

Exhibit 2

National Flood Insurance Program
(NFIP) Summary

In 1968, the U.S. Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding.

Source: http://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp (last accessed 5/9/2012)

Exhibit 3

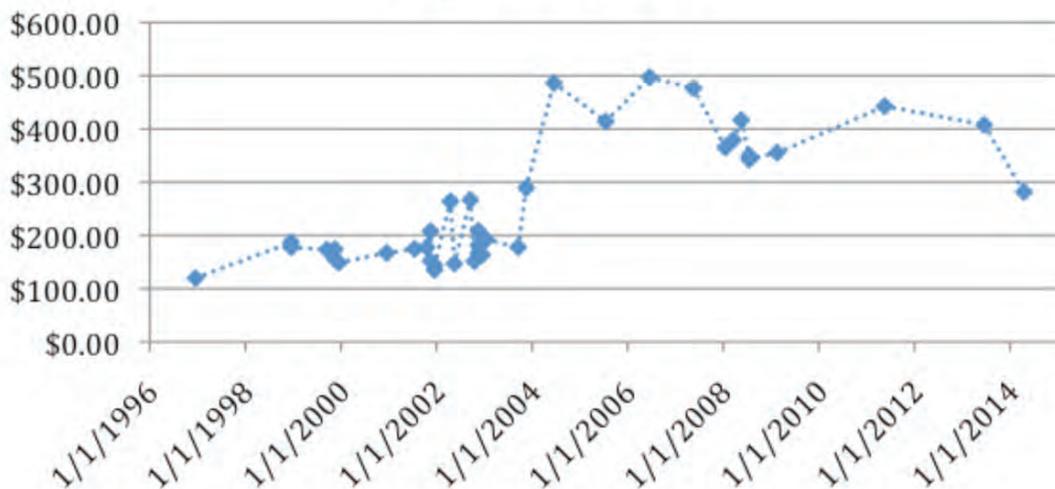
Coastal Barrier Resources System
(CBRS) Summary

The Coastal Barrier Resources Act (COBRA) of 1982 and later amendments, removed the Federal government from financial involvement associated with building and development in undeveloped portions of designated coastal barriers (including the Great Lakes). These areas were mapped and designated as Coastal Barrier Resources System units or “otherwise” protected areas. They are colloquially called COBRA zones. COBRA banned the sale of National Flood Insurance Program (NFIP) flood insurance for structures built or substantially improved on or after a specified date. For the initial COBRA designation, this date is October 1, 1983. For all subsequent designations, this date is the date the COBRA zone was identified. COBRA zones and their identification dates are shown on Flood Insurance Rate Maps (FIRMs).

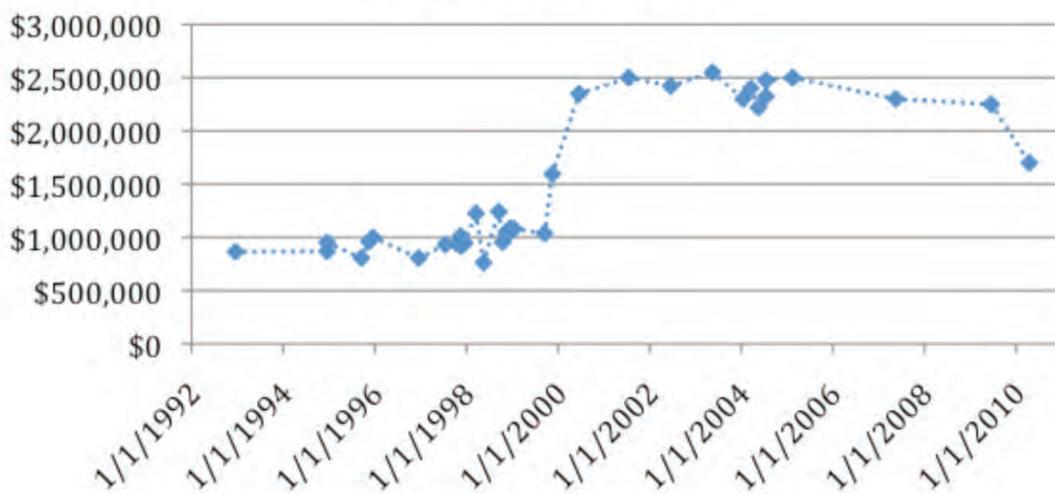
Communities may permit development in these areas even though no Federal assistance is available, provided that the development meets NFIP requirements.

