

**CITIZENS PROPERTY INSURANCE CORPORATION
EXPOSURE REDUCTION AND
DEPOPULATION OPPORTUNITIES
ANALYSIS**

FINAL REPORT



COLLEGE OF BUSINESS

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EXECUTIVE SUMMARY

Introduction

On April 1, 2020, Citizens Property Insurance Corporation (Citizens) entered into a contract with Florida State University (FSU) to conduct an exposure analysis study. The purpose of the study is to identify opportunities to further reduce Citizens' exposure as well as to increase the availability of private market residential property insurance. The analysis also is expected to identify various hindrances to further depopulation. Furthermore, the study is expected to not only consider policyholder depopulation, but to determine other ways to reduce Citizens' overall exposure and to eliminate or reduce the re-population of Citizens following depopulation through insurer takeouts.

In Citizens' Requested Scope of Services document, core questions were posed, and the FSU Research Team was encouraged to add additional questions that would be consistent with achieving Citizens' desired outcomes (Citizens' Property Insurance Corporation, 2019a). Additionally, certain boundaries and constraints were defined which served to limit the scope of the study and to preserve the characteristics of Citizens as an organization which promote efficiency, reduce cost, and ensure a high level of service to policyholders and organizational capacity in a fluctuating market environment.

The study was managed by the Florida Catastrophic Storm Risk Management Center, which is housed within the Department of Risk Management/Insurance, Real Estate, and Legal Studies (RMI) in the College of Business. The FSU Research Team composed of four faculty members within the RMI Department. The study consisted of seven tasks which included the following:

- Background Research and Literature Review
- Identifying and Establishing Core Industry Questions
- Initial Formulation of Ideas/Approaches
- Interviews with Interested Parties and Stakeholders
- Data Collection and Analysis
- Revised Formulation of Ideas/Approaches
- Final Report

Background

In 2002, the Florida Legislature created Citizens by combining the Florida Windstorm Underwriting Association and the Florida Residential Property and Casualty Joint Underwriting Association. Designed as an insurer of last resort, access to Citizens was generally limited to property owners that were not able to secure coverage in the private market and its rates were set such that they were "no lower than the average rates charged by the insurer that had the highest

average rate in that county among the 20 insurers with the greatest total direct written premium in the state for that line of business in the preceding year” (S.627.351 (6)(d)2., F.S. - 2003).

Citizens grew rapidly in the late 2000s, reaching in excess of 1.4 million total policies and accounting for approximately 23% of the marketplace in 2011. The majority of these policies, nearly 70%, were personal lines residential properties. This growth was due to a variety of reasons including:

- significant insured losses due to hurricane activity in 2004 and 2005,
- rate increases and exposure reduction by private market insurers, and
- legislative and administrative changes to address private market conditions that included significant changes to Citizens rates and access.

A number of steps over the past 10 years were taken to reduce Citizens’ exposure and decrease its share of the residential property insurance market. This has included the enhancement of data available to companies interested in taking policies out of Citizens and the creation of the Property Insurance Clearinghouse.

These collective efforts, combined with a lack of landfalling hurricanes in Florida from 2006 to 2015, resulted in insurance market stability and Citizens’ market share was significantly reduced (4% as of March 31, 2020 based on insured values). However, an observable growth in Citizens has occurred in 2020 with policy count (total exposure) increasing from 443,228 (\$111.7 billion) in January to 511,005 (\$133.5 billion) by September. Additionally, recent landfalling hurricane activity beginning in 2017, rising reinsurance prices, and other adverse market developments (e.g. increase in litigated claims) are indications that the residential property insurance market stability may be wavering and could lead to future growth at Citizens.

The Process

The study began with the FSU Research Team examined the prior depopulation efforts of Citizens and the residual market insurers of other states to determine what could be learned from past endeavors. In addition, the FSU Research Team conducted an extensive review of relevant literature and interviewed a variety of interested parties and stakeholders to gain a broad perspective from a variety of resources.

Citizens provided eight core questions to the FSU Research Team to consider when conducting analysis and developing recommendations. The FSU Research Team added the last five questions below for consideration. The questions were:

- What strategies or approaches have other residual market insurers successfully implemented which could benefit Citizens in its efforts to further reduce exposure and/or depopulate?
- How could Citizens further encourage private market carriers to “take out” Citizens’ policies?
- How could Citizens promote the retention of risk by the private market following depopulation of that risk from Citizens?
- What are the market hindrances to the further depopulation of Citizens?
- What does the impact of Florida’s property insurance market structure—with a high level of domestic carriers and a reliance on reinsurance—have on Citizens’ role as a residual market insurer?
- How could Citizens optimize its role as a residual market insurer to create conditions which would promote the availability of additional capital in Florida’s property insurance market?
- What additional measures could Citizens take to decrease the likelihood and/or impact of assessments?
- How could Citizens further improve its overall financial strength, which affects, for example, Citizens’ bond rating, Florida’s bond rating, and the overall financial strength of the State?
- What are some potential additional sources of capital that can be used to support property insurance in Florida?
- Does the structure of Citizens, as a residual market insurer, impede its ability to influence market conditions and capital availability? If so, are there any changes that can be made to the structure of Citizens so that it could have broader market influence?
- How can Citizens become a market leader in technology and mitigation to optimize the provision of property insurance in Florida?
- In addition to possible market hindrances to the further depopulation of Citizens, what are the possible barriers stemming from legislative, regulatory, or rating agency activities?
- What measures can Citizens take to prevent future large increases in policy growth?

Responses to these questions in the report include references to specific recommended ideas and approaches, where relevant.

Through this process, a list of market hindrances was identified. Several of the hindrances to ensuring a healthy, robust residential property insurance market in Florida relate directly to catastrophic risk exposure. The remaining hindrances can be grouped into responses to catastrophic losses and the impact these losses have had on property insurance markets. The seven market hindrances identified are:

- **Catastrophic Risk Exposure:** Florida’s current and future windstorm exposure.

- **Information and Understanding:** Levels of uncertainty in predicting future catastrophic losses.
- **Adequate Investment Returns for Investors:** High levels of catastrophic risk and other factors raise the cost of capital.
- **Legislative/Regulatory/Administrative Actions:** Volatility in these actions adds to market uncertainty.
- **Third Party Involvement/Litigation/Fraud:** All add to the losses and expenses of insurers operating in Florida.
- **Rates:** Inaccurate rates can lead to market distortions and competitions between Citizens and private market insurers.
- **Affordability:** Addressing affordability in the ratemaking process can lead to misunderstanding and market distortions.

The FSU Research Team then conducted several analyses including an examination of the Florida residential property market, development of strategies for optimal transfer of risk from Citizens to the private market, and a review of Citizens closed claims, such that recommended strategies could be based on data analysis to the extent possible. In examining the Florida residential property insurance market, both positive and negative trends were identified. It was noted that there has been an increase in the market share of Florida Diversified Insurers, indicating an increase in diversification in the private market.¹ However, the analysis also showed that capital adequacy continues to be a concern as the capital supporting insurance operations for many insurers seems low relative to the catastrophic risk the state faces. Additionally, the market share of Florida Focused Insurers remains high. The lack of diversity of these insurers in combination with their significant market share could lead to serious market disruptions if a major loss were to occur. It is also noted that in some locations, Citizens' market share is consistently high, and their rates may be too competitive with private insurers to incentivize policyholders to go to the private market.

Concentrating on developing approaches that shift the focus to optimal transfer of risk from Citizens to the private market, the analysis of Citizens' portfolio of policies and the Florida private insurance market yielded three distinct opportunities:

¹ For the purpose of this study, four distinct categories of insurers were identified: Florida Focused Domestic Insurers, Florida Diversified Insurers, Florida Pups, and National Insurers. As discussed in the 'Overview and Analysis of Florida Residential Property Insurance Market Data' section, the distinction between Florida Focused and Florida Diversified Insurers is based on the amount of business written in the Florida residential property insurance market in a given year. Though this approach does result in some movement of insurers between these two categories over the time period examined, it avoids a subjective classification of companies and ensures that the current geographic business mix of the companies is considered in the analysis.

- **Tail Minimization:** This approach emphasizes reductions of Citizens’ tail loss potential not considering any other constraints such as post-depopulation impacts to the Florida private residential property insurance market.
- **Mutual Diversification:** This approach involves ranking private market participants by their ability to assume policies that are driving Citizens’ tail risk,² relying on diversification and establishing a system that results in mutual benefits to both Citizens and the companies identified with high mutual diversification.
- **Resilient Depopulation Package:** This approach creates portfolios of Citizens’ policies created based on specific optimization criteria that would be attractive to any private insurer and/or capital markets.

Finally, the analysis of Citizens’ closed claims finds that there has been a general decline in closed claims beginning in 2013 when excluding hurricane-related losses. There has also been a decline in litigated claims related to all other losses. However, non-catastrophe water-related claims represent the majority of closed claims in almost every year and have been increasing in recent years. Additionally, there is a high concentration of claims in the Tri-County area, consisting of Broward County, Palm Beach County, and Miami-Dade County. There has also been an increase in the percentage of closed claims that are litigated, driven by the increase in litigated claims occurring in the Tri-Counties. This analysis also finds that the percentage of litigated claims involving assignment of benefits has grown dramatically, with a noticeable increase in recent years. The recent legislative changes to address assignments of benefits issues is expected to impact this trend going forward.

The analysis conducted in this study could have been improved with better access to data. While a wealth of information is available, more refined analysis could have been completed with better data (e.g., the number of insurers reporting to QUASR using trade secret protection removes nearly 25% of the market from analysis by 2020).

Recommendations

Drawing upon this information, the formulation of recommended ideas and approaches relate to six distinct areas:

- Approach 1: Attracting investors to the Florida market.
- Approach 2: Increasing the use of loss control by homeowners.
- Approach 3: Reducing system inefficiencies.
- Approach 4: Increasing the availability of quality data to stakeholders.
- Approach 5: Maintaining the solvency of insurers operating in the Florida market.
- Approach 6: Improving rating methodologies.

² Tail risk refers to the loss that could exceed an insurer’s modeled probable maximum loss.

- Approach 7: Miscellaneous category encompassed a variety of other ideas.

Citizens' Requested Scope of Services indicated that any idea or approach presented should address the following:

- reduce Citizens' actual exposure (not just policy count);
- promote the private market's retention of risk depopulated by Citizens;
- maintain Citizens' tax-exempt status;
- protect the favorable status of Citizens' outstanding bonds;
- maintain Citizens' ability to provide levels of customer service that are comparable to the standards of the private market; and
- maintain adequate organizational capacity and capability enabling Citizens to respond to significant market fluctuations.

Citizens requires that a feasible mitigating measure needs to be suggested for any opportunity that conflicts with one or more of the boundaries or constraints. Additionally, the focus of the study is to identify opportunities that would reduce Citizens' exposure while fulfilling its mission as a residual market insurer.³ Thus, any idea or approach that changed the nature of Citizens from a residual market insurer was not recommended by the FSU Research Team.

The FSU Research Team also considered other screening factors in its pursuit of ideas and approaches that would result in a recommended opportunity that would meet the objectives of the study. These factors included the following:

- Was there adequate data or information available to properly evaluate an idea or approach?
- Was an idea supported based on objective data?
- Was the idea supported by stakeholders and other interested parties participating in or involved with the Florida residential property insurance market?
- Were there major hindrances associated with an idea which caused the idea to be difficult or impossible to analyze and thus draw a reasonable or logical conclusion?
- Was the idea or approach considered beyond the scope of the study?
- Does the idea or approach provide a long-term solution to reducing Citizens' exposure and expanding the private market?
- Does the idea or approach increase the frequency or severity of assessments from Citizens, FHCF, or FIGA?

³ Although Citizens' mission has been briefly stated in the first paragraph of this report, it is restated here in part with additional detail as found in the statute (s. 627.351(6)(a), F.S.) "...It is necessary, therefore, to provide affordable property insurance to applicants who are in good faith entitled to procure insurance through the voluntary market but are unable to do so..."

- Does the idea or approach have a significant impact on Citizens exposure?

The research and analysis, incorporating the above constraints, led to the following 18 recommendations which are organized according to the categories outlined earlier:⁴

- **Overall Approach:** Host workshops involving a variety of stakeholders to gain a better understanding of their perception of the Florida market and provide them with information about the Florida market that would be valuable to potential investors and private market insurers.
- **Approach 1.1:** Encourage new entrants to develop business models specifically for the Florida market, taking advantage of both traditional and alternative approaches to providing insurance coverage.
- **Approach 2.1:** Require Citizens’ policyholders to engage in loss prevention and loss reduction efforts. Additionally, Citizens could require regular mandatory inspections of all insured properties every three to five years so that continuous and up-to-date loss control recommendations can be provided on an ongoing basis.
- **Approach 2.2:** Expand and improve the Florida Building Code. This could include incorporating the idea of “Code Plus” standards and/or creating optional standards for wind and flood for older homes that cannot meet the 2001 building code.
- **Approach 3.1:** Work to expand and widely promote the use of managed repair programs involving certified contractors.
- **Approach 3.2:** Utilize different claims settlement processes such as alternative dispute resolution and early offers to reduce the percentage of claims that are litigated or the dollar amount of claims.
- **Approach 4.1:** Create a statewide database that incorporates the loss control and mitigation features (including factors such as roof shape, mitigation features, age of roof, etc.) of every home in Florida, similar to the CARFAX™ database for automobiles.
- **Approach 5.1:** Change Citizens’ takeout program from one of insurers selecting individual policies (a pull approach) to an approach where Citizens formulates various portfolios of policies (a push approach) using the concept of managing tail risk.
- **Approach 5.2:** In cooperation with OIR and catastrophe modeling firms, consider deploying new, emerging methodologies to better evaluate the risk of financial insolvency for Citizens and private market insurers in Florida, considering, for example, an insurer’s spread of risk and its contribution to an insurer’s overall risk profile in ways that can be quantified for more accurately measuring catastrophic risk exposure.
- **Approach 5.3:** Regularly conduct aggregate stress testing to gain a greater understanding of the impact of large events on the vulnerability and the survivability of the overall insurance system.

⁴ The FSU Research Team did develop a more extensive list of ideas and approaches. Those not meeting the criteria noted above are briefly discussed in Appendix M.

- **Approach 6.1:** Modify, eliminate, or replace Citizens’ glide path to allow for greater percentage rate increases so that rates are closer to being actuarially sound and can better adjust to rate changes in the private market.
- **Approach 6.2:** Limit Citizens’ policyholder eligibility to only situations where the private market insurer’s premium is at least 15 percent higher than Citizens’ premium for both new policies and renewals.
- **Approach 6.3:** Update or eliminate the mandatory mitigation credits for insurers or encourage private market insurers to establish what they believe to be proper discounts and charge a premium commensurate with the reduction of the risk/exposure.
- **Approach 6.4:** Create a marketing campaign that educates Floridians on the “true” cost of windstorm exposure.
- **Approach 7.1:** Establish stronger requirements that policies taken out of Citizens be held for three years.
- **Approach 7.2:** Work with the Division of Investigative and Forensic Services within the Department of Financial Services and other stakeholders to develop a comprehensive and centralized insurance fraud database.
- **Approach 7.3:** Establish a requirement that building permits on new residential construction should require proof of private market property insurance.
- **Approach 7.4:** Create a state-level program to address residential property insurance affordability.

Effectively reducing Citizens exposure in the long-term can be accomplished by expanding the availability of coverage by private market insurers. However, several actions must first be taken to improve the attractiveness of the Florida market. Citizens, in cooperation with OIR and others, can host workshops to gain a better understanding of the concerns of private market insurers and investors. Additionally, steps can be taken to begin to address such issues. As noted in the discussion of hindrances, the exposure to catastrophic risk is a major consideration for private market insurers doing business or contemplating doing business in Florida. This risk can be mitigated through improved building codes and a requirement of proof of the ability to secure private market insurance before beginning construction in high-risk areas as described in Approaches 2.2 and 7.3. It can also be mitigated by encouraging new entrants to the market and through efforts that would provide detailed information about properties and the strength of the Florida market, as summarized in Approach 1.1, Approach 5.2, and Approach 5.3. Collectively, these efforts could serve to effectively spread the risk across the state as well as provide private market insurers with information needed to pursue broader geographic and product diversification strategies.

The major hindrances that act as deterrents to private market insurers doing business or expanding business in the Florida residential private market include third-party involvement in the claims settlement process, high litigation rates, and fraud. The passage of HB 7065 in 2019, which placed requirements and limitations on AOB is an example of recent legislative action that

could reduce the impact of this hindrance. Approach 3.2 and Approach 7.2 could also reduce litigation and fraud, leading to lower claims settlement costs.⁵

Another area of concern relates to mandatory mitigation credits. The current credits were developed using hurricane and building data from 20 or more years ago. As described in Approach 6.3, the use of updated data could result in credits that are more credible and more accurately measure true exposure to correct market distortions in pricing.

Following the implementation of these approaches, Citizens, in cooperation with OIR and others, can host additional workshops to discuss these changes with private market insurers and investors to motivate greater investment in Florida and expand the private market.

Simultaneously with the changes to improve the attractiveness of the private market, Citizens could work to expand and widely promote the use of managed repair programs (Approach 3.1), and encourage loss prevention and loss reduction efforts of its remaining policyholders and require regular mandatory inspections so that continuous and up-to-date loss control recommendations are provided on an ongoing basis (Approach 2.1).

Once the attractiveness of the environment in Florida has been improved and there is increased capacity within the private residential property insurance market, this should naturally lead to some policies moving out of Citizens. However, there is the need for more publicly available data to ensure transparency and to allow for more sophisticated analytics. With this accomplished, Citizens could seek support from the legislature to implement changes to its structure to further reduce its exposure. First, it could change its takeout program to a push approach using the concept of managing tail risk as described in Approach 5.1. Next, Citizens could work to improve the quality of its remaining book of business and controlling its claims costs by addressing rate concerns. Specifically, Citizens could: (1) modify, eliminate, or replace the glidepath (Approach 6.1); and (2) limiting eligibility for new and renewal business based on the cost of private market insurance as it was originally designed (Approach 6.2). Additionally, Citizens create a marketing campaign to educate Floridians on the “true” cost of risk (Approach 6.4) and how such efforts if undertaken can impact the cost of insurance.

With these changes, it is possible that coverage may not be affordable to all residential homeowners. However, to achieve Citizens’ goal of reducing its exposure, as noted in Approach 7.4, the issue of affordability will need to be addressed outside of the insurance process. Affordability could be addressed with a state-level program that uses means testing to provide assistance to homeowners that require it. Collectively, the strategies to improve the attractiveness of the private residential property insurance market along with some operational changes to

⁵ It should be noted that additional legislative actions related to AOB and restrictions that could reduce litigation were proposed this year (2020) but were not passed in the legislature. These bills included the following: SB 1334, HB 1606, SB 914, HB 7071, SB 924, SB 1828, HB 7041, and HB 895.

Citizens should be effective in helping Citizens achieve its objective of reducing its exposure as well as result in expanding the private market.

BACKGROUND RESEARCH AND LITERATURE REVIEW

Introduction

Citizens Property Insurance Corporation (Citizens) was created in 2002⁶ to serve as a residual property insurance market mechanism for the state of Florida. Citizens' mission⁷ is "...to provide insurance protection to Florida policyholders who are entitled to but are unable to find property insurance coverage in the private market."

At the Citizens Board of Governors meeting on December 11, 2019, the Board agreed that the "time was right" to seek an independent review of options to further reduce Citizens' exposure (Citizens Property Insurance Corporation, 2019a).⁸ On March 25, 2020, the Board approved a recommendation by its staff to select Florida State University (FSU) to conduct the study. The purpose of the study is to provide an analysis to:

1. Identify opportunities for Citizens to further reduce its exposure while continuing to fulfill its mission as a residual market insurer.
2. Identify inhibitors to Citizens' further depopulation and identify strategies to expand Citizens' depopulation.
3. Identify mechanisms to eliminate or reduce the repopulation of risk by Citizens following depopulation of that risk.

Citizens has specified certain questions to be explored and is seeking recommendations of other possible opportunities to achieve its desired outcomes of reducing Citizens' exposure and expanding the use of the admitted market prior to a risk being placed with Citizens.⁹

Citizens' total policies across all three accounts, insured values, and in force premiums have varied over time as seen in Figure 1. In 2011, at its height, Citizens' insured values were \$511 billion, and its number of policies reached a maximum of 1.47 million which represented 23% of the Florida residential market for policies with wind coverage. As of December 31, 2019, Citizens had 422,203 total policies in force with a residential market share of 4%. Citizens'

⁶ Citizens was created from the combining of the Florida Windstorm Underwriting Association (FWUA) and the Florida Residential Property and Casualty Joint Underwriting Association (FRPCJUA). For an explanation of statutory history, timeline, and evolution of the FWUA and the FRPCJUA's combining to form Citizens, see Citizens Property Insurance Corporation (2016). Today, Citizens has three accounts – the Personal Lines Account (PLA), the Commercial Lines Account (CLA), and the Coastal Account (CA). For purposes of coverage by the Florida Hurricane Catastrophe Fund (FHCF), Citizens has two reimbursement contracts with one covering the CA and the other covering the PLA and CLA (for personal and commercial residential policies only).

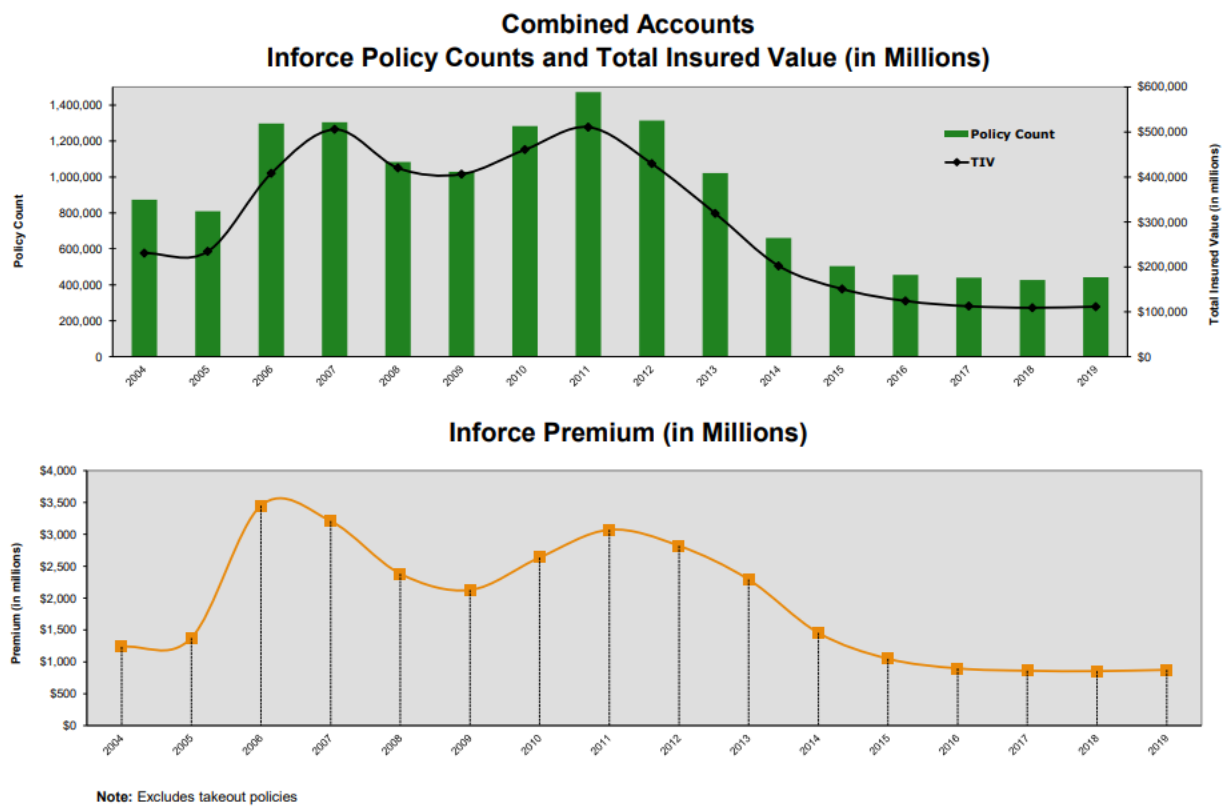
⁷ See Citizens Property Insurance Corporation (2020b) for a complete explanation of Citizens' role, vision, values, and strategic goals and Citizens Property Insurance Corporation (2020a) for Citizens' most current reports.

⁸ This was preceded by a letter (Citizens Property Insurance Corporation, 2020r, Document [67]) from Senator Jeff Brandes to President Barry Gilway, and President Gilway's response (Citizens Property Insurance Corporation, 2020q, Document [70]) which initiated a discussion involving a review of Citizens that led to the Board's action.

⁹ Appendix A lists various documents and data provided by Citizens. These documents are numbered with brackets for ease of reference.

policy count exceeded one million in 8 of its 18 years of existence,¹⁰ but has dropped to less than 500,000 in the last five years (O'Connor, 2019a).¹¹ However, at the end of 2019, Citizens' policy count increased by approximately 24,000 policyholders after Florida Specialty Insurance Company was placed into receivership (O'Connor, 2019b). As such, the continued fluctuation in policy count caused by greater than expected hurricane losses, insurer insolvencies, and general market conditions remains a concern for Citizens.

Figure 1: Citizens' Policy Count, Insured Value and Premiums Inforce, 2004-2019



Source: Citizens Property Insurance Corporation, 2019b

The following sections provide some essential facts and introduce several important considerations for this study.

¹⁰ These years were 2006, 2007, 2008, 2009, 2010, 2011, 2012, and 2013.

¹¹ Citizens Property Insurance Corporation, 2020s, Document [68] provides further information showing that Citizens' potential assessments resulting from a one in 100-year event was reduced to zero beginning in 2015 to 2020 based on its combined accounts.

Recent Market Events

Market developments over the last half of 2019 have heightened concerns regarding market disruptions which could result in a large increase in Citizens' exposure. This section briefly discusses several of the key factors that contribute to this concern, including the prospects of a hardening reinsurance market, social inflation driven by litigation, rating agency questions about the financial strength of a significant number of Florida insurers, and the current pandemic which is creating significant uncertainty for the future of the insurance markets worldwide.

Impact of Florida Hurricanes on the Reinsurance Market

A hurricane did not made landfall in Florida during the ten-year period from 2006 to 2015. During this time, the price of reinsurance became competitive and insurers operating in Florida were able to purchase reinsurance at reasonable costs.¹² Much of the price competition began in 2012 and persisted in later years due to the growth of insurance linked securities (ILS) products (Christiana and Rosenbruch, 2016).¹³ However, the hurricanes that impacted Florida in 2016, 2017, and 2018 have resulted in a total of \$19.84 billion in insured residential property losses over the last few years (Florida Hurricane Catastrophe Fund, 2020). Early in 2020, the outlook for the 2020 reinsurance market renewals reflected a market that was hardening. Several news sources speculate about higher reinsurance rates and a difficult market for insurers in Florida for 2020 renewals (Dyson, 2020; Hudson, 2019; Howard, 2020; Haughey, 2020; Evans, 2020d, 2020c; A.M. Best, 2020; and Sheehan, 2020a, 2020b, 2020c, 2020d).

Adverse Loss Development

Adverse loss development, also known as “loss creep,” refers to losses that insurers and/or reinsurers did not initially anticipate following a loss event. This term is used to describe the inadequacy of insurer loss reserves that have deteriorated over time. Adverse loss development from Hurricane Irma has increased the ultimate loss estimates for Florida insurers (O'Connor, 2020a; Gallin, 2018; Evans, 2020b; and Draghi, Baurkot, and Hanig, 2019). A problem that loss creep causes for ILS investors is that capital is trapped, or tied up unexpectedly, creating a drag on returns and thus increasing the cost of capital (Evans, 2020e). As a result, the supply of ILS capital can be adversely impacted.

Social Inflation – Third Party Involvement

Florida has experienced a significant growth in public adjuster and trial lawyer involvement in insurance claims (Office of Program Policy Analysis and Government Accountability, 2010). For several years, the Florida Legislature has struggled with the issue of assignment of benefits (AOB). Lawsuits for the top 25 insurers in Florida from 2013-2020 have totaled 273,920 and

¹² The term “rate-on-line” refers to the reinsurance cost over the coverage, which is stated as a percentage. The reinsurance broker Guy Carpenter publishes an annual rate-on-line index which dropped from 293.8 in 2006 to 191.34 in 2020, a reduction of about -35 percent. However, the trend has been slightly upward since 2017 (170.8 to 191.34 or about 12 percent). Note that the index is set at 100 in 1990. See Artemis (2020a) for more details.

¹³ See Artemis (2020b) for catastrophe bond and ILS market statistics and data.

Citizens' share has been 69,061 or 25%. AOB cases accounted for 17,147 or 23% of the total for Citizens (Citizens Property Insurance Corporation, 2020o, Document [10]). In 2019, the Florida Legislature passed House Bill 7065 to address the AOB problem. The provisions in the bill were designed to reduce AOB abuses, establish rights and obligations for assignees and assignors, and require notice to an insurer of the intent to initiate litigation.

Demotech – Potential for Insurer Ratings Downgrades

Following Florida Specialty Insurance Company being placed into receivership¹⁴ in November 2019, Citizens' policy count grew from around 420,000 to 444,000 by absorbing around 24,000 of their policyholders (O'Connor, 2019b). This raised concerns about the possibility of other insurers failing (Saunders, 2020). By late fall of 2019, Demotech had noted that 18 of 46 insurers appeared to be unable to sustain an adequate Financial Stability Rating (FSR) based on anticipated year-end results (Petrelli, 2019). Suggested solutions included increasing the amount of reinsurance to proper levels, reducing interest rates on debt held by the insurer's holding company, immediately increasing rates to a level of actuarial soundness, and increasing capital to adequately cover loss and loss adjustment expense reserves. On April 2, 2020, when Demotech posted the results of its final review, only one company was downgraded to an "M" rating while all others were able to work out various solutions involving mergers or acquisitions, changes to their business model, or other measures.¹⁵

Recent Insurer Rate Filings

Since 2013, there have been no public rate filings involving rate increases of 15% or greater until November 2019, when Edison Insurance Company filed for a 21.9% increase due to poor loss experience connected to water damage claims (Office of Insurance Regulation, 2019). Two other public hearings followed in January 2020. Capitol Preferred Insurance Company initially sought a 47% increase (later reduced to 36.5%) for one of its programs involving 28,000 policyholders (Office of Insurance Regulation, 2020b). Reasons given by the company included the increased cost of reinsurance coverage, AOB, and first party lawsuits. National Specialty Insurance Company requested a 38.1% increase in its public rate hearing for a program impacting 35,000 policyholders (Office of Insurance Regulation, 2020a). The company noted that 25% of the increase was due to an increase in reinsurance cost. Rate filings as of May 2019 have been

¹⁴ The liquidation order was filed on October 2, 2019 and can be found at the following link: https://www.myfloridacfo.com/Division/Receiver/Companies/Documents/553_CRT_20191002_ConsentOrderAppointingtheFloridaDepartmentofFinancialServicesasReceiverofFloridaSpecialtyInsuranceCo.pdf.

¹⁵ Demotech lists six insurer ratings of A", A', A, M, S and L on its website. M is defined as insurers that have a "Moderate ability to maintain liquidity of invested assets, quality reinsurance, acceptable financial leverage and realistic pricing while simultaneously establishing loss and loss adjustment expense reserves at reasonable levels." An M rating is not acceptable for mortgage lenders. See http://www.demotech.com/pdfs/papers/20050801_fsr_study.pdf for more information on Demotech's ratings. The Insurer (2020) reports additional details regarding combined loss ratios, operating profit/losses, reductions in surplus, and year-end actions taken by insurers in response to concerns raised by Demotech.

compiled and discussed by Hurtibise (2019).¹⁶ Recent observations indicate a trend towards double-digit rate increases.

COVID-19

The COVID-19 pandemic has raised concerns for the insurance and reinsurance industries around the world. The situation continues to change, and the ultimate consequences are unknown. There are significant concerns and ongoing discussions about the potential future impact on insurers and both the property-casualty and health insurance markets (Smith, 2020;¹⁷ Adriano, 2020a, 2020b, 2020c, and 2020d; Evans, 2020a; Theakstone, 2020; and Gallin, 2020).

Key Developments During the 2020 Hurricane Season

The Florida reinsurance market tightened in 2020. Less ILS capital was available for capacity¹⁸ (Draghi I., 2020). Reinsurance brokerage firm Guy Carpenter expressed some concern that Florida's reinsurance price increases were additionally affected by the COVID-19 pandemic (Evans, 2020f).

For the first time since 2015, the FHCF decided to forego the purchase of reinsurance, stating that it had strong liquidity resources of \$12.3 billion and would consider other alternatives since the reinsurance capacity in the market had become restrictive for Florida insurers. The FHCF issued \$3.5 billion of pre-event notes on September 16, 2020. Additionally, Citizens, in late June 2020, decided not to place a \$200 million catastrophe bond for its Coastal Account due to pricing concerns;¹⁹ nevertheless, Citizens' overall risk transfer program increased in cost by 20% over last year (O'Connor, 2020b).

On June 9, 2020, a significant action was taken by the Florida Bar against the Stremms Law Firm to suspend the firm's license to practice law, accusing the firm of "mendacious, bad-faith conduct" involving lying to clients, judges, and opposing parties (Johnson, 2020a and 2020b and Lean, 2020). Additionally, Citizens filed a lawsuit against the Stremms Law Firm and others on June 16, 2020, alleging damages due to fraudulent claims practices (Citizens Property Insurance Corporation, 2020t).

The first hurricane of the 2020 hurricane season was Hurricane Hanna, which made landfall as a Category 1 with winds of 90 miles per hour at Padre Island, Texas (Uliano, 2020). As of the end of October 2020, there were 28 named storms representing the most active hurricane season on

¹⁶ Milliman has documented filings for all residential property insurers from 2007 to 2019 for a complete historical context (Citizens Property Insurance Corporation, 2020n, Document [12]).

¹⁷ Smith notes that the modeler AIR Worldwide was predicting between 70,000 to 230,000 U.S. deaths. As of May 12, 2020, the AIR Worldwide website indicated a projection of between 89,005 to 301,942 U.S. deaths. See <https://www.air-worldwide.com/models/Life/verisk-covid-19-dashboard/>.

¹⁸ Given the loss creep problem, ILS capital has been viewed as trapped.

¹⁹ Citizens did issue a catastrophe bond for \$100 million for its Personal Lines Account.

record. This included ten hurricanes with 9 causing damage in the U.S. Louisiana suffered damage from five named storms which included Tropical Storm Cristobal in June, Hurricane Laura in late August as a Category 4, Tropical Storm Marco weakened before making landfall in early August, Hurricane Delta in mid-October which weakened into a tropical storm as it made landfall, and Hurricane Zeta on October 28. Hurricane Zeta made landfall at Cocodrie, Louisiana as a Category 2 storm with 110 miles per winds and is the 11 tropical storm or hurricane to hit the U.S. in 2020. Given such an active year, Florida was fortunate not to experience a hurricane landfall through the end of October.

Background on the Florida Market

Citizens' Role in Florida's Residential Property Insurance Market

Purpose of Citizens

Citizens' original role as a residual market insurer was altered in January 2007 with the passage of CS/HB 1A. The way rates were determined by Citizens was changed such that Citizens effectively became a competitive insurer rather than an insurer of last resort. The Citizens Property Insurance Corporation Mission Review Taskforce was created in 2009 to specify the statutory changes needed to return Citizens to its former role. A glide path was put into effect in 2009 which was designed to ultimately move Citizens' rates to a level of actuarial soundness. Citizens' purpose is clearly stated in Section 627.351(6), Florida Statutes. Section (6)(a) reads, in part: "The public purpose of this subsection is to ensure that there is an orderly market for property insurance for residents and businesses of this state. ... It is necessary, therefore, to provide affordable property insurance to applicants who are in good faith entitled to procure insurance through the voluntary market but are unable to do so. The Legislature intends, therefore, that affordable property insurance be provided and that it continue to be provided, as long as necessary, through Citizens Property Insurance Corporation, a government entity that is an integral part of the state, and that is not a private insurance company."

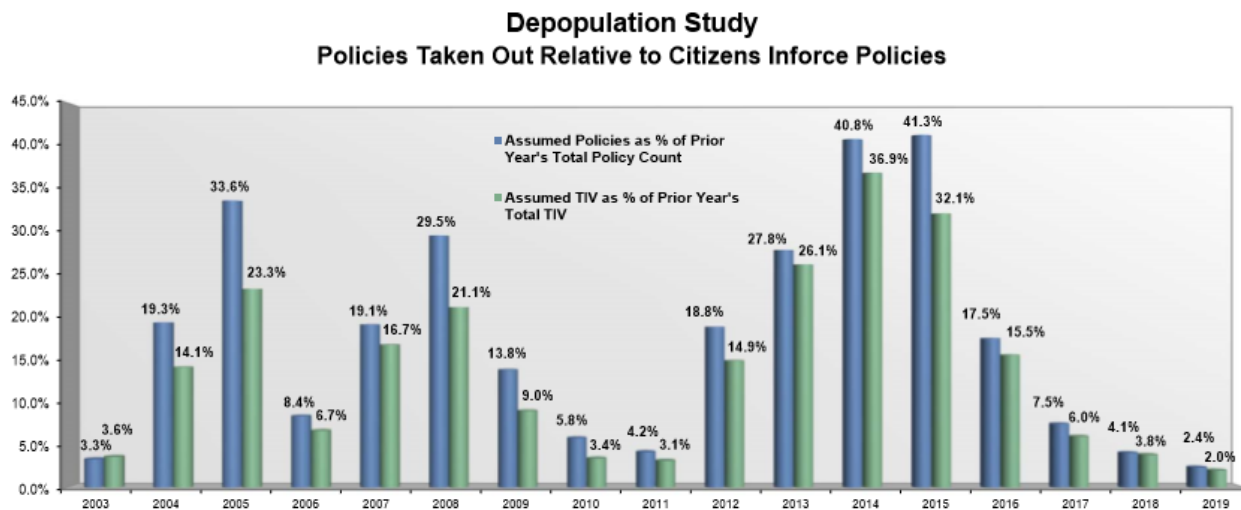
Citizens' History of Exposure Reduction

Over time, Citizens has had success with various exposure reduction programs. Such programs date back prior to the creation of Citizens through takeout initiatives of the Florida Residential Property Casualty Joint Underwriting Association (FRPCJUA) and the Florida Windstorm Underwriting Association (FWUA). Citizens' depopulation program is ongoing and has resulted in millions of policies being taken out of Citizens over time. Insurers participating in that program must be approved by the Florida Office of Insurance Regulation (OIR).

Each year, as noted in Figure 2, the number of insurers that participate in Citizens takeouts varies, ranging from a low of one company in 2003 to a high of 21 companies in 2014. Several years are notable for the percentage of policies removed from Citizens. For example, in 2015,

41.3% (272,785 of 661,161 Citizens policies) were removed and in 2014 the number was 40.8% (416,623 of 1,021,694). Other high percentage numbers for various years were 2005 with 33.6%, 2008 with 29.5%, and 2013 with 27.8%. Though Citizens experienced an extremely high volume of depopulation activity between 2012 and 2016, depopulation activity has been low since that time and Citizens' policy counts have varied only slightly for the last five years. Although the Commercial Lines Account (CLA) has never been as significant in terms of policy counts compared to the Personal Lines Account (PLA) and Coastal Account, it has been reduced to

Figure 2: Citizens Depopulation Chart, 2003-2019



Year	Total Participating Companies	Total Policies Assumed	Citizens Inforce Policies	Assumed Policies as % of Prior Year's Total Policy Count	Total Insured Value (TIV) Assumed	Citizens Inforce Total Insured Value	Assumed TIV as % of Prior Year's Total TIV
2003	1	28,219	820,223	3.3%	\$8,140,881,906	\$217,450,883,067	3.6%
2004	4	158,416	873,936	19.3%	\$30,663,076,480	\$230,402,084,769	14.1%
2005	10	293,684	809,949	33.6%	\$53,658,840,059	\$234,214,472,531	23.3%
2006	4	67,853	1,298,428	8.4%	\$16,637,589,369	\$407,648,066,525	6.7%
2007	7	247,923	1,304,949	19.1%	\$68,259,426,361	\$505,881,754,032	16.7%
2008	14	385,084	1,084,237	29.5%	\$108,870,490,165	\$419,883,779,112	21.1%
2009	11	149,645	1,029,214	13.8%	\$37,784,506,743	\$405,990,629,344	9.0%
2010	6	59,792	1,283,538	5.8%	\$13,888,913,857	\$460,703,299,504	3.4%
2011	3	53,577	1,472,391	4.2%	\$14,473,700,490	\$510,675,120,913	3.1%
2012	7	277,002	1,314,811	18.8%	\$75,927,165,347	\$429,424,399,130	14.9%
2013	18	365,787	1,021,894	27.8%	\$112,265,410,122	\$318,887,485,544	26.1%
2014	21	416,623	661,161	40.8%	\$117,530,082,371	\$201,957,396,325	36.9%
2015	14	272,785	503,865	41.3%	\$64,830,051,559	\$150,495,190,065	32.1%
2016	11	88,000	455,843	17.5%	\$23,362,914,453	\$124,063,055,743	15.5%
2017	7	34,008	440,408	7.5%	\$7,435,411,434	\$112,309,524,847	6.0%
2018	4	17,905	427,397	4.1%	\$4,307,930,788	\$108,898,298,069	3.8%
2019	3	10,084	442,203	2.4%	\$2,180,766,592	\$111,248,584,447	2.0%

Note: The number of assumed policies does not account for any opt-out policies reported after the assumption date

Source: Citizens Property Insurance Corporation, 2019b

less than 10% of its level in 2011 (2011 policy count of 8,374 and 2019 policy count of 738). Citizens reported a total overall policy count of 442,203 for year-end 2019 (Citizens Property Insurance Corporation, 2019b). Additionally, the Property Insurance Clearinghouse (see s.

627.3518, F.S.) was created in 2013 and is a program that helps Citizens' agents find private market insurance coverage for consumers.^{20, 21}

The Problem of Risks Returning to Citizens Following a Depopulation

Citizens has achieved success with its depopulation program and other risk reduction programs and processes. However, after policies are removed, some end up returning to Citizens. This could be either the same insured or the same property, and the term "risks" will be used to describe both situations. For the period of 2008 through 2019, Citizens reviewed data to obtain an estimate of policies that left Citizens through depopulation and then later returned. During this time, 37 insurers engaged in takeouts. Of these, 8 became insolvent, including Argus, Homewise, First Home, Landmark One, Magnolia, Northern Capital, and Sunshine State. Mount Beacon was purchased by Florida Specialty, who was ultimately declared insolvent in 2019. Citizens' findings were that 55% (134,855 of 247,252) of the policies taken out by those 8 insurers returned to Citizens. Approximately 15% (222,510 of 1,480,952) of the depopulated policies that returned to Citizens were from insurers that were solvent. Overall, for both solvent and insolvent insurers, 21% of risks returned to Citizens (357,365 of 1,728,204).²² Although risks returning to Citizens from insolvent insurers represents a higher percentage (55% versus 15%), the actual number of risks are higher returning from the solvent companies (222,510 versus 134,855).

During this period, the majority of the depopulations involving solvent companies occurred between 2012 and 2015 (1,029,115 of 1,480,952 or 69.5% of the risks). The highest single year of depopulation during this time was 2013, with 311,720 policies taken out of Citizens. The trend for the percentage of takeout policies returning to Citizens appears to be declining significantly. Between 2008 to 2019, the percentage of risks (same address) returning to Citizens generally declined each year, dropping from 35% in 2008 to 2% by 2019, with the exception of 2011 and 2013 when the percentage went up 1% from the prior year. Citizens notes that of the fraction of policies returning, 65% of the returning policies did so within the first three years.²³

When depopulation is considered by county (excluding the insolvent insurers), Citizens found that five counties (Miami-Dade, Broward, Pinellas, Palm Beach, and Hillsborough) represented

²⁰ Additional information on this program, including eligible policies and participating insurers, can be found on Citizens' website at <https://www.citizensfla.com/clearinghouse>.

²¹ The Florida Market Assistance Plan (FMAP) is another program designed to help Citizens' control its policy count. Created in 1985 and is still in existence today, the FMAP assists applicants for insurance who are unable to purchase coverage in the private market to find coverage with an authorized insurer (see s. 627.3515, F.S.). The recent budget for the FMAP can be found at https://www.citizensfla.com/documents/20702/8875948/20181212+02+Operating+Budget+Presentation_FMAP+2019.pdf/f029fbd2-c261-4f15-a32e-b73531d87087.

²² The risks returning to Citizens are defined as those policies having the same address. When the definition of risks is changed to having both the same address and same name on the policy, the above numbers drop from 55% to 44%, 15% to 10%, and 21% to 15%.

²³ Citizens expects that when the data comes in, the years after 2016 will reflect more policies returning in three years, but these years only reflect 8% of the policies removed from Citizens during the time period being studied.

60% of the policies removed and 77% of the policies returning. A total of 12 counties represented 81% of the depopulated policies and the returning policies accounted for 90% of the total returning policies (Citizens Property Insurance Corporation, 2020m, Document [62]).

Citizens' Risk Transfer Program

Citizens' risk transfer program (Citizens Property Insurance Corporation, 2020e, Document [46]) has varied over time depending on its policyholder count, total insured values (TIV), and one in 100-year probable maximum loss (PML). For comparison purposes, in 2006, Citizens' TIV for all accounts was \$407.95 billion, its PML was \$20.87 billion, and policyholder count was 1,155,448. That year, Citizens' total risk transfer program coverage was \$5.41 billion. In 2019, the TIV for all accounts was \$111.25 billion, its PML was \$4.59 billion, and its policyholder count was 442,203. In 2019, Citizens' risk transfer program coverage was \$3.36 billion.

The structure of Citizens' risk transfer program has encompassed a mix of traditional reinsurance and catastrophe bonds along with the FHCF's mandatory and optional coverages (the optional coverage increased FHCF coverage for 2007, 2008, and 2009). FHCF coverage for Citizens and all insurers that write residential property insurance is based on each insurer's exposure and can vary from year to year. Citizens' FHCF coverage for its combined accounts was \$10.79 billion in 2007, which was its highest year of coverage, and \$1.91 billion in 2019, which was its lowest year of coverage. Citizens' risk transfer program also includes catastrophe bonds, with its highest catastrophe bond coverage occurring in 2015 for \$2.05 billion and its lowest coverage of \$300 million in 2017. Citizens has been able to issue catastrophe bonds to provide multiple years of coverage. Citizens' risk transfer program has included catastrophe bonds since 2012, with \$750 million issued for the Coastal Account in that year. It is also noteworthy that Citizens' CLA has never been covered by either traditional reinsurance or catastrophe bonds; however, the PLA in combination with the CLA does have coverage provided by the FHCF. For FHCF coverage purposes, Citizens is treated as two separate insurers with two FHCF reimbursement contracts – one for the PLA/CLA and the other for the Coastal Account.

Impacts on Citizens' Exposure

Several factors have had an impact on Citizens' exposure and have resulted in both the growth and decline of its policyholder count over time. These include legislative changes, administrative actions, past hurricane losses, the competitive nature of the risk transfer market, and financial events, which are all discussed below.

Legislative Changes

The most significant legislation for Citizens was CS/SB 1418 passed in 2002, which created it by merging the FWUA and the FRPCJUA (Citizens Property Insurance Corporation, 2020l, Document [33]). This legislation lays out the entire purpose and scope of Citizens. In the years following its inception, several administrative requirements were put in place ranging from

ratemaking to Citizens policyholders being able to retain their agent (see s. 627.3517, F.S., entitled Consumer Choice). In 2006, a provision was enacted that limited any takeout bonus paid by Citizens to a maximum of \$100 per policy. That same year, the Insurance Capital Build Up Incentive Program (ICBUIP) was created in the State Board of Administration in order to issue surplus notes to certain qualifying insurers who would agree to write at aggressive premiums-to-surplus ratios, and many filed their application with plans to take large numbers of policies out of Citizens. Since the ICBUIP required insurers to match state-provided funds, it was designed to motivate insurers to contribute more capital. The State of Florida and insurer matching contributions totaled \$543.5 million to insurer surplus positions.

The legislation having the biggest impact on Citizens and insurers in the state was enacted in 2007 with the passage of CS/HB 1A. This legislation dealt with the insurance “rate crisis” that occurred following the 2004 and 2005 hurricanes, when the number of Citizens policies increased dramatically, and the reinsurance market hardened. The bill resulted in lower reinsurance prices by expanding the FHCF, and lower consumer premiums by requiring certain roll backs and requirements for mitigation discounts and credits. The bill had many implications for the market and some effects have lasted until the present day.

In 2009, the passage of CS/CS/HB 1495 was intended to correct many of the unintended consequences and market disruptions that were created with CS/HB 1A. Rather than CS/HB 1A immediately expiring after three years, it was phased out on an annual basis. However, its lingering effects attributed to the growth in Citizens’ exposure leading to its highpoint in 2011 of more than 1.4 million policyholders.

Other legislation in 2011 (CS/CS/CS/SB 408) was needed to address a new problem – an inordinate number and severity of sinkhole claims. This legislation was deemed successful for addressing the issue.

In 2012, HB 1127 eliminated regular assessments to non-Citizens policyholders, and other assessments for a broad base of policyholders were reduced.

In 2013, the Clearinghouse legislation was passed which created s. 627.3518, F.S. As discussed earlier, this program assists property owners in finding coverage in the private marketplace.

In the 2019 legislative session, HB 7065 addressed the AOB issue. Citizens’ AOB claims in 2013 were 9% of all claims, but by 2017 had reached 36% of all claims. Over this same period, the number of AOB claims of other insurers nearly tripled, varying from 19% to 25% across insurers (Citizens Property Insurance Corporation, 2020o, Document [10]). Additional legislative actions related to AOB and restrictions that could reduce litigation were proposed this year

(2020) but were not passed in the legislature. These bills included the following: SB 1334, HB 1606, SB 914, HB 7071, SB 924, SB 1828, HB 7041, and HB 895.

Administrative Changes

Over time, Citizens has developed its organization's capabilities including staffing, technical support, logistics, and public outreach (Citizens Property Insurance Corporation, 2020g, Document [44]; Citizens Property Insurance Corporation, 2020f, Document [45]). Of importance is Citizens' actuarial and analytical capabilities. Citizens has compiled a wealth of data for its management, Board of Governors, the Florida Legislature, and the public. This data – available in aggregated and more granular detail – is especially useful for reviewing legislative proposals affecting the Florida insurance market. Citizens' website is an excellent source of information about the Florida residential property insurance market; it contains all of Citizens' financial reports, market reports, budget information, and current policy counts, as well as relevant information for consumers, agents, and insurers. Information on Citizens' Board of Governors meetings, and instructions for how the public can monitor and participate in these meetings, is posted on its website as well. The entire organization is very transparent in its efforts to inform the public about its role, its processes, and major issues/concerns.

Past Hurricane Losses

Citizens has experienced losses with every hurricane²⁴ that has hit the state since its inception in 2002 (Citizens Property Insurance Corporation, 2020h, Document [42]; Citizens Property Insurance Corporation, 2020k, Document [37]). The largest hurricane loss event for Citizens was Hurricane Wilma in 2005 with ultimate losses across all accounts of \$2.897 billion. For all losses in 2005, the FHCF reimbursed Citizens \$1.035 billion.

The next largest hurricane loss for Citizens was Hurricane Irma in 2017 with ultimate losses of \$2.16 billion across all accounts. Citizens' total reimbursement by the FHCF is anticipated to be \$768 million for 2017 losses. These are the only two hurricane events that have triggered the FHCF for Citizens and their total reimbursement will ultimately amount to around \$1.8 billion.

Hurricane Dorian was a potential threat to Florida having formed on August 24, 2019. Dorian became a major Category 5 hurricane with wind speeds of 185 miles per hour. Fortunately, Dorian was a by-passing storm for Florida and resulted in less than one million dollars of losses for Citizens.

Since the creation of Citizens, it is estimated to have paid a total of \$8.79 billion for hurricane losses occurring through 2019. During 2004 and 2005, Citizens had losses in all but two Florida counties – Baker County and Lafayette County. As discussed above, Citizens has a strong risk

²⁴ Citizens experienced a relatively low volume of losses for Hurricane Hermine occurring in 2016.

transfer program which includes the mandatory state FHCF program, traditional reinsurance, and catastrophe bonds.

A Competitive Risk Transfer Market

A major market driver of the cost of reinsurance has been the steady growth of the ILS market which is also known as the alternative capital market (Artemis, 2020a and 2020b). Catastrophe bonds are one type of ILS product, along with fully collateralized reinsurance, contingent capital, sidecars, industry loss warranties, and certain derivative products. From 2004 to 2018, the ILS market was a significant competitor that helped drive down reinsurance costs. As such, the private insurance market benefited by being able to both purchase reinsurance for less cost and expand their coverage. As a result, Citizens was able to benefit from record takeout activities and reduce its policyholder count by over one million policyholders.

Financial Events

Financial events can have an adverse impact on companies and institutions that need to issue debt. Fortunately, Citizens has never had a problem issuing debt although there have been times when liquidity in the financial markets could have been an issue. Citizens' debt issuance capability has not been tested during times of severe economic downturn. Following the Great Recession in 2008, Citizens was able to issue \$1.75 billion of pre-event financing for its Coastal Account (Citizens Property Insurance Corporation, 2020d, Document [47]). Citizens' debt issuance between 2006 and 2015 was \$14.26 billion in 2012 and it had five line of credit transactions totaling \$4.37 billion sold from 2005 to 2009. Additionally, Citizens has an investment policy that stresses liquidity and stability of principal.

The overall invested assets of Citizens have varied over time and are impacted by hurricane loss payments, investment returns, premium income, expenses, and other factors (Citizens Property Insurance Corporation, 2020j, Document [39]; Citizens Property Insurance Corporation, 2020i, Document [40]). Since its inception, Citizens' assets have ranged from a high of \$14.8 billion in 2012 to a low of \$3.22 billion in 2005. Its surplus position has been as high as \$7.4 billion in 2016 and as low as negative \$1.8 billion in 2005, which followed eight hurricanes impacting the state.

Citizens' investment earnings have varied each year from a high of \$270.5 million in 2007 to a low of \$40 million in 2010. Investment earnings depend on the amount of invested assets and the return on investments, which reflects interest rates. Additionally, both realized and unrealized gains and losses impact overall investment results and ultimately asset values. Various changes in the financial markets are always impacting asset values. At times, the financial markets are volatile, and changes can occur quickly and unexpectedly. Citizens like any business or government entity, will be impacted by the financial markets, and it is important for Citizens to be able to manage its financial market risk. This can often be done with financial products

including pre-event bonds, post-event bonds, reinsurance, catastrophe bonds, and other financial instruments.

Discussion and Evolution of the Private Residential Property Insurance Market

Brief History of the Private Market

The current condition of the Florida property insurance market is the result of a confluence of natural and man-made events that have taken place over the last three decades. Hurricane Andrew in 1992 and the combined effects of the 2004-2005 storm seasons, population growth and changing demographics, the evolution of catastrophe modeling, management of catastrophe exposure by insurers/reinsurers, the competitive nature of the alternative capital market, and legislative/regulatory actions in Florida have all contributed to the current market conditions. There are four main benefits to having a viable private market: accurate pricing of risk, incentives to mitigate, diversification of risk (sources of capital) beyond Florida, and market efficiency and innovation. These benefits may not be realized if the private market is not functioning properly because of external forces such as regulation, legislation, frictions in financial markets or significant uncertainty regarding future losses.

Growth in exposure in combination with Hurricane Andrew in 1992 and the eight named storms making landfall in Florida during 2004 and 2005 led to property insurance market destabilization. The lack of landfalling hurricanes following the 2005 storm season (until 2016) enabled a return to some semblance of market stability. More recent storm years have seen more landfalling hurricanes with Hurricane Irma being the largest. According to the OIR, the insured losses for recent storms was nearly \$20 billion, as shown in Figure 3.²⁵

Figure 3: Insured Losses from Recent Storms, 2016-2018

Year	Named Storm	Estimated Insured Losses
2016	Hermine	\$139 million
2016	Matthew	\$1.182 billion
2017	Irma	\$11.082 billion
2018	Michael	\$7.439 billion

²⁵ Hurricane Irma was projected to be a very large event. However, it weakened and took a different path than projected just hours before landfall. The hurricane characteristics changed as can happen when it moves due to changing weather patterns. The modelers get data from the various sources including the National Weather Center and NOAA. This information is used in the models on a real time basis. All modelers project paths and conditions as the hurricane approaches.

While not as impactful as Hurricane Andrew or the 2004-2005 storms, these recent storms have contributed to the instability of some of Florida's domestic insurers and subsequent mergers and acquisitions discussed below.

The number of insurers operating in Florida has generally declined over the years, dropping from 290 in 1995 to 165 in 2019 (Florida Hurricane Catastrophe Fund, 2020). During the last 25 years, the highest number of companies writing residential property insurance in the state was 304 in 1999 and the lowest number was 157 insurers in 2016 -- a difference of 147 insurers. The number of insurers exceeded 170 in every year before 2012 and has remained below 170 for the last eight years.

The Florida residential property insurance market is dynamic and has been driven by a number of factors. As of June 30, 2004, shortly after its creation, Citizens wrote 15% of the policyholders in the state, Florida-based domestics wrote 22%, national writers wrote 28%, and the Florida domestic subsidiaries of national writers (referred to as Pups) wrote 35% of the policyholders. Classified another way, Citizens and the Florida-based domestics wrote a combined 37% of the market and the national writers and their affiliates wrote a combined 63% of the market. In contrast, in 2019, Citizens wrote 4% of the policyholders in the state, Florida-based domestics wrote 72%, national writers wrote 14%, and the Florida Pups wrote 10% of the policyholders. This means that Citizens and the Florida-based domestics wrote a combined 76% of the market and the national writers and their affiliates wrote a combined 24% of the market, indicating that Florida has seen a dramatic shift in market structure over the last 15 years.

Discussion of Market Factors Impacting the Florida Market

Many factors affect the private market for property insurance in the state of Florida. Two of the major contributors to fluctuations in the cost and availability of providing primary property insurance are the availability and cost of reinsurance as well as the cost and availability of alternative risk financing options. As discussed above, the Florida property insurance market has evolved from being a market dominated by large, diverse national insurers with significant surplus to a market dominated by smaller, geographically focused insurers. This has resulted in an increasing reliance on the global risk transfer markets and the FHCF for diversification and risk capital. The reliance on reinsurance and other risk transfer products affects rates and premiums in Florida in two ways. First, the rates for risk transfer products are often determined using catastrophe models that may or may not have been approved by the Florida Commission on Hurricane Loss Projection Methodology,²⁶ but ultimately such rates are determined by market forces. The models used by reinsurers may result in significantly different rate indications than those used by Florida property insurers. Second, the cost of capital for investors is the primary

²⁶ The Florida Commission on Hurricane Loss Projection Methodology was created in 1995 for the purpose of creating an independent panel of experts for evaluating computer models. See s. 627.0628, F.S. and the following link to its website <https://www.sbafla.com/Methodology/>.

factor required to entice investors to Florida’s catastrophe risk market. Because this cost of capital is dependent on market conditions and other investment opportunities investors may have access to, it can fluctuate widely and have a significant impact on reinsurance rates, premiums, and private market insurance stability in Florida.²⁷

An article in the *Insurance Journal* indicated that the trend of increasing costs which was seen in 2019 may continue with insurers experiencing a 15% to 20% rise in reinsurance premiums during 2020 (A.M. Best, 2020). The concerns listed included adverse development of prior year loss reserves (loss creep) similar to what was seen following the 2004-2005 storms through 2010. Rising reinsurance premiums will put upward pressure on rates in the primary property insurance market and may trigger an increase in Citizens’ number of policies.

The overall reduction in exposure for Citizens, combined with the lack of landfalling hurricanes for a decade, has greatly eased the financial burden on the residual market and the likelihood of assessments from Citizens. However, the continuing shift in policies to the Florida-based domestic insurers with weaker policyholder surplus (PHS) positions has increased market reliance on the FHCF and may have shifted the ultimate risk from an extreme hurricane event to the Florida Insurance Guaranty Association (FIGA). By the end of 2019, Citizens had a combined surplus of over \$6.3 billion, supporting approximately \$102 billion in total insured value, while the entire surplus of the Florida-based domestics was approximately \$4.25 billion, supporting just under \$1.67 trillion in total insured value (Citizens Property Insurance Corporation, 2020p, [Document 9]).

The Variability of Loss Ratios in Florida (1985-2017)

Analyzing data going back to 1985 for coastal states exposed to hurricanes indicated that not only does Florida have the highest average loss ratio, but a highly variable loss ratio as measured by its standard deviation and coefficient of variation. Figure 4 illustrates this with Florida compared to eight other coastal states.

Figure 4: Variability of Loss Ratios of Coastal States, 1985-2017

	AL	FL	GA	LA	MS	NC	SC	TX	VA
Average Loss Ratio	0.729	0.848	0.700	0.805	0.828	0.676	0.699	0.696	0.622
Standard Deviation	28.25	174.52	8.09	143.68	107.22	34.92	89.37	25.97	23.04
Coeff. of Variation	0.388	2.05	0.258	1.78	1.296	0.517	1.28	0.373	0.370

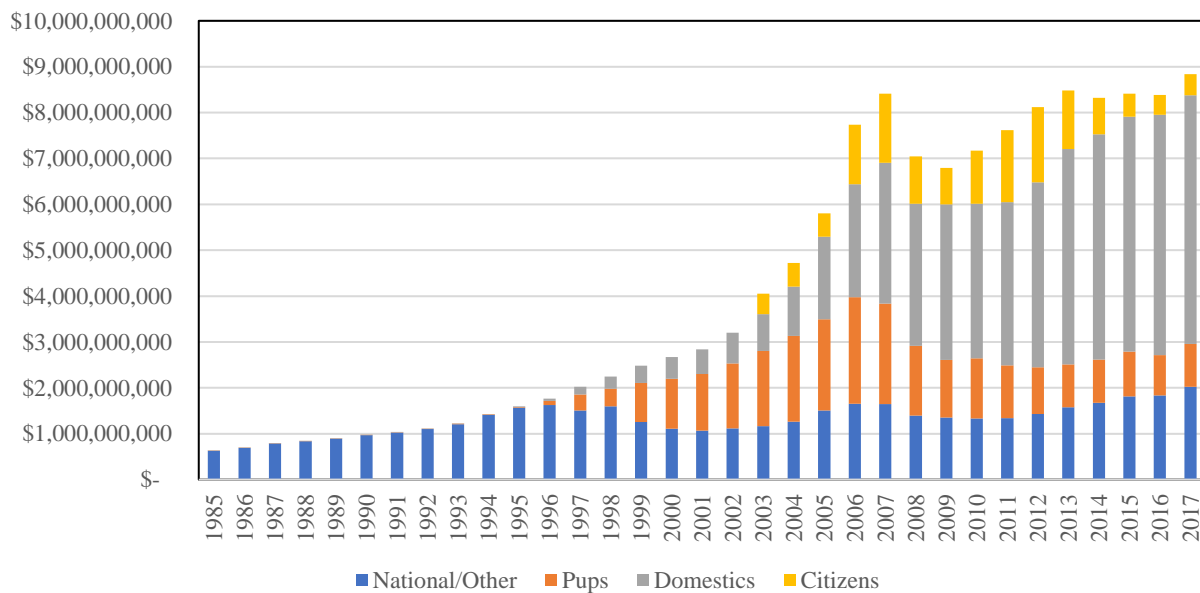
²⁷ Other market factors that have historically had impacts on the performance of the property insurance market in Florida include, but are not limited to: demand surge following catastrophic events, sinkhole claims, water damage claims, assignment of benefits, and their accompanying lawsuits. In 2019, the Florida Legislature passed CS/CS/HB 7065 which created certain restrictions and limitations on insurance provisions that exclude the assignment of benefits (see s. 617.7153, F.S.).

The 84.8% loss ratio indicates that on average, Florida insurers needed 84.8% of the premiums earned simply to pay losses and loss adjustment expenses, leaving less than 16% of premiums available to cover all other business expenses.²⁸ The 174.52 standard deviation indicates an extremely high level of volatility within Florida’s loss ratio over the time period examined. Effectively, the higher the standard deviation, the less confidence with which the industry can view the average loss ratio as a “typical” value. In other words, the loss ratio has proven less stable. Therefore, within Florida, insurers not only experienced the worst performance of any of these states, but they have a measurable reason to have less confidence in the Florida market to perform in a stable manner than any of the other states.²⁹

The Growth of Florida Homeowners Direct Premium Written (1985-2017)

Direct premiums written (DPW) are segmented into the following categories to reflect Florida’s homeowners insurance marketplace more accurately: National Insurers, Pups, Florida Domestics, and Citizens. Figure 5 displays the DPW in Florida for homeowners insurance policies, categorized by insurer type, for the years 1985-2017. This chart highlights the significant growth in the Florida Domestics with reductions by National Insurers, Pups, and Citizens.

Figure 5: Florida DPW in Homeowners Insurance by Insurer Type, 1985-2017



²⁸ The 84.8% loss ratio is the average of the annual loss ratios from 1985 through 2017. In non-storm years in Florida, loss ratios vary significantly from this average. For example, the loss ratio in 2011 was approximately 30%, and was similar in 2009 and 2010. It would be improper however, to “ignore” the storm years in the analysis.

²⁹ Average loss ratios declined because of the lack of hurricane losses since 2005. Even with the 2016 and 2017 storms making landfall, Florida’s loss ratio was below 1 (.385 in 2016 and .901 in 2017).

Nearly all Florida homeowners insurers experienced a premiums-to-surplus ratio of ≤ 1.0 in 1985 (well before Hurricane Andrew), indicating a claims-paying ability of at least \$1 of policyholder surplus to every \$1 of direct premiums written. By 1994 (two years post-Andrew), most insurers still held their premium-to-surplus ratios at or below 1.0, with just a handful of companies potentially over-extending their capitalization. A turning point occurred from 1994 to 2003 in the capitalization of Florida homeowners insurers as 22 insurers saw their premiums-to-surplus ratios above 1.0, and three companies' ratios were in the highly leveraged range (6.0 to 7.0).

Such an abrupt change within a 10-year period may be attributable to two drivers: the formation of Florida Pups by National Insurers and the entrance of Domestic Insurers into the Florida homeowners market. Between 1996 and 2000, Travelers, Allstate, State Farm and Nationwide all formed pup companies, limiting the capital they placed at risk to underwrite Florida homeowners. In addition, 23 domestic insurers started up during the 1996-2003 timeframe; several of these insurers were arguably undercapitalized. Capitalization among Florida homeowners insurers was even worse by 2012. The financial picture was eroded by the combination of depleted policyholder surplus following the 2004-2005 storm seasons and regulatory and legislative interventions that increased pricing pressures on all insurers. By this time, 32 companies had premiums-to-surplus ratios greater than 1.0, with 19 of them above 3.0. In 2017, 29 companies were writing homeowners insurance with ratios more than 1.0, with 8 of them above 3.0. While there are still a significant number of companies with premiums-to-surplus ratios above the national average, there are fewer larger outliers than there were in 2012.

Recent data on private homeowners insurance availability in Florida describes a market with heavy dependence on small companies with limited capitalization. Although Florida attracts a high number of insurers relative to other coastal states, many of these insurers (more than in any other state) are independent, mostly small domestic Florida companies. These independents make up one-fourth of Florida's private homeowners premium volume, and domestics (based on OIR's QUASR data that includes both the independent and group-based domestics) represent more than half the private insurance premium at 58%.

Despite the high number of insurers and the relatively high total premium amounts sold in Florida, the state's private homeowners insurance market has the worst level of capitalization (as measured by PHS) of any catastrophe-prone state. As shown in Figure 6, between 1985 and 2017 total DPW in Florida increase more than 12-fold, but PHS only increased by 1.6-fold.

Given the large number of homeowners insurance companies concentrating most of their business in Florida and the large Florida homeowners insurance premium base attributable to domestics with relatively small stores of PHS, the existing level of capitalization may be insufficient should another major storm hit Florida.

Figure 6: PHS and DPW in Catastrophe-Prone States, 1985-2017

1985 thru 2017	Total Decision Centers*	Groups	Ind. Cos.	Total PHS	Group PHS	Ind. Cos. PHS	Total DPW	Group DPW	Ind. Cos. DPW
Nat'l	-26.80%	-29.09%	-24.00%	555.67%	551.46%	755.53%	474.17%	460.61%	839.53%
AL	-18.99%	-23.29%	33.33%	383.78%	382.97%	889.62%	516.96%	516.53%	623.68%
FL	-40.16%	-45.19%	-17.39%	164.43%	163.41%	338.76%	1221.99%	985.92%	7499.83%
GA	-38.46%	-38.71%	-36.36%	456.05%	456.00%	479.18%	689.26%	711.48%	37.31%
LA	-31.33%	-45.33%	100.00%	269.25%	267.09%	1613.84%	464.25%	393.54%	2022.46%
MS	-30.00%	-35.38%	40.00%	267.71%	266.53%	1182.78%	513.14%	531.55%	149.60%
NC	-26.67%	-32.50%	20.00%	440.20%	441.60%	110.17%	670.72%	671.30%	647.86%
SC	-16.67%	-25.61%	75.00%	369.73%	368.79%	718.19%	698.63%	675.04%	1699.12%
TX	-32.17%	-38.78%	5.88%	246.38%	244.77%	1158.39%	614.97%	588.27%	2189.24%
VA	-33.66%	-34.78%	-22.22%	481.07%	481.55%	329.88%	621.75%	615.02%	4354.97%

* Total decision centers are the sum of the number of groups plus the number of individual companies (Ind. Cos.).

Other State Residual Market Insurers

Background Information

In 1967, President Lyndon B. Johnson created the National Advisory Commission on Civil Disorders and later the National Advisory Panel on Insurance in Riot-Affected Areas (Hughes Panel) to focus specifically on the availability of insurance in the inner city (Jordan, 1969). The Hughes Panel made several recommendations which led to the passage of Urban Property Protection and Reinsurance Act of 1968. The Act, which also created the National Flood Insurance Program, states: "...the vitality of many American cities is being threatened by the deterioration of their inner city areas; responsible owners of well-maintained residential, business, and other properties in many of these areas are unable to obtain adequate property insurance coverage against fire, crime, and other perils; the lack of such insurance coverage accelerates the deterioration of these areas by discouraging private investment and restricting the availability of credit to repair and improve property therein." The Act indicates its three purposes are as follows: "...to (1) encourage and assist the various State insurance authorities and the property insurance industry to develop and carry out statewide programs which will make necessary property insurance coverage against fire, crime, and other perils more readily available for residential, business, and other properties meeting reasonable underwriting standards; (2) provide a Federal program of reinsurance against abnormally high property insurance losses resulting from riots and other civil commotion, placing appropriate financial responsibility upon the states to share in such losses; and (3) provide direct insurance through the facilities of the Federal Government in the case of properties for which statewide programs and the Federal reinsurance program either do not make crime insurance available or offer such insurance to

property owners only at prohibitive cost” (Public Law 90–448; 82 Stat. 572; 42 U.S.C. 4001 et seq.).

The majority of the current state residual market plans were created between 1968 and 1971, following this Act. These plans generally fall into one of two categories – Fair Access to Insurance Requirement Plans (FAIR Plans) or Beach and Windstorm Plans (Beach Plans).³⁰ While FAIR Plans can provide coverage throughout the state, Beach Plans primarily provide coverage in coastal areas and are typically wind-only plans. Currently, 27 states and the District of Columbia have FAIR Plans and two states have Beach Plans. Additionally, Mississippi, North Carolina, and Texas currently have both FAIR and Beach Plans. A table is provided in Appendix B that lists the name of the plans in each state, along with their year of creation and a link to their website.

Though the specific coverage available through the FAIR Plans can vary, the majority of the plans cover fire, extended coverage, and vandalism/malicious mischief. Additional coverage, such as sprinkler leakage and earthquake, is available in some states.³¹ All of the plans provide both homeowners and commercial property coverage; however, farms and commercial manufacturing are excluded in most states and mobile homes are excluded in nearly half of the states (The Property Insurance Plans Service Office, Inc., 2020).

For residential coverage, limits are written separately for buildings and contents in all states except Delaware, Pennsylvania, and Washington. The aggregate limit in Delaware and Pennsylvania is \$500,000, while the aggregate limit in Washington is \$1.5 million which also includes commercial coverage. In states with separate limits, building limits vary from a low of \$150,000 in West Virginia to a high of \$1 million in Louisiana, Massachusetts, Rhode Island, and Texas. Commercial limits also vary across plans and by construction type.³²

Of the five states with Beach Plans, Mississippi, South Carolina, and Texas provide wind-only coverage while broader coverage is available in Alabama and North Carolina.³³ Additionally, while North Carolina and South Carolina both exclude farms and commercial manufacturing, mobile homes are excluded in Alabama, South Carolina, and Texas. The maximum coverage

³⁰ Though the plans in Florida and Louisiana are discussed as FAIR Plans, these are somewhat different as they are non-profit organizations/government entities while the other plans identified as FAIR Plans operate more as insurance pools or associations. Citizens was formed in 2002 when the Florida Legislature merged the FRPCJUA (FAIR Plan) and the FWUA (Beach Plan). Similarly, the Louisiana Citizens Property Insurance Corporation (Louisiana Citizens) was formed in 2003, combining the Louisiana Joint Reinsurance Plan (FAIR Plan) and the Louisiana Insurance Underwriting Plan (Beach Plan).

³¹ See Table 2 of the 2020 PIPSO Compendium of Property Insurance Plans for the coverage available within each state.

³² See Table 4 of the 2020 PIPSO Compendium of Property Insurance Plans for the limits of coverage by state.

³³ It should be noted that Mississippi and Texas also have FAIR Plans through which broader coverage is available.

available in Beach Plans is higher on average than FAIR Plans, ranging from a low of \$500,000 in Alabama to more than \$1.75 million in Texas for buildings.³⁴

Trends and Exposure Reduction Efforts

Size, Performance, and Market Penetration³⁵

The overall size of the FAIR plans has declined. This is the result of a decrease in both new and renewal applications received as well as total policies issued. As shown in Figure 7, there has been a year over year decline for both with the greatest drop occurring between 2014 and 2015. Considering the five-year period, applications declined by approximately 30% and policies issued declined by more than 33%.

Figure 7: FAIR Plan Applications and Policies Issued, 2014-2018

Year	Applications	Annual % Change	Policies	Annual % Change
2014	2,098,646		2,076,531	
2015	1,795,690	-14.4%	1,779,866	-14.3%
2016	1,559,620	-13.1%	1,535,952	-13.7%
2017	1,552,541	-0.5%	1,478,953	-3.7%
2018	1,443,948	-7.0%	1,378,888	-6.8%

During this same period, premiums written declined for commercial policies. For residential policies, premiums written declined 36.5% (from \$2.5 billion in 2014 to \$1.6 billion in 2018) while commercial properties dropped 80.9% (from \$504 million in 2014 to \$96 million in 2018).

Figure 8: Beach Plan Applications and Policies Issued, 2014-2018

Year	Applications	Annual % Change	Policies	Annual % Change
2014	669,493		666,684	
2015	651,327	-2.7%	647,180	-2.9%
2016	616,466	-5.4%	609,427	-5.8%
2017	570,229	-7.5%	565,387	-7.2%
2018	489,039	-14.2%	485,056	-14.2%

As with the FAIR Plans, the number of new and renewal Beach Plan applications and issued policies have also declined over the five-year period. However, with these plans, the greatest

³⁴ See Tables 2 and 4 of the 2020 PIPSO Compendium of Property Insurance Plans for the coverages available and limits of liability within each state.

³⁵ All information in this section is obtained from the 2019 PIPSO FAIR and Beach Plan Underwriting Results and Market Penetration Report and the 2019 PIPSO Report (Property Insurance Plans Service Office, 2019a, 2019b).

drop occurred between 2017 and 2018. As shown in Figure 8, new and renewal applications as well as policies issued have decreased by approximately 27% between 2014 and 2018.

Additionally, premiums written by Beach Plans has declined with the greater change also occurring with commercial policies. Between 2014 and 2018, residential policy premiums written declined by approximately 22% while commercial policy premiums written dropped by nearly 40%.

The size of both FAIR and Beach Plans has declined as well as overall performance. There was significant growth in the loss ratio for FAIR Plans, with a reported residential (commercial) loss ratio of 101.2% (119.6%) in 2018 compared to 60% (11.4%) in 2014. Similar increases are observed among Beach Plans with 2018 loss ratios for residential and commercial properties being 214.4% and 248.7%, respectively.

When considering underwriting gains or losses relative to earned premiums,³⁶ most plans also performed poorly. The FAIR Plans in 20 states experienced a decline in underwriting performance, the performance of two states remained fairly consistent, and performance improved in only 9 states. The states experiencing the greatest decline in performance are North Carolina, the District of Columbia, Illinois, and Iowa. States experiencing the greatest improvement in underwriting performance are New Mexico, Indiana, and Louisiana.

Of the Beach Plans, only Mississippi experienced improved underwriting performance. The decline in Beach Plan performance ranged from 51% to 90% in all states except North Carolina which experienced an 846% change in underwriting performance. Specifically, North Carolina has an underwriting gain of 3.44% in 2014 and an underwriting loss of 25.67% in 2018.

Over the past five years, most FAIR and Beach Plans experienced a reduction in market share with average changes of approximately 21% and 24%, respectively. Of the FAIR Plans, Louisiana had the greatest decline in market share, dropping from 3.71% in 2014 to 1.42% in 2018, a change of more than 60%. The District of Columbia, Florida, Michigan, and Mississippi also experienced declines in market share of 50% or more. Only three states with FAIR Plans experienced market share increases during this period - California, New Mexico, and North Carolina. The increase was most significant in North Carolina, rising from 1.67% in 2014 to 2.74% in 2018, a change of approximately 64%.

All but one Beach Plan experienced a decline in market share. North Carolina's market share increased from 6.34% to 7.44%, a change of approximately 17%. Alabama and South Carolina saw the greatest declines, with market share reductions of more than 40%.

³⁶ Performance discussed here is not net of reinsurance. Eleven of the FAIR Plans and all of the Beach Plans utilize reinsurance.

Figure 9: 2018 Market Penetration – FAIR Plans

State	Market Penetration (Earned Premiums as % of Total Market)
Massachusetts	6.49%
Florida	4.18%
Rhode Island	3.47%
North Carolina	2.74%
Louisiana	1.42%

Though market penetration declined over the past five years in most states, as of 2018, some FAIR Plans still hold substantial market shares. As shown in Figure 9, Massachusetts leads the plans with a market share of 6.49%, followed by Florida which holds 4.18% of the earned premiums in the market.

Of the Beach Plans, three have a market share greater than one percent. As shown in Figure 10, North Carolina has the greatest market share at 7.59%, followed by Texas and Mississippi.

Figure 10: 2018 Market Penetration – Beach Plans

State	Market Penetration (Earned Premiums as % of Total Market)
North Carolina	7.59%
Texas	3.59%
Mississippi	1.18%

Depopulation Efforts of Select States

Several states have undergone efforts to reduce the size of their residual markets. In 2007, Louisiana passed HB 678 and created the Insure Louisiana Incentive Program. The Program was designed to encourage insurers to write more coverage in the state by providing grants to qualifying insurers that commit to writing a minimum of \$2 million of property insurance in the state. This matching program required insurers to have \$2 in net premiums written for every dollar of new capital allocated and grant money received.

In addition, at least once a year, policies within Louisiana Citizens are made available for takeout by insurers. Louisiana Citizens is currently on round 13 of this depopulation effort in which two companies participated.

Since beginning the takeout program, the size of Louisiana Citizens has decreased substantially. In 2008, the policy count exceeded 174,000 and it wrote nearly \$280 million in premiums. In

2018, the policy count had dropped to less than 50,000 with approximately \$67 million in premiums (The Property Insurance Plans Service Office, Inc., 2009; Hartwig and Wilkinson, 2014; The Property Insurance Plans Service Office, Inc., 2019). Due to concern with the dramatic drop in premiums, several changes were made in 2017 and 2018³⁷:

- Select policies are offered for takeout (not Louisiana Citizens' entire book of business)
- A more targeted approach to inspection of renewal policies was developed, instead of routine inspection every three years (Louisiana Citizens Property Insurance Corporation, 2020).

Similar takeout approaches have been undertaken by Texas and Massachusetts. In 2015, the Texas Legislature passed SB 900, creating the Voluntary Market Depopulation Program and the Assumption Reinsurance Depopulation Program. Both programs are aimed at reducing the size of the Texas Beach Plan. The Voluntary Market Depopulation Program allows participating insurers to review policyholder data and make offers to take out individual policies. All offers must be approved by the Texas Department of Insurance as well as the insured.³⁸

The Assumption Reinsurance Depopulation Program is similar but allows insurers to make offers on a large number of policies at one time. Insurers must be approved to participate in the Assumption Reinsurance Depopulation Program. The approval process includes a review of the insurer's financial information and other documents, including verification of comparable coverage. As with the Voluntary Market Depopulation Program, policyholders can opt out and elect to maintain their coverage with the plan. Although these programs are still relatively new, the total policy count in the Texas Beach Plan declined from 286,860 in 2015 to 212,608 by 2018, premiums written have dropped by more than 20%, and exposure has declined by approximately 26%.

In July of 2018, Massachusetts announced the introduction of its clearinghouse. Participating companies are provided information about the policies currently in force, which they can review in relation to their underwriting criteria and make decisions for selecting policies to take out of the Massachusetts FAIR Plan. As with the Texas program, the policyholder does have the ability to opt out and remain with the residual market insurer.³⁹ Data are not yet available to determine whether this program has been effective in reducing the size of the plan.

³⁷ It should also be noted that although assignment of benefits has been a major issue in Florida, this does not appear to be a major issue in other states, including Louisiana.

³⁸ For additional details, see <https://www.twia.org/depopulation/voluntary-market/process/>.

³⁹ For additional details, see <http://www.mpiua.com/wp-content/uploads/2018/08/Homeowners-Insurance-Clearinghouse.pdf>.

Review of the Academic Literature and Related Studies

Overview

Catastrophes can have widescale impacts on individuals and businesses. In some states, property insurance residual markets exist, in part, to cover these losses for consumers who are not able to obtain coverage within the private market. Extensive discussion and analysis of these issues has occurred within the academic literature and the broader community.

This section provides a review of selected academic articles, industry studies, reports, and news articles to further illustrate these issues.⁴⁰ A few trade press sources that highlight issues related to the residential property insurance market and/or residual market mechanisms (specifically Citizens) have been included to emphasize issues from the industry's standpoint, consumer concerns, and critiques.

Literature Review

A Review of the Academic Literature

Numerous academic studies have examined residential property insurance markets and the role of residual market mechanisms. Such studies cover a wide variety of topics that provide insights and a greater understanding and appreciation for the complexity of the insurance market.

Cole et al. (2009) and Newman (2010) focus on the structure and development of the residual market in Florida and the regulatory and market factors that led to that structure, while Medders and Nicholson (2017) make recommendations for improvements of residual markets with emphasis on financial solvency, market stability, and system wide stress-testing.

Klein (2008) compares and examines the residual market mechanisms of Alabama, Florida, Louisiana, Mississippi, South Carolina, and Texas. Klein concludes that the Southeastern states follow different strategies in dealing with coverage availability. However, he notes that Florida faces difficult problems and has taken the most radical approach to lower the cost for high-risk properties. Nutter (2002) evaluates the role of government involvement in the financing of catastrophic losses. He links state management of rates (rate suppression) to the size of residual markets in the states of Texas and Florida. Nutter asserts that states have effectively appropriated private capital to subsidize catastrophe risk and expresses skepticism over whether catastrophe programs that are priced below market will be properly funded and whether they will be capable of being renewed after a major event.

⁴⁰ Note that this is not a comprehensive discussion of all papers and reports involving catastrophes and residual markets. The focus is on prior literature, studies, and articles that are the most relevant to the current study.

Other academic papers have broadly studied residual markets across the country and the world. This literature considers flood and other types of residual markets for automobile insurance, worker's compensation, health insurance, terrorism, and other perils. Kousky (2011) and McAneney et al. (2016), for example, consider a broad set of U.S. states and discuss market solutions, some of which may be relevant to the Florida market. A book sponsored by the World Bank and edited by Eugene Gurenko (Gurenko, 2004) extends the discussion of residual markets and insuring catastrophic perils by reviewing programs in a variety of countries.

Political topics are addressed in the work of Weinkle (2015) and Grace and Klein (2009), which develop a framework for analyzing the political interests that influence residual markets. The study by Grace, Klein, and Liu (2005) suggests political implications can arise post-event that can cause insurers to reassess their risk following severe hurricane events and determine how to adjust their future strategic approach to the market. With the ability to increase rates, insurers may be willing to increase writing in high risk areas, but without rate increases, they may pull back or exit the market. Much depends on the actions of regulators and political factors following the event. This study raises the issue of the need for federal catastrophe insurance, but the authors do not make any recommendations. Born and Klimaszewski-Blettner (2013) note that homeowners insurers have a difficult time providing stable coverage following major catastrophic events and that regulations may act to impede an insurer's willingness to provide coverage following such events.

Newman (2009) discusses the issue of ratemaking and the concept of subsidies as it relates to Citizens. Ratemaking and subsidization are sensitive political topics, particularly in Florida. Newman describes the role and process of deficit assessments for Citizens, FHCF, and FIGA, as well as various key legislative changes that have impacted the residential property insurance market in Florida – noting changes in years 1993-1999, 2004, 2007 (Special Session), and 2007 (Regular Session). Nyce and Maroney (2011) also consider ratemaking with suggestions for improving the process of territorial rating in the residential property insurance market. The authors conclude that the factor of distance to the coast is a more granular rating factor for pricing property insurance over traditional territorial rating.

The financing of catastrophic risk and the vulnerability of the insurance system is considered in the studies by Medders and Nicholson (2018) and by Nicholson, Clark, and Daraskevich (2018). The Medders, Nyce, and Karl (2014) study points out that various market problems, externalities, and interventions associated with the Florida market have led to property insurer failures. The authors conclude that risk-based pricing and incentives for mitigation are needed to improve insurer financial results. A study by Marlett and Eastman (1998) addresses post-event assessments and their ability to fund obligations of insurers for addressing the catastrophe problem. The authors conclude that the use of post-event assessments increases market volatility and exacerbates affordability and availability problems.

Policyholder attitudes and behaviors are studied by several authors. Dumm et al. (2017, 2020A) considers the behavioral aspects of the demand for homeowners insurance and concludes that near-term loss experience tends to have an effect on the demand for insurance, whereas with the passage of time, the demand for insurance lessens in urgency and importance. Dumm et al. (2013) uses Citizens data to show that policyholders with a higher likelihood of loss tend to choose lower deductibles and, as a result, may adversely select against an insurer. This result has implications for rating as well as for a residual market insurer.

Factors that motivate a policyholder's decision to invest in mitigation is discussed by Carson et al. (2013). Born et al. (2011) discusses mitigation in a paper based on a symposium on mitigation, money, and residual markets or "the 3 Ms of risk management." The conclusion was that mitigation was the key factor since it influenced the other factors. Ways to incentivize mitigation measures and behaviors was discussed, covering various topics such as mitigation loans and the importance of retrofitting older homes.