Source: <http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/cbrs.shtm#0> (last accessed 5/7/2012)

Price per Square Foot (1992-2010, n=39)



Home Sale Prices (1992-2010, n=39)



Source: www.leepa.org (last accessed 5/14/2012)



Exhibit 5

Tax Assessment Data

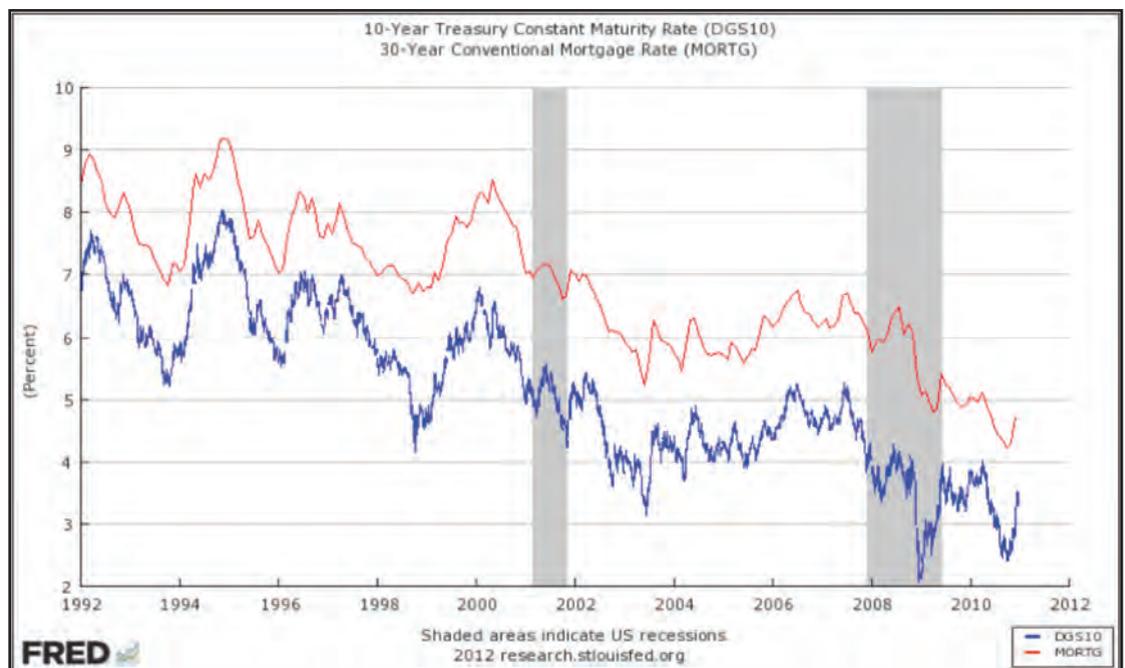
Parcel	Assessed Value	Land	Improvements
1	1,582,334	1,200,000	382,334
2	1,614,851	1,203,648	411,203
3	1,609,697	1,200,000	409,697
4	1,625,202	1,200,000	425,202
5	1,670,586	1,200,000	470,586
6	1,562,840	1,200,000	362,840
7	1,681,716	1,223,808	457,908
8	1,642,325	1,222,536	419,789
9	1,700,760	1,222,104	478,656
10	1,645,064	1,220,927	424,137
11	1,613,690	1,218,684	395,006
12	1,658,040	1,222,248	435,792
13	1,713,401	1,225,828	487,573
14	1,650,000	1,221,000	429,000
15	1,600,060	1,218,468	381,592
16	1,728,210	1,221,000	507,210
17	1,669,563	1,216,032	453,531
18	1,696,619	1,218,612	478,007
19	1,645,093	1,221,000	424,093
20	1,653,514	1,222,248	431,266
21	1,662,571	1,221,222	441,349
22	1,621,076	1,218,540	402,536
23	1,637,046	1,223,373	413,673

Source: Lee County Tax Assessor's office

Note: Properties are assessed at 85% of market value.

Exhibit 6

Interest Rate Environment



Source: <http://research.stlouisfed.org> (last accessed 5/16/2012)

Improvement Value	\$500,000.00
\$5.50 per \$100	x 0.055
Premium	\$27,500.00
Taxes (7.5%)	x 1.075
Subtotal	\$29,562.50
Inspection & processing fees	+ \$135.00
Total Cost to Insure	\$29,697.50

Note: The pricing demonstrated above is for a policy with a \$25,000 deductible.

References

Cole, W., B. Stephan, N. Chouinard, J. Finch, and H. Weeks. Flood Zone Revisions and Economic Loss: An Example from Florida. *The Appraisal Journal*, 2011, Winter, pp. 44-56.

Emrath, P. How Long Buyers Remain in Their Homes. *HousingEconomics.com*, February 12, 2009. Last accessed from (http://www.nahb.org/fileUpload_details.aspx?contentTypeID=3&contentID=110770&subContentID=194118&channelID=311 on 7/17/2012)

Smersh, G., R. Dumm, and G. Sirmans. Price Variation in Waterfront Homes During the Housing Bubble. *Working paper*, April 2012.

Stansel, D., G. Jackson, and J. Finch. Housing Tenure and Mobility with an Acquisition-Based Property Tax: The Case of Florida. *The Journal of Housing Research*, 2007, 16(2) pp. 117-129.