Most of the studies discussed above focus on the creation or the role of residual markets or similar catastrophic programs for dealing with risk. There is a wealth of academic literature on insurance markets in catastrophe prone areas in general. The discussion below will focus on a few of these studies and resources mainly to emphasize the role that reinsurance and alternative risk capital sources can have on the ultimate cost of insurance in catastrophe prone areas. A study by Harrington and Niehaus (2001) discusses alternative approaches to government intervention for dealing with natural catastrophes. These approaches include state insurance mechanisms, federal catastrophe reinsurance, the establishment of tax-deferred reserves for catastrophes, and the alteration of regulations and tax policy to promote capital market instruments. The authors conclude that the best approach is to promote the establishment of tax-deferred catastrophe reserves. Boyer and Nyce (2013a, 2013b) examine theoretical models based on minimizing the total cost of providing catastrophic insurance coverage. Their models indicate specific roles for primary insurers and reinsurers and find that the optimal role for a government entity is as a backstop or reinsurer in the very tails of the loss distributions.

Kenneth Froot wrote a series of papers focused on catastrophes and the role of the reinsurance market (Froot, 2001a, 2001b, 2007, 2008) that emphasized the influence that reinsurance has on the cost of risk transfer in catastrophic insurance markets.

A Review of Government Reports

The Florida Catastrophic Storm Risk Management Center has been involved in a number of Florida insurance market studies including studies related to mitigation credits, the mitigation inspection system in Florida, managing the size of the FHCF, and various residential property insurance market reports (Florida Catastrophic Storm Risk Management Center, 2010a, 2010b, 2011, 2013a, 2013b, and 2018).

The role of the Florida Commission on Hurricane Loss Projection Methodology (Commission) was expanded by the Florida Legislature in 2010 to study windstorm mitigation discounts required under legislation passed in 2007 (CS/HB 1A). The Commission discovered that there were flaws in the system of inspecting homes for discounts, in the approach used for creating those discounts, and in the application of various discounts. This impacted the private market as well as Citizens; Citizens and insurers in the private market in many cases had to re-inspect their exposures at considerable cost to correct the problems (Florida Commission on Hurricane Loss Projection Methodology, 2010).

The Taskforce on Long-Term Solutions for Florida's Hurricane Market was created in 2005 by SB 1486 for the purpose of making recommendations for addressing capacity in the property insurance market from both a public and private standpoint. The taskforce's report was issued in 2006 and several recommendations were adopted by the Legislature during the 2006 session.⁴¹

The Citizens Property Insurance Corporation Mission Review Taskforce was created by the Florida Legislature in 2008 and produced its final report on January 30, 2009 (Citizens Property Insurance Corporation, 2009). The purpose of the eleven-member taskforce was to make recommendations on various issues, including the availability of property coverage in the private market, rates for coverage, Citizens' potential assessments, Citizens' exposure, and the purchase of reinsurance. The charge of the taskforce was to identify what statutory and operational changes were needed to return Citizens to a non-competitive residual market mechanism. The taskforce made 14 recommendations for statutory changes and three operational recommendations.

The OIR regularly produces a number of reports including an annual report. It has also produced special reports on hurricane losses on each significant Florida hurricane event and provides updates on these losses as they are paid over long time periods.⁴² Additionally, the OIR publishes public hearings with links to videos in many situations. Reports and presentations by the Commissioner are also available on OIR's website.

The FHCF produces a variety of reports that are descriptive of the residential property insurance market participants.⁴³ Any insurer that writes residential property insurance in the state of Florida is required by law to participate in the FHCF with the only exception being those companies that write a minimum volume of business. FHCF premiums, coverage selections, retentions, and coverage limits are provided for each participating insurer.

⁴¹ For a copy of the report see https://www.flair.com/siteDocuments/lts_2006.pdf.

⁴² These reports are available on the OIR's website at <https://www.flair.com/>.

⁴³ These reports are available on the FHCF's website at <https://www.sbafla.com/fhcf/>.

The National Association of Insurance Commissioners (NAIC) regularly produces annual reports and special reports concerning insurance regulation in the U.S. as well as many reports that are international in nature. Sponsored by the NAIC, the *Journal of Insurance Regulation* frequently publishes articles examining residual markets, trends, and other relevant topics.⁴⁴ The NAIC also supports the Center for Insurance Policy and Research (CIPR), which is involved in a wide range of research on various insurance-related topics and has a role in the education of its members and the public.

Chavers (2008) points out how states are concerned about the risk of hurricanes and other catastrophic events in a publication by the Council of State Governments. He discusses problems with the availability of residential property insurance coverage in Florida and its cost. Chavers notes that the coastal exposure in Florida represents 79% of Florida's total exposure, which is the highest percentage of coastal exposure of all states.

A Review of Industry Reports

A variety of industry reports track issues related to the residual markets. A recent study sponsored by NAMIC (National Association of Mutual Insurance Companies) reviews the best practices for regulating catastrophe premiums in the United States (Born and Klein, 2015). The Insurance Information Institute (I.I.I.) has produced an array of white papers (e.g., McChristian, 2012) that capture issues related to the impact of hurricanes, especially in Florida. Additionally, the reports by Hartwig and Wilkinson (2007, 2010, 2014, 2016) have periodically reviewed residual market plans for I.I.I. R Street produces a yearly report that includes a score card for residual markets (Lehmann, 2019).

The Property Insurance Plans Service Office, Inc. (PIPSO) serves as an organization for FAIR Plans and Beach Plans and reports both individual state and aggregate data on a yearly basis. Aon (2020) has regularly evaluated the Florida insurance market with emphasis on insurer financial data including profitability metrics, surplus changes, premiums written, and the ratings assigned by rating agencies.

Citizens produces comprehensive industry reports concerning the status and evolution of Citizens itself as well as annual changes to the private market and a variety of other operational and financial reports.⁴⁵

Camara (2019, 2018, and 2013) has produced three industry reports on the Florida residential property insurance market - two for the James Madison Institute and one for R Street. The studies address Florida insurance policy matters and include recommendations for various

⁴⁴ All articles published since 2014 are available on the JIR website at https://www.naic.org/prod_serv_jir.htm.

⁴⁵ These reports are available on the Citizens website at <https://www.citizensfla.com/>.

legislative reforms. Camara promotes concepts that are based on less government involvement (especially debt financing) and more reliance on free markets.

Demotech released its year-end review of 46 Florida domestic insurers on April 2, 2020 (Demotech, 2020). The final report referred to several issues including jurisdictional risk as characterized by the American Tort Reform Association, which named Florida the number one “Judicial Hellhole” in the U.S. in 2017-2018, and number two in 2018-2019. Demotech claims that Citizens’ rates are competitive with the private market and are often lower than actuarially indicated levels. The rating agency notes that Florida has 70 insurers that can be described as “specialists,” which are defined as those insurers that write 90% or more of their direct written premium in a single jurisdiction. Such specialist operations are not diversified over other states and territories. Florida ranks second overall in the number of specialists, only behind Texas which has 90. Florida’s specialist insurers rank 28th in terms of the average policyholder surplus per insurer at \$73 million whereas the top 20 U.S. state specialist writers range from \$102 million to \$2 billion in surplus.

A policy brief for the James Madison Institute discusses several legislative initiatives including AOB reform and the strengthening of the FHCF by providing for subsequent season capacity (Lehmann, 2015). Lehmann notes that the Florida Legislature has often not undertaken modest reforms when they may cause a negligible increase in rates. On the other hand, the Legislature has foregone other reform opportunities designed to prevent fraud and abuse which could prevent rates rising in the future.

Christiana and Rosenbruch (2016) provide up-to-date statistics related to the workings of the markets including many financial metrics, and draw conclusions about the strengths, weaknesses, and directions of the markets. The report also highlights relevant issues and important trends for investors and others interested in Florida.

Lane Financial LLC⁴⁶ and Artemis⁴⁷ are two of the most prominent sources of papers, publications and data on the alternative risk transfer markets and products. Both offer a library of papers and publications on the historical development of the markets, product pricing, and current trends in alternative risk transfer.

A Review of Trade Press Reports

Hudson (2019) discusses various issues with the President and CEO of Citizens, Barry Gilway. In a lengthy interview, President Gilway elaborates on several key topics including Citizens’ rate glide path, the concern that Citizens is competitive with the private market, and the concentration of risk in the Tri-County area (Dade, Broward, and Palm Beach). He also discusses Citizens’

⁴⁶ See <http://www.lanefinancialllc.com/>.

⁴⁷ See <https://www.artemis.bm/>.

managed repair program, the problem of unlicensed contractors, one-way attorney fees, the need to address fraud and abuse in the insurance system, and the benefit to the state of improving building codes. President Gilway foresees the minimum policyholder count achievable by Citizens to be in the range of 350,000 to 400,000 without dramatic changes to the system.

In a four-part series of articles, Finance (2014a, 2014b, 2014c, and 2014d) discusses the Florida market after its first wake-up call (Hurricane Andrew in 1992) and how the market has evolved over time. Additionally, he criticizes Citizens' depopulation efforts. Referring to Citizens' predecessor, he describes the JUA as "exploding" with policyholders following Hurricane Andrew.⁴⁸ Finance notes that 32 companies took one million policies out of the JUA in exchange for \$81 million in bonus money. Various takeouts over the years are tracked including Clarendon in 1997, American Keystone in 1999, the Poe Financial Group in 2005, Northern Capital Insurance Group in 2006, Magnolia Insurance in 2008, and both Homewise Insurance and Homewise Preferred in 2011. All these companies later became insolvent. He attributes the cost to Florida taxpayers to be over \$400 million for Citizens takeouts that have involved failed companies. Additionally, Finance reviews some of the more recent takeout companies and his conclusion is that the depopulation model in Florida has led to "privatization of gains and socialization of losses."

In A.M. Best's Special Report, the authors review the growth in Citizens policyholders after 2009, and its peak in 2011, followed by the sharp decline in policy count when it eventually steadies from 2015 to 2018 (Draghi et al., 2019). The main point of the report highlights the challenges faced by the Florida market. The legal environment, especially as it relates to AOB, has led to social inflation and significant cost increases. The other cost driver is loss creep from Hurricanes Irma and Michael. A.M. Best suggests that rising reinsurance costs is the next big event on the horizon for Florida.

Moorcraft (2020) discusses the eight characteristics that emerge in a hard insurance market which include an increase in combined ratios with a drop in return on equity, sustained and significant rate increases, increased reinsurance costs, reduced capacity, reduction of new market participants, growth of risk transfer options, more mergers and acquisitions in the distribution channel, and loss portfolio transfers.

Summary

This section examines the purpose of Citizens from the vantage point of its formation in 2002. The FSU Research Team compiled background information from a variety of sources to gain a

⁴⁸ Finance is incorrect when he attributes the adoption of a \$250 million loan plan for 13 Florida insurance companies to Citizens. The program being referred to is the Insurance Capital Buildup Incentive Program under the State Board of Administration of Florida which was created in section 215.5595, Florida Statutes. See <https://www.sbafla.com/fsb/Home/InsuranceCapitalBuild-UpIncentiveProgram.aspx>.

better understanding of developments and meaningful events as well as the evolution of Citizens and the private insurance market. A broad understanding of Citizens and of the private market facilitated the initial formulation of ideas and approaches for reducing Citizens' exposure and for expanding the private market.

DEVELOPMENT OF IDEAS AND APPROACHES

Introduction

The purpose of this section is to briefly review Citizens' past attempts to reduce its exposure, discuss current hindrances to depopulation efforts, and develop a categorization of ideas or approaches that could be effective in helping Citizens achieve its objectives. This information is used to frame the data analysis and identify the recommended key ideas and approaches presented later in this report.

Citizens' Prior Depopulation Efforts

In preparing the preliminary list of ideas and approaches for this report, the FSU Research Team reviewed past depopulation efforts by Citizens and conducted an initial assessment of the Florida property insurance market. A timeline of past efforts, key administrative changes, hurricanes impacting Florida, and year-end policy counts is provided in Appendix C. Key depopulation efforts have primarily taken place since 2010, around the time that Citizens reached its highest policy counts, and include the following:

- 2010:** Added 30-day limit on opting out of takeout offer
- 2011:** Eliminated the withholding of ceding commissions
- 2012:** Enhanced data used by takeout companies to assess policies
- 2013:** Created the Clearinghouse
- 2014:** Revised the Depopulation Committee

Hindrances to Depopulation Efforts

Efforts to reduce Citizens' exposure and expand the private market can be impacted by a variety of factors, including the state regulatory and legal environments, the current ratemaking process, and the overall state of the private market.⁴⁹ Therefore, hindrances that impact both Citizens' actions and the ability of the private market to respond to those actions should be considered.

The first three hindrances to ensuring a healthy, robust private insurance market discussed in this section stem directly from catastrophic risk exposure. Losses will inevitably occur, but there is an inability to precisely predict what those losses are going to be over short time periods, and capital is needed to support the risk as it exists today. The remaining hindrances can be grouped into the "responses" to catastrophic losses and the impact they have had on property insurance markets.

⁴⁹ Appendix D provides an overview of the current state of the private market that considers the types of insurance companies, their market shares, and capitalization.

All the hindrances discussed in this section are or have been a point of concern at some point for the Florida property insurance market. The current state of the Florida property insurance market is thus the cumulative effect of these hindrances. Therefore, addressing only one or a few of them may not be sufficient to ensure a healthy, robust private insurance market moving forward. A long-term plan to address all the hindrances in the Florida market should be developed. Some of these would be addressed by the ideas and approaches for reducing Citizens' exposure presented in 'Recommended Key Ideas and Approaches' section of this report.

Hindrance #1 - Exposure

The single largest hindrance to a healthy, robust private insurance market in Florida is the unpredictability of catastrophic windstorm exposure and the inability to adequately diversify this concentration of exposure around the globe results in Florida being a "peak risk" zone (Aon Benfield, 2018). Any solutions to address the Florida property insurance market need to reflect this exposure. The frequency and severity of windstorm activity adds significant uncertainty and volatility to property insurance in Florida.

Catastrophic exposure is expected to increase with population growth. Florida's significant increase in population, from approximately 13 million in 1990 (U.S. Census) to approximately 21.5 million in 2019 (U.S. Census) represents a 65% increase in population during that 30 years. Even with stronger building codes, the location choices of the population, along with significant coastal development, has greatly increased the value at risk in the state. This trend does not appear to be changing as the Florida Office of Economic and Demographic Research⁵⁰ is projecting Florida's population to be 26 million by 2040, with most of that growth occurring in south and central Florida.

Hindrance #2 – Information & Understanding

The catastrophe modeling industry has made tremendous strides in its ability to model windstorms. However, the industry is still relatively young and continues to evolve in its understanding and ability to accurately model windstorm risk. The number of variables involve a variety of sciences (for example, oceanography, atmospheric science, geography, and engineering) and builds layer upon layer of estimation and uncertainty into any model.

These models, while far from perfect, are the best estimates of what potential losses will be; however, they contain a significant amount of uncertainty, which is the very nature of low probability, high consequence events. These models then underlay the business model of every property insurer in Florida. The current insurance model requires each insurer to establish precise premiums on the revenue side though there is significant uncertainty on the loss and expense side.

⁵⁰ See http://edr.state.fl.us/Content/population-demographics/data/Pop_Census_Day.pdf.

Compounding the problem is that the average property insurance consumer knows little to nothing about catastrophe modeling, or how catastrophe exposure impacts the insurance market. Insurance in and of itself is an opaque product. Catastrophe exposure adds to this lack of clarity for the end consumer.⁵¹

The availability of clean, reliable data and the advancement of analytical methods can help to mitigate this hindrance.

Hindrance #3 – Adequate Investment Returns for Catastrophe Risk Investors

Every college of business student is taught that higher risk requires a higher rate of return. For some insurance companies, the sound business decision may be to reduce or completely avoid Florida's catastrophic risk. They can reduce the risk by limiting their exposure in Florida and not selling property insurance in the state, or they can reduce the risk by limiting the amount of capital that is at risk. Incentivizing those with capital to invest in Florida requires adequate rates of return for those investors and/or a better understanding of the risk. Unfortunately, adequate rates of return are market determined and those markets extend far beyond Florida and its catastrophe exposure. In capital markets, investors analyze the risk/return tradeoffs of hundreds if not thousands of investment opportunities. The proper rate of return to incentivize investment will vary with market conditions. Florida learned this in 2008 when the FHCF paid Berkshire Hathaway a \$224 million premium for the right to borrow \$4 billion in the event of a significant hurricane in 2008.⁵² In difficult market conditions, capital can be very expensive. Yet, capital is exactly what Florida needs to support its catastrophic risk exposure.

It is important to note that capital is required to support the entire distribution of potential catastrophic losses. The catastrophic loss distribution can be thought of in layers. The first layer is below the deductible and borne by the property owners. Most windstorm deductibles in Florida are percentage deductibles (1%, 2%, 5%) of the insured value. That implies that a \$300,000 insured home will have a \$6,000 deductible if the homeowners chooses the 2%. Most homeowners likely do not have \$6,000 available in case of a windstorm. According to a 2016 Forbes article, 63% of American households cannot afford a \$500 loss, let alone a \$6,000 one.⁵³

The second layer is the primary insurance layer. The State of Florida's Property Insurance Market Reports⁵⁴ document the changes to the makeup of the primary insurance market in Florida. They outline the reduction in capital that is available to support Florida's primary

⁵¹ The Florida Commission on Hurricane Loss Projection Methodology was created in 1995 (s. 627.0628, F.S.) as an independent commission to develop hurricane model standards and serves "...to encourage the use of the most sophisticated actuarial methods to assure that consumers are charged lawful rates..." See <https://www.sbafla.com/Methodology/> for further information.

⁵² See: <https://www.insurancejournal.com/news/southeast/2008/07/31/92371.htm>.

⁵³ See: <https://www.forbes.com/sites/maggiemcgrath/2016/01/06/63-of-americans-dont-have-enough-savings-to-cover-a-500-emergency/#38b530034e0d>.

⁵⁴ These reports are available at www.stormrisk.org.

insurance layer. Both reduced writing by well capitalized National Insurers and the reduction in capital, through Pup formations, are both evidenced as methods of exposure reduction for insurers.

The next layer is the reinsurance and alternative risk transfer layer. This has been the traditional point in the distribution for the connection between capital markets and catastrophic risk insurance markets. Pricing and coverage amounts have been volatile in difficult market conditions and can be greatly stabilized by expansion of alternative risk transfer mechanisms such as multi-year catastrophe bonds. Florida has tried to address the volatility and expense of coverage in this layer by creating the FHCF.

In the far right tails of the loss distribution, after reinsurance and alternative risk transfer layers have been exhausted, the risk falls back to the primary insurers; if they fail, the companies are liquidated or acquired by other insurers and policyholder claims may be passed to FIGA. This layer ultimately falls on the residents of Florida through assessments and losses that are beyond the guaranty fund's existing resources. Each layer requires capital or debt to support it. A lack of support in any one layer can have contagion effects in the other layers.

Hindrance #4 – Legislative/Regulatory/Administrative Actions

The purpose of documenting legislative, regulatory, and/or administrative actions at this point as hindrances is not to pass judgement on any specific action, but to document the effect these actions can have on insurance markets. One could argue that legislative or regulatory intervention was necessary in 2007 to keep the insurance market operating. One could also argue that those interventions are still having an impact on markets today. Similarly, it could be argued that many of the legislative changes that were instituted regarding the property insurance market over the last few years have been enacted to improve the health of the private market. In addition, changes that occurred in the 2000s that expanded Citizens' risk exposure and policy counts have been followed by changes in the 2010s that have helped to reduce that exposure.

The actions of rating agencies can impact insurance markets. For example, a rating agency might indicate that a company should restructure its book of business to reduce its catastrophic risk which could increase Citizens' exposure. There are currently a limited number of insurers operating in the Florida residential property insurance market that are rated by the large rating agencies. From the public standpoint, the lack of ratings by agencies that use non-public data leads to less transparency and limited information for consumers and regulators.

The point is that volatility in legislative, regulatory, and administrative actions adds a layer of uncertainty to the functioning of insurance markets. This uncertainty, in conjunction with the uncertainty associated with the catastrophic exposure levels, can contribute to making the Florida market unattractive to many investors.

Hindrance #5 – Third Party Involvement/Litigation/Fraud

The involvement of third parties in the insurer-insured relationship has added significant costs for insurers operating in the Florida property insurance market. Public adjusters, lawyers, and contractors are examples of third parties that have a significant interaction in insurance claims in Florida. In 2019, Florida was one of five states to pass bills limiting who can represent an insured (besides a public adjuster) in a claim.⁵⁵

This can be considered a response to Florida having among the highest homeowner insurance rates in the country, second only to Louisiana.⁵⁶ The homeowners insurers in Florida are collecting nearly \$10 billion a year in premiums, making them a “target” for opportunistic fraud. The higher the cost of insurance, the higher percentage of homeowners who will feel they need to collect from their insurers to make it “worth it.”⁵⁷

One indicator of this third-party involvement is more widespread fraud, which has manifested itself in a variety of ways in the Florida market, such as: reopened catastrophe claims in 2007-2009 following the 2004 and 2005 storms (reoccurring again with storm activity in 2017-2020), sinkhole claims in 2008-2011 leading up to SB 408, AOB claims in 2013-2018 leading up to HB 7065 in 2019,⁵⁸ and most recently, water claims in the Tri-County area. As one fraudulent opportunity window closes, it appears that another opens.⁵⁹

The structure of the one-way attorney fees and fee multipliers in Florida incentivizes attorney participation. As documented in this report, the percentage of insurance claims that end in litigation has been increasing in Florida, especially the Tri-County area. This adds significant uncertainty and cost to insurers operating in Florida and serves as a significant hindrance to a healthy private insurance market.

Hindrance #6 – Rates

One major hindrance to reducing the exposure of Citizens is its inability to reach actuarially sound rates due to the operation of the glidepath created in 2009 (CS/CS/CS/HB 1495 signed into law by the Governor on May 27, 2009). This legislation restricted Citizens’ rate increases, which could not exceed 10% per year, with certain exceptions. The purpose was to phase in rates over time such that they would eventually reach actuarial soundness. However, in an analysis of its book of business, it finds that its rates are below what private market insurers would charge

⁵⁵ See: <https://www.claimsjournal.com/news/national/2019/10/09/293481.htm>.

⁵⁶ See; <https://www.iii.org/fact-statistic/facts-statistics-homeowners-and-renters-insurance>.

⁵⁷ See Dumm et al (2020b).

⁵⁸ HB 7065 is now Laws of Florida Chapter 2019-57 (“Act”). It amends s. 627.422 and creates sections 627.7152 and 627.7153, F.S.

⁵⁹ See Dumm et al (2020b), that shows Citizens had more than 2000 sinkhole claims in Hernando County in 2011 and less than 200 in 2013 following SB 408, a more than 90% reduction in sinkhole claims.

based on their filed rating plans (Citizens' Property Insurance Corporation, 2019). The glidepath may be limiting Citizens' ability to become a true insurer of last resort.

Similarly, insurers are required to either use the OIR's promulgated mitigation discount table or submit a study to justify a company-specific mitigation discount plan. As discussed in this report, the mitigation discount table utilized by the OIR is nearly 20 years old. If those discounts do not represent the true savings generated by the mitigation features, it could result in market distortions if some property insurance is under- or over-priced. These distortions can result in some properties not being absorbed by the private market through the Citizens depopulation program. Further, if the discounts are not accurate, the cost of conducting a study to submit company-specific discounts may be burdensome to small insurers.

Hindrance #7 - Affordability

One of the main drivers behind legislative, regulatory, and/or administrative actions is to ensure the solvency of insurers, but also to ensure that rates are fair, not excessive, and not unfairly discriminatory. Given the nature of the catastrophic risk in Florida, another issue of importance in the state is affordability of property coverage. It appears one of the main drivers behind CS/HB 1A in 2007 was to address the affordability of property insurance. Addressing affordability in the ratemaking process introduces more opaqueness to the process and creates opportunities for cross-subsidization in rates.

Categorization of Ideas and Approaches

For purposes of classification and organization and to allow for a better conceptual understanding of the various issues, the initial formulation of ideas and approaches are grouped into seven categories, as follows:

- Category 1 – Attracting Investors
- Category 2 – Loss Control
- Category 3 – System Efficiencies
- Category 4 – Data Quality, Analytics, and Transparency
- Category 5 – Financial Solvency
- Category 6 – Rating Reform
- Category 7 – Miscellaneous

The Ideas and Approaches provided in some categories may contribute to or support ideas discussed in other categories. As much as possible, additional notes indicate this interconnection across one or more other categories. The next section provides descriptions of these seven categories along with relevant background information. The ideas and approaches recommended can be found in 'Recommended Key Ideas and Approaches'. Other ideas and approaches considered but not recommended can be found in Appendix M.

Category Descriptions

Category 1 – Attracting Investors

By attracting insurance risk capital to Florida, Citizens' exposure can be reduced, and the private market can be expanded. To attract investors to the Florida residential property insurance market, it is important to understand why investors are not participating in the market and why many that are participating have chosen to limit their participation. Understanding the layers of the loss distribution and which layers need additional capital can help develop the ideas and approaches that may be more successful in attracting capital. Investors expect to earn a return that will compensate for the risk they are taking. The more investor capital that can be attracted to the Florida market, the less likely assessments will occur.⁶⁰

Category 2 – Loss Control

Loss control is a broad term which could involve avoiding risk, mitigating the potential for damage, or mitigating the severity of the loss once it occurs. Common approaches to loss control include prevention, reduction, separation, duplication, and diversification. Loss prevention refers to actions that are taken to prevent a loss from occurring (reduce frequency of losses) and loss reduction is often used to refer to steps taken to lessen loss severity. Within this category, the study identifies ideas and approaches that would serve to mitigate the potential damage to an exposure by reducing the severity and/or frequency of loss. To the extent that most properties engage in some type of loss control, Citizens' exposure would be reduced. A greater level of participation in loss control efforts could make the market more attractive to private market insurers and/or incentivize more private market insurers to participate in Citizens' takeout efforts. Funding of loss control measures and how to achieve the maximum impact for the overall reduction of exposure in the insurance system are both important considerations necessary for their implementation.

Category 3 – System Efficiencies

Over time, various laws, regulations, legal requirements, and court cases have negatively impacted the insurance environment in Florida. In addition, claims settlement can be slow, especially following large storms, and susceptible to litigation arising from conflicts and tensions between policyholders and insurers. The involvement of trial lawyers, public adjusters, contractors, and other service/product providers in the process adds to the cost.

Category 4 – Data Quality, Analytics, and Transparency

Having quality data allows for a better understanding of the state's exposure and its vulnerability to hurricane events, thus improving decision making at the public policy level. Additionally, it is

⁶⁰ Florida policyholders are subject to various types of assessments in Florida by either Citizens, the FHCF, or FIGA. Although the term "assessment" is used, assessments can be viewed as a tax. For purposes of tax-exempt status, the IRS considers assessments the same as a tax.

important to have adequate and detailed loss and expense data to understand the drivers of insurance costs. Effective risk management requires having the right data, analyzing it correctly, and understanding the implications. Modern analytics can be utilized to provide better information about risks, and greater insurer transparency can be provided to Florida policyholders and taxpayers so that the general public has a better understanding of how these factors impact the cost of insurance and the potential for assessments.

Category 5 – Financial Solvency

Citizens' exposure and policy count could potentially become less volatile if private market insurers were more financially secure and fewer insolvencies occurred. As a result, the entire market would benefit from improved insurer financial and premium stability. Financial solvency of Florida insurers is key to managing Citizens' exposure, financial strength, and capabilities, reducing bonding and policyholder assessments, and encouraging insurance investments in Florida. A better understanding of private market insurers' exposures would allow for improved risk management and fewer insolvencies.

Category 6 – Rating Reform

The differential between rates charged by Citizens and the rates charged by insurers in the private market is a major driver impacting Citizens' policy count. Rating methodologies can cause distortions in the insurance market and drive policies to Citizens unintentionally. Understanding and adjusting rating methodologies may be beneficial in reducing Citizens' exposure over the short and long-term and expand the role of the private insurance market.

Category 7 – Miscellaneous

This category consists of ideas and approaches that may not fit into the categories above. This could involve ideas that expand, reduce, or change Citizens' role or structure. As such, certain ideas could conflict with Citizens' stated boundaries and constraints and feasible mitigating measures may need to be addressed for their inclusion in the study. Some ideas may be complex and/or lack a track record for evaluating results. Certain other ideas in this section may be able to stand on their own and provide a marginal but worthwhile benefit at a low cost.

INTERVIEWS WITH INTERESTED PARTIES AND STAKEHOLDERS

The purpose of this section is to provide information on the various interested parties and stakeholders from whom the FSU Research Team has obtained input and feedback regarding various ideas and approaches. The interviews and discussions also provided an opportunity for the team to gain a better understanding of the operations of Citizens and the Florida insurance and reinsurance markets. The team held discussions about the Citizens Exposure Reduction Study with 79 people.⁶¹ As noted, the ideas and approaches formulated in the previous section are preliminary. A more detailed discussion of a number of these ideas and approaches is provided later in this report.

A breakdown of the various organizations and the respective number of people interviewed as of July 20, 2020, is as follows:

- FHCF/SBA⁶² – 4 people
- FIGA – 1 person
- Department of Financial Services – 1 person
- Department of Financial Services, CFO’s Office – 1 person
- Governor’s Office – 2 people
- Florida Building Commission Member – 1 person
- Office of Insurance Regulation – 4 people
- Citizens – 13 people
- Insurance Lobbyist – 4 people
- Insurance Company – 4 people
- Insurance Associations – 3 people
- Agents Associations – 2 people
- Reinsurance Brokers – 4 people
- Reinsurance Associations – 5 people
- Lobbyist Reinsurers – 2 people
- Alternative Risk Transfer – 1 person
- Financial Advisor – 1 person
- Investment Banker – 1 person
- Modelers – 6 people
- Modeler Reviewer – 1 person
- Engineer – 1 person
- Actuaries – 4 people

⁶¹ The FSU Research Team had planned to hold workshops to seek input from a variety of stakeholders; however, due to the COVID-19 pandemic, that was not feasible.

⁶² SBA is the State Board of Administration of Florida where the FHCF is administratively housed. The SBA’s website is found at <https://www.sbafla.com/fsb/>.

- Florida Chamber of Commerce – 1 person
- NAIC – 1 person
- PIPSO – 2 people
- Rating Agency (1 agency) – 4 people
- DFS Insurance Consumer Advocate - 1
- Senate Legislative Staff – 1 person
- House Legislative Staff – 1 person
- Other State Insurance Commissioner's – 1 person
- Other State Residual Market's Management – 1 person

Other interviews and discussions occurred over the course of the project as needed for the FSU Research Team to clearly understand the potential impact of each of the ideas and approaches and determine the proper ways to analyze and evaluate them.

DATA COLLECTION AND ANALYSIS

Introduction

The purpose of this section is to provide an analysis of available data that may help to motivate the ideas proposed for reducing Citizens' exposure and expanding the private market. Additionally, this information will further establish the necessary types of information for evaluating the feasibility of the various approaches proposed by the FSU Research Team.

There are three main parts in this section: (1) an overview and analysis of the Florida residential property insurance market data conducted by the FSU Research Team; (2) an analysis of optimal exposure for Citizens and the private market working with Karen Clark and Company (KCC) and using their hurricane model; and (3) a summary and analysis of causes of loss for Citizens' closed claims.

Overview and Analysis of Florida Residential Property Insurance Market Data

Introduction

Appendix D provides an initial description and overview of the approach for the analysis. In this section, this overview is expanded in several ways. First, the Florida residential property insurance market is examined over a longer period: 2008 through 2019. Next, data from additional sources not used in our initial overview is evaluated. Finally, additional performance measures are addressed.

Data Sources

Information about the Florida property insurance market and the financial operations of Florida property insurance companies is available from several sources. Together, the sources provide insurer-level financial data that can be used to assess trends across the state and at the county level. For those insurers with operations outside of Florida, the data can be used to evaluate the extent to which Florida property risks are diversified. The data also allows for an assessment of growth and changes in capitalization, leverage, use of reinsurance, and underwriting performance.

The main data sources that have been used for this project include:

- Citizens: Financial data, policy counts.
- Florida Office of Insurance Regulation (OIR): County-level policy and exposure data, by company.
- Florida Hurricane Catastrophe Fund (FHCF): Zip- and county-level exposures by type of property: commercial, residential, mobile home, tenants, and condo owners.

- National Association of Insurance Commissioners (NAIC): Company-level financial data, company level underwriting operations (premiums and losses) by state, rate filings.
- A.M. Best Company: Company-level financial data and ratings.

The sample for our analysis includes only insurers for which data are available from the OIR. This publicly available data are limited for the more recent years due to insurers filing data for trade secret protection and excluding it from OIR's QUASR system. Beginning in 2014, data for State Farm Florida has not been publicly available. Beginning in 2017, three additional insurers are omitted from our sample and another 22 insurers are omitted in 2019. Care should be taken interpreting any of the data from 2019 as a significant portion of the market share of residential property insurance sold in the state of Florida is not included in the analysis. Where warranted, a vertical dividing line is included in the figures to denote the reduction in data available for analysis.

The analysis below covers the following topics:

- Types of property insurers
- Geographic and line of business diversification
- Capitalization of insurers
- Market shares by type of insurer
- Use of reinsurance
- Use of FHCF coverage
- Rate differentials across types of insurers
- Capitalization of insurers approved for takeout

Types of Property Insurers

Insurers that operate in the Florida residential property insurance market fall into one of the following categories, based on their legal form of organization and their exposure to residential property losses in the state. The categories are described as follows:⁶³

- Florida Focused Domestic Insurers: insurers domiciled in Florida that write at least 75 percent of their business in Florida's residential property insurance market
- Florida Diversified Domestic Insurers: insurers domiciled in Florida that are diversified outside of the state and have less than 75 percent of their business in Florida's residential property insurance market
- Florida Pups: subsidiaries of major national writers that write residential property business only, or mostly, in Florida

⁶³ Because of this formulated approach used to classify companies, some of the Pups are classified as Florida Diversified Domestic in some years and Pups in others; for example, 2003 and 2006. Though this does result in some movement across categories in some years, it avoids a subjective classification of companies.

- National Insurers: non-domestic insurers that are licensed to operate and write residential property coverage in Florida and insurers domiciled in Florida that belong to a national group
- Citizens

Figure 11 provides an accounting of the number of private insurers writing residential property coverage in the state of Florida for the period 2008 through 2019.

Figure 11: Personal Property Insurers in Florida, 2008-2019, by Type

Type	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
FL Focused Domestics	29	34	31	29	30	31	34	34	31	27	27	11
FL Diversified Domestics	26	16	15	14	14	14	15	17	19	20	19	18
National Insurers	120	69	68	64	60	60	61	61	61	64	69	70
FL Pups	15	14	15	15	15	14	12	10	13	14	13	9
Total	190	133	129	122	119	119	122	122	124	125	128	108

Source: OIR

Note: In 2008, 60 of the National Insurers reported zero or negative premiums in the Florida homeowners market to the NAIC. These companies are not reported in subsequent years in the QUASR data.

The insurers operating in the Florida residential property insurance market receive annual ratings from either A.M. Best or Demotech. Federally backed mortgage lenders require an “A” rating from Demotech on homeowners policies in Florida. Recently, companies that faced possible downgrade by Demotech either formed mergers or obtained access to sufficient capital to increase reserves and maintain the “A” rating (Demotech (2020)).

A small number of insurers receive a rating from A.M. Best. The A.M. Best rated Florida-domiciled residential property insurers, and their current (2020) ratings are listed in Appendix E.

Geographic and Line of Business Diversification

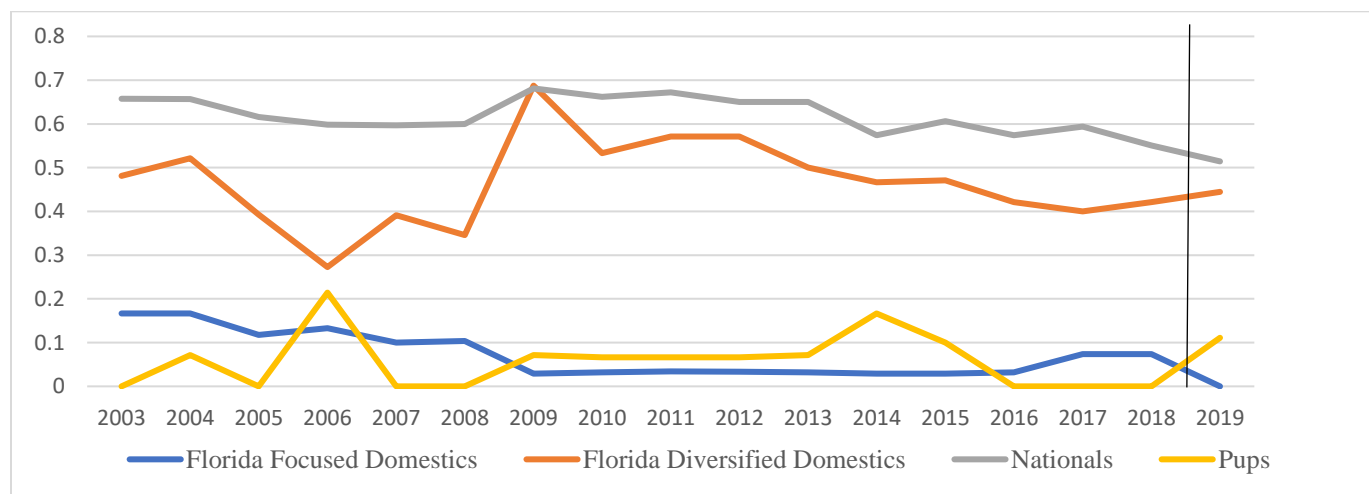
Insurers can seek a greater degree of diversification across exposures to limit aggregation risk. Many insurers participating in the Florida residential property insurance market are well-diversified across geographic areas and lines of business, while some are solely focused on residential property coverage in Florida. The following figures illustrate how the degree of diversification varies across insurance type and over time using the by-line and by-state data reported by insurers to the NAIC. Figure 12 illustrates the most likely form of diversification within the state: insurers that write homeowners *and* auto insurance. Figure 13 shows the diversification across all lines in Florida and Figure 14 provides an indication of insurers’ geographic diversification. Overall, of the 108 private market insurers reporting operations in the Florida residential property insurance market in 2019, 41 percent had business in the Florida auto

insurance market, 96 percent had other business in the state of Florida, and 71 percent had homeowners business outside of Florida.⁶⁴

It is important to note that some insurers were recategorized during this time, based on the share of business they wrote in Florida. For example, several of the Florida-focused insurers categorized as “Florida Focused Domestic” insurers were recategorized to “Florida Diversified Domestic” insurers during the sample period because they expanded their out of state business and fell below the 75% threshold. Also, the figures show only the raw proportion of types of insurers with other insurance operations and, therefore, are only general indications of the degree of diversification. Nonetheless, the figures provide an indication of market trends and illustrate where differences across types of insurers are most striking.

Figure 12 shows the proportion of each type of insurer that operates in the Florida homeowners market *and also writes auto insurance business* in Florida. It indicates that domestic insurer participation in the auto insurance market has been quite low. The next figure presents the number of Florida homeowners insurers that write any other business in Florida.

Figure 12: Proportion of Florida Homeowners Insurers Writing Auto Insurance in Florida, by Type, 2003-2019



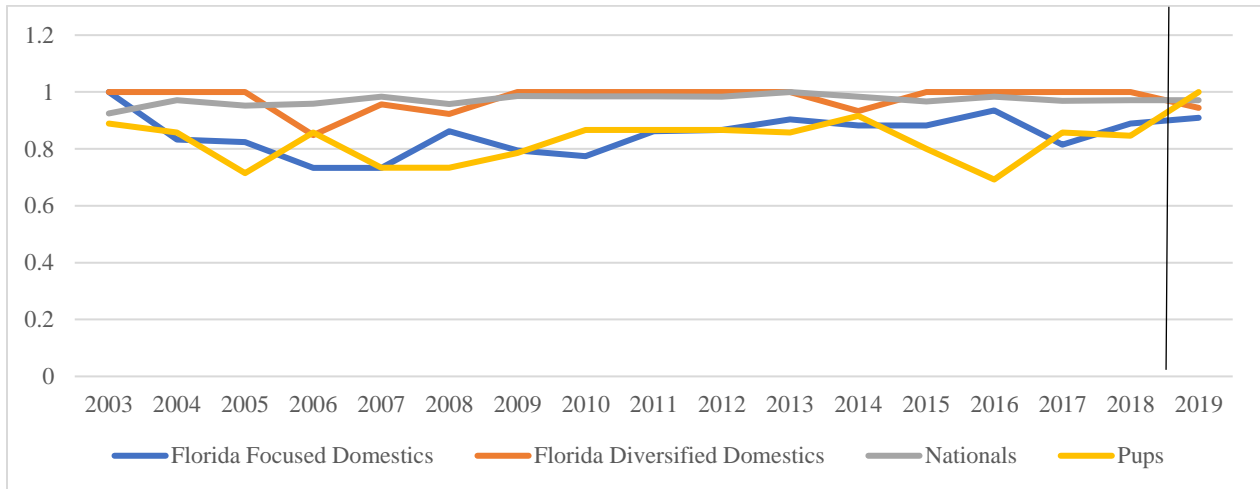
Source: NAIC

Figure 13 indicates that most Florida homeowners insurers have at least some business in one or more other lines of coverage in Florida. Because the premiums reflected in Figure 13 include

⁶⁴ The 108 private market insurer number is based on data from OIR’s QUASR system and NAIC data. The FHCF will show a higher number of companies participating in the FHCF each year which will vary but is generally in the 160 to 165 range. About half of the FHCF’s participating insurers write less than one percent of the overall residential property insurance premiums.

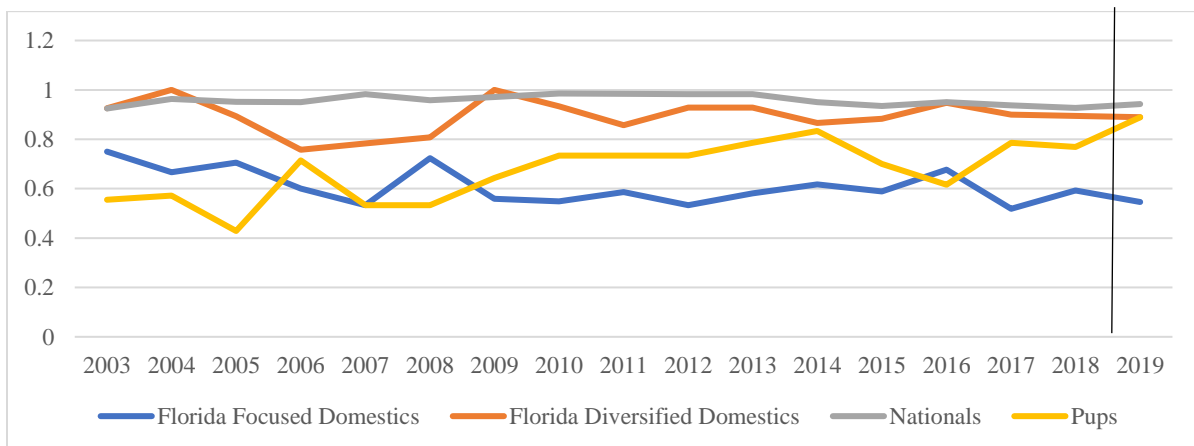
other forms of coverage for property risks, a more accurate representation of diversification outside of property risks is provided in Figure 14. This figure shows the proportion of insurers, by type, with business in lines other than homeowners, allied lines, fire, and multi-peril. Together, Figures 13 and 14 indicate that insurers doing homeowners business in Florida are more diversified across property lines than they are outside of property insurance.

Figure 13: Proportion of Florida Homeowners Insurers Writing any Other Type of Insurance in Florida, by Type, 2003-2019



Source: NAIC

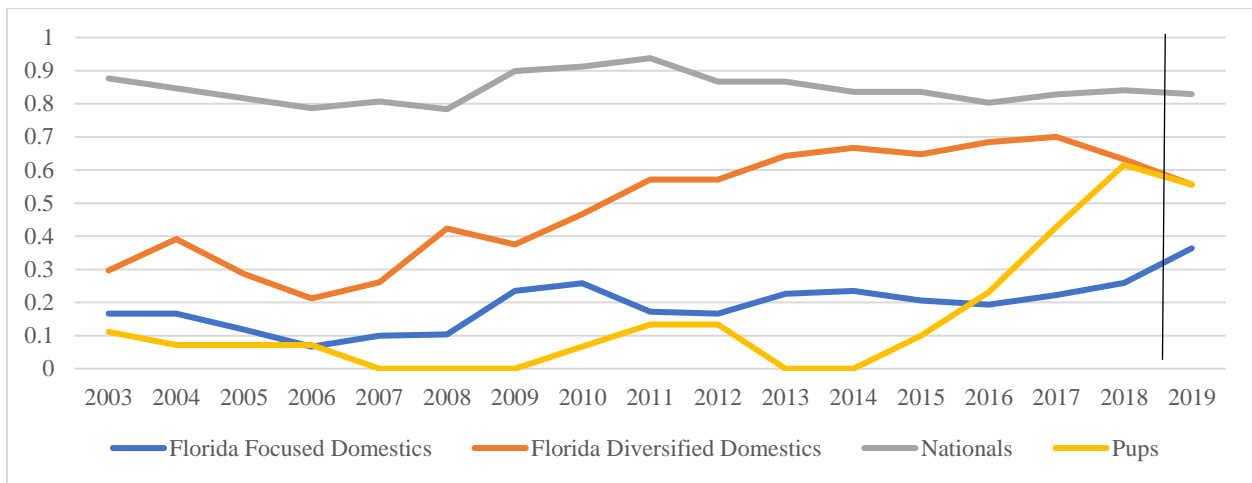
Figure 14: Proportion of Florida Homeowners Insurers Writing Other Non-Property Related Business



Source: NAIC

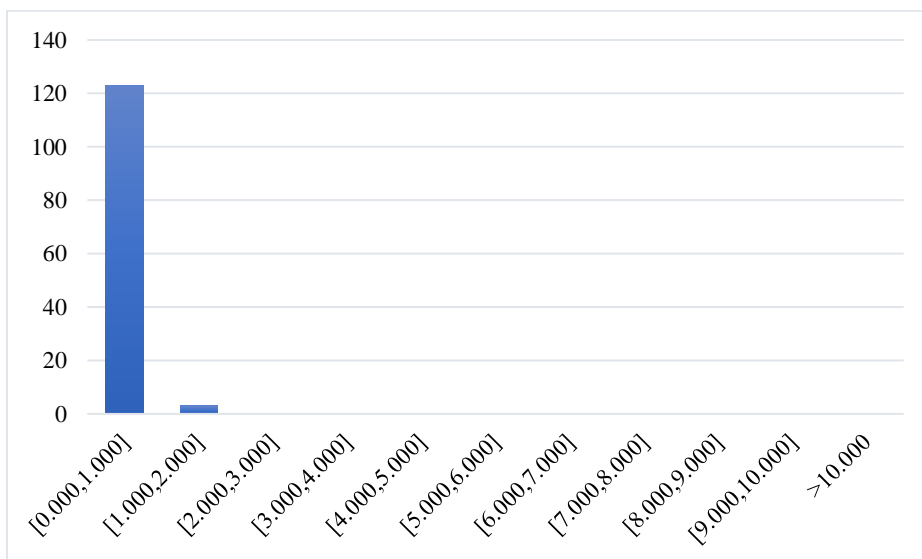
Figure 15 provides an indication of geographic diversification within the homeowners insurance line of business. Each line represents the number of insurers that write in the Florida homeowners market that also write homeowners insurance in one or more other states. Again, the National Insurers exhibit the greatest degree of diversification in the homeowners area. Florida Focused Domestics exhibit increasing participation in supplying homeowners coverage outside of the state, although the proportion of insurers diversified in this way is still rather small.

Figure 15: Proportion of Florida Homeowners Insurers Writing Homeowners Insurance in at Least One Other State, by Type, 2003-2019



Source: NAIC

Figure 16: 1985 Premiums/Surplus Ratio



Source: NAIC

Capitalization of Insurers

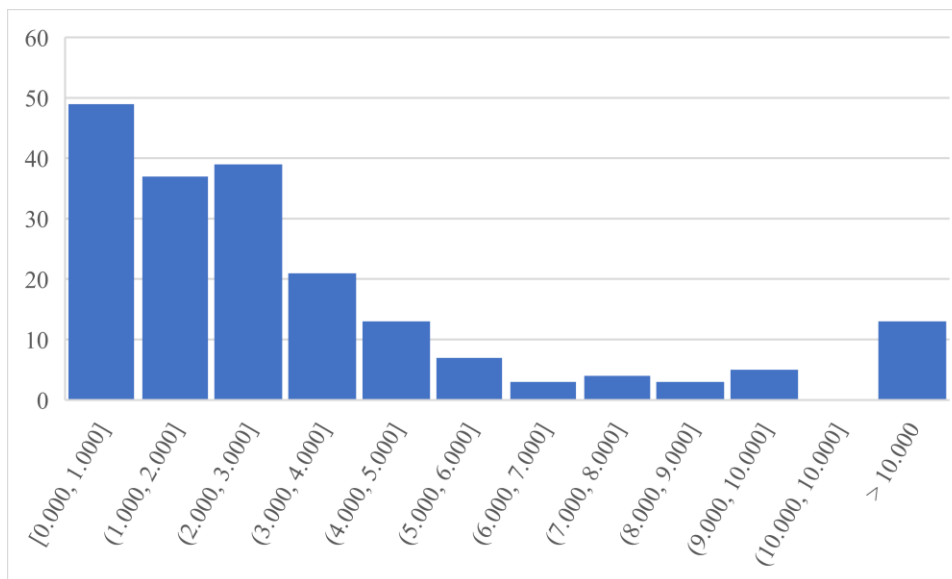
A common method of measuring the adequacy of the capital of an insurance company is to examine its premiums to surplus ratio. While more advanced measures have been developed, the premiums to surplus ratio provides an easily calculated standard to compare insurers.

As a benchmark, Figure 16 on the prior page contains the premiums to surplus ratio of all insurers selling homeowners insurance in Florida in 1985, taken from the NAIC annual statement data. While not an apples to apples comparison to insurers selling residential property insurance in Florida and reporting to QUASR, it does provide a glimpse into how insurers were capitalized (relative to premiums written) prior to Hurricane Andrew in 1992. Most insurers had a premiums to surplus ratio below 1, meaning for every dollar of premium written they had at least one dollar of surplus.

The following figures show the premiums to surplus ratio of the insurers selling residential property insurance in Florida every three years, starting in 2003, the year Citizens was created. The figures show a consistent number of insurers operating well above the one to one ratio seen in 1985 and many operating above two to one or three to one ratios.

Given the severe losses suffered in the 2004 and 2005 storm seasons and the significant rate increases following those seasons, one would expect to see a spike in insurers writing at higher premiums to surplus ratios. Premiums (the numerator) would go up and surplus (the denominator) likely would be lower. However, this trend is not evident, as the 2003 and 2006 charts look very similar.

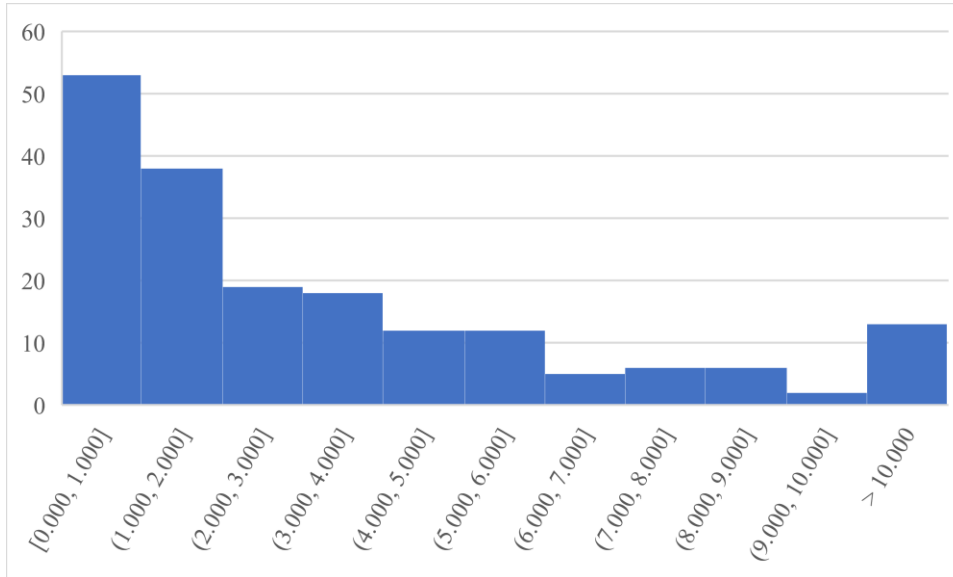
Figure 17: 2003 Premiums/Surplus Ratio



Source: OIR and NAIC

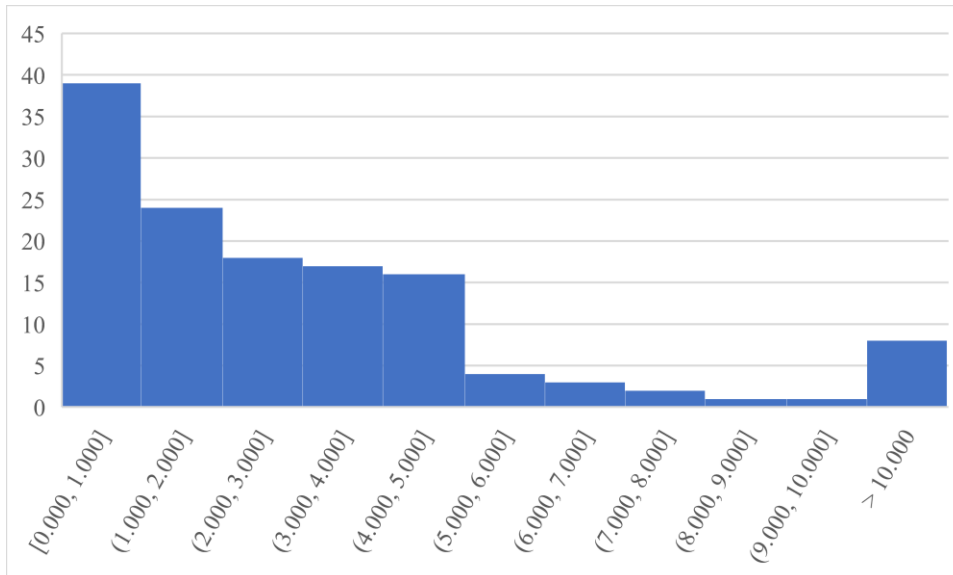
Due to the lack of landfalling storms between 2005 and 2016, one would expect to see insurer surplus increasing. Rates were still increasing through 2012, and the rate discussion below shows rates dropping in the 2014/2015 timeframe. Therefore, one should expect to see more insurers with lower premiums to surplus ratios by 2015. Unfortunately, the figures do not show much variation 2003 to 2018. The number of insurers with high premiums to surplus ratios is persistent.

Figure 18: 2006 Premiums/Surplus Ratio



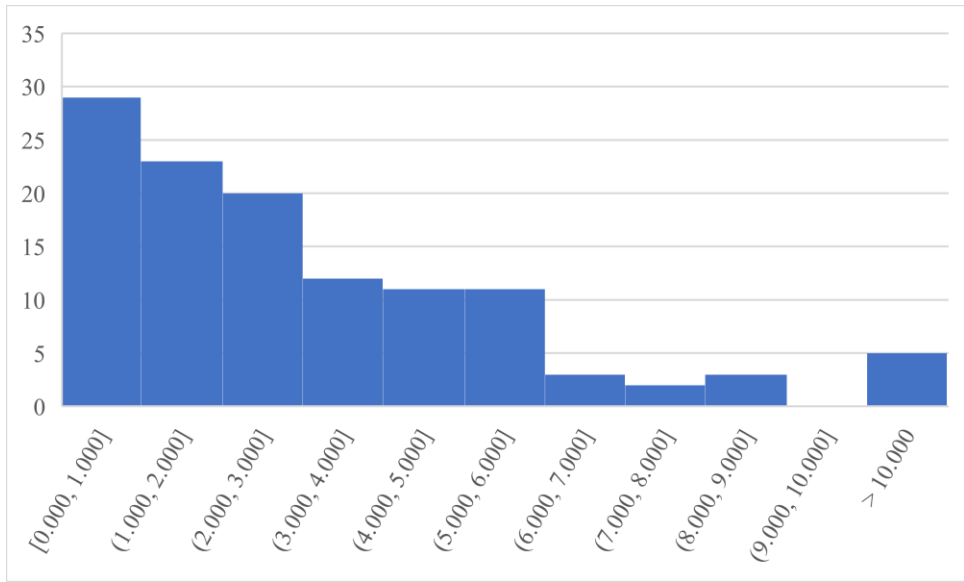
Source: OIR and NAIC

Figure 19: 2009 Premiums/Surplus Ratio



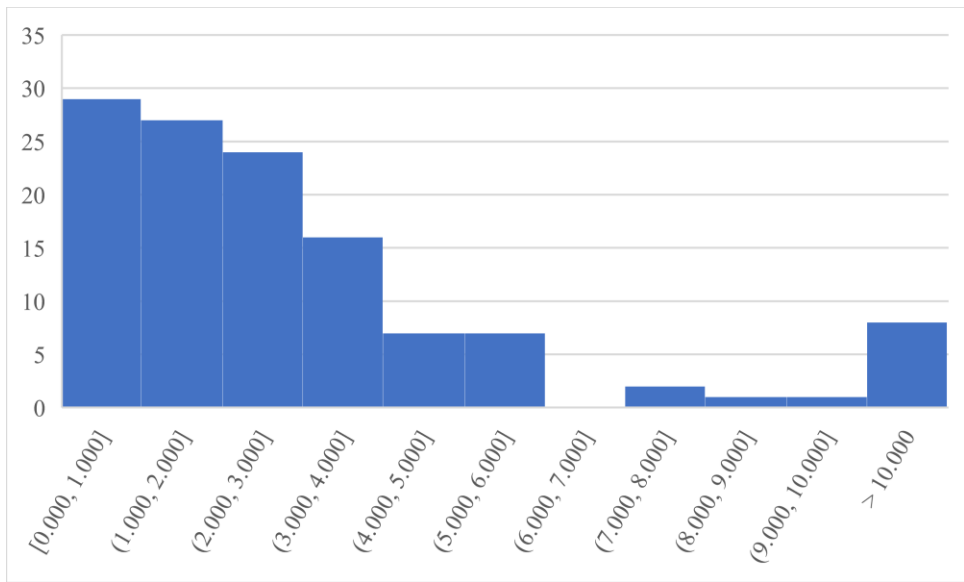
Source: OIR and NAIC

Figure 20: 2012 Premiums/Surplus Ratio



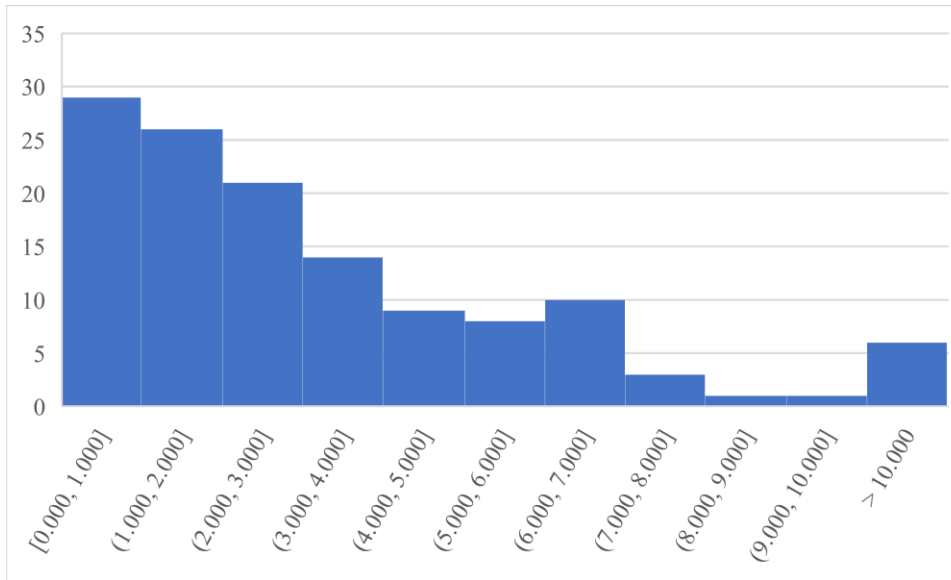
Source: OIR and NAIC

Figure 21: 2015 Premiums/Surplus Ratio



Source: OIR and NAIC

Figure 22: 2018 Premiums/Surplus Ratio



Source: OIR and NAIC

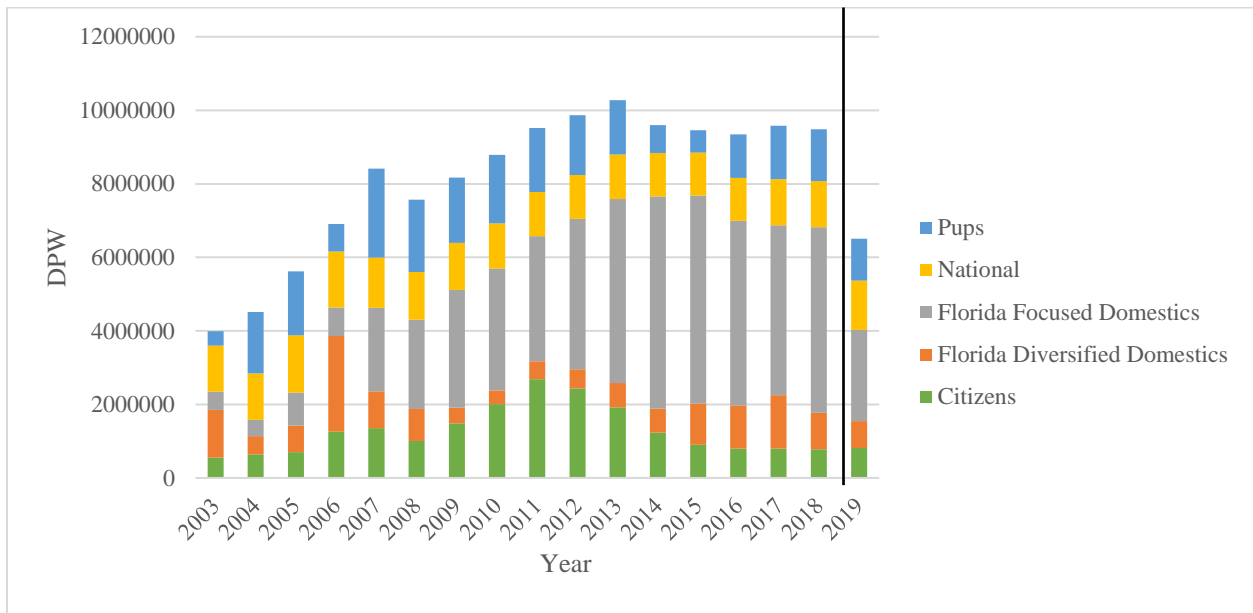
Market Shares by Type of Insurer

Florida has seen a significant and well documented change in market share since Hurricane Andrew. The state has gone from a residential property insurance market dominated by a few National Insurers to a market with half of the premiums written by Florida Focused Domestic Insurers. This transition began in the 1990s and has continued through the 2010s. It is fair to say that the transition is not actively occurring but has already occurred. The market changes seen today are representative of the diversification of some of these Florida Focused Domestic Insurers outside of the Florida marketplace. In recent years, the market has seen growth in both premiums written and total insured values by this class of insurers. Insurers who began as Florida Focused Domestic Insurers are now at a stage of development where they have the ability to expand outside of Florida and diversify their risk base.

For the last decade, Florida Focused Domestic Insurers have dominated the residential property insurance market in Florida. This is a structural concern if these companies are not as financially secure as the former market leaders or as financially secure as property insurers who have chosen not to sell residential property insurance in Florida.

Figure 23 shows the growth of direct premiums written in residential property insurance in Florida over the last two decades. Total premiums are close to \$10 billion a year. Citizens market share has fluctuated widely, peaking at more than 25% of the market in 2011. Clearly, Citizens role as an insurer of last resort should not result in a market share of 25%. However, fluctuating market share would be consistent with Citizens serving as a “stop-over” insurer in difficult private market conditions.

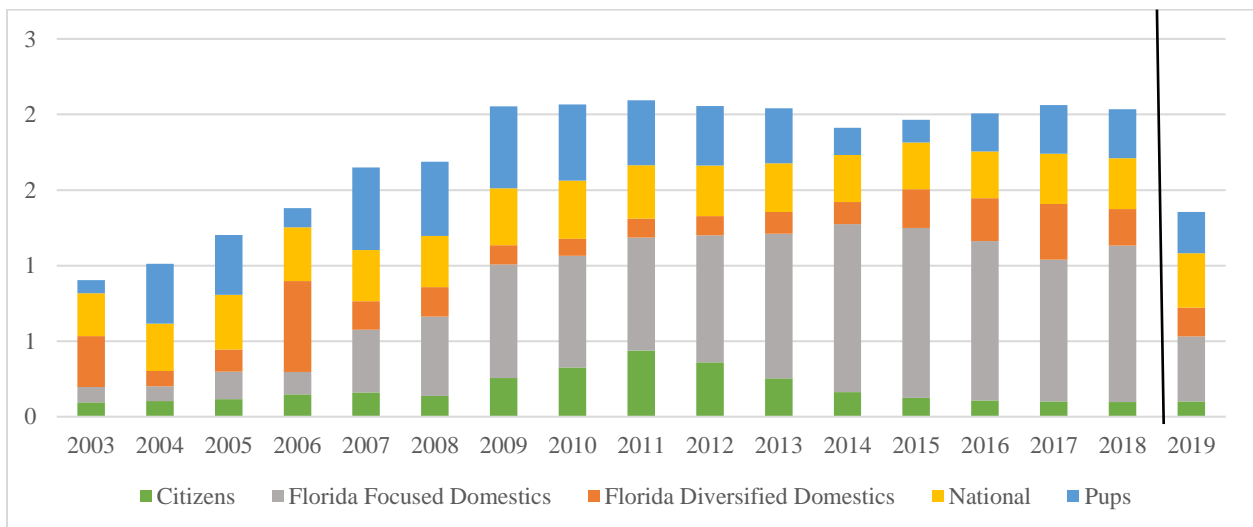
Figure 23: Market Share by Direct Premiums Written



Source: OIR

Figure 24 shows market share by total insured values and illustrates that similar market share trends exist in other market share measures. Although the remainder of this section focuses on premiums written, the trends are similar with total insured values.

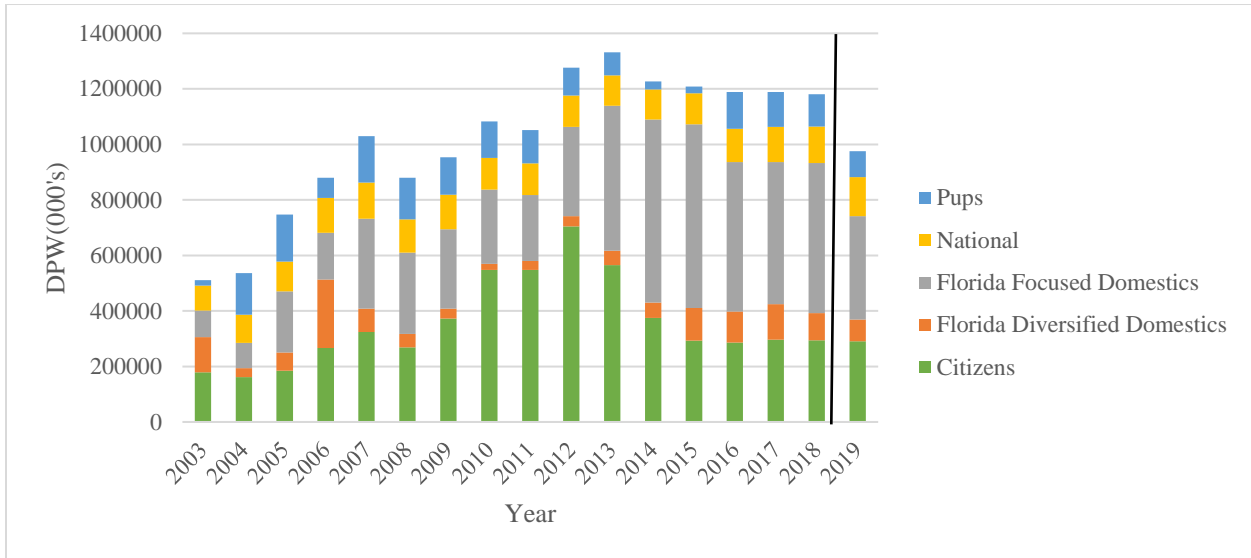
Figure 24: Market Share by Total Insured Values



Source: OIR

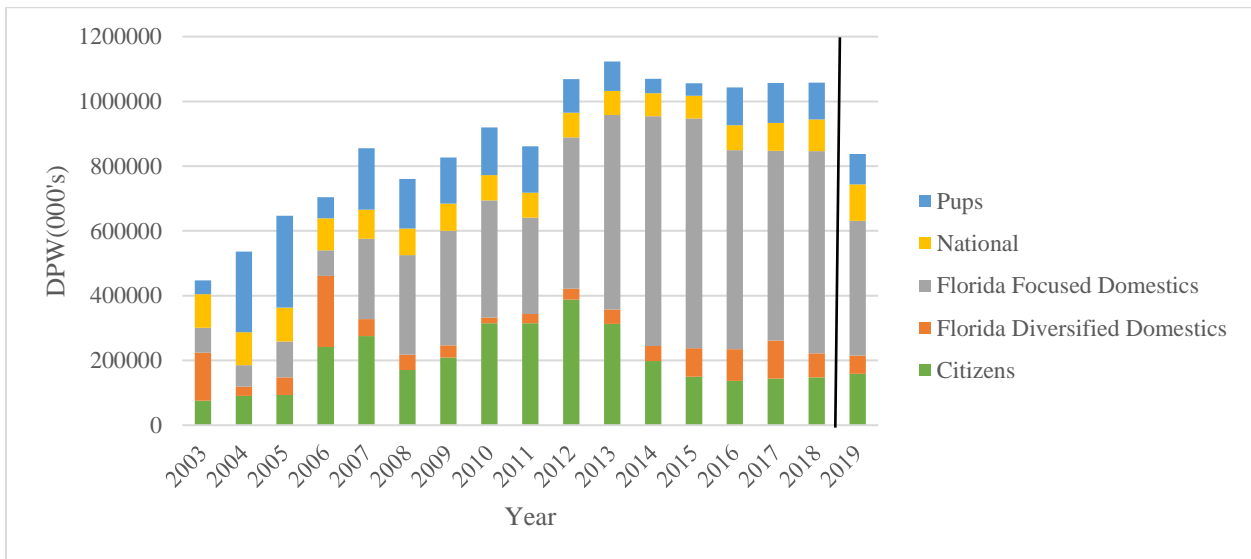
Examining market shares at the state level may not provide much information regarding market activity at a more local level. QUASR data are reported at the county level which provides a more granular picture of how market shares are evolving. Figures 25 through 31 below provide graphs of market shares by direct premiums written in the top six counties (by premium) as well as the aggregate of the remaining 61 counties.

Figure 25: Dade County Market Share by Direct Premiums Written



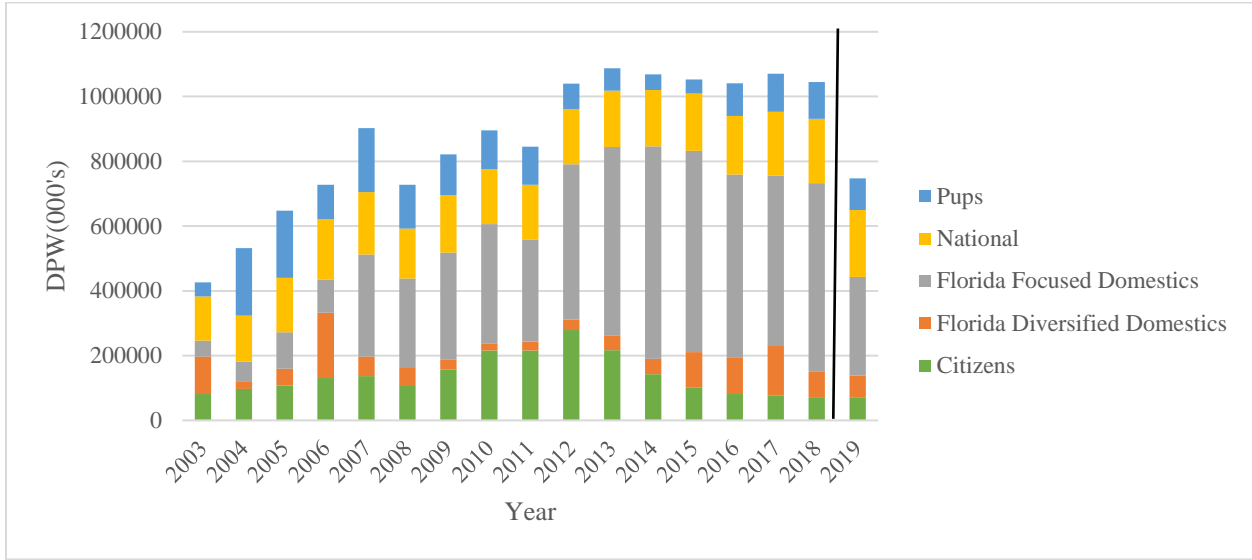
Source: OIR

Figure 26: Broward County Market Share by Direct Premiums Written



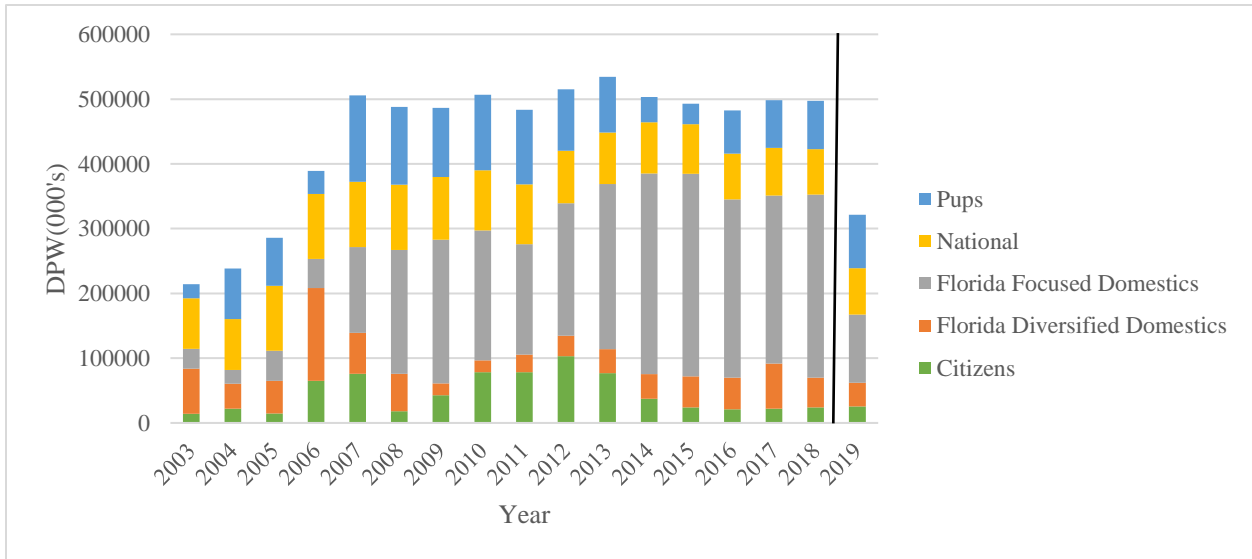
Source: OIR

Figure 27: Palm Beach County Market Share by Direct Premiums Written



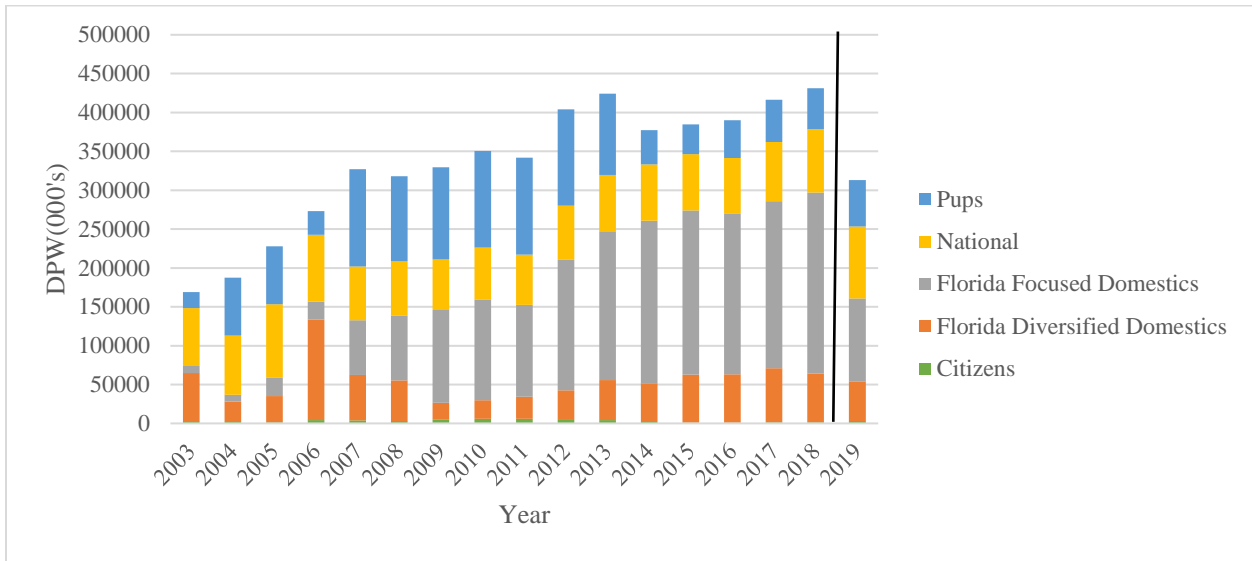
Source: OIR

Figure 28: Hillsborough County Market Share by Direct Premiums Written



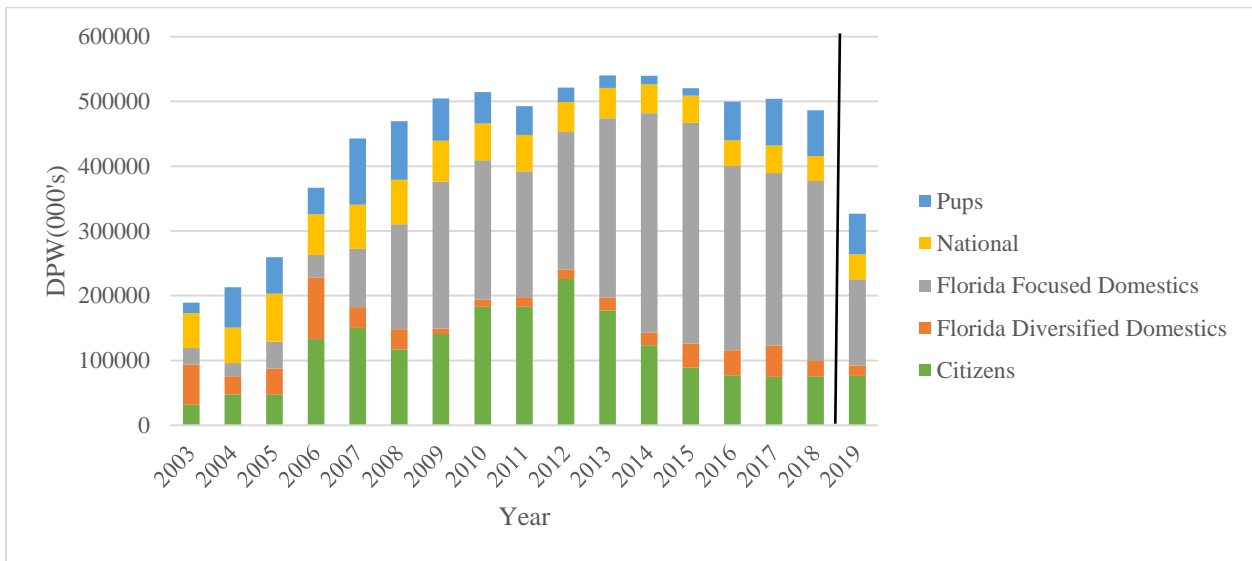
Source: OIR

Figure 29: Orange County Market Share by Direct Premiums Written



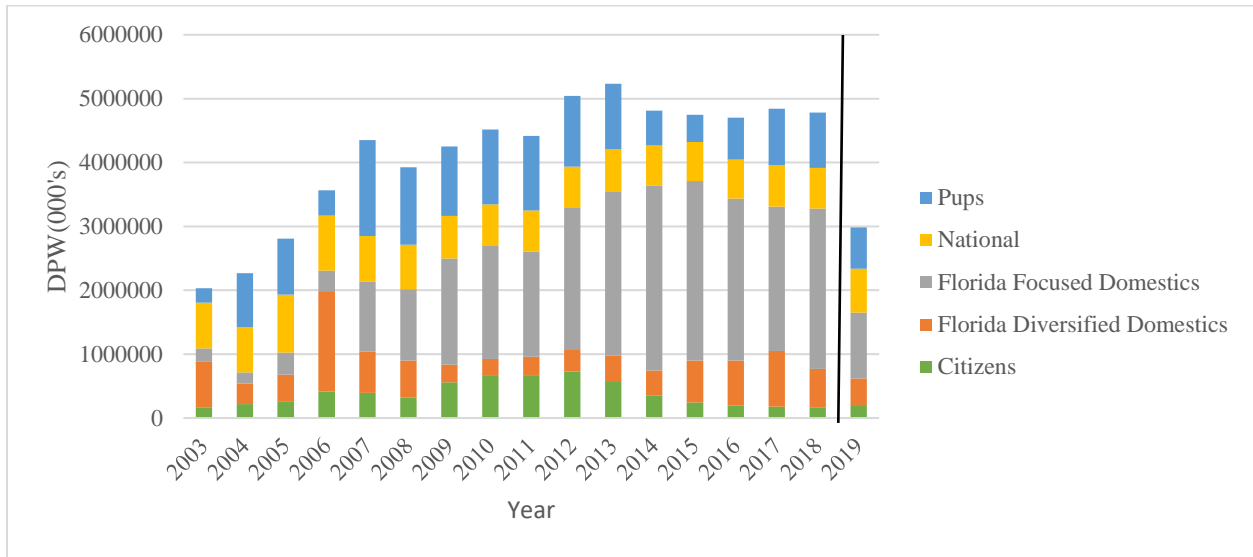
Source: OIR

Figure 30: Pinellas County Market Share by Direct Premiums Written



Source: OIR

Figure 31: All Other Counties Market Share by Direct Premiums Written

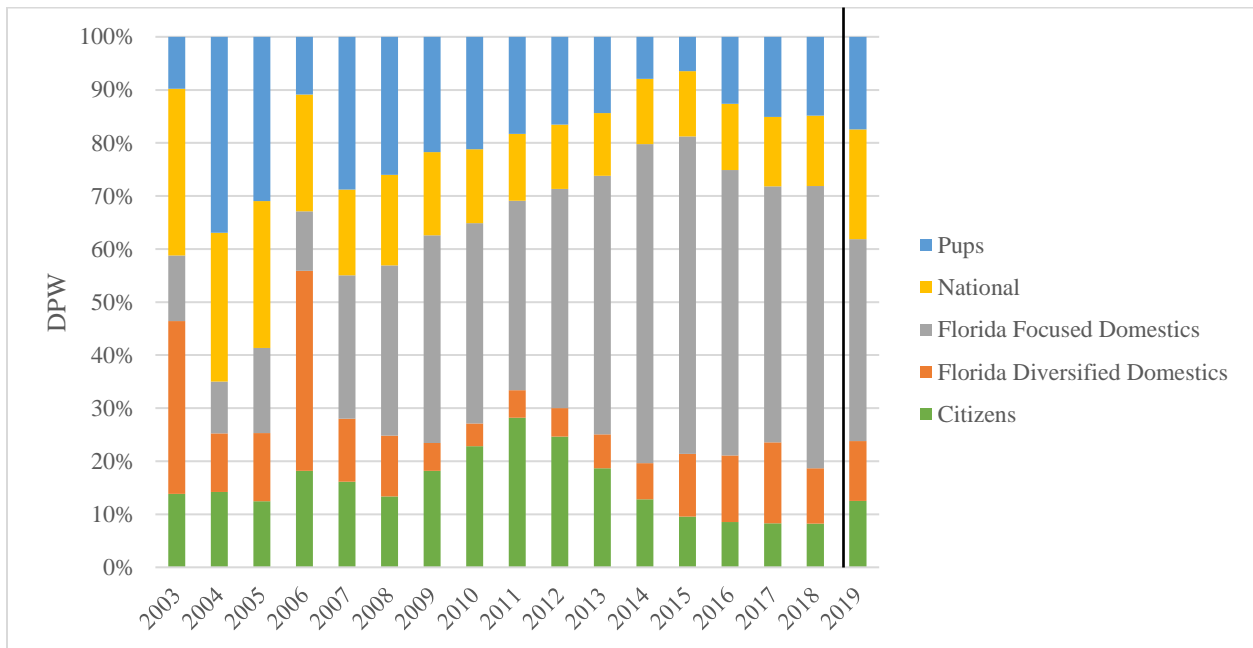


Source: OIR

These figures show that Citizens’ market share has fluctuated over time. The figures also show that while Citizens has significant market share in the Tri-County and Tampa areas, its market share in the rest of the state has dropped significantly.

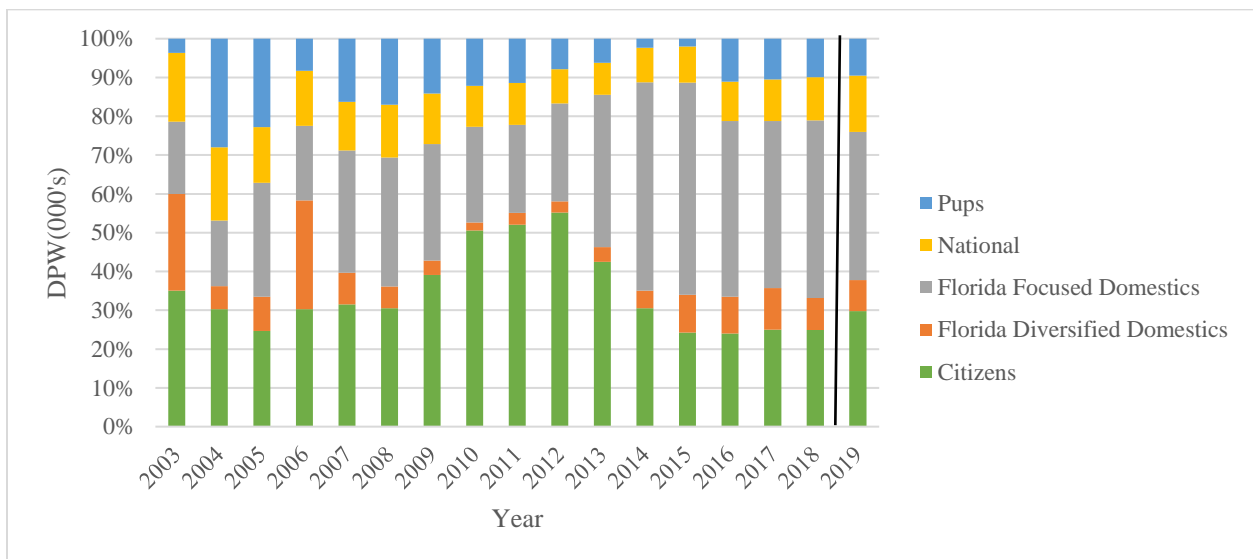
Another way to view the market share of each category of insurer is to chart on a percentage basis, rather than a dollar basis on the vertical axis. This may provide a better view of how market shares are changing through time without considering the changes in total premiums charged. As noted in Figures 32-39, the prominence of the Florida Focused Domestics is not a recent phenomenon as they have had significant market share for more than a decade.

Figure 32: Statewide Market Shares based on Direct Premiums Written



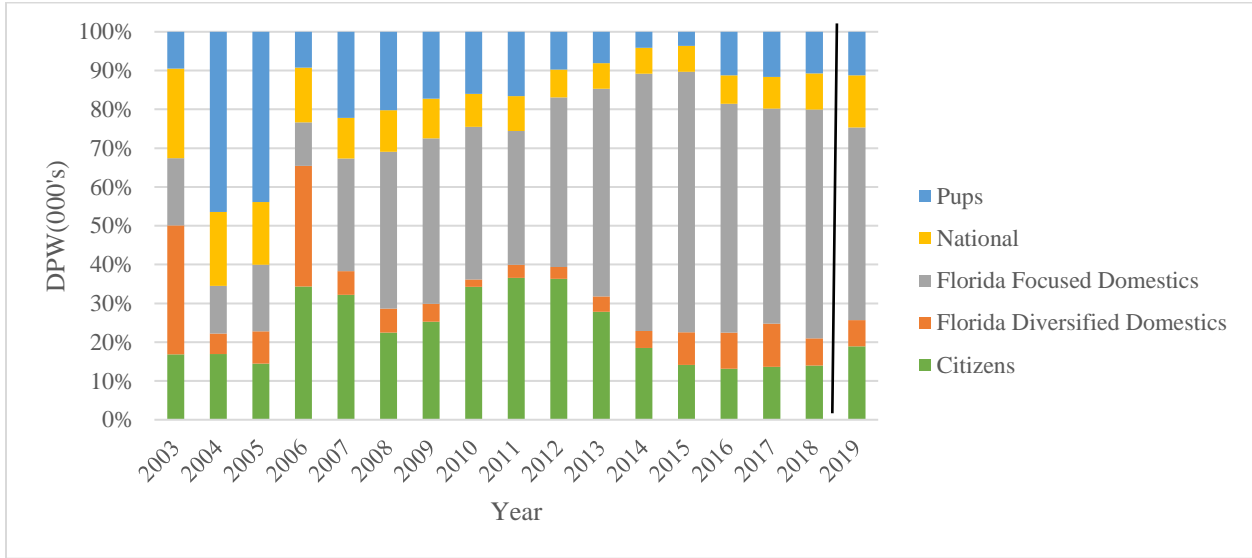
Source: OIR

Figure 33: Dade County Market Shares



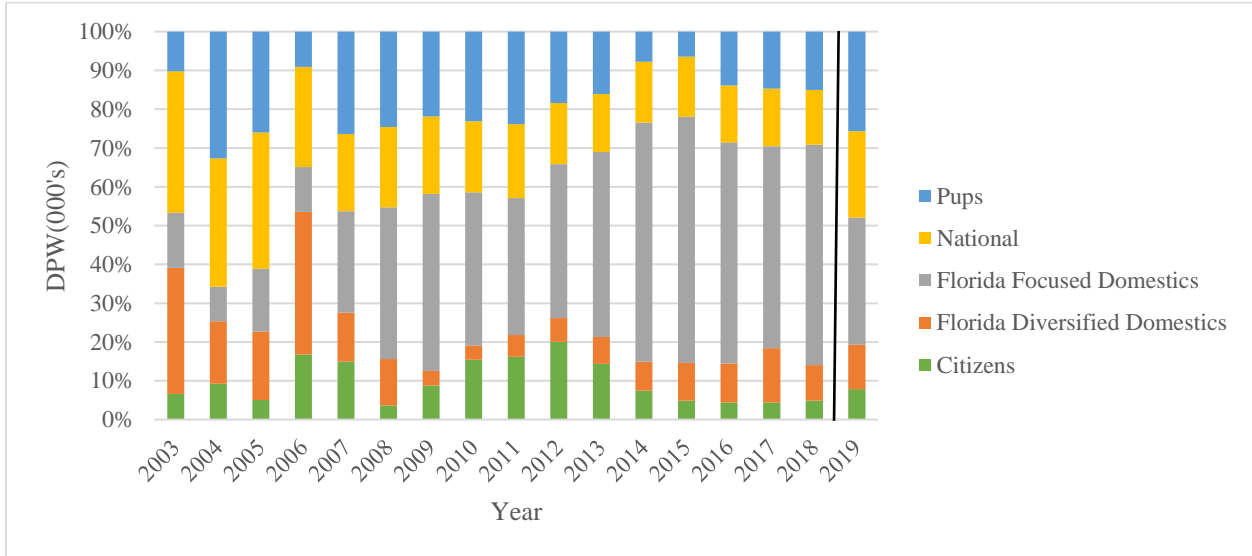
Source: OIR

Figure 34: Broward County Market Shares



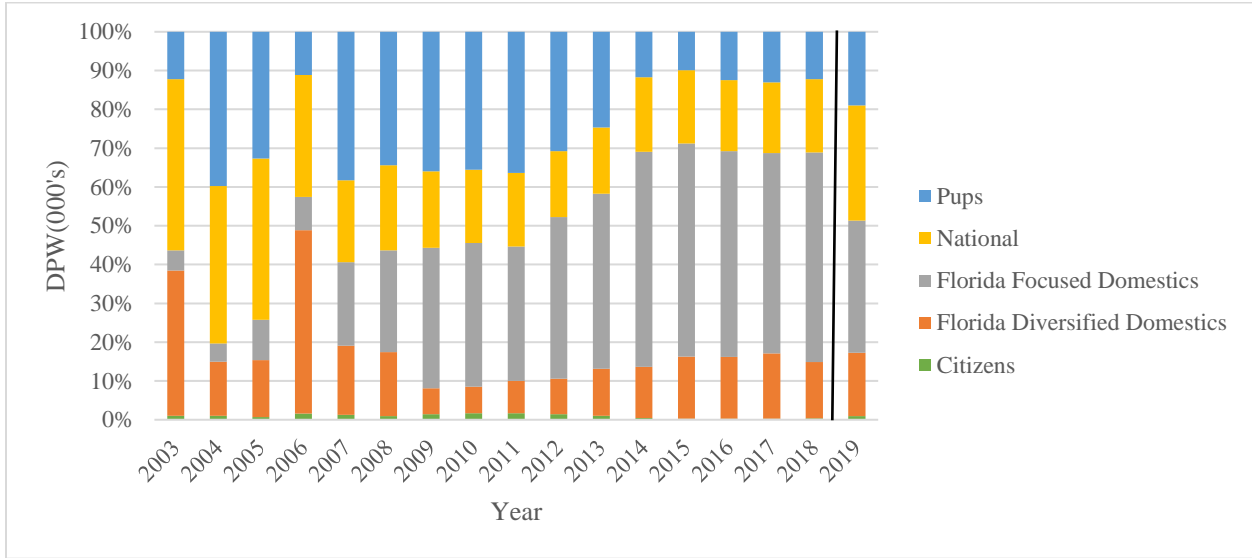
Source: OIR

Figure 35: Hillsborough County Market Shares



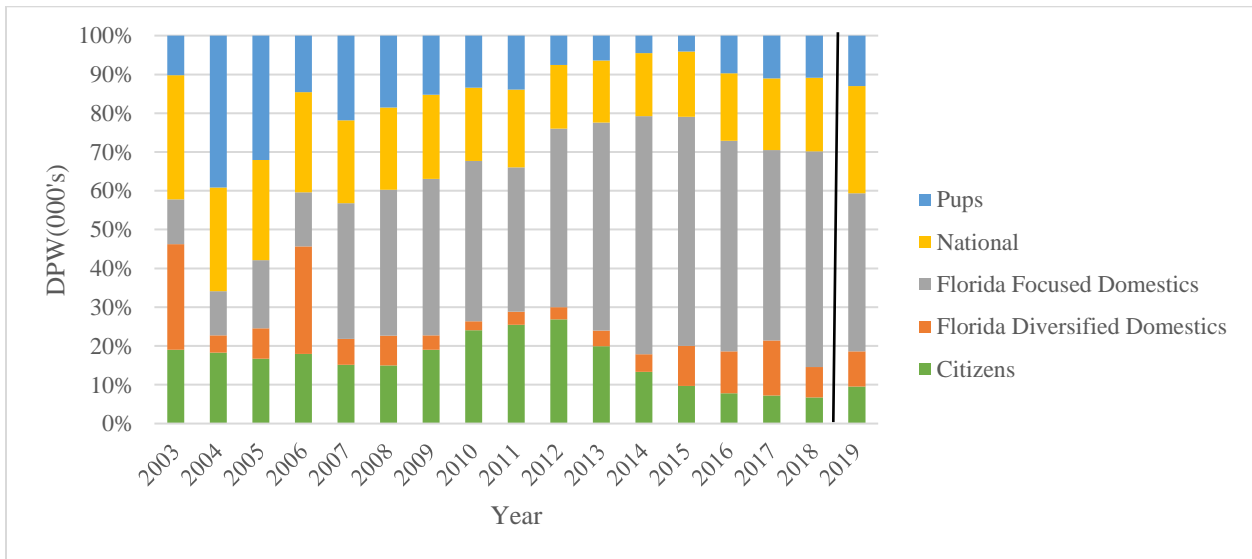
Source: OIR

Figure 36: Orange County Market Shares



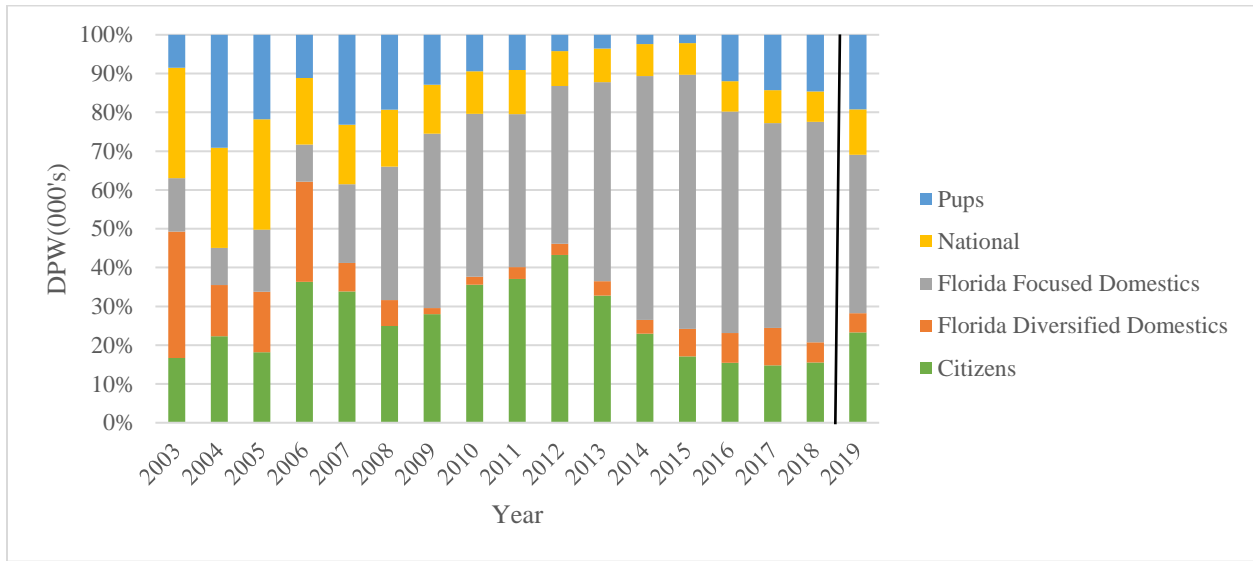
Source: OIR

Figure 37: Palm Beach County Market Shares



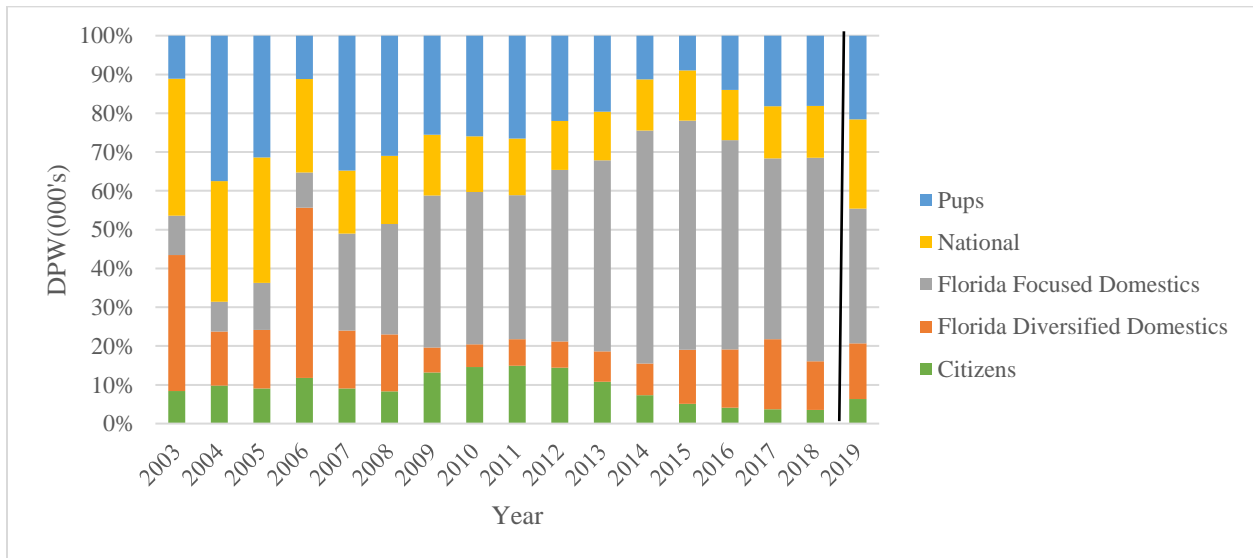
Source: OIR

Figure 38: Pinellas County Market Shares



Source: OIR

Figure 39: All Other Counties Market Shares



Source: OIR

Use of Reinsurance

Insurers operating in the Florida residential property market have different opportunities for using reinsurance, depending on whether they are affiliated with a larger group of insurers. While the NAIC collects information on insurers’ use of reinsurance for residential property coverages (personal property, homeowners, allied lines, fire), this information is not reported at the state level. Therefore, for insurers that operate in multiple states, it is not possible to

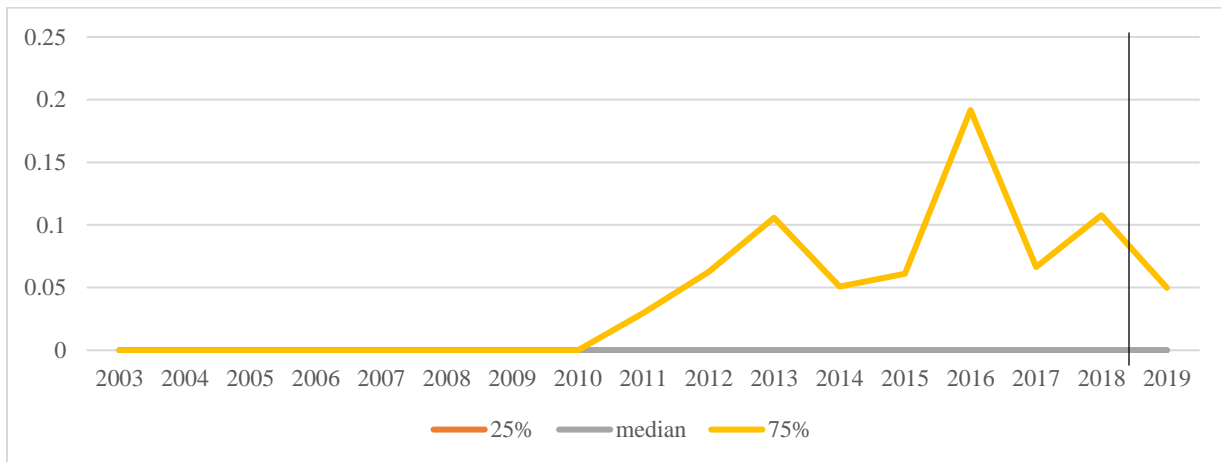
determine the extent to which the insurer has reinsured its exposure in Florida versus its exposures in other states. However, a reasonable estimate can be obtained for insurers that write in only one state.

Figure 40 below shows the distribution of Florida Focused Domestic insurers' use of reinsurance from affiliates, for the period 2003-2019. The distribution of the use of reinsurance from affiliates by the Florida Diversified Domestic insurers is shown in Figure 41 for comparison. The reinsurance measure, *Reinsurance Ratio*, is calculated as:

$$Reinsurance\ Ratio_{aff} = \frac{Net\ Reinsurance\ Ceded_{aff} - Net\ Reinsurance\ Assumed_{aff}}{Direct\ Premiums\ Written_{aff}}$$

Where *Net Reinsurance Ceded*, *Net Reinsurance Assumed*, and *Direct Premiums Written* relate to an insurer's total U.S. personal property coverage.

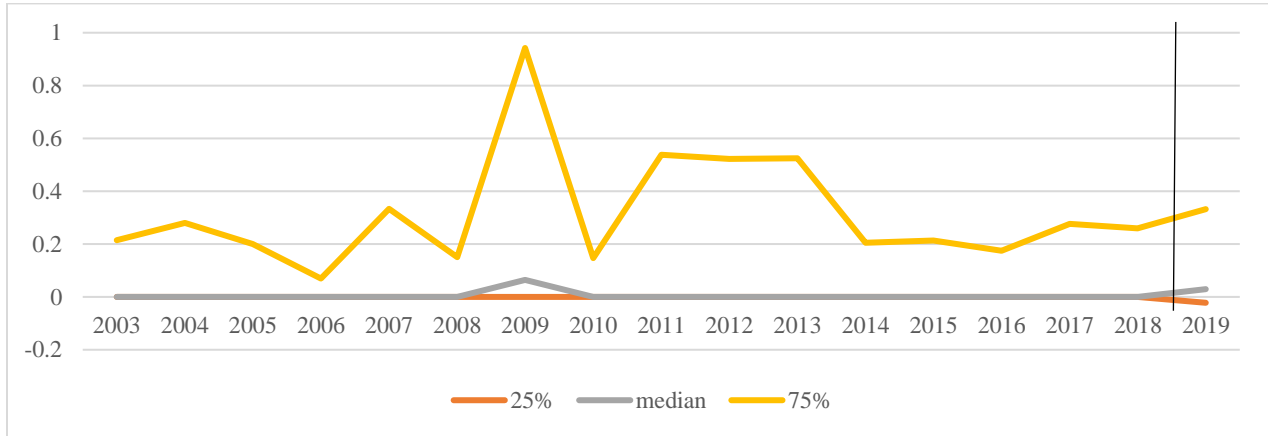
Figure 40: Florida Focused Domestic Insurers' Use of Reinsurance from Affiliates, 2003-2019



Source: NAIC

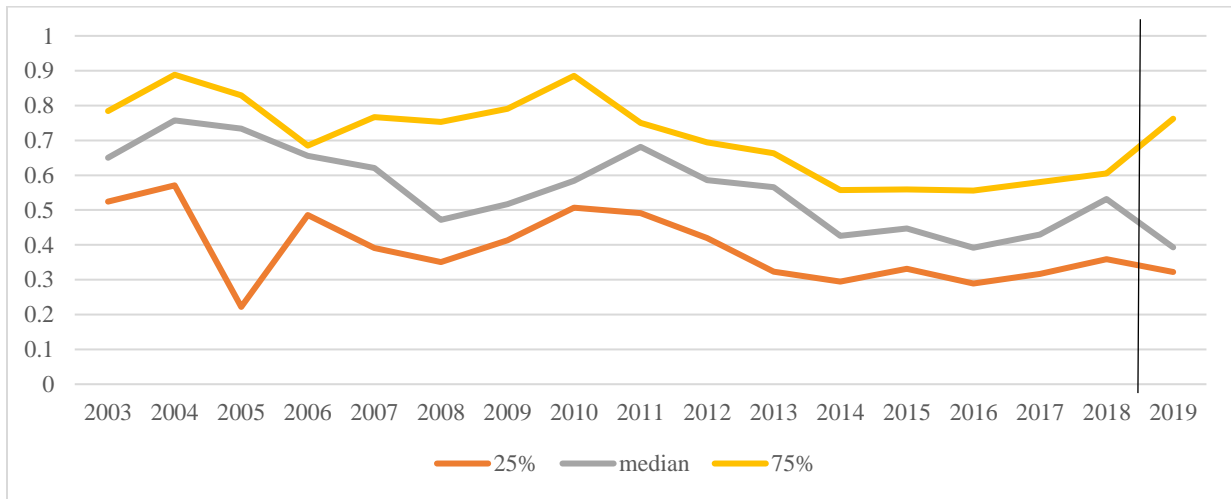
Figure 40 indicates that 50 percent (median) of the Florida Focused Domestic insurers do not have reinsurance arrangements with affiliated insurers. The top 25 percent of insurers using reinsurance from affiliates report reinsurance use that varies considerably over time, as indicated by the 75% line. Figure 41 indicates a more consistent use of reinsurance by Florida Diversified Domestic insurers during this period.

Figure 41: Florida Diversified Domestic Insurers' Use of Reinsurance from Affiliates, 2003-2019



Source: NAIC

Figure 42: Florida Focused Domestic Insurers' Use of Reinsurance from Non-Affiliates, 2003-2019



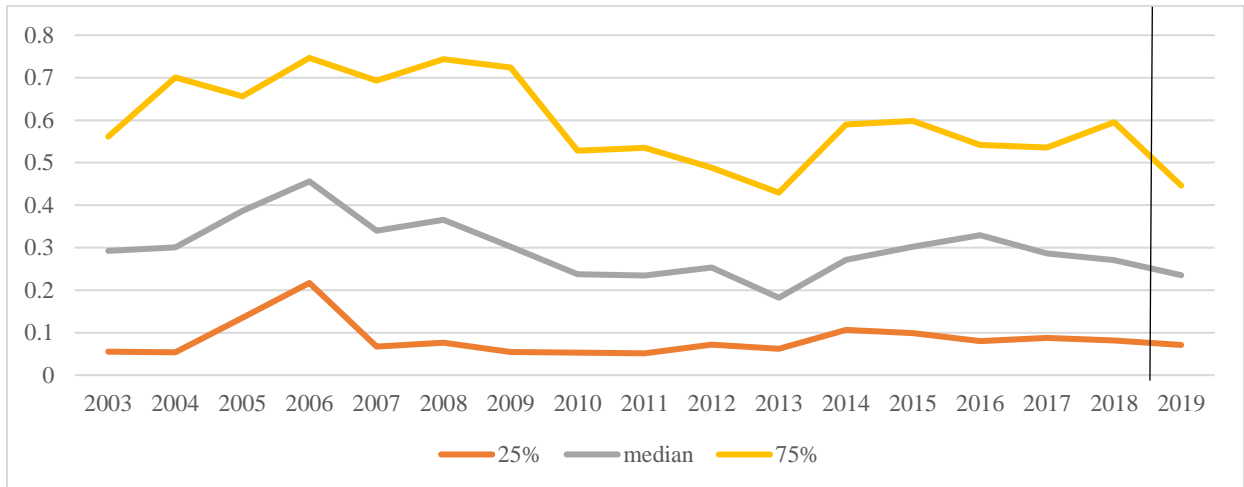
Source: NAIC

Figures 42 and 43 show the use of reinsurance from non-affiliated insurers for the same two groups of insurers.

The use of reinsurance from non-affiliated insurers (Figures 42 and 43) is generally higher than the use of reinsurance from affiliated insurers (Figures 40 and 41). Further, Figures 42 and 43 imply that the use of reinsurance from non-affiliated insurers is greater among the Florida Focused Domestic Insurers versus the Florida Diversified Domestic Insurers. However, it is important to

remember that the reinsurance use reflected in Figure 43 includes *more than 25 percent* of personal property business outside of Florida.

Figure 43: Florida Diversified Domestic Insurers’ Use of Reinsurance from Non-Affiliates, 2003-2019



Source: NAIC

Use of the Florida Hurricane Catastrophe Fund Coverage

In addition to the use of reinsurance, insurers selling residential property coverage in the state of Florida are required to buy coverage from the FHCF. The FHCF provides a layer of mandatory reimbursement coverage.⁶⁵ For a number of years, the FHCF also offered optional layers of coverage that insurers could purchase.⁶⁶ Since the FHCF, like Citizens, has the ability to assess most property and casualty lines of business in the state of Florida in the event of a shortage of funds, this layer of coverage can be construed as a type of “public” reinsurance.⁶⁷ While the coverage is mandatory, the insurers have a choice regarding the percentage of coverage they select above their retention levels which impacts the structure and amount of coverage they are purchasing from the FHCF.

Figure 44 shows the levels of FHCF coverage purchased by the four types of private insurers in the data analysis as well as Citizens. Clearly, Florida Focused Domestic Insurers are utilizing

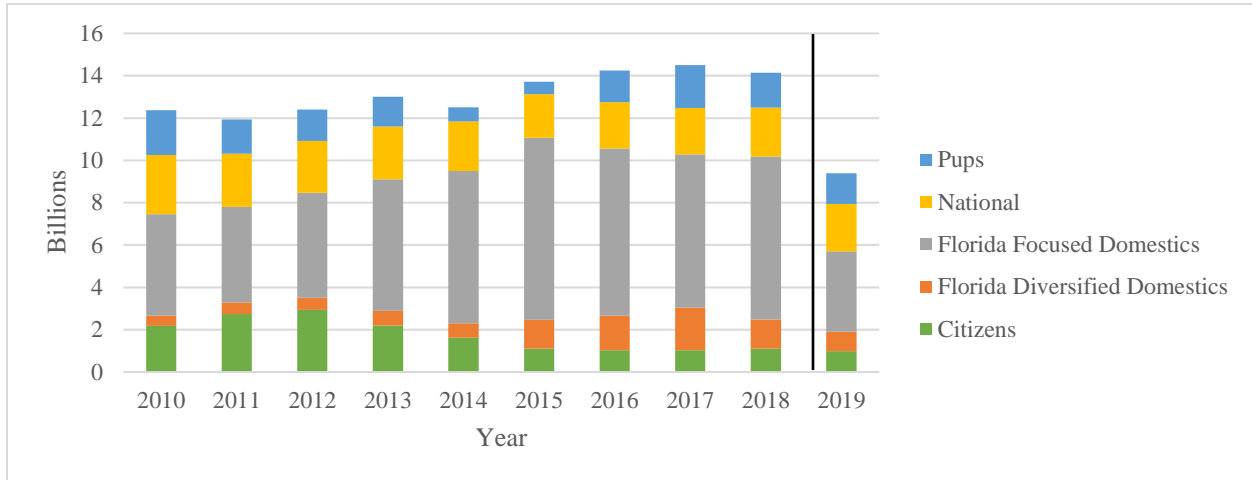
⁶⁵ The State Board of Administration by rule may exempt insurers from FHCF coverage if they write less than \$10 million in aggregate exposure for covered policies. Generally, there are about five or six insurers that request and are granted an exemption each year according to the FHCF’s data.

⁶⁶ This time period was from 2007 to 2014 following the passage of CS/HB 1A in January 2007 and its extension and phase-out of the optional coverage over five years in 2009 following the passage of CS/CS/CS/HB 1495.

⁶⁷ All lines of property and casualty insurance are subject to assessments with the exception of workers compensation, medical malpractice, federal flood insurance, and federal crop insurance. Insurers are allowed to pass the assessments to their policyholders in increased premiums (see FHCF rule 19-013(5)(d) for details). The assessments can be used to finance the issuance of revenue bonds.

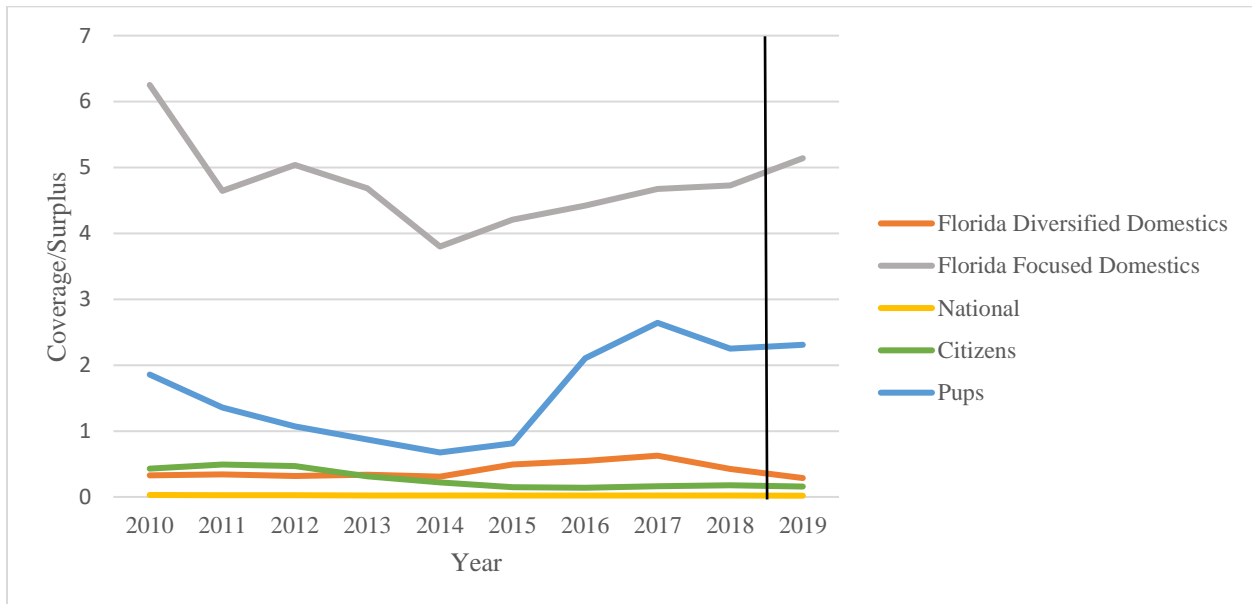
significant amounts of FHCF coverage. This utilization is more pronounced when you compare the ratio of FHCF coverage to the surplus of the insurers; see Figure 45.

Figure 44: FHCF Coverage Purchased in Billions



Source: FHCF

Figure 45: Ratio of FHCF Coverage to Surplus

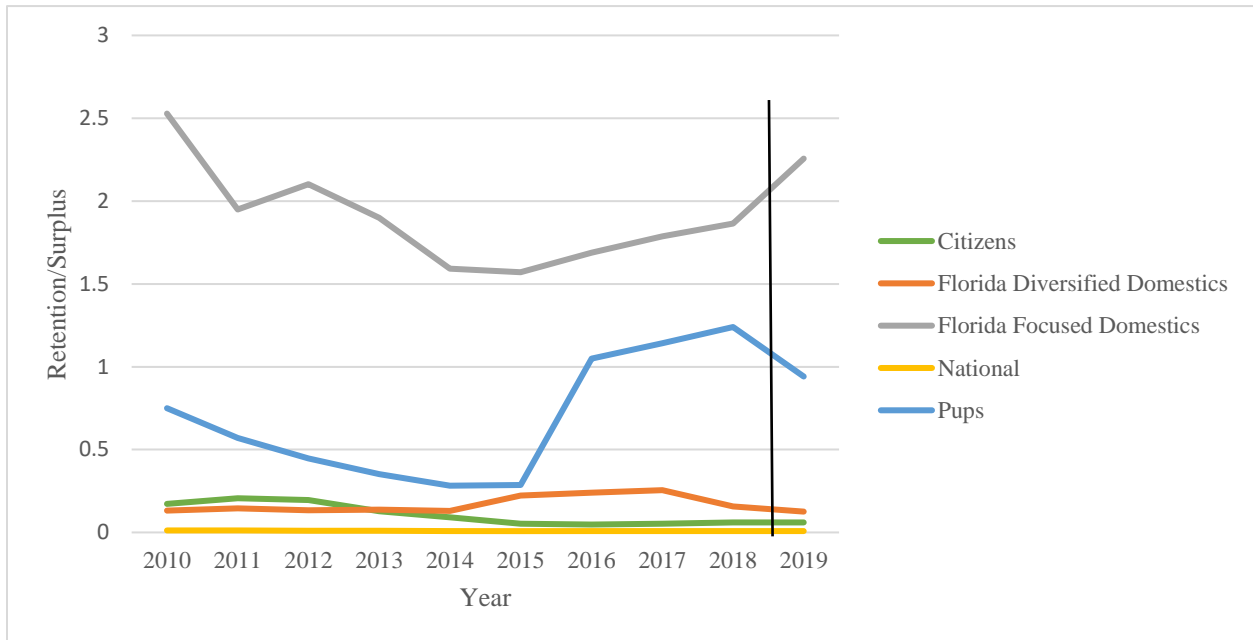


Source: FHCF

Finally, if a comparison is made for insurer retention levels relative to their level of surplus, it can be observed that a significant difference between Florida Focused Domestics and other types of insurers. As shown in Figure 46, Florida Focused Domestic insurers have higher retention levels relative to their surplus than other types of insurers. This implies that these insurers would

need to purchase reinsurance below the FHCF level to maintain solvency standards and would be subject to greater price fluctuations in the reinsurance markets.

Figure 46: FHCF Retention to Surplus



Source: FHCF

Rate Differentials Across Types of Insurers and Across Counties

Florida has among the highest residential property insurance premiums in the country which is a function of being a peak zone for catastrophic damage due to windstorms. It is also due to the volume of high-priced residential development in coastal areas. Premiums are a function of both the rate charged per \$1,000 of coverage and the amount of coverage purchased. As construction costs continue to increase, the amount of coverage purchased will also increase. Rates per \$1,000 of coverage have fluctuated due to a variety of factors including, but not limited to: changes in modeled loss costs, reinsurance costs, regulation, expenses, and competition. The rates charged by insurers in the state of Florida are evaluated in three different ways. First, statewide rates by type of insurer are examined. Second, rates in the top 6 largest counties in Florida along with the remaining 61 counties combined are examined. Finally, the rate filings of insurers are examined to determine if a pattern of rate requests is apparent.

When comparing these rate graphs there are a few things to keep in mind:

1. The rates are calculated as the aggregate total premiums collected by insurer type divided by the total insured value (in thousands) by insurer type. There are no controls for any

property specific features. For example, many properties insured by Citizens are older properties (built prior to newer building codes) and may pose a significantly higher risk than new construction properties insured by other types of insurers.

2. The rates calculated in any of the given insurer categories likely do not reflect the rates available to any individual property owner searching for insurance coverage on a given day. For example, while National Insurers have the lowest rates in Palm Beach County, those rates are not available to new customers looking to purchase property insurance in Palm Beach County. In many areas there are only a few insurers competing for new business and they are not the National Insurers with lower rates.
3. The QUASR data does contain information on which insurers are issuing new policies but does not contain information at the policy level to determine the relative rates of Citizens versus other insurers for *new* policies.

Citizens completed a competitive rate analysis in November 2019 that compares Citizens' rates on their policies in force (as of September 30, 2019) to what private insurers would charge for those same properties according to their filed rate plans (Citizens Property Insurance Corporation, 2019c). This study shows that Citizens' rates on these policies is very competitive with the private market. However, even this study does not compare the rates Citizens charges relative to other insurers issuing new policies in a given market. Data availability restricts the ability to directly compare Citizens' rates to insurers quoting on new policies on a widespread basis.

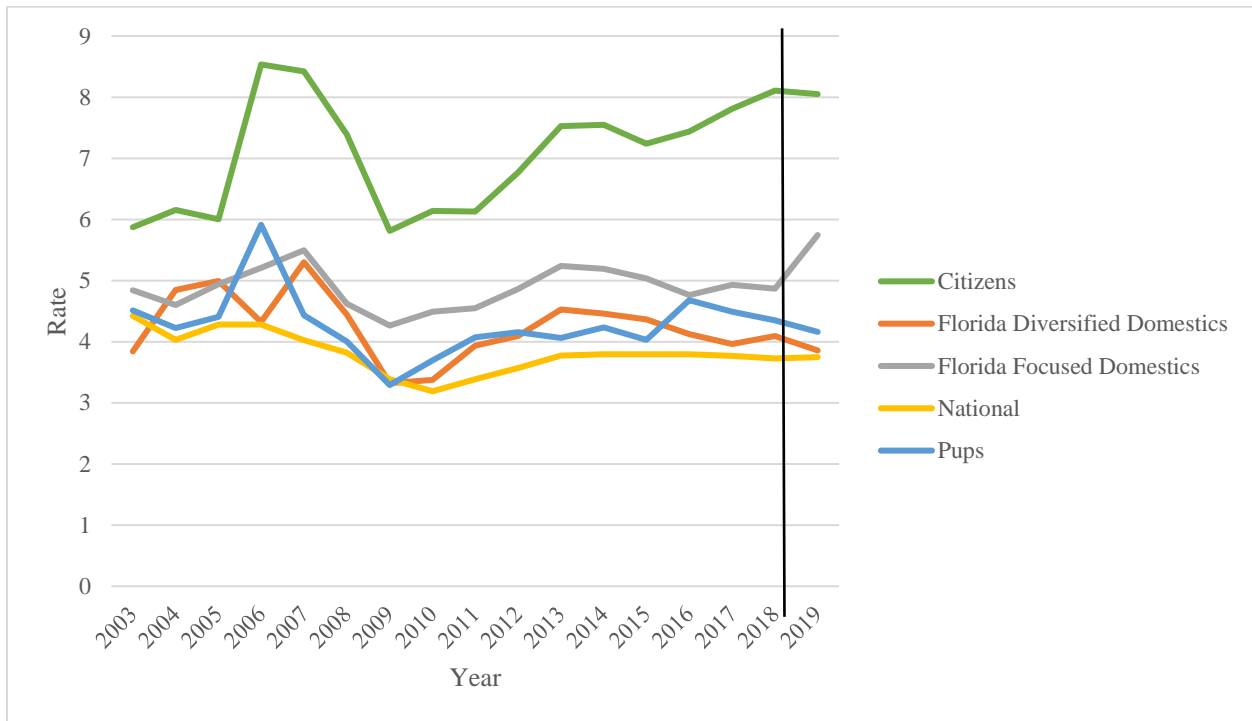
Statewide Rates

Using QUASR data and the 5 types of insurers defined earlier, statewide totals of direct premiums written and total insured values for each category are calculated. Rate per \$1,000 of coverage for each insurer category is determined by dividing the premiums by total insured values (in thousands). Figure 47 contains the rate per \$1,000 in coverage for the years 2003 through 2019. As discussed earlier, care should be taken interpreting 2019 data as a significant number of insurers filed for trade secret protection, and their data are not included in the QUASR data examined here.

As shown in Figure 47, rates have fluctuated through time. It is not surprising to see that National Insurers have the lowest rates as they have shed many of their higher risk policies as discussed in the Market Shares by Type of Insurer section. These companies have significantly reduced their market share in higher risk areas. It is also not surprising to see Citizens with the highest rates given that most of their book of business is in the highest risk areas. One somewhat surprising trend is to see that the Florida Diversified Domestic companies that have diversified outside of Florida seem to have consistently lower rates than the Florida Focused Domestic companies that remain Florida focused.

Examining the statewide rates will not provide an indication of what may be happening in some segments of the market. Obviously, rates are quite different between Miami-Dade County and Baker County. To look for more localized rate trends, the rates of the top six counties (based on premium volume) in Florida are examined.

Figure 47: Rates per \$1,000 of Coverage Statewide⁶⁸



Source: OIR

County Rates

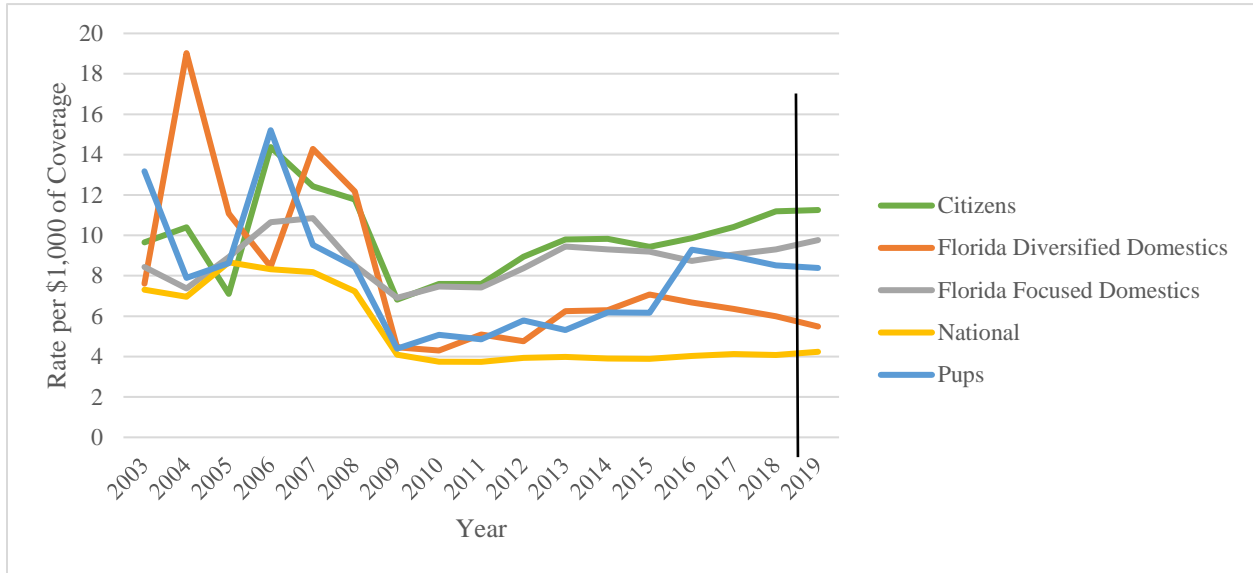
The top 6 counties in terms of premium volume are Dade, Broward, Hillsborough, Orange, Palm Beach, and Pinellas Counties. Figures 48 through 54 include six graphs (one for each county) as well as a seventh graph for the average of all other counties.

At the statewide level, Citizens has consistently had the highest rates based on the QUASR premium and insured value data. However, the county-level data shows that Citizens’ rates are more competitive with the private market in some areas. For example, Citizens and the Florida Focused Domestic Insurers had very similar rates in Dade County between 2009 and 2015 with some slight separation occurring in the last few years. Similarly, Citizens’ rates in Pinellas

⁶⁸ It should be noted that in 2009, there was a change to the QUASR data collection system by the OIR referred to as QUASRng (QUASR Next Generation). Care should be taken when comparing pre-2009 and post-2009 data.

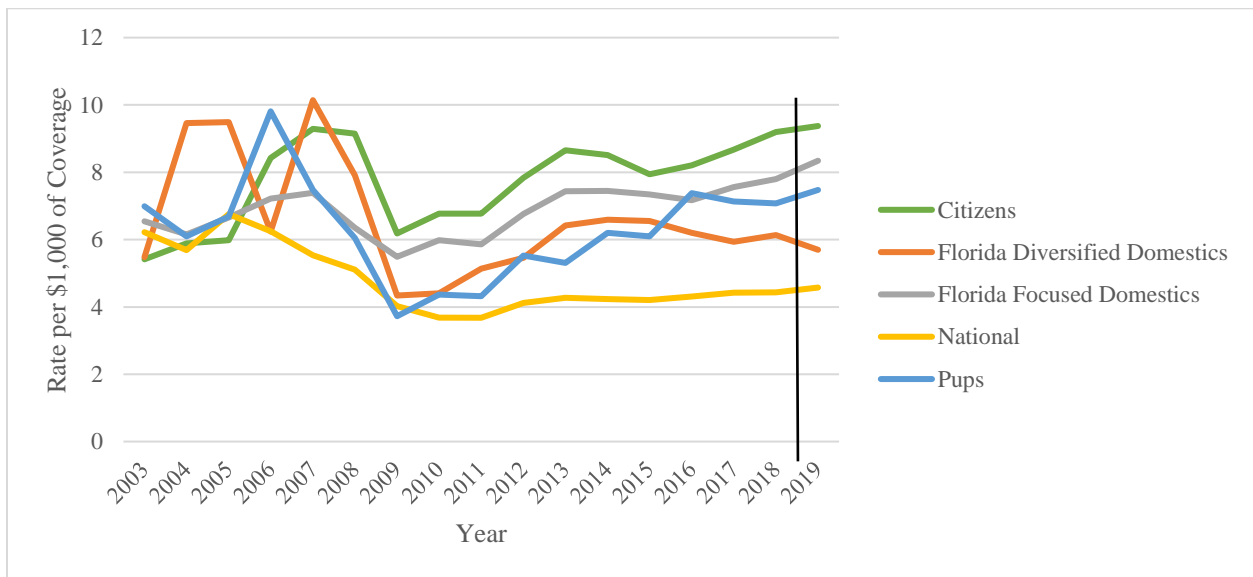
County have been competitive with the Florida Focused Domestic Insurers since 2009 and appear to be currently below their average the last few years.

Figure 48: Rates per \$1,000 of Coverage - Dade County



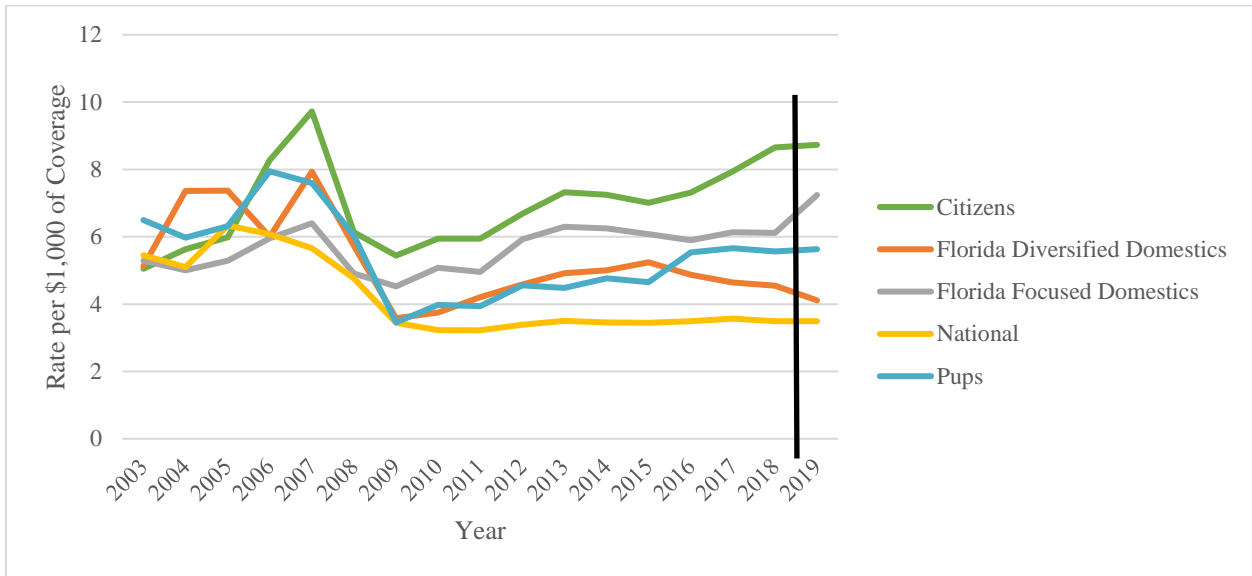
Source: OIR

Figure 49: Rates per \$1,000 of Coverage - Broward County



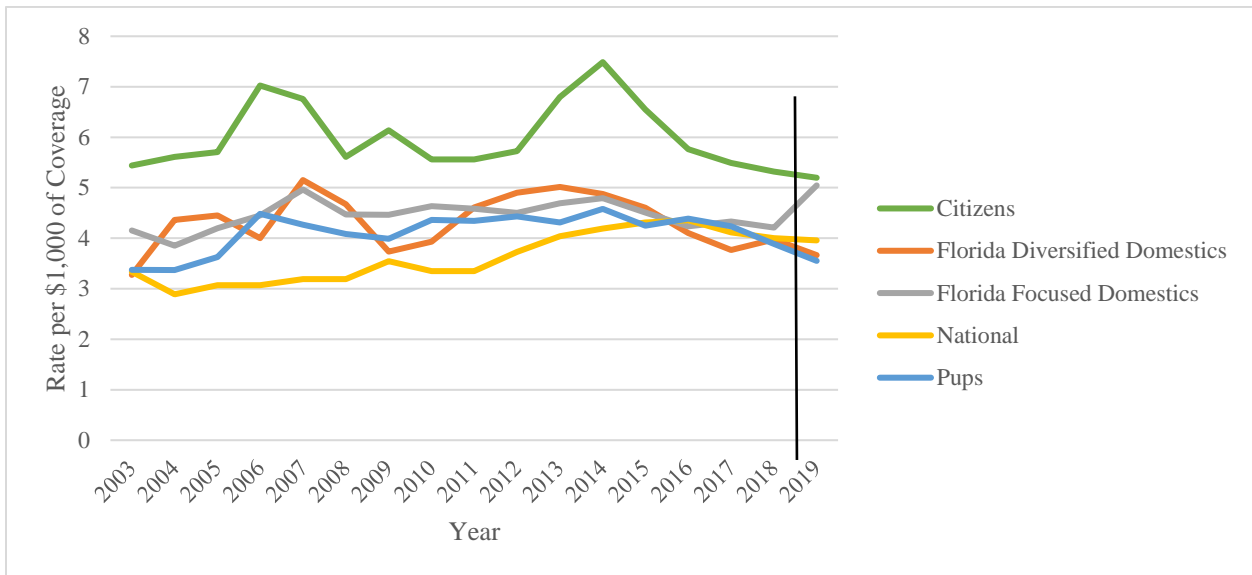
Source: OIR

Figure 50: Rates per \$1,000 of Coverage - Palm Beach County



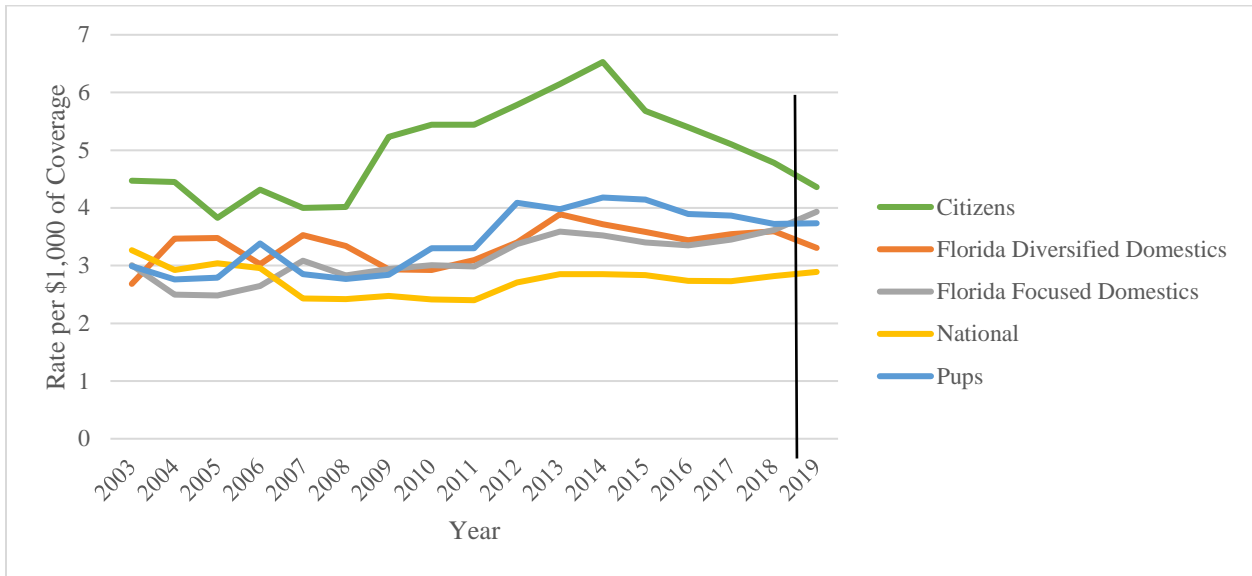
Source: OIR

Figure 51: Rates per \$1,000 of Coverage - Hillsborough County



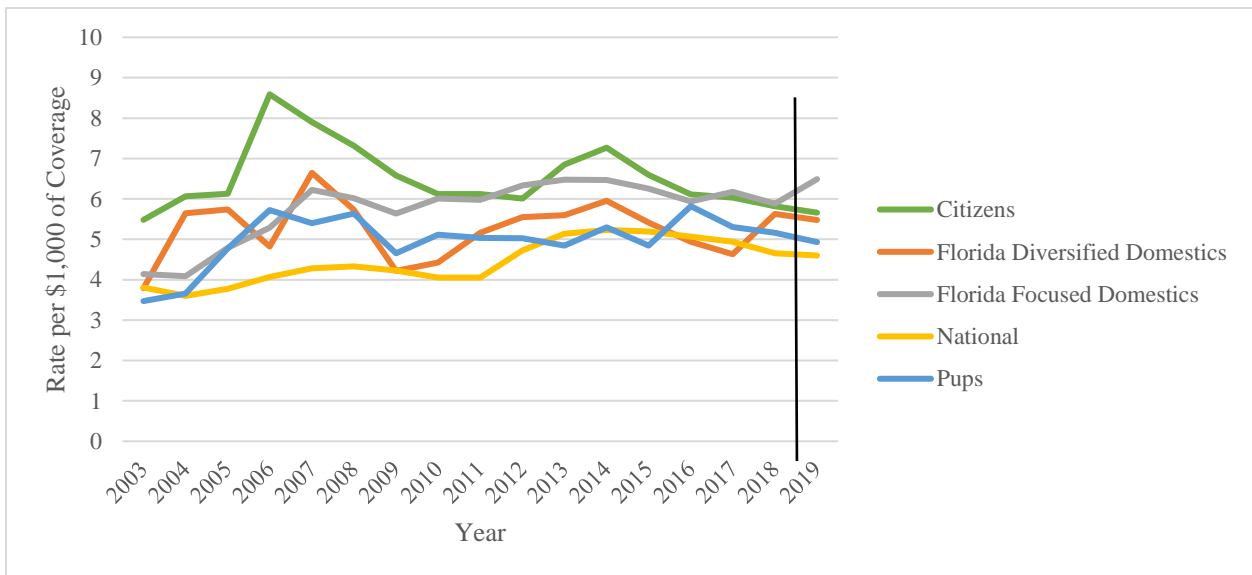
Source: OIR

Figure 52: Rates per \$1,000 of Coverage - Orange County



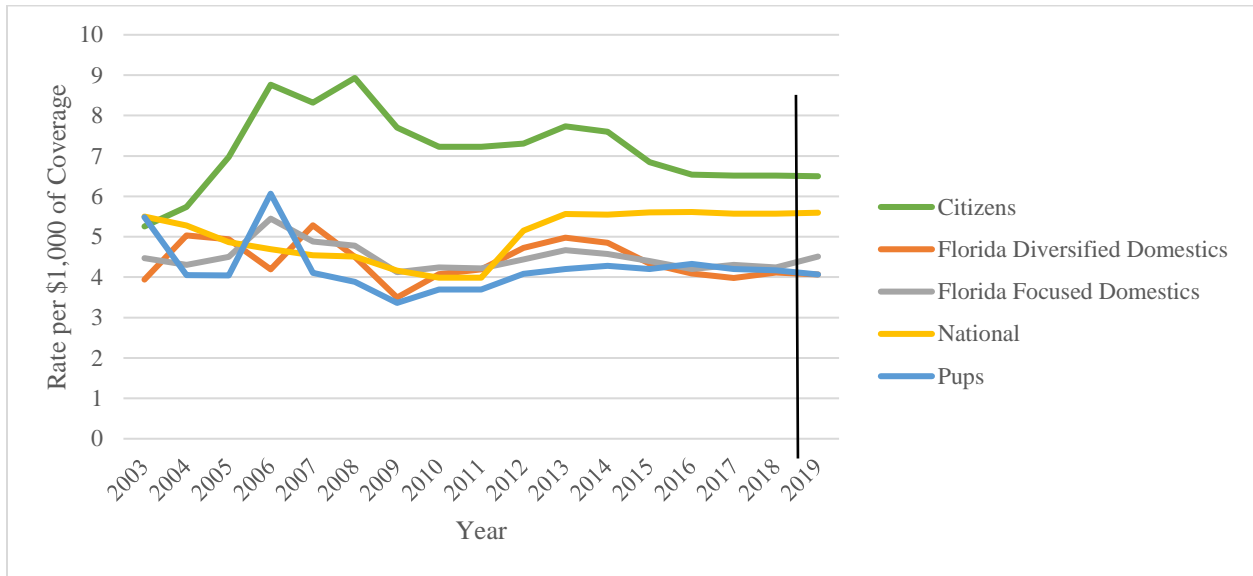
Source: OIR

Figure 53: Rates per \$1,000 of Coverage - Pinellas County



Source: OIR

Figure 54: Rates per \$1,000 of Coverage - All Other Counties



Source: OIR

Figure 54 is not a weighted average of rates in the other 61 counties, it is the equally weighted average of those 61 counties.⁶⁹

Insurer Rate Filings

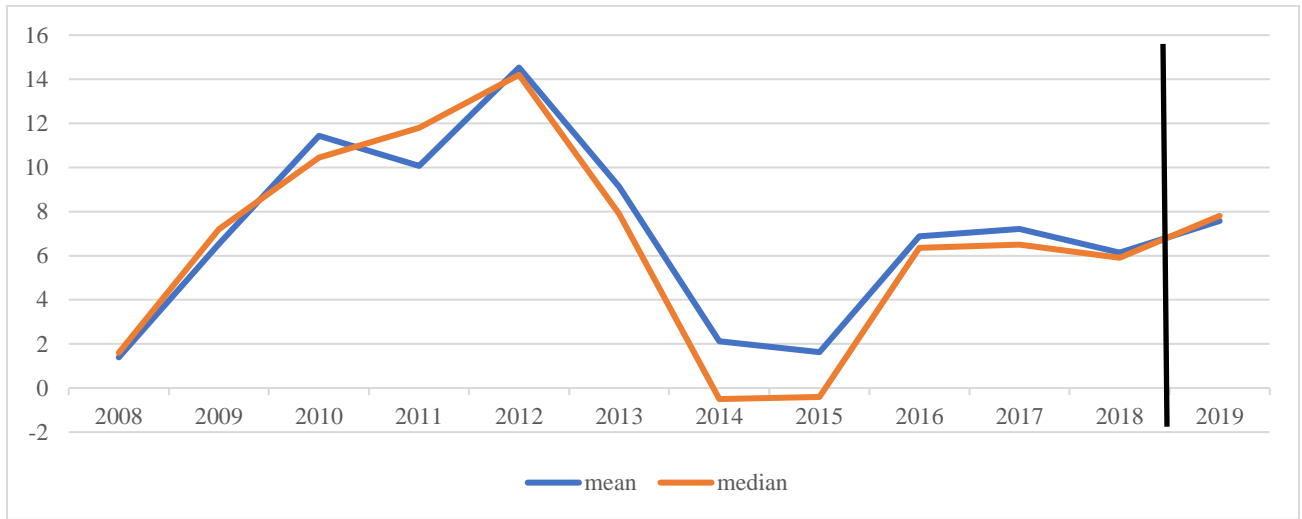
Insurer rate filings can provide an indication of the stability of rates over time. Using data obtained from all rate filings since 2008, the FSU Research Team examined two phenomena among rate filings: (1) the rate changes that were approved each year, and (2) the distribution of the rate change requests approaching 15 percent. Insurers must attend a rate hearing if a rate change request exceeds 15 percent. A large proportion of rate changes between 14 and 15 percent may be an indication that insurers are wary of attending a hearing and, hence, avoid exceeding this threshold.

Figures 55 through 57 show the mean and median rate changes approved, by year, for three main residential property lines of business: personal property (fire and allied lines), homeowners, and mobile homeowners.⁷⁰ The information in these figures indicate that most insurers requested rate increases each year, and the lowest rate change approvals were during the period 2013 through 2015.

⁶⁹ Monroe County rates are not included prior to 2008. There appears to be a data anomaly in Monroe County between 2003 and 2008 as rates for Florida Pups and National Insurers were more than \$2,000 per \$1,000 of coverage in 2003 and 2008.

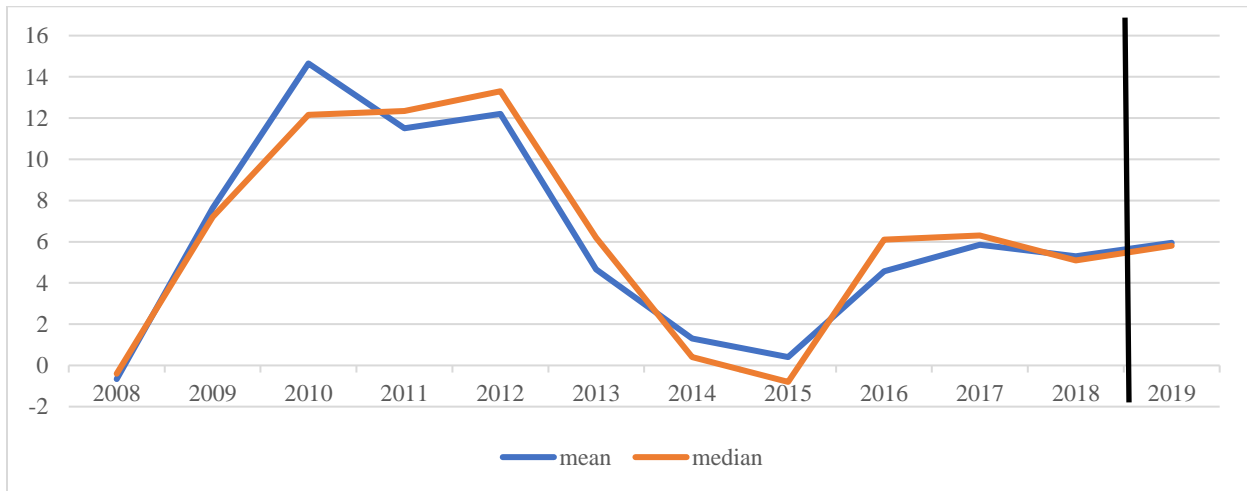
⁷⁰ Though these charts use data from the NAIC, only companies included in the QUASR data are used.

Figure 55: Rate Changes Approved for Personal Property – Fire and Allied Lines



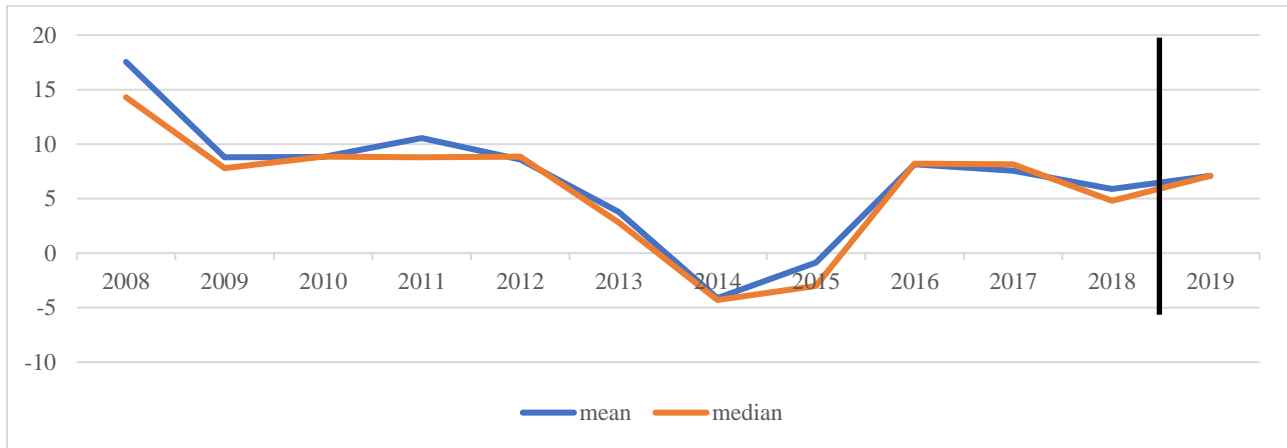
Source: NAIC

Figure 56: Rate Changes Approved for Homeowners



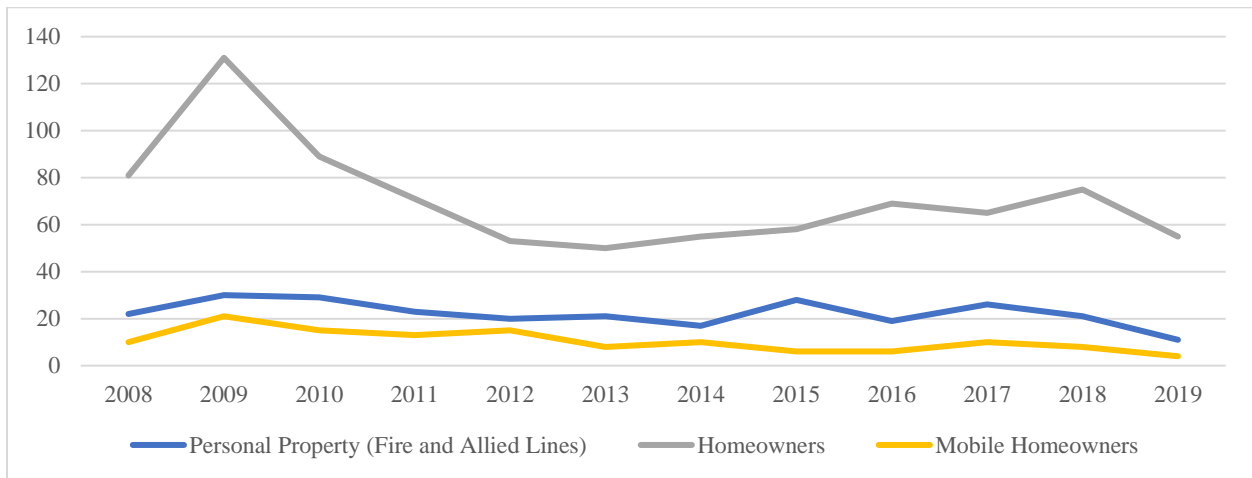
Source: NAIC

Figure 57: Rate Changes Approved for Mobile Homeowners



Source: NAIC

Figure 58: Number of Rate Filings per Year, by Line



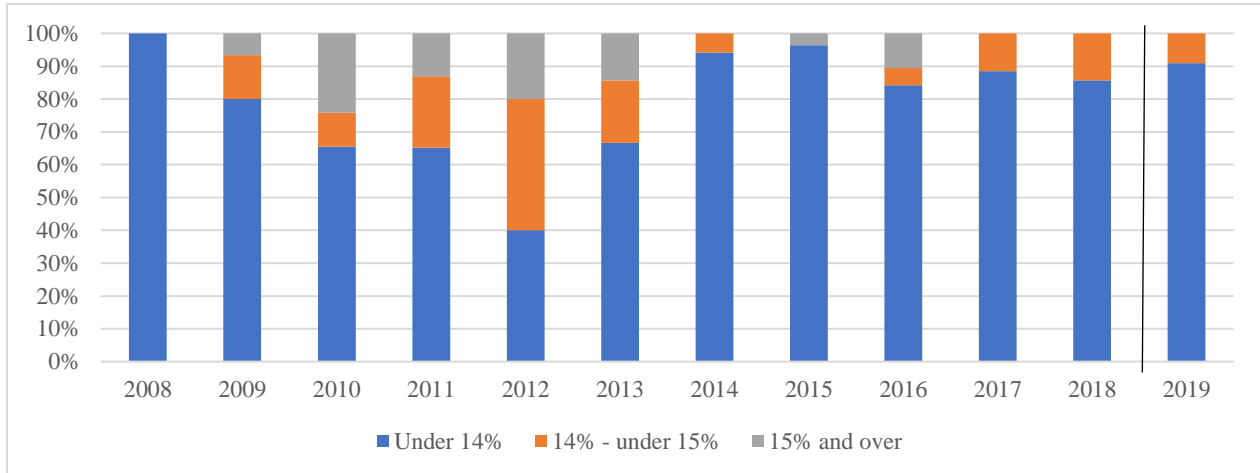
Source: OIR

Figure 58 shows the number of rate filings submitted annually by insurers doing business in Florida. Except for the period 2008 - 2010, the number of filings for homeowners policy rate changes has ranged from 50 – 80 per year. The number of filings in personal property (fire and allied lines) and mobile homeowners is also consistent, though lower, as fewer insurers write business in these lines when compared to homeowners.

Figures 59 through 61 show the distribution for rate change requests, allocated into three categories: under 14 percent, above 14 percent but below 15 percent, and over 15 percent. Again,

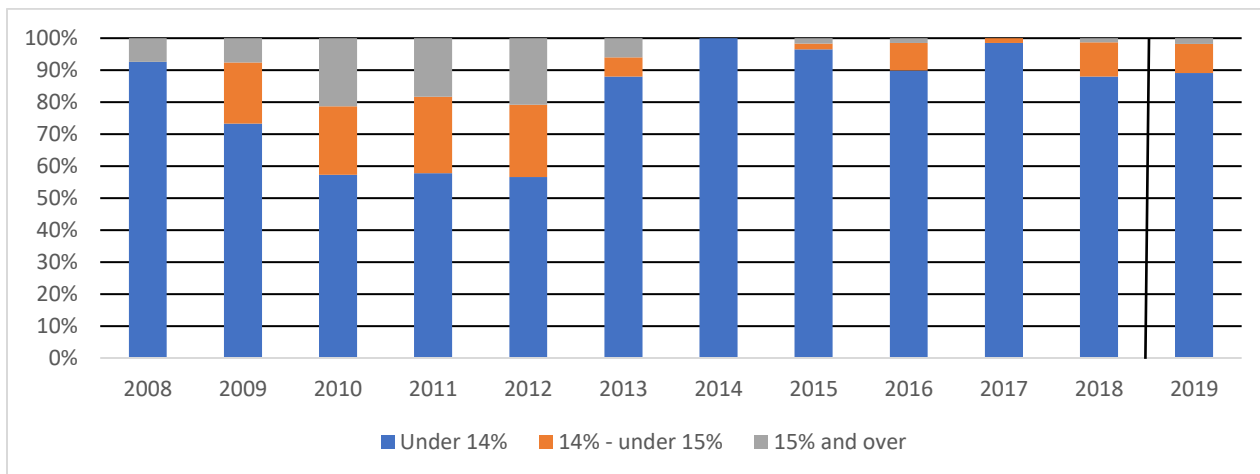
these are presented for three lines of business: Personal Property – Fire and Allied Lines, Homeowners, and Mobile Homeowners.

Figure 59: Rate Change Requests for Personal Property – Fire and Allied Lines, 2008-2019



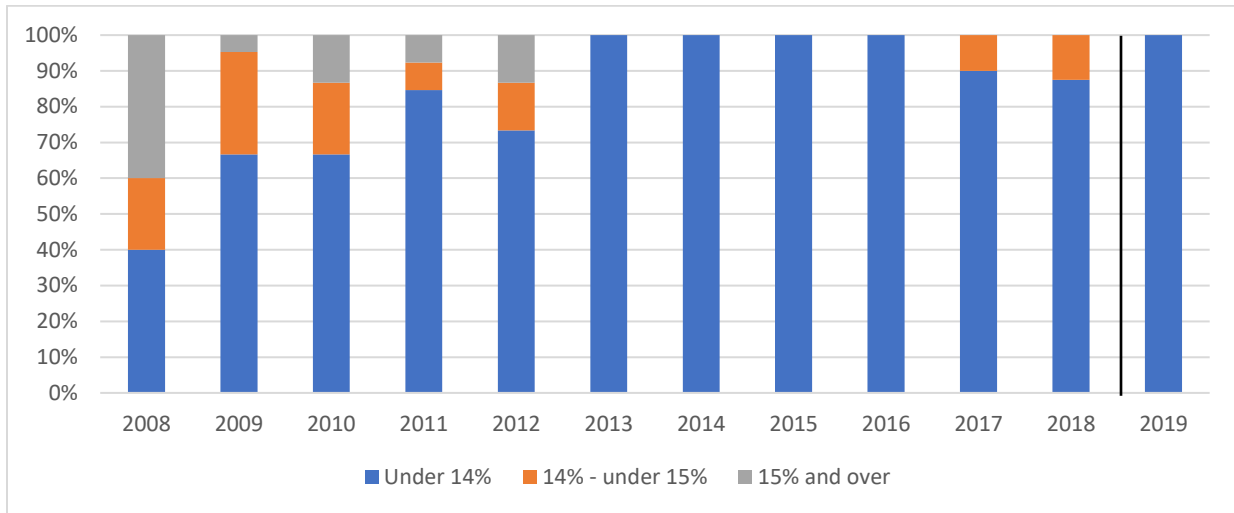
Source: NAIC

Figure 60: Rate Change Requests for Homeowners, 2008-2019



Source: NAIC

Figure 61: Rate Change Requests for Mobile Homeowners, 2008-2019



Source: NAIC

Capitalization of Insurers Approved for Takeout

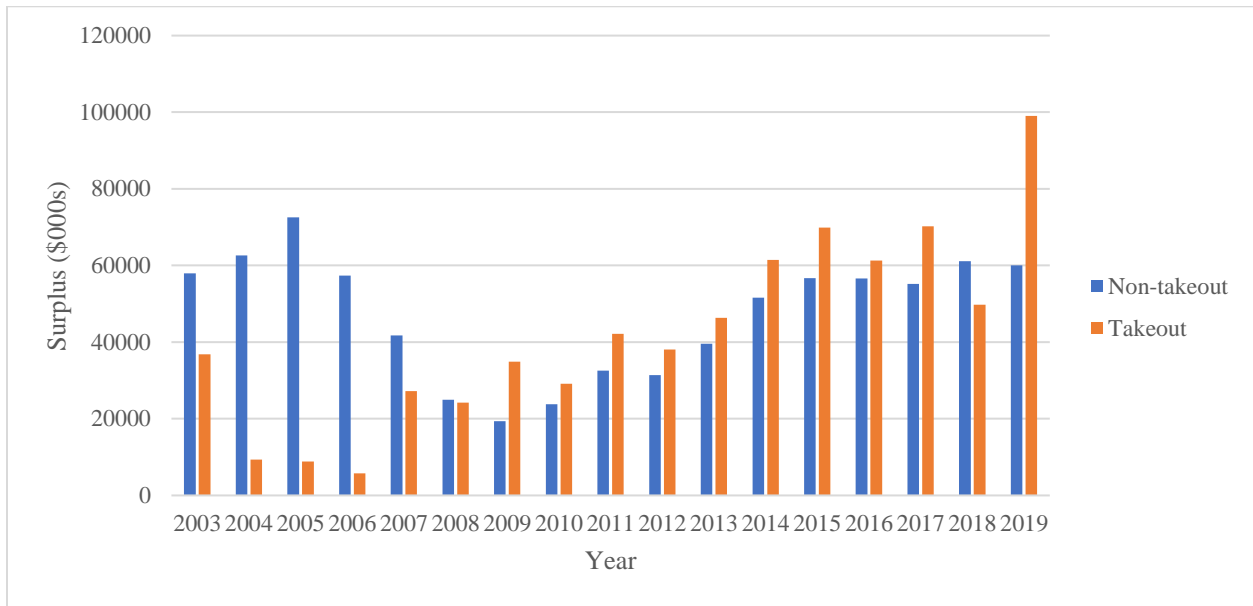
Citizens’ depopulation efforts have included a takeout program. This program was designed to encourage private market insurers to take policies from Citizens. As noted in the depopulation studies conducted by Citizens (Citizens Property Insurance Corporation Document [62], 2020), some of these policies returned. Most of these returning policies were from companies that eventually ended up insolvent.

Appendix F contains a list of the private market insurers and the year(s) that they participated in the takeout program. Most of the program participants are insurers classified herein as Florida Focused Domestic Insurers. Because most were from that category, a comparison between takeout program participants and the Florida Focused Domestic Insurers that chose not to participate was conducted.

Two patterns emerged that are worth noting. First is the surplus that is available to support the insurers’ operations. The surplus of each company is taken from the NAIC annual statements for each company/year. Figure 62 below shows the annual surplus of the Florida Focused Domestic Insurers that participated in the takeout program compared to the surplus of the Florida Focused Domestic Insurers that did not participate.

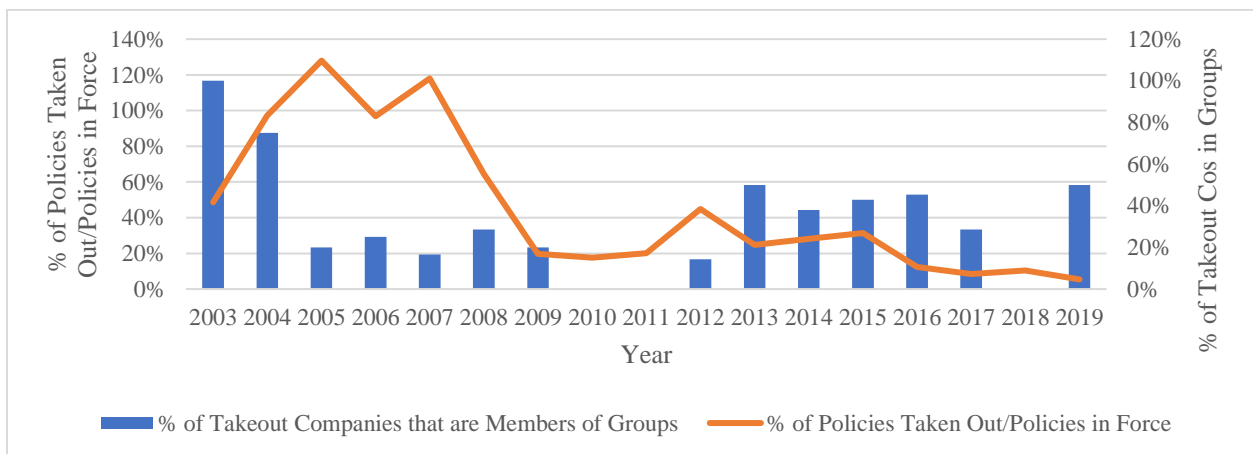
The early years of the takeout program saw smaller insurers (relative to their peers) participating in the program. In the later years of the program, the participating insurers tended to be the larger insurers (as measured by surplus).

Figure 62: Surplus Comparison of Florida Focused Domestics by Participation in Takeout Program



Source: Citizens and NAIC

Figure 63: Takeout Company Policy Ratios and Group Membership



Source: Citizens, NAIC, and OIR

The second notable trend is the relationship between the number of policies the participating insurers acquired from Citizens that year and the policies these insurers had in force at the end of that calendar year (QUASR data). Figure 63 graphs the ratio of total number of takeout policies in a given year to the total policies in force at the end of that year for the participating insurers on the left axis (the line chart) and how many of the companies that participated in the takeout program that year were members of a group on the right axis (bar chart).

Prior to 2009, it appears that the takeout program was the primary method of acquiring policies for the companies that chose to participate. In 2009 and later, the takeout program appears to be more of a supplemental source of policies for the companies participating. This is likely a function of several market dynamics. In the most recent years, there are fewer policies available in Citizens for takeout, limiting the option of it being a significant growth opportunity for insurers. In addition, the private market insurers have been in business for a longer time and have more significant existing books of business. In the early years of the program, there were more startup domestic insurers looking to acquire new policies without existing books of business. Finally, it appears that a larger number of insurers participating in the takeout program in later years are members of groups. In 2003, only one company participated in the takeout program; in 2004, there were only four. More companies participated in later years (although 2018 and 2019 had few participants). It appears that the participants in the 2000s were more likely to be individual companies, while the participants in the 2010s had more group members participating.

Given the trends in these two charts, it is not surprising that the Citizens depopulation studies found more policies returning in the earlier years of the program than in later years. Given that one major contributor to returning policies was insolvencies, better capitalized insurers taking out relatively fewer policies would lead to more stability and fewer returning policies

Summary

This section of the report identified trends that may either be favorable or unfavorable for Citizens. One favorable trend worth noting is the increase in the market share of Florida Diversified Insurers writing business in the state. Other favorable trends include Citizens' reduction in market share and the success of the takeout program. These are trends that are favorable to market conditions in Florida and the approaches described below should be considered to the extent that they aid the continuation of these trends.

There are some unfavorable trends, however. Capital adequacy continues to be a concern as the capital supporting insurance operations in many insurers seems low relative to the catastrophic risk the state faces. The market share of Florida Focused Insurers remains high; these insurers are not well diversified, and the combination of a lack of diversity and significant market share could lead to serious market disruptions if a major loss were to occur. Finally, in some locations, Citizens' market share is consistently high, and their rates may be too competitive with private insurers to incentivize insureds to go to the private market.

Hurricane Modeling to Optimize the Exposure for Citizens & the Private Market

Introduction

The purpose of using hurricane modeling for this part of the analysis is to evaluate various ways to optimize the distribution of exposure among Citizens and the residential property insurance market in Florida. This requires the gathering of a variety of insured property and financial information from Citizens and the private market,⁷¹ and conducting various analyses. The KCC catastrophe hurricane model⁷² is used to evaluate alternative allocations of exposure data between Citizens and the private Florida insurance market including estimating impacts to catastrophe exposure and threats to surplus for individual companies and the overall market. The hurricane modeling approach strives to satisfy the objectives outlined in the Statement of Work by providing a report that “summarizes the data collected, analyses performed, and recommendations for potential opportunities to minimize Citizens exposure and maximize private insurance market participation in Florida.”

The data collected includes growth and risk profile trends for Citizens and the private residential property insurance market. Other financial and reinsurance structure information has been collected to incorporate solvency or bonding and assessment impacts as a perspective of the analyses. Most data have been gathered from publicly available sources, while some are proprietary from KCC data sets.

The next section begins with an overview of the exposure data collected, catastrophe models, and catastrophe model risk metrics, including the traditional PML and more advanced metrics. The analyses focus on hurricane model loss estimates and illustrate how catastrophe model metrics are better suited to evaluating potential exposure reallocation methodologies than TIV or premium-based algorithms. The final section provides several alternative approaches for reallocating exposure data and explores the trade-offs between the approaches in terms of threats to solvency and catastrophe risk profile post-exposure transfer. The alternatives are positioned along a spectrum of potential benefits to both Citizens and the private market, and ultimately a combination or hybrid of the alternatives could be implemented. A key theme is considering coordinated “push” approaches where policies identified for depopulation are proactively identified for structured release to the private market as opposed to “pull” mechanisms where takeout companies largely select policies independently. This section also offers analytical solutions to some of the questions and ideas that are presented in the following section.

⁷¹ The data are from the admitted market and does not include the surplus lines market.

⁷² KCC US Hurricane Reference Model Version 2.0 – RiskInsight® 4.9.5.

Background

Data Collected

KCC has collected residential and commercial-residential property data, FHCF and surplus information, and insurance market metrics necessary to estimate potential hurricane losses and to quantify trends in Citizens and private insurance market exposure in Florida.

Evaluating trends in the Florida insurance market requires time series information on Florida and U.S. insurance market metrics, including aggregate statistics on the distribution and count of insurance companies within Florida and individual company metrics such as their surplus and premium.

There is no single public source of the necessary catastrophe model data, reinsurance program details, and insurance market statistics described above. Consequently, KCC has collected data from a variety of public and confidential data sets, pulling the most credible data elements from each source, and then applying necessary assumptions to construct an optimal aggregate set of data attributes for conducting this part of the study. KCC will leverage proprietary data sets to verify the reasonability of any assumptions that are applied to publicly available data.

The following list highlights several of the key data sets used:

- Citizens Detailed Yearly Data Sets
 - 2011-2019
 - Contains address and policy-level information including geo-points, building characteristics, insurance terms, and premium
- Quarterly and Supplemental Reporting System (QUASR) County Data
 - First quarter 2019 export
 - Contains county-level policy count and insured value for the majority of private insurance companies in the state of Florida; however, each year a larger number of companies have reported their data as trade secret and are no longer included in the public database
- KCC Property Database (KPD)
 - Proprietary database of nationwide industry exposure data at the ZIP-LOB resolution. Florida residential ZIP code level data was used in analyses
- Florida Office of Insurance Regulation (OIR) Annual Reports
 - 2014 – 2018
 - Contains surplus information for Florida insurance entities by year

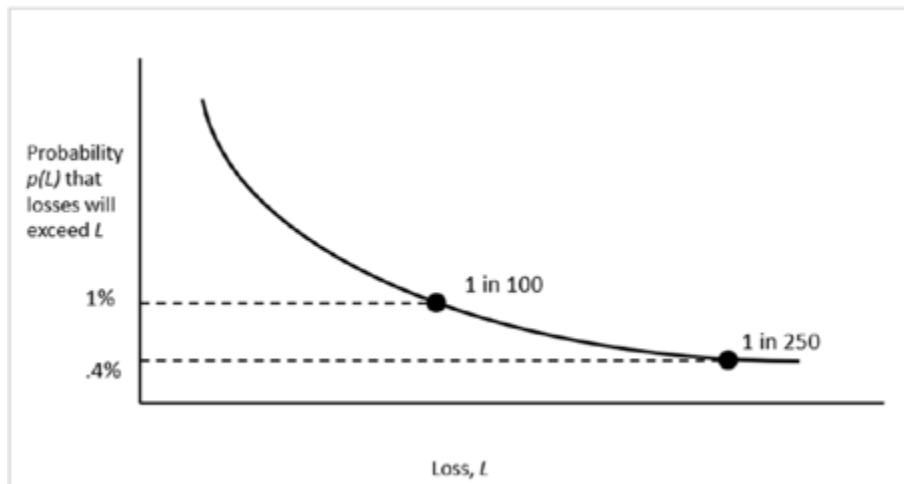
A full summary of the data collected to date appears in Appendix G.

Introduction to Catastrophe Models

Over the past few decades, the insurance industry has become increasingly reliant on catastrophe models to identify potential threats to surplus and to properly determine rates for its policies. Until the 1970s, the industry relied upon traditional actuarial techniques to assess catastrophe risk. Although the first commercial catastrophe models were developed in the 1980s, it was not until the wake of Hurricane Andrew in 1992 that catastrophe models gained significant traction and became a mainstay within the industry. Before Hurricane Andrew, an industry loss of its magnitude, \$15 billion, was thought of as impossible – though the catastrophe models at the time predicted losses of this size. Andrew’s aftermath resulted in several insurer insolvencies and ushered in a new era of risk management for the insurance industry. The event reinforced to the industry to that traditional actuarial techniques that relied on sparse historical data could not adequately capture the range of potential future events more accurately captured in the robust computer simulations possible with catastrophe models.

Among the major changes spurred by Andrew’s wake was the rapid acceptance of mathematical techniques underlying the catastrophe models to generate many different simulations of future hurricane seasons, and their associated potential loss impacts. The loss metric that took hold within the insurance industry is known as the Exceedance Probability (EP) Curve as shown in Figure 64.

Figure 64: EP Curve Illustration



Source: Karen Clark and Company

The EP Curve shows the estimated probabilities (vertical axis) of exceeding losses of different sizes (horizontal axis). While EP Curves can provide specific measurements for probabilities of various loss thresholds, there is significant uncertainty surrounding these numbers due to data limitations and imperfect scientific knowledge particularly associated with the remote return periods.

There is considerable uncertainty in the probabilities surrounding the higher return periods on an EP Curve, which stems from the lack of historical data. For instance, if only two Category 5 hurricanes have struck Florida since 1900, does that make the return period of the storm 50 years or 100 years, or somewhere in between? How does the return period change as the landfall point moves along the Florida coastline? These are the uncertainties faced by catastrophe models, and that underlie the EP Curve.

The one in 100-year Probable Maximum Loss (PML) represents a single point on the EP Curve and has become the most widely used risk metric to assess financial strength and stability within the insurance industry. Rating agencies like Demotech and A.M. Best use this data point, along with a few other PML points, in formulating financial strength ratings for an insurance company.

The PML in and of itself has shortcomings when used as a rating methodology as it has within the insurance industry. Most critically, the PML does not provide a standard benchmark for comparing different insurance companies. Because each insurance entity has its own unique distribution of exposure, it correspondingly has its own unique distribution of loss from a catastrophe model. This means that the one in 100-year PML for two companies, while representing the same point on an EP curve, are still two data points on two different loss distributions. These differences make it impossible to use the one in 100-year PML as a consistent benchmark for comparing insurers.

The PML also lacks the ability to give a more holistic view of a company's risk profile. The PML represent the chance of *exceeding in a year* the loss amount in question. It provides no insight into what is driving these losses, by how much they might be exceeded, or where they are coming from. Insurers have even begun "optimizing" their PMLs to specific model versions, and because the metric provides little portfolio level insight, end up creating exposure aggregations in areas where the catastrophe model may have a degree of model "miss" or bias.

An additional output of the EP curve is Tail Value at Risk, or TVaR. TVaR is a close relative to the PML because it is based on the loss distribution for an individual company and is estimated by running the catastrophe model and sorting the company's event losses from largest to smallest. However, the PML represents the loss from a single point on the EP Curve while TVaR is the expected loss above a given point. The one in 100-year PML is the loss a company expects with a 1% probability, and the one in 100-year TVaR is the average loss from a company's worst 1% scenarios.

A benefit of the TVaR metric relative to the PML is that it is based on many potential hurricane events rather than a single scenario. This allows additional statistics to be calculated, such as which geographic regions or individual policies drive more of the TVaR losses for an individual company. However, many of the deficiencies that apply to the PML are a shortcoming of the TVaR metric as well. The TVaR metric includes all points in the tail of the EP Curve, including

extreme 1 in 1,000-year or 1 in 10,000-year scenarios that are well beyond what companies are required to and reasonably can be expected to manage to. More importantly, the TVaR is estimated based on an individual company's portfolio and EP Curve, meaning the worst one in 100-year TVaR events for Company A have no relation to the one in 100-year TVaR events for Company B, and consequently the metric cannot be used to evaluate tail risk impacts of exchanging catastrophe risk across individual companies or to estimate overall insurance market impacts.

Due to these limitations, the KCC modeling approach uses modern risk metrics in considering potential depopulation alternatives, which will allow decision-makers to proactively quantify the catastrophe risk impacts across potential depopulation participants and the entire Florida insurance market for each scenario.

Catastrophe Model Input Requirements

Catastrophe models have minimum data requirements for estimating hurricane losses. As an example, the nearest ZIP code coordinates, replacement values, deductibles, limits, construction materials, occupancy type, and year-built data for each property is needed before detailed loss estimates can be generated. If certain attributes such as year built are not available, the data can be input as unknown, but this will reduce the quality of the loss estimates obtained. The accuracy of loss estimates can be improved by obtaining street address coordinates and more detailed data on building characteristics such as construction and roof age for each property.

For the Citizens yearly data sets, high quality geospatial coordinate data, building attributes, and insurance terms were supplied, leading to accurate loss estimates. Less granular input data was available for the Florida private residential insurance market and KCC relied on credible approximations and supplementary data sets to obtain the exposure data required for catastrophe loss estimation.

For participants in the Florida private residential insurance market, Q1 2019 QUASR data sets were used as the foundation of exposure set creation. This vintage of data was selected for its relative recency and completeness. Beginning after Q1 2019, several Florida insurers filed for trade secret designation, reducing the robust nature of the latest QUASR data sets.⁷³ These data exports from QUASR contain county-level exposure information, including insured value and policy count by company. This information is then used in conjunction with KCC's own KPD⁷⁴ industry exposure database. The KPD contains total property values at the ZIP-LOB⁷⁵ resolution

⁷³ As of first quarter 2019, nine companies filed for trade secret designation and do not have their data included in the QUASR database. Those companies are: State Farm Florida Insurance Company, United Property and Casualty Insurance Company, Family Security Insurance Company, American Coastal Insurance Company, Omega Insurance Company, Tower Hill Select Insurance Company, Tower Hill Signature Insurance Company, Tower Hill Prime Insurance Company, and Tower Hill Preferred Insurance Company.

⁷⁴ KPD stands for KCC Property Database.

⁷⁵ LOB stands for line of business.

nationwide. Market shares can be computed and disaggregated down to the ZIP code level for loss analyses. Approximations for building attributes and deductible values are derived from the KPD and vary by ZIP code within the state of Florida.

In order to validate the efficacy of this methodology, the loss estimates derived from QUASR market share data were compared to loss estimates obtained based on detailed geo-coded street address data for a variety of companies for which the high resolution data was available. Appendix H contains comparisons of the results, which demonstrate the robust nature of the methodology.

Estimating Gross and Net of Surplus Losses

To estimate Citizens' and the private insurance market's ultimate hurricane loss potential, the analysis needs to consider not only the direct loss from their respective portfolios of insurance policies, but also threats to solvency or bonding and assessments by incorporating surplus information. For Citizens, the detailed data sets used during the analysis contain policy-level insurance terms which are used to calculate its gross losses. For each Florida private market insurer, market share estimations were used to derive gross loss estimates as discussed above.

Surplus information was gathered for all companies by using the 2018 Annual Report from the OIR. Ultimately, analyses were performed on a gross basis, while considering the role of surplus for insolvency and tail risk estimations.

FHCF structures and private market reinsurance programs were not considered within the analysis. While FHCF information for the private market is readily available, the exclusion of this data results in a series of methodologies that are more feasible and easier to implement for both Citizens and the OIR. The reinsurance structures of the FHCF are not prospective, and a company's participation can vary from year to year, adding uncertainty to the analyses that utilize this information. Furthermore, private reinsurance structures are not known. These structures can be approximated, but this further adds complexity and uncertainty to the resulting output. It is for these reasons, which result in an overall ease of implementation for Citizens, that gross and net of surplus perspectives were chosen during the analyses.

Modern Metrics for Estimating Threats to Solvency, Stress Testing, and Assessing Market Impacts

KCC is leveraging the RiskInsight® open loss modeling platform to estimate hurricane loss potential for Citizens and the private insurance market. A primary benefit of the RiskInsight platform is that in addition to providing the traditional Average Annual Loss (AAL) and PML metrics, RiskInsight also provides the innovative Characteristic Event (CE) metric which is optimal for explicitly quantifying market-scale impacts to the solvency and catastrophe risk

profiles of Citizens and the private residential insurance market for any property exposure reallocation scenario. Additional details regarding the CE metric can be found in Appendix L.

To illustrate the unique benefits enabled by CEs, KCC prepared hurricane PML and CE loss profiles based on first quarter 2019 QUASR data, which includes a more comprehensive set of Florida private insurance companies than is available today. Provided below are PML summaries for three disguised Florida private market insurance companies. The PML is a useful metric for quantifying an individual company’s loss potential at a given exceedance probability or return period. For example, Figure 65 indicates that Company A has a 1% (or 100-year return period) probability of experiencing a \$935M loss or greater from the largest hurricane event in a single year, and a lower 0.4% (or 250-year return period) occurrence exceedance probability of experiencing a \$1,938M hurricane loss or greater.⁷⁶

Figure 65: Return Period Comparison for Three Companies

Company A		Company B		Company C	
Return Period (yrs)	OEP (\$M)	Return Period (yrs)	OEP (\$M)	Return Period (yrs)	OEP (\$M)
50	485	50	59	50	564
100	935	100	93	100	925
250	1,938	250	192	250	1,668
500	2,637	500	262	500	2,176
1,000	3,550	1,000	405	1,000	2,747
AAL	51	AAL	5	AAL	49

Source: Karen Clark and Company

Although the traditional PML metric is useful in estimating the likelihood of experiencing various loss levels, it does not provide actionable insight for managing an exposure portfolio. For example, the PML does not help companies identify the exposure concentrations driving their peak loss potential, or where they have opportunities to grow.

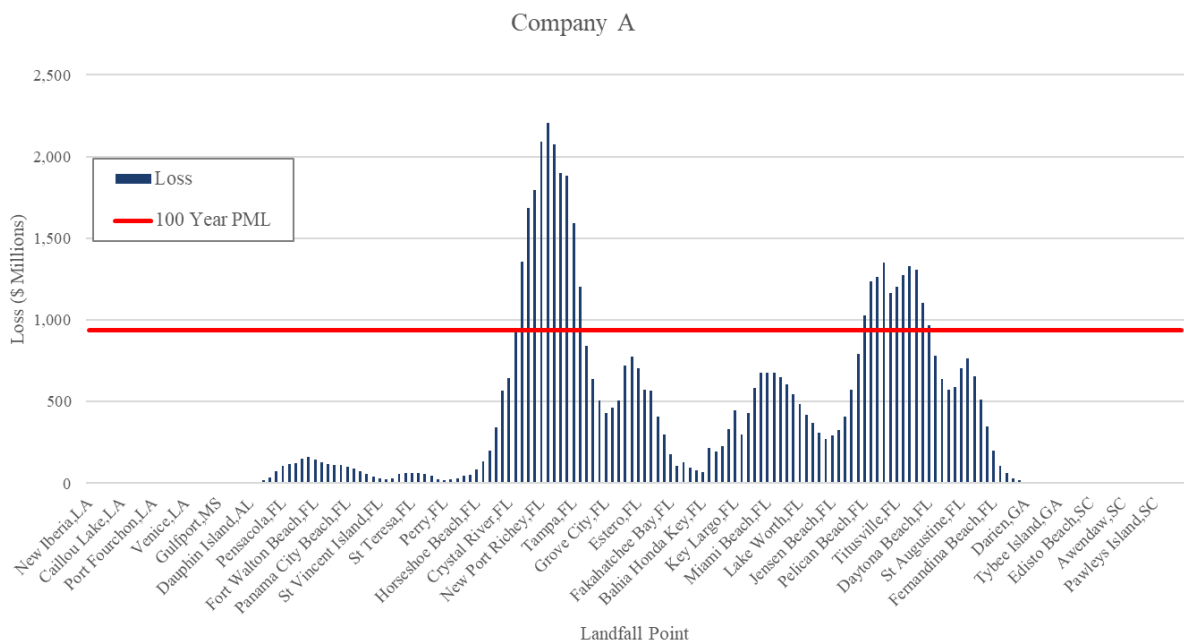
Due to the shortcomings with the PML metric, KCC has used the unique CE loss estimates for Citizens and the private insurance market which are only available from RiskInsight. In the CE methodology, hurricanes with a given hazard return period, such as the 100-year return period or the 1% probability event, are simulated at 10-mile increments along the U.S. coastline. The CE methodology is described in detail in Karen Clark and Company (2014) and in Appendix L. Simulating CEs every 10 miles at predominant track angles allows for complete spatial coverage and ensures no geospatial sampling biases. This is discussed further in Appendix I. Figure 66 provides the 100-year CE loss estimates for the same disguised Florida insurance companies.

⁷⁶As used in Figure 65, OEP is occurrence exceedance probability.

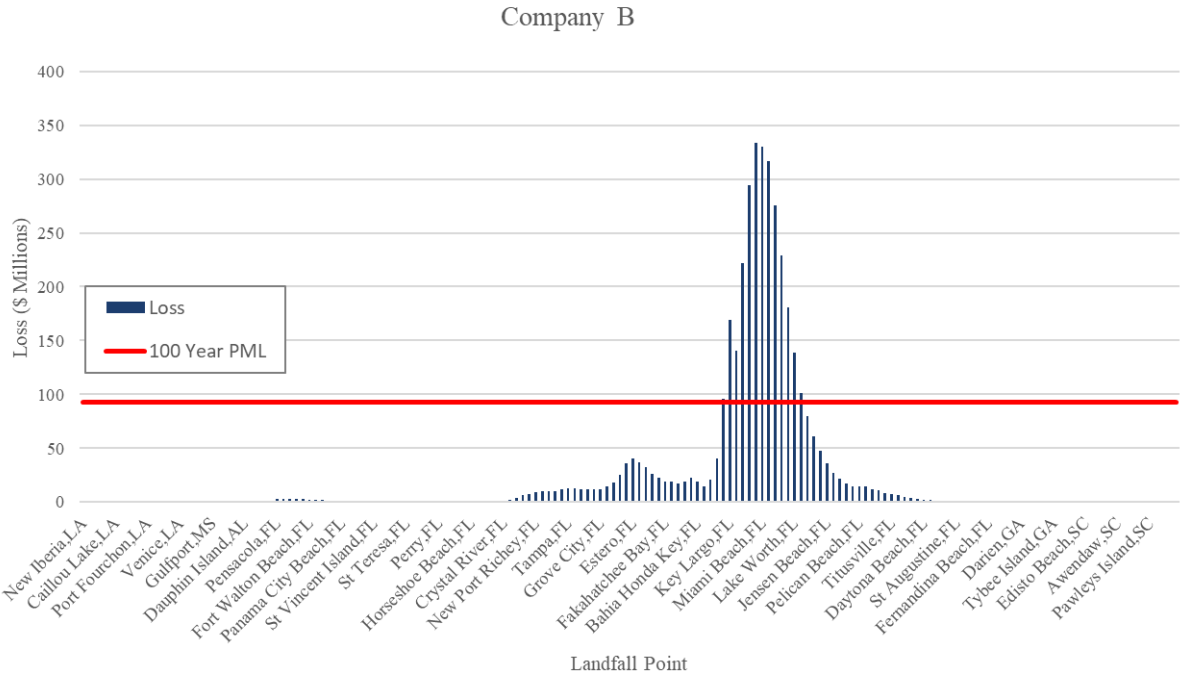
The x-axis in each case is the U.S. coastline, starting in Louisiana on the left and ending in South Carolina on the right. Each vertical bar represents the loss potential to a company if the 100-year hurricane event makes landfall at one of the 10-mile landfall gates. The red horizontal line is the traditional one in 100-year PML estimate for each respective company.

When viewed together, the additional contextual information available from the CE metric becomes clear. The one in 100-year PML estimate for Company A is a loss of \$935 million or greater. The CE loss estimates help to visualize where a loss of this size is most likely to occur; with a higher probability from events making landfall between Yankeetown and Longboat Key on the west coast, and with a lower probability from events between Pelican Beach and Flagler Beach on the east coast.

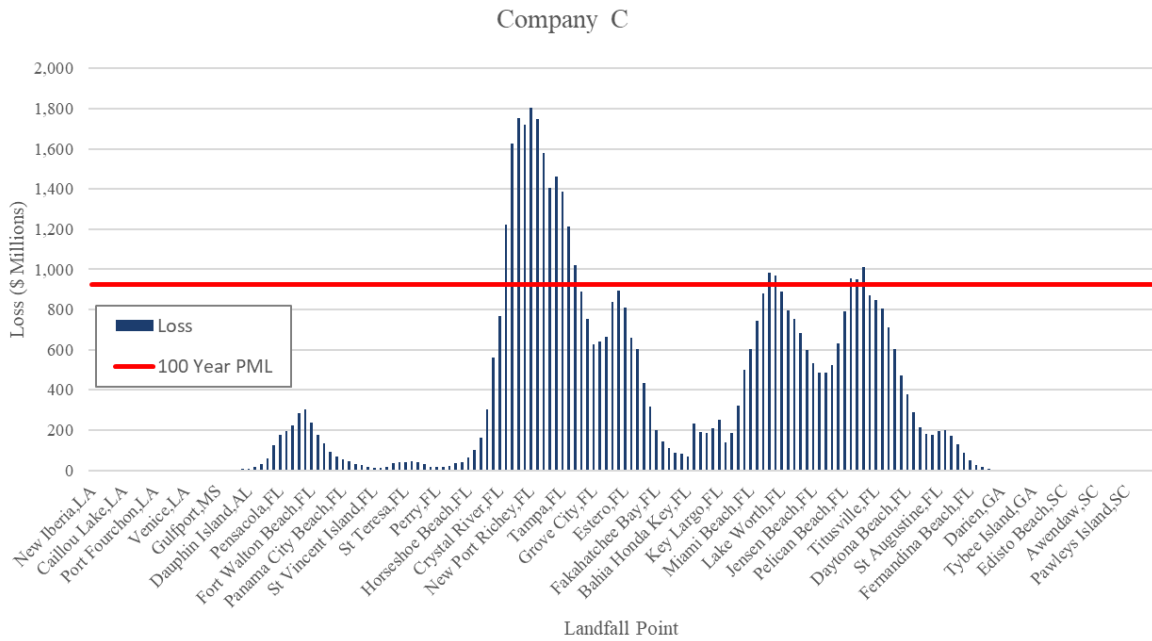
Figure 66: 100-Year Characteristic Event Profile for Three Companies



Source: Karen Clark and Company



Source: Karen Clark and Company



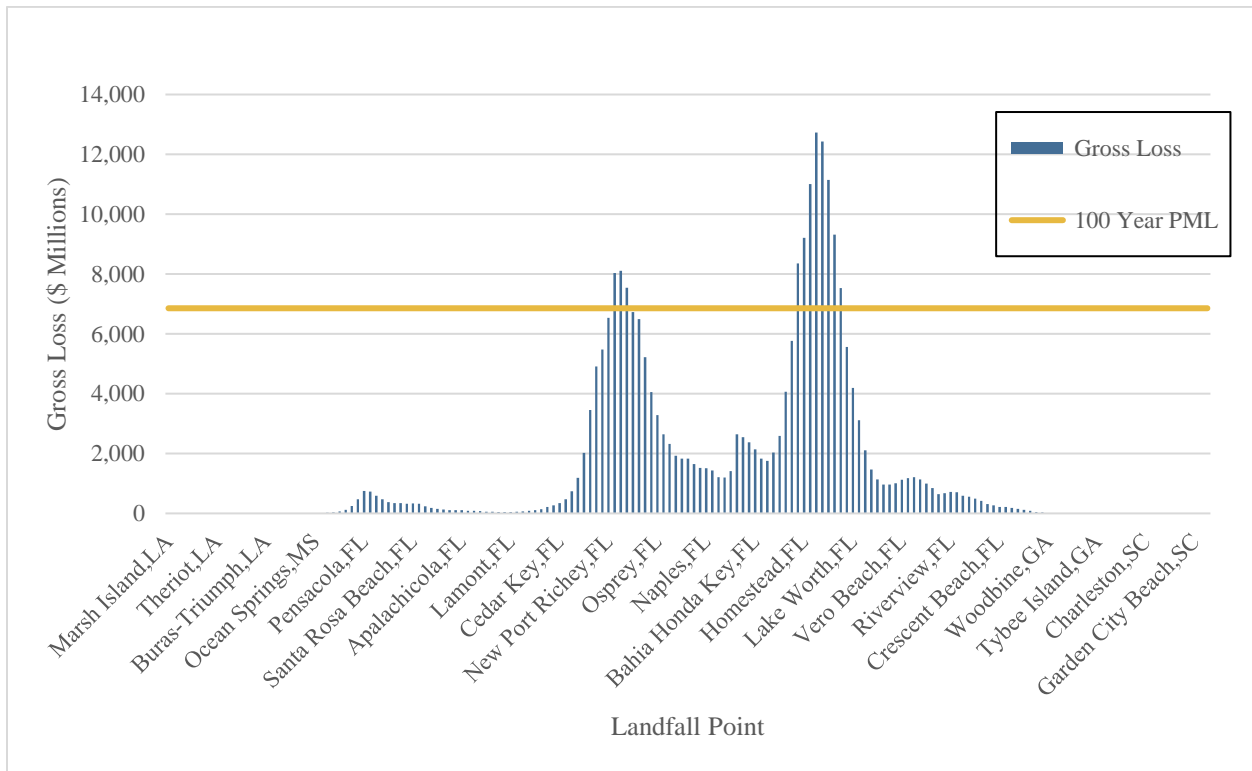
Source: Karen Clark and Company

Threats to Solvency

The CEs also bring insight into how large the “or greater” portion of a PML estimate might reasonably be. As an example, Figure 66 in the prior section shows that the largest 100-year CE for Company A is roughly two times the PML estimate. The CE profile for Company B shows the company has a significant exposure concentration in the Tri-County area, and the largest 100-year CE is over three times the PML estimate. Although the PML summaries indicated Company B has lower loss potential than the other disguised companies, the CE profiles reveal Company B has a more pronounced exposure concentration that contributes to a higher relative tail risk and threatens its solvency. These CE risk profiles will be the foundation of the KCC analyses used in identifying optimal exposure reduction methodologies for Citizens.

Figure 67 shows the 100-year CE profile for Citizens based on 2019 exposure data. Both the traditional EP curve and modern CE metric will be leveraged to evaluate alternative exposure distribution scenarios for Citizens and the private market.

Figure 67: 100-Year Characteristic Event Profile for Citizens in 2019



Source: Karen Clark and Company

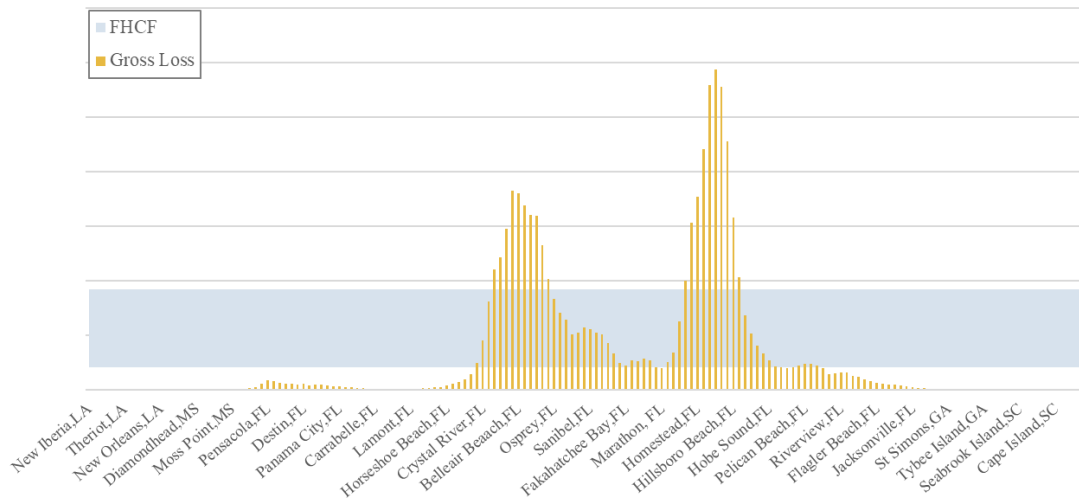
Inefficiencies in Traditional Excess of Loss Reinsurance Structures

In addition to providing insight into the “or greater” attribute of the one in 100-year PML, the CE profile gives insight into inefficiencies in traditional reinsurance structures. Traditional reinsurance structures are often bought in the form of excess of loss (XOL) layers that apply broadly to the entirety of a portfolio. These structures are effective in providing cover for large losses.

Figure 68 aides in visualizing these inefficiencies when overlaying a FHCF program using a Florida residential insurer as an example. The vertical bars represent the insurer’s gross losses, and the shaded region represents the retention and exhaustion points for the FHCF XOL layer.

While the vertical bounds of the XOL layers (the retention and coverage limit) are often carefully considered, not much emphasis is placed on the geographic dimension of the coverage. It is clear when juxtaposing a traditional XOL layer, such as the FHCF, with the CE chart that there are many geographic inefficiencies. For the example in Figure 68, 100-year hurricanes making landfall all along the panhandle down to Horseshoe Beach, as well as the east coast from Riverview to Jacksonville, have little chance of impacting the FHCF, let alone exceeding it. The geographic area where the above company is most at risk of attaching to or exceeding its reinsurance structure is not the entire state of Florida, but rather a small area of landfall gates concentrated around Tampa and Tri-County.

Figure 68: Characteristic Event Profile with FHCF Overlay



Source: Karen Clark and Company

Additionally, CE profiles are an additive metric that allows for effective temporal and marginal analyses. Unlike metrics such as the PML, marginal analyses reveal the specific impact of added or removed risks. This additive nature of the CE will be used to demonstrate the impact of different depopulation scenarios on Citizens' risk profile.

These analyses help elucidate the shortfalls with many aspects of traditional reinsurance purchasing. Other creative reinsurance structures from alternative markets can help improve what is typically an area of inefficiency for Florida residential insurers. Alternatively, these analyses can guide insurers to “fill in the gaps” underneath their existing reinsurance structures, increasing premium, while adding little to no reinsurance spending and tail risk.

High Definition Stress Testing

A fundamental responsibility of insurance regulators and rating agencies is to verify the financial condition of individual entities within the insurance market. Regulators and legislators also need to consider the systematic risk of a major catastrophe impacting the insurance market, and in Florida this would include stress testing potential impacts to Citizens, the FHCF, FIGA, and ultimately, taxpayers.

Rating agencies and regulators have primarily relied on PML metrics and the one in 100-year PML for the hurricane peril to assess the financial strength of individual companies. As discussed in earlier sections, the traditional PML metric has several deficiencies and limitations in calculating threats to solvency, and more advanced metrics should be considered when quantifying these threats. In addition, the PML is not a coherent risk measure (it does not support additivity across datasets) and cannot be used to assess systematic threats to the many entities that comprise an insurance market.

In 2012, the Florida OIR introduced the innovative Catastrophe Stress Test which goes beyond the traditional one in 100-year PML to evaluate the financial condition of participating companies both in greater detail and in a more consistent fashion. The scenarios included in the Catastrophe Stress Test have evolved over time, but as of 2015 participating companies are required to quantify their post-scenario surplus for three scenarios which include the 1947 Fort Lauderdale Hurricane, the 1921 Tampa Bay Hurricane, and the aggregate impacts of the 2004 Hurricanes Charley, Frances, Ivan and Jeanne. The paths of these hurricanes are shown in Figure 69.

Figure 69: Three Historical Storm Scenarios



Source: OIR

The participating companies can estimate their post-scenario surplus using their catastrophe model of choice, and the OIR also estimates the post-scenario surplus using the Florida Public Hurricane Model. The post-scenario loss is calculated by equally weighting the average of the company-selected catastrophe model loss and the Florida Public Hurricane Model loss. A company passes the stress test if its current surplus minus the weighted average model loss multiple by 125% is greater than the company's minimum required surplus as defined by Florida Law (\$15 million or 10% of liabilities for the company). In 2015, all companies which were asked to participate passed the Catastrophe Stress Test.

The OIR's implementation of the Catastrophe Stress Test is a significant achievement and increases the level of scrutiny that is applied to the financial stability of the Florida insurance market. However, it is worth noting, as illustrated in Figure 70, that the historical hurricanes selected for the stress test represent only 6 of 110 potential 10-mile landfall gates within the state of Florida, or 5% of the potential locations for a future hurricane landfall.⁷⁷ Implementing a stress test based on equally likely hurricane scenarios impacting each segment of the Florida coast, such as the one in 100-year CEs, would provide a comprehensive and clearer picture of threats to solvency for each insurance company. It is also important to recognize that private market participants are guided to manage around the current scenarios (by carefully limiting policy concentrations near where the limited number of likely scenarios make landfall), which may indirectly lead to coastal policies in the focused regions of Tampa Bay and Southeastern Florida being more likely to get directed to Citizens.

⁷⁷ See OIR's website at <https://www.flair.com/Sections/PandC/prepared.aspx>.

Figure 70: 100-Year Characteristic Event Profile & OIR Stress Test Comparison



Source: Karen Clark and Company

The sample company in Figure 70 is an actual private market insurer that would rate much more highly in the OIR Catastrophe Stress Test than other risk metrics would otherwise indicate. The CE chart extends the scenarios all along the coast of Florida and highlights the considerable loss potential for this company in the Jacksonville area. Because very few historical hurricanes have made landfall in this area, the current re-cast historical approach for the OIR Catastrophe Stress Test leads to gaps and the potential for poor characterizations of risk profiles.

Study Methodology

KCC has performed numerous analyses to identify potential opportunities for Citizens to minimize its risk and maximize private market participation. The analyses include 100,000-year hurricane simulations, examinations of temporal trends in PML, and the use of new metrics to evaluate tail risk.

The resulting analyses culminate in three distinct methodologies that each offer potential improvements to current methods for depopulating Citizens' exposure. The three approaches will place varying degrees of emphasis on the major benefactor of risk transfer between Citizens and the Florida private insurance market.

Modern Metric for Assessing Tail Risk - Tail CE Ratios

KCC has developed a risk measure uniquely purposed to quantify the tail risk of a risk profile. Utilizing the KCC CE, threats to solvency can be pinpointed and quantified through measures known as Tail CE Ratios, described below. This family of metrics has been designed to more explicitly measure and focus on the potential for exceeding different loss thresholds, like surplus or reinsurance structures, which are scenarios that will likely result in negative impacts to Citizens and the Florida private insurance market. These extreme loss scenarios can lead to potential private market insolvencies, exposure being transferred to FIGA, and Citizens assessments. Although tail risk is a frequently used and familiar term in the insurance industry, in this section tail risk will have the more specific definition of hurricane loss scenarios in excess of a company's surplus or one in 100-year PML. The two primary Tail CE Ratios that will be leveraged within the analyses are the Tail CE/Surplus ratio, and the Tail CE/PML ratio. Each variation of the Tail CE Ratio is designed to quantify tail risk, placing emphasis on different attributes of a risk profile.

A Tail CE/ Surplus ratio will be used to quantify the financial stability and threats to surplus or bonding and assessments for the Florida market. Utilizing surplus allows for realistic representations of insolvency scenarios and will be incorporated in analyzing the Florida private market to assess the likelihood of insolvency and efficacy of depopulation. This measure of private market insurer financial stability will be critical in evaluating the likelihood of risks returning to Citizens after a depopulation. Each participant in the Florida private insurance market has different financial footing and evaluating risk profiles without consideration for surplus gives an inaccurate view of real threats to insolvency. It is this insolvency risk for private

insurers that drives policies returning to Citizens, as has been discussed in Citizens Property Insurance Corporation (2020m, Document [62]). Private reinsurance structures were not considered in the assessments of solvency or bonding and assessment threats. This is explained in further detail in the Assumptions and Key Considerations section of the report.

$$\text{Tail CE/Surplus Ratio} = \frac{\left[\frac{1}{n} \sum_i^n (\text{Surplus} - CE_i) \right]}{\text{Surplus}}$$

where

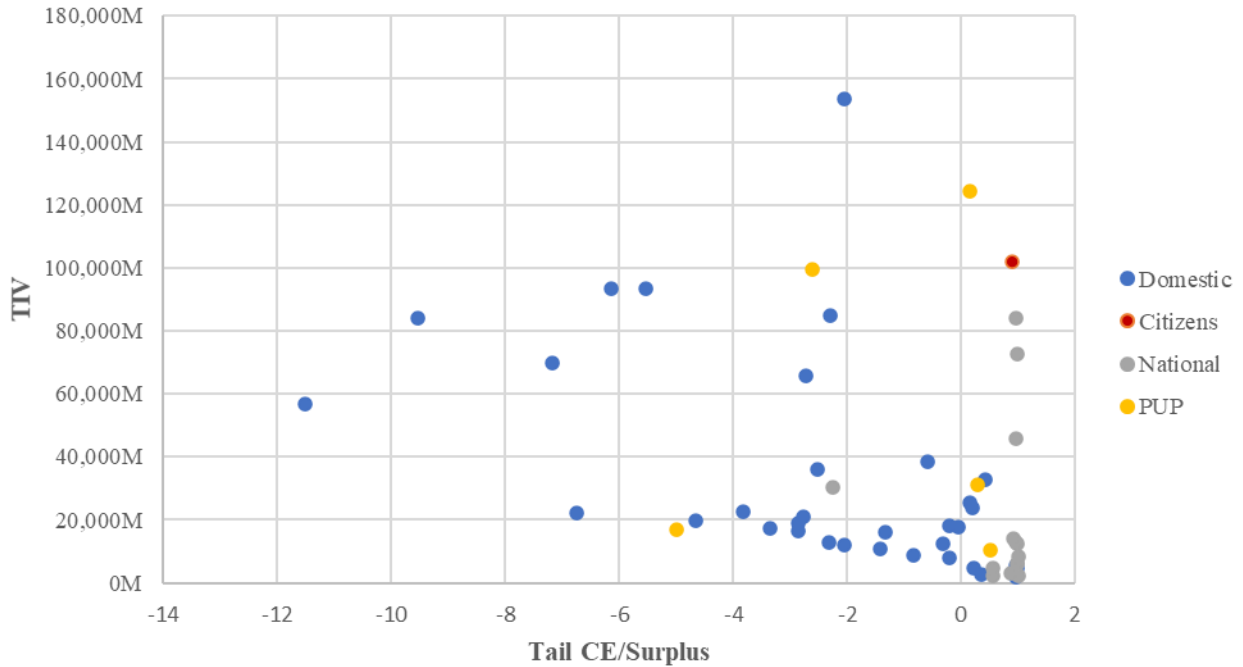
- n = # of Characteristic Events
- CE = Loss incurred from Characteristic Event
- $Surplus$ = Surplus of Company

The resulting output is a singular value, typically between -4 and 1, which quantifies the relative tail risk of an entity's exposure profile. Lower (and negative) values represent higher relative amounts of tail risk. The Tail CE/Surplus ratio penalizes risk profiles with significant amounts of risk in excess of their surplus.

This standardized singular metric will allow for easy comparison across different private market participant risk profiles and will be the foundation of evaluating recipients of future depopulation portfolios to ensure that insolvency risks are adequately considered during depopulation.

This analysis of threats to solvency can be extended to the entire private market to see the relative standing and resiliency of the different insurers. The plot in Figure 71 below demonstrates the considerable variation of companies' tail risk and emphasizes that many private market participants have considerable existing threats to solvency. Incorporating surplus in the calculation highlights the standing of Citizens relative to its private market peers in terms of risk of bonding and assessments or insolvency, respectively. Using advanced risk metrics such as the Tail CE Ratios to quantify tail risk will enable Citizens to evaluate the marginal impact depopulation can have on risk profiles, both for TOCs (takeout companies), and for themselves.

Figure 71: TIV and Tail CE/Surplus Ratio



Source: Karen Clark and Company

The Tail CE/PML ratio, another variation of Tail CE metrics, can quantify the relative tail risk of the underlying exposure portfolio without the impact of surplus or reinsurance structures. The Tail CE/PML ratio is more appropriate when measuring a depopulation portfolio or package when the recipients of the risks are variable or unknown. By evaluating the loss potential in excess of the one in 100-year PML without consideration for surplus or reinsurance structures, a truer quantification of the underlying risk profile of the portfolio is achieved. The Tail CE/PML ratio provides a more accurate representation of how tail risk is impacted by the overall quality of the risks and their geographic dispersion and is not skewed by an entity’s financial stability.

$$\text{Tail CE/PML Ratio} = \frac{\left[\frac{1}{n} \sum_i^n (CE_i - PML)^2 \right]}{PML^2}$$

where

- n = # of Characteristic Events in excess of one in 100-year PML
- CE = Loss incurred from Characteristic Event
- PML = 100-year Occurrence Probable Maximum Loss

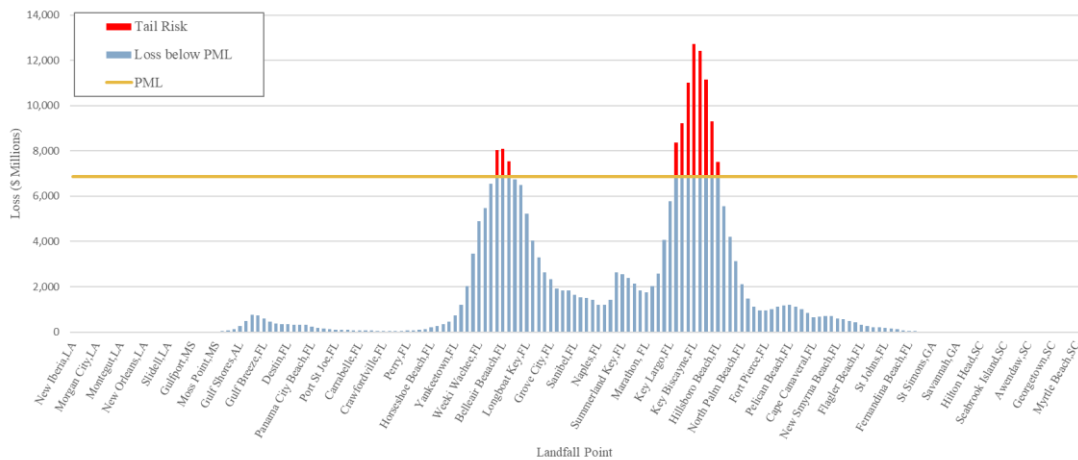
Unlike the Tail CE/ Surplus ratio, lower values signify stronger overall risk profiles. The range of output for the Tail CE/PML ratio is typically between 0.1 and 3. The formula adds weight on

concentrated potential losses that are in substantial excess of the one in 100-year PML, which represent real aggregations of tail risk.

Figure 72 visualizes the geographic meaning of the Tail CE/ PML ratio, highlighting both the geography and loss magnitude of tail loss inducing scenarios.

The Tail CE/ PML ratio provides benefit in analyzing Citizens’ risk profile temporally, evaluating whether its profile is improving with the exposure decrease over the last ten years. As demonstrated through the scatter plot in Figure 71, Citizens is in a financially stable and strong position. While Citizens’ current position is favorable, incorporating the surplus accrued over the historically inactive decade of 2006-2015 in risk metrics clouds which direction the underlying Citizens risk profile is trending (NOAA, 2019). By controlling for surplus, the Tail CE/PML ratio can serve as a yardstick for both Citizens’ risk profile and the risk profiles of the different depopulation portfolios and packages that will be explored later in the analysis.

Figure 72: Tail CE/PML Ratio



Source: Karen Clark and Company

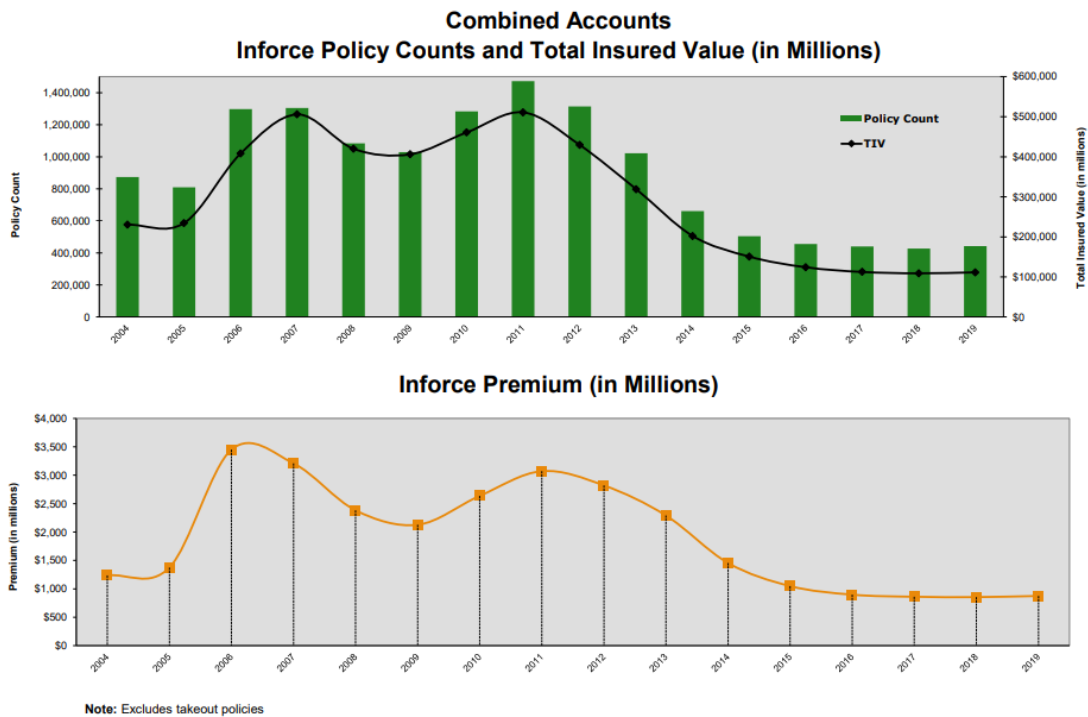
Citizens’ Risk Profile Over Time

Throughout the last 10 years, Citizens’ risk profile, and its role within the broader Florida insurance market, has shifted significantly as a result of market forces. As illustrated previously, the size of Citizens’ portfolio has changed considerably in recent years, seen below in Figure 73.

This same time-series analysis can be explored further by quantifying how risk-based metrics have evolved for Citizens' portfolio. Figure 74 demonstrates how that risk profile shifts temporally through a traditional metric like the one in 100-year PML.

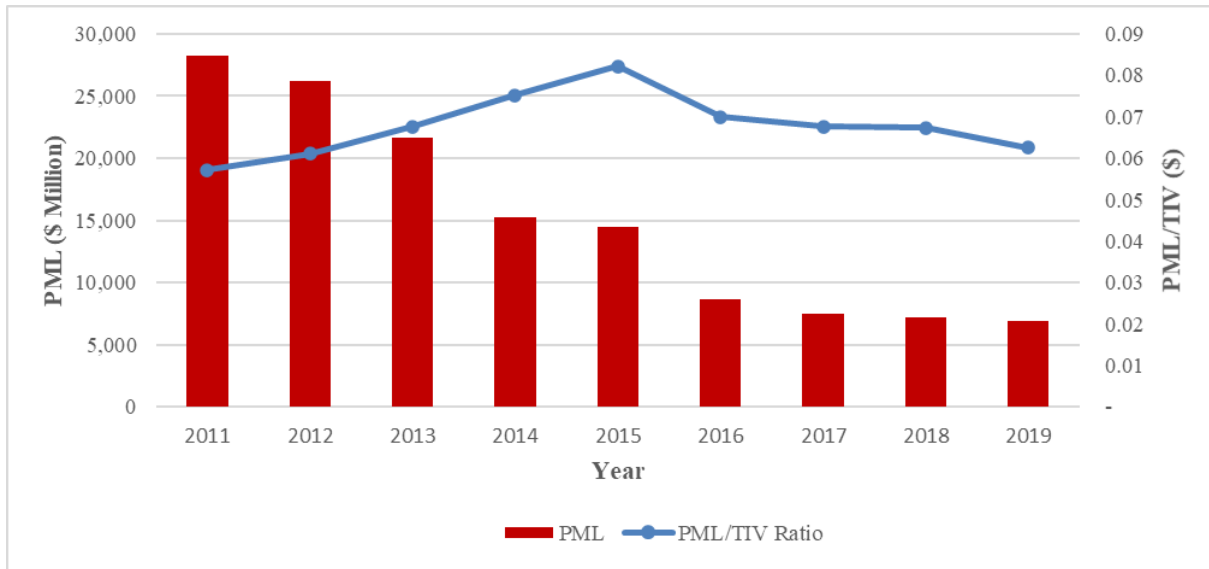
Citizens has reduced its potential for significant losses through overall exposure reduction. While the time-series confirms the absolute PML amount is decreasing over time, it fails to convey how the underlying risk profiles are changing on a per unit of risk basis from year to year, and if they are becoming more resilient in and of themselves. By incorporating additional information like TIV or premium in the temporal analysis, it becomes clear that Citizens' tail risk is decreasing at a slower velocity than that of its overall exposure profile.

Figure 73: Citizens Inforce Policy Counts, TIV and Premium Over Time



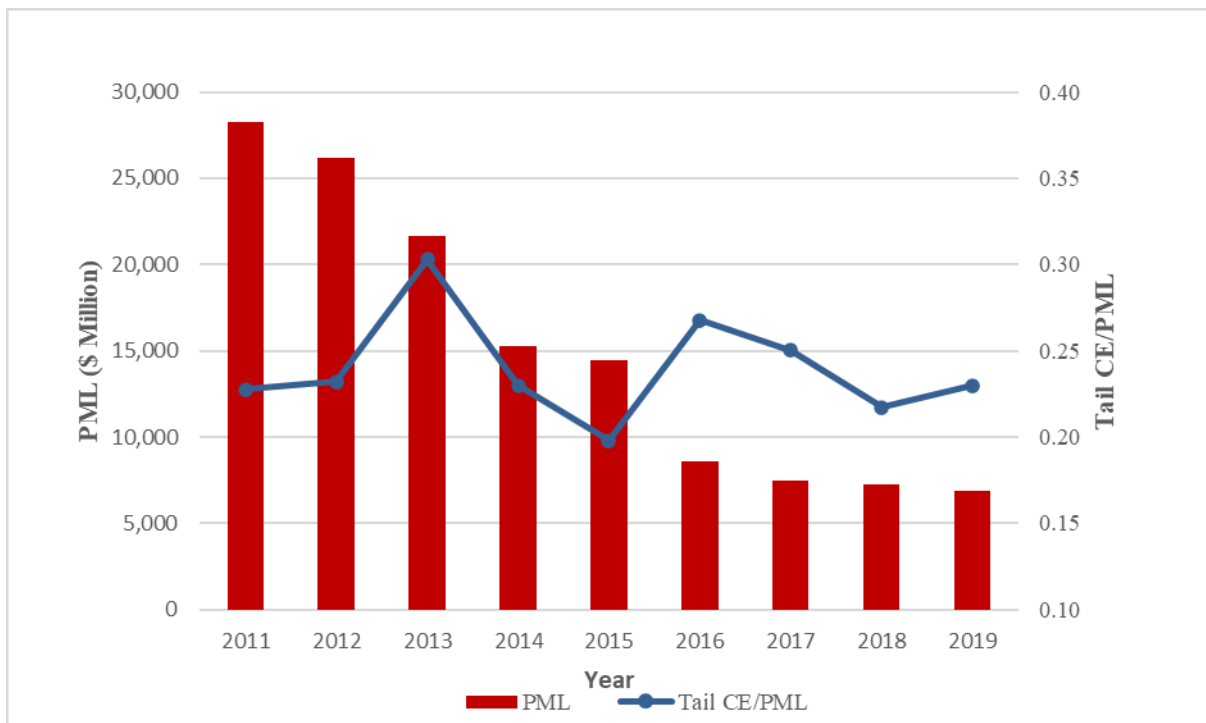
Source: Citizens

Figure 74: Citizens PML and PML/TIV Yearly Trends



Source: Karen Clark and Company

Figure 75: Citizens PML and Tail CE/PML Yearly Trends

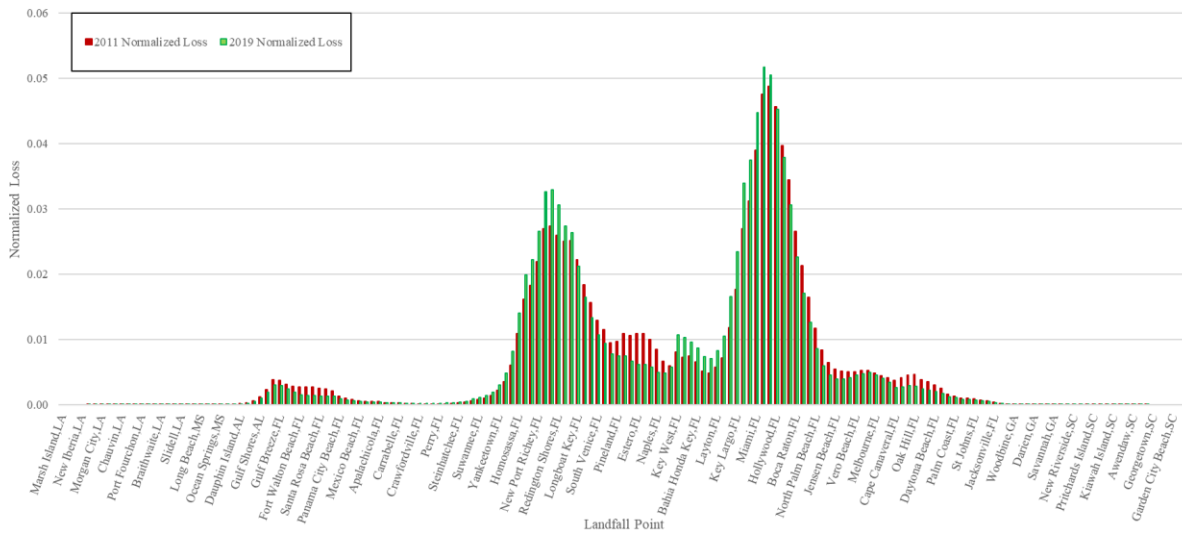


Source: Karen Clark and Company

Plotting the yearly Tail CE/PML ratio against the one in 100-year PML as shown in Figure 75 echoes what is illustrated in Figure 74, namely that while Citizens overall exposure is decreasing, the quality of the underlying risk profile is not. The Tail CE/PML and PML/TIV ratios exhibit a flat to slight positive trend, signifying that the Citizens profile is becoming riskier on a normalized basis. Further leveraging the CE chart can provide additional insight into this trend.

While Citizens’ TIV has decreased significantly in recent years, its peaks in highly concentrated areas have not decreased relative to the rest of their exposure. Utilizing the CE chart and normalizing Citizens’ simulated loss across years to account for TIV changes over time more clearly illustrates that Citizens’ areas of peak concentration have increased since 2011 relative to the rest of their exposure. In Figure 76, Citizens’ 2011 normalized loss is in red, and its 2019 normalized loss is in green. The green 2019 bars extend higher in areas of peak concentration, like Tampa and Tri-County, highlighting Citizens’ need to depopulate from their areas of peak exposure. Additionally, the red 2011 bars have noticeably decreased in other areas of Florida like the panhandle, Naples, and Daytona Beach.

Figure 76: Citizens Characteristic Event Profile Comparison: 2011 vs. 2019



Source: Karen Clark and Company

This trend of higher degrees of geographic concentration in areas like Tampa and Tri-County create an overall profile with higher degrees of tail risk. By leveraging the CEs and metrics such as the Tail CE/PML ratio, a truer representation of the trends for Citizens’ risk profile is obtained.

Risk Transfer & Risks Returning

Citizens plays a vital role in the overall stability of the Florida private insurance market. It is this role as the residual market insurer in combination with recent market forces that drives the fluctuation of Citizens’ overall portfolio size. As discussed previously, market events such as the active 2004-2005 hurricane seasons, and subsequent inactive 2006-2015 seasons, propelled Citizens’ initial exposure increase and subsequent steady decrease. Other forces such as social inflation and rating agencies have also contributed to these shifts in momentum.

Citizens has made considerable strides in reducing risk over the last ten years. While overall risk has been greatly reduced, threat of risks returning to Citizens remains active. Figure 77 from a Citizens study (2020m, Document [62]), provides aggregate information about the number and percentage of risks returning to Citizens from 2008 through 2019.

Figure 77: Depopulation and Risks Returning Summary

	Solvent Carriers	Insolvent Carriers	Total
I Number of Depopulation Carriers	29	8	37
Number of Policies Removed	1,480,952	247,252	1,728,204
Total Risks Returned to Citizens (Same Address)	222,510	134,855	357,365
Percent of Total Risks Returned to Citizens (Same Address)	15%	55%	21%
Risks Returned to Citizens (Same Address & Name)	146,509	108,038	254,547
Percent of Risks Returned to Citizens (Same Address & Name)	10%	44%	15%

Note, all data excludes policies that were untagged in the assumption

Source: Citizens

This study demonstrates that a significant amount of risk has been returned to Citizens after depopulation, and improvements that would reduce the rate at which risks return would have considerable benefit to Citizens. Furthermore, the figure demonstrates the significant skew from where the risks are returning. Specifically, the risks that have returned are heavily concentrated in insolvent carriers. While it is clear that insolvent carriers would return risks to Citizens at a higher rate, this fact will be an important consideration when analyzing potential improved depopulation methodologies. Metrics such as the Tail CE/Surplus ratio allow for better quantification of this risk. The overall resiliency of the TOCs directly relates to the likelihood of risks returning to Citizens and will become a variable considered through the rest of the analysis.

The KCC model has previously been used in a published analysis on quantifying the risk and overall financial stability of the Florida private market participants. The authors defined the Normalized Solvency Ratio (NSR) which is a measure of the overall financial stability of a company's risk profile (Nicholson, Clark, and Daraskevich, 2018). This measure takes into account additional variables, such as private reinsurance structures, to accurately quantify real threats to solvency for a private insurer. The NSR was not utilized in the analyses for this paper due to data limitations for private reinsurance structures, which is discussed in the Assumptions and Key Considerations section. The NSR can be a valuable risk metric for Citizens and the OIR to consider in rating and quantifying TOC financial stability.

Current Depopulation Algorithm & Opportunities for Improvement

The current Citizens depopulation methodology is based on a “pull” approach where TOCs that meet OIR approval are eligible to access a database of Citizens policies and can independently select policies for assumption. Today, the process emphasizes reducing the number of risks but does not explicitly include a mechanism to drive catastrophe risk reduction for Citizens' portfolio. From a risk transfer perspective, the current methodology has a high likelihood of Citizens retaining the properties which are least desirable to the private market, and in particular can lead to concentrations of policies that external parties may view as having inadequate premium to catastrophe risk ratios. The post-assumption catastrophe risk impact to assuming TOCs is also not explicitly considered. Although the private TOCs must operate within regulatory and rating agency constraints for managing catastrophe risk, the eventual post-assumption failure of several TOCs raises the question of whether the current methodology would benefit from additional pro-active requirements to ensure the TOCs' post-takeout catastrophe risk profile and financial solvency metrics remain adequate.

The KCC analysis looks to shift the emphasis on sustainable distributions of *risk* rather than *premium*. One key theme for Citizens to consider is to alter the exposure transfer mechanism from the current “pull” approach where the private market selects takeout policies to a “push” approach in which Citizens proactively determines exposure sets for depopulation. The exposure reduction methodologies under consideration will quantify the pre- and post-allocation impact to

both Citizens and Florida private market recipients' catastrophe risk profiles as an objective means for weighing the pros and cons of each approach. In contrasting the potential impacts to all stakeholders from alternative risk transfer scenarios, KCC hopes to identify methodologies that lead to an overall healthier and more resilient Florida insurance market.

Proposed Exposure Reduction Methodologies

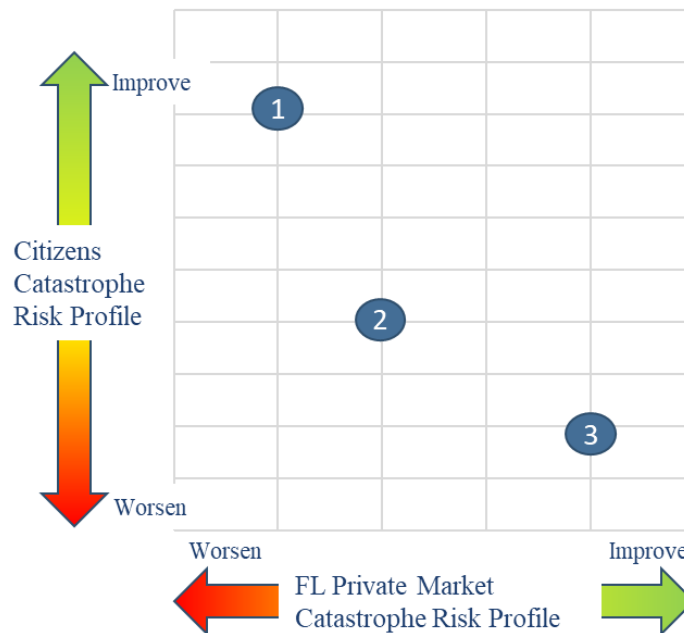
KCC has identified three alternative exposure reduction methodologies for further reducing Citizens' hurricane exposure and increasing Florida private insurance market participation. In developing these methodologies, KCC placed an emphasis on viewing depopulation through the lens of catastrophe risk transfer. All exposure reduction approaches explored in this section illustrate potential ways to steer the depopulation process. Any specific methodology can have different emphases placed, and variables adjusted, to optimize to Citizens' specific needs and goals.

Each methodology is described in greater detail later in this section, and the primary motivation and catastrophe risk trade-off for each alternative is highlighted in the list below. The central concept is that any exposure reallocation between Citizens and the Florida private residential insurance market will change the catastrophe risk profiles and tail risk potential for all stakeholders. More specifically, each alternative will result in a trade-off in which the post-allocation exposure distribution will either improve or degrade the catastrophe risk for the impacted participants and these trade-offs will fall on a Catastrophe Risk Profile Trade-Off spectrum for each party, as illustrated in Figure 78.

1. *Tail Minimization* – Emphasizes reductions to Citizens' tail loss potential without regard to any other constraint such as post-depopulation impacts to the Florida private residential insurance market. This approach is often adopted by private insurers with a goal of minimizing catastrophe reinsurance costs and reducing threats to solvency. In this methodology, the policies eligible for takeout would be excluded to (or materially biased towards) properties that drive Citizens' tail risk.
2. *Mutual Diversification* – Emphasizes ranking private market recipients by their ability to assume policies that are driving Citizens' tail risk. This approach relies on the insurance principal of diversification and establishes a methodology for ranking companies that have minimal footprints in regions where Citizens has large accumulations of risk, and results in mutual benefits to both Citizens and the companies identified with high mutual diversification scores.
3. *Resilient Depopulation Package* – Focuses on creating fixed subsets of Citizens' policies (a mini-portfolio or "package") that would be attractive to any private insurance company

and/or capital markets. This approach would require that each package be assumed in total or not at all and reduces the emphasis on pre-screening Florida private insurance companies. The algorithms for creating the packages could be optimized to achieve different benefits but, in every case, must result in a risk profile that is attractive to private market stakeholders. Alternatives could include packages that have the greatest chance of success as a stand-alone company, or a balance of attractive and less attractive policies.

Figure 78: Catastrophe Risk Trade-Off: Citizens vs. FL Private Market



Source: Karen Clark and Company

Tail Minimization

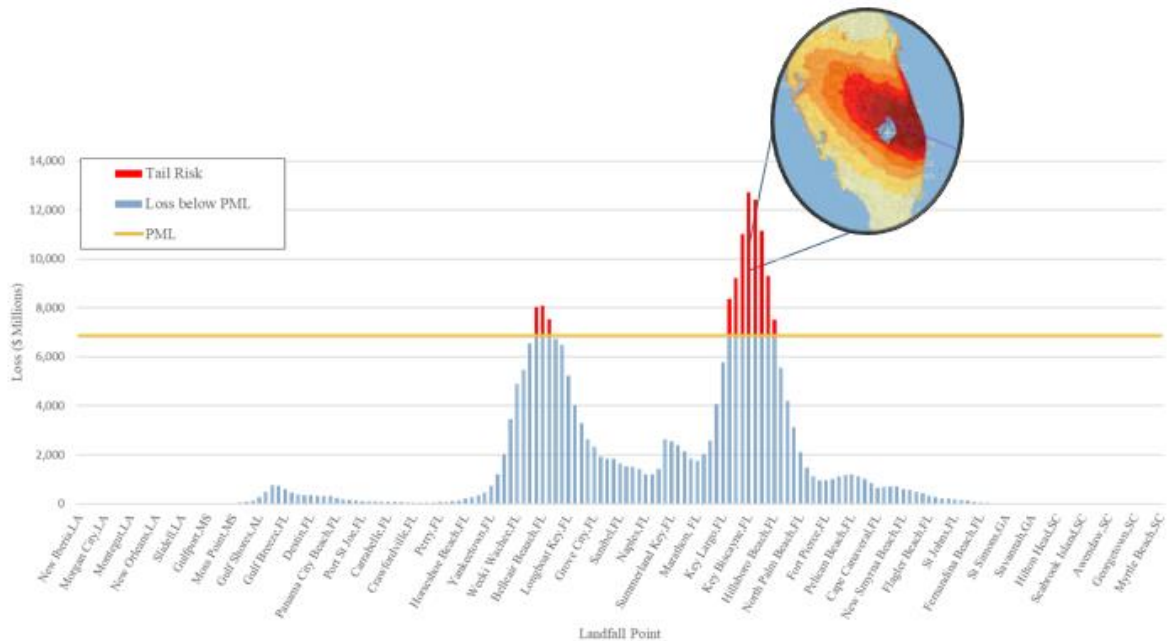
Methodology 1: Tail Minimization places emphasis on reducing the tail risk of Citizens with little consideration for other constraints, namely the impact and appeal within the Florida private insurance market. This approach aims to improve Citizens’ risk profile by prioritizing risks for depopulation that drive the threats to bonding and assessments. The resulting depopulation portfolio, if assumed by TOCs, will have a substantial benefit on Citizens’ risk profile. However, it will be shown that this depopulation portfolio will be heavily geographically concentrated in nature, and have other undesirable risk qualities, leading it to be less appealing to the private market, and worsening the risk profile of many potential TOCs.

A focus on reduction of tail risk is already how most private insurers operate when trying to optimize their existing risk profile. Citizens stands to benefit from adopting a depopulation strategy that emphasizes the importance of minimal tail risk, though Citizens' standing as the state's residual insurer will prove to complicate this approach. This Tail Minimization methodology lies in the top left of our Catastrophe Risk Profile Trade-Off spectrum, benefitting Citizens greatly, while likely worsening the position of the Florida insurance private market, if accepted.

To identify depopulation portfolios that have the most significant impact on Citizens' existing tail risk, KCC employs multiple risk measures, including the PML and CEs. Similar to the Tail CE/PML Ratio, the Tail Minimization approach starts off by identifying the geographic areas contributing the most to threats to bonding and assessments. This is done by identifying the CEs that are in excess of the one in 100-year PML threshold.

With a set of CEs identified that are driving the overall tail risk for Citizens, additional analyses are performed to further capture the policies that drive these specific events. This is achieved by looking at the ZIP codes that have the highest average loss across all CEs, identified as tail risk drivers in Figure 79. Within a set of X ZIP codes, Y number of policies are identified to create a portfolio for depopulation. These Y policies are selected in descending rank-order of AAL. The

Figure 79: Tail Minimization Example



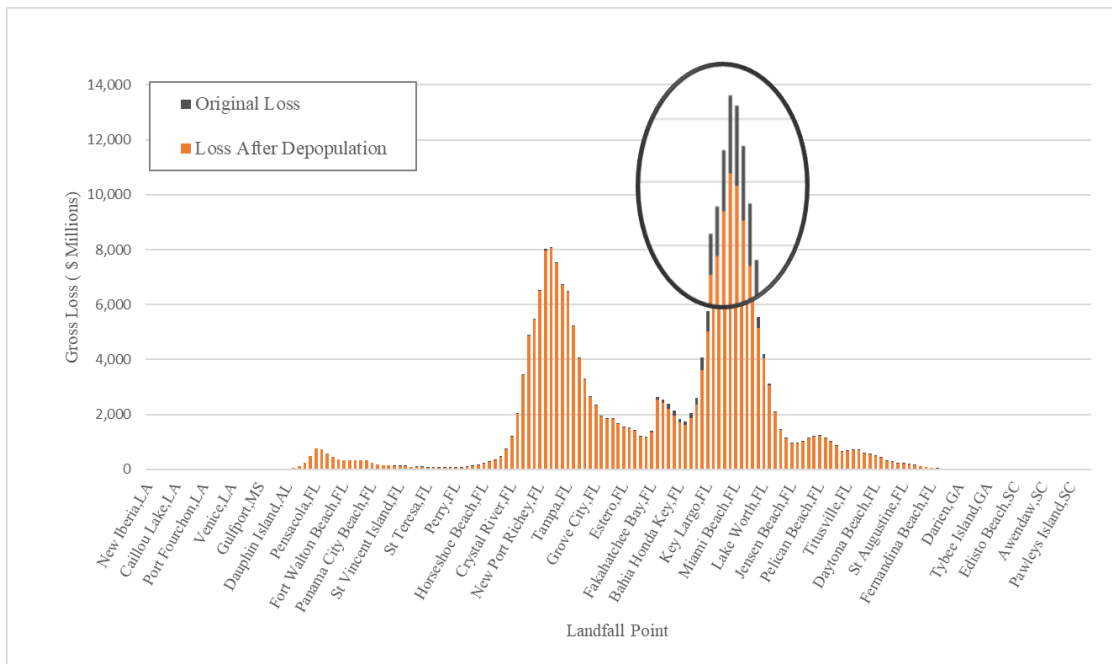
Citizens Characteristic Event Profile with Tail Risk Driving Event Highlighted

Source: Karen Clark and Company

number of ZIP codes and number of policies can be adjusted to vary to the level of geographic targeting Citizens wants to employ in their depopulation. Higher degrees of geographic targeting (fewer numbers of ZIP codes) will have higher benefits to Citizens but will be more difficult to offload to TOCs as they will be less appealing. Depopulation portfolios composed of low-quality risk, or high degrees of geographic concentrations, will be unappealing to the private market due to their undesirable risk characteristics, without creating other incentive structures for the Florida residential insurers.

Figure 80 shows the impact of implementing the Tail Minimization approach on Citizens’ December 2019 risk profile.⁷⁸ The benefit of this Tail Minimization depopulation portfolio is significant; it reduces Citizens’ PML from \$6.9B to \$5.6B as well as the Tail CE/PML ratio from 0.230 to 0.205, which represents the second lowest Tail CE/PML ratio in the 10 years of Citizens data analyzed by KCC. Other traditional metrics like PML/TIV further demonstrate how much the risk profile has changed from this depopulation, decreasing by 12% from 0.063 to 0.055. Due to the targeted nature of this depopulation portfolio, a modest reduction of only 10,000 risks proves to have sizeable benefits to Citizens’ tail risk, and overall risk profile strength.

Figure 80: Citizens 2019 Characteristic Event Profile with Tail Minimization



Source: Karen Clark and Company

⁷⁸ The Tail Minimization example used 10,000 risks, and 50 ZIP codes as input variables.

While the benefit for Citizens is considerable using the Tail Minimization methodology, there is a trade-off to consider with the Florida private insurance market. Specifically, the depopulation portfolio created with the Tail Minimization approach results in a highly geographically concentrated portfolio in the Tri-County area. This depopulation portfolio itself has unappealing risk characteristics, namely a relatively high Tail CE/PML Ratio of 0.28. The PML/TIV ratio is three times as high as the portfolio as a whole with a value of 0.188. The underlying risk profile for the portfolio is considerably worse when viewed as a stand-alone package, or as something to absorb from the perspective of a TOC.

It will be challenging to attract TOCs to select many sets of policies from these portfolios, due to the portfolios' risk characteristics. TOCs may be attracted to these riskier portfolios with appropriate incentive structures in place. As an example, tiering the policies that are available for selection by TOCs based on their risk level could be a mechanism to ensure that depopulation portfolios contain a diverse mix of risks. Setting quotas on the number of high-quality risks that can be selected by a given TOC would allow for portfolios made up of both good and bad risks, rather than draining Citizens of only its best risks. In the event that TOCs choose to absorb this type of depopulation portfolio, it is unlikely to be beneficial to the recipient given the concentration and risk selection of the portfolio. Worsening any TOC's risk profile through depopulation increases the chance that these risks return to Citizens in a few years because threats to solvency are increased for the TOC.

Despite the less appealing nature of the concentrated risk portfolios created through Tail Minimizations to the private market, Citizens can work to develop an incentive structure to overcome this obstacle. Using the same Tail Minimization methodology, Citizens can tier its policies by the amount of impact they have on the Tail CE/PML ratio and other tail risk metrics. The policies tiered as having the most benefit to Citizens correspondingly receive the greatest incentivization to TOCs. One method for implementation of the incentive structure could be to create quotas and requirements for the different tiers of policies:

- Tier 1 – 10% of Depopulation Portfolio (Highest catastrophe risk Tri-County policies)
- Tier 2 – 20% of Depopulation Portfolio (Moderate catastrophe risk Tri-County policies or highest catastrophe risk Tampa-area policies)
- Tier 3 – 10% of Depopulation Portfolio (Highest catastrophe risk Tampa-area policies)
- Tier 4 – 60% of Depopulation Portfolio (All remaining policies)

Creating this type of tiered structure will ensure that the depopulation process provides a net benefit to Citizens' risk profile. The Tail Minimization approach allows for the creation of these different tiers to ensure that TOCs are selecting a mix of risks that are not just the best individual policies. A "push" approach such as this creates the potential for a depopulation algorithm that Citizens both controls and stands to benefit from.

The Tail Minimization methodology has the potential to greatly improve Citizens' risk profile by reducing both the PML and Tail CE/PML ratio. While the potential benefits are significant, drawbacks exist in the reduced appeal to TOCs, and the likely degradation of the Florida private insurance market's risk profile. Without creating additional incentive structures for TOCs to absorb heavily concentrated depopulation portfolios, it is unlikely there would be a high degree of participation from the private market in the process. Moving to a methodology which is more attractive to the Florida private market will have a higher likelihood of implementation.

Mutual Diversification

Methodology 2: Mutual Diversification strikes a balance between focusing on Citizens' own risk profile and the profile of the Florida private insurance market. Mutual Diversification aims to create depopulation portfolios that are tailor-made to the specific TOCs participating in the depopulation process. Each takeout company has a unique risk profile and thus benefits from a unique distribution of policies being added to their portfolio. By creating portfolios of risk specially designed to benefit a TOC's profile, participation in the depopulation process will increase across the Florida private market.

Using the CE methodology, Citizens can easily identify TOCs that have different risk profiles from their own. Once viable TOCs are identified, depopulation portfolios can be hand-picked for them, which will diversify the TOC and result in a stronger risk profile after the depopulation process. Not only does this methodology result in Citizens offloading risk, benefiting their risk profile, but it also strengthens the TOC taking on the risk, as the policy package diversifies their current profile.

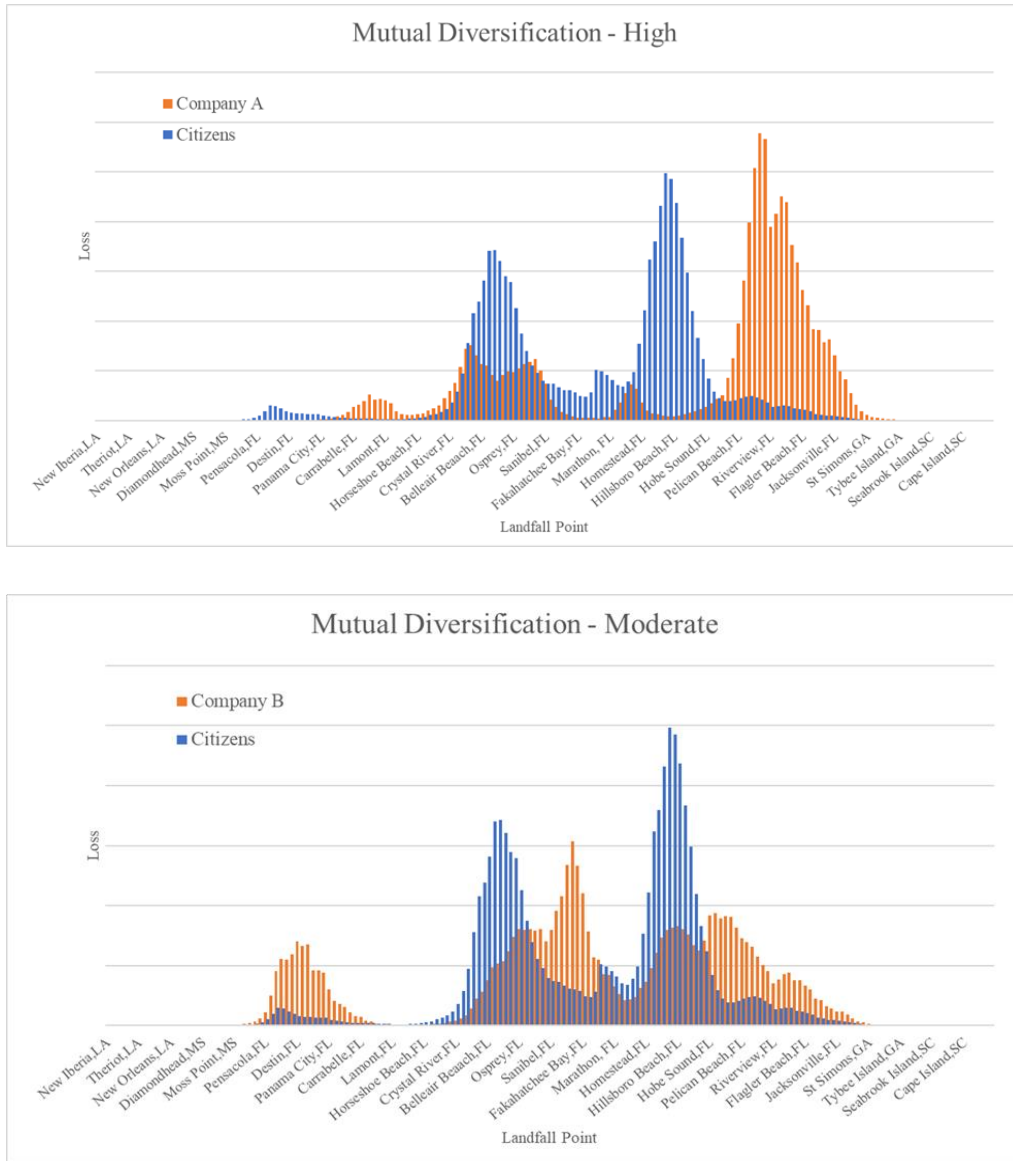
The CE profiles in Figure 81 demonstrate how this risk metric can be used to categorize and identify mutually distinct risk profiles. The degree of overlap of two companies' peaks represent the same geographic areas of tail risk. Traditional risk metrics like PMLs or TVaRs cannot capture this level of geographic correlation.

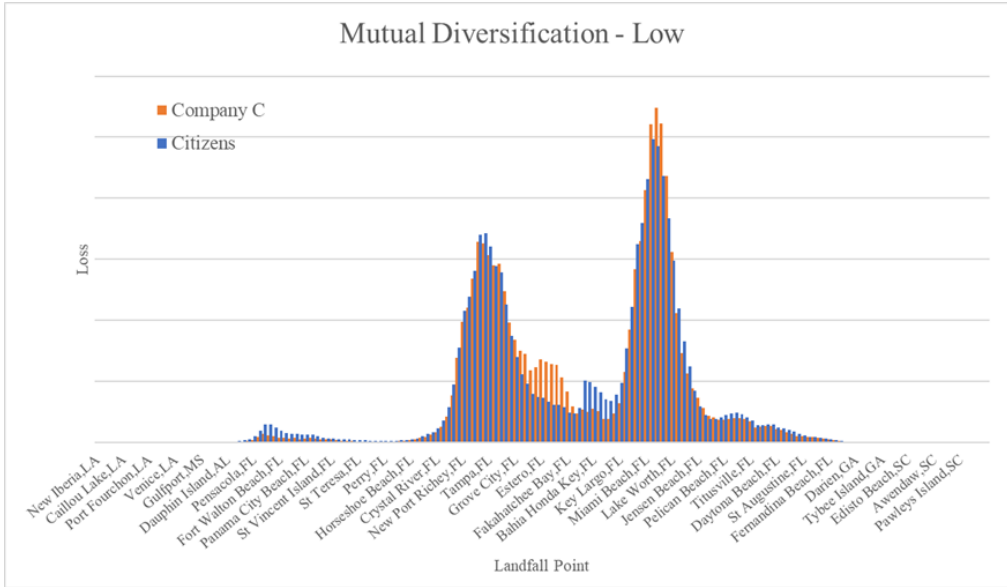
The first image identifies an ideal candidate for mutual diversification: a TOC with little risk in Tri-County but significant risk in Northeast Florida, an area with little correlation to Citizens' current concentrations. Any depopulation portfolio Citizens creates from their concentrations in Tri-County or around Tampa would be a complementary package for Company A, diversifying and strengthening the recipient.

The second image highlights a TOC that has significant correlation with the current risk profile of Citizens, as there is considerable overlap in these companies' peaks. It would be almost impossible for Citizens to create a risk package for Company C in the above example that would strengthen the recipient's risk profile. This is the type of risk transfer Citizens should aim to

avoid, as the profile of the TOC would weaken, and the risk of policies returning to Citizens would increase in the long run.

Figure 81: Mutual Diversification: Characteristic Event Profile Examples



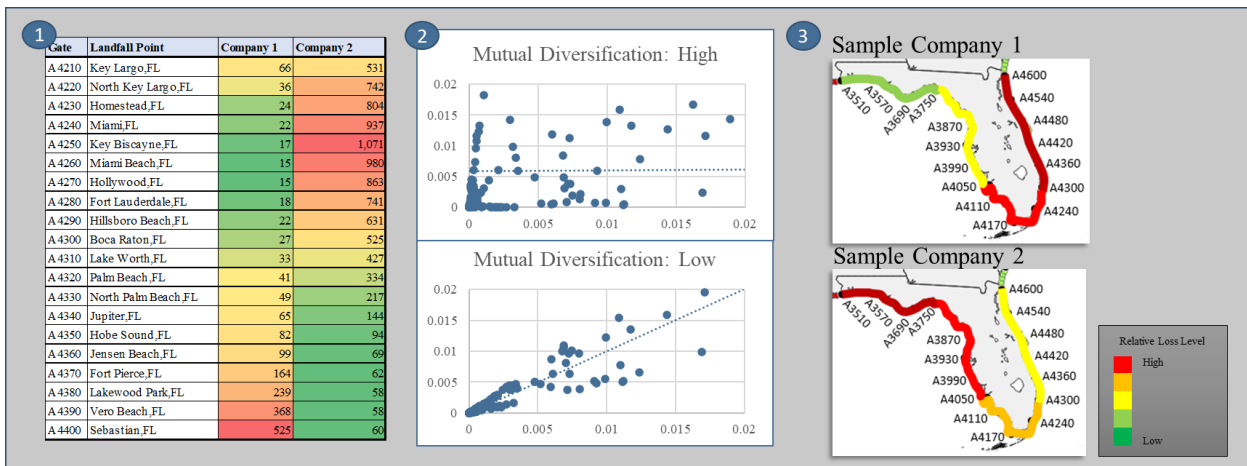


Source: Karen Clark and Company

Figure 82 illustrates the Mutual Diversification methodology’s three keys steps in creating an optimal depopulation portfolio tailored for each TOC.

First, CE analyses are performed on Citizens and all entities within the Florida private insurance market to create a dataset of all the risk profiles in the state of Florida. Each CE data point uniquely indicates the relative risk amount for a specific geographic region of Florida.

Figure 82: Mutual Diversification Algorithm



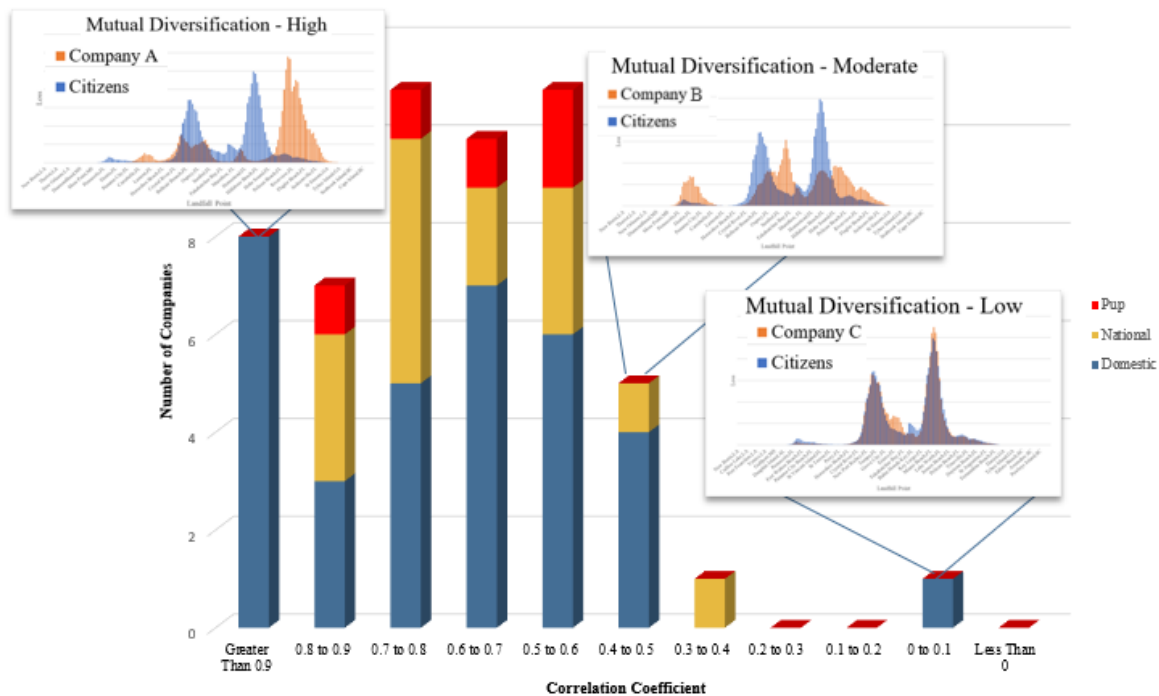
Source: Karen Clark and Company

Second, the risk profiles of all 100+ Florida private insurers are compared against the risk profile of Citizens, and a correlation analysis is performed to categorize the private insurers. Each private insurer is bucketed into differing levels of correlation or similarity to Citizens based on their CE profile. Private insurers with high degrees of similarity to the profile of Citizens (image 2 – those with significant overlap in their peaks) are removed from consideration for a depopulation package (or are provided the lowest incentive or most limited ability to participate). Companies with high degrees of mutual diversification (image 1 - minimal overlap in CE profiles) are prioritized to participate in depopulation opportunities (or are provided greater incentives or ability to remove larger amounts of policies).

Once eligible TOCs are identified, CE profiles are then further analyzed to identify the specific geographic areas of mutual diversification, and a tailor-made depopulation portfolio is created to diversify and strengthen the participating TOCs.

As illustrated by Figure 83, analyzing the entire Florida private market reveals the number of eligible TOCs for Mutual Diversification.⁷⁹ There are only a few entities that are completely

Figure 83: Companies by Mutual Diversification Coefficient



Source: Karen Clark and Company

⁷⁹ The correlation values of the inset CE charts are from left to right: 0.98, 0.50, and 0.04.

uncorrelated with the risk profile of Citizens and are ideal candidates for Mutual Diversification, but the above diagram demonstrates that there is a significant portion of the market that is moderately diversifiable with Citizens.⁸⁰ Even the moderately diversified TOCs, with values ranging from 0.4 to 0.6, have considerable areas within their risk profile that are not overlapping, and would still benefit from depopulation with a targeted portfolio of policies.

Offloading risks using a depopulation portfolio tailor-made to a specific TOC's existing risk profile empowers the recipient to absorb risks that complement its current portfolio, potentially filling in the gaps in its current reinsurance program. A more balanced and smoother CE chart will have a more efficient reinsurance spend with traditional excess of loss layers. Pinpointing and emphasizing the unique benefits of the depopulation portfolios created through Mutual Diversification will lead to higher TOC participation and an increased likelihood that the policies are absorbed by the private market.

The Mutual Diversification methodology strikes a balance on the catastrophe risk profile trade-off spectrum between Citizens and the Florida private insurance market. Citizens maintains a degree of benefit to its risk profile by being able to offload risk, potentially in its most exposed areas like Tri-County. The Florida private insurance market also becomes stronger, as the risks that are being absorbed by the private market are fortifying the TOC through diversification. This leads to an overall decrease in the likelihood that risks will return to Citizens through private market insolvency. Furthermore, there is an added benefit of creating a depopulation process that is more appealing to takeout companies, expanding the options Citizens has to depopulate its policies.

Resilient Depopulation Package

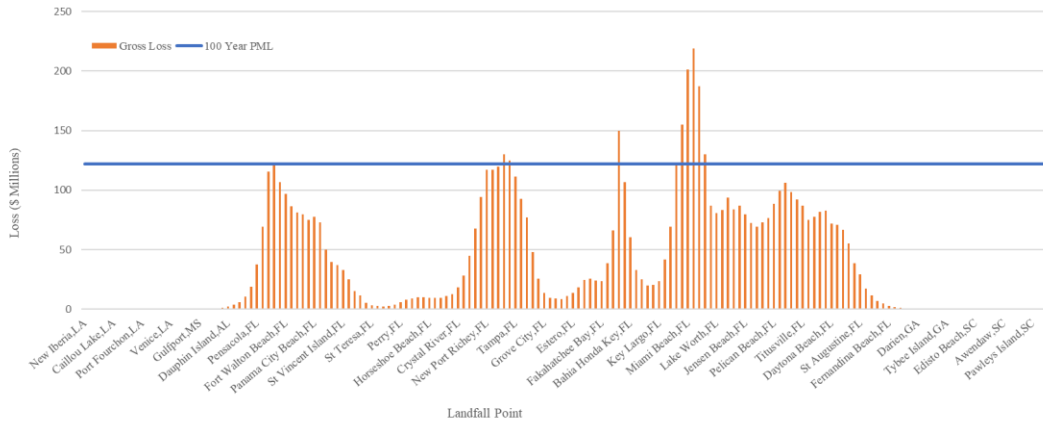
Methodology 3: Resilient Depopulation Package shifts the emphasis away from a Citizens-centric view, and towards benefiting the risk profile of the Florida private residential insurance market and/or capital markets. The approach aims to create depopulation packages that are resilient in and of themselves and are viable as stand-alone portfolios. The resiliency of a package is preserved by selecting a mix of quality risks and maintaining geographic dispersion. The resulting risk packages will have comparatively low Tail CE/PML ratios and will be appealing to any TOC or capital markets entity regardless of their underlying risk profile. An additional potential benefit lies in using the Resilient Depopulation Package to target existing TOCs with modest or poor risk profiles and strengthening them through the depopulation process. As discussed herein, a stronger Florida private insurance market will result in lower potential for risks returning to Citizens down the line.

Using KCC's unique CE methodology in conjunction with other traditional risk metrics, depopulation packages are created that contain quality risks and have high degrees of geographic

⁸⁰ Only Florida insurers with TIV greater than \$2 billion are plotted.

dispersion. An example of a resulting depopulation package is displayed in Figure 84. The CE profile illustrates comparatively low peaks, and smaller geographic concentration of its tail risk. The Tail CE/PML ratio confirms the strength of this profile with a low value of 0.16.

Figure 84: Resilient Depopulation Package CE Chart



Source: Karen Clark and Company

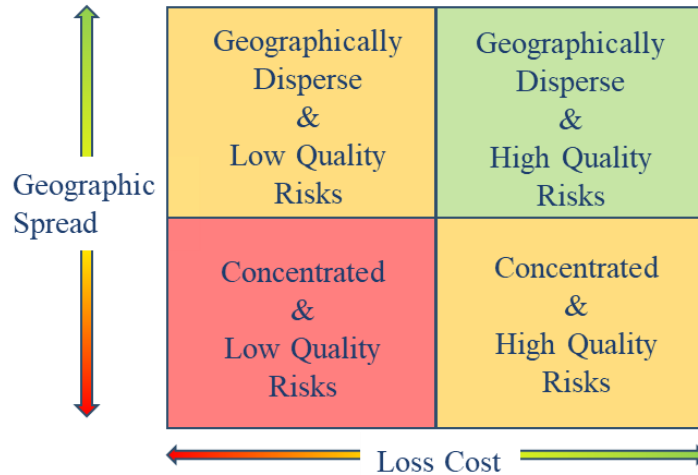
The Resilient Depopulation Packages are assembled with two primary considerations in mind: categorizing quality underlying risks and preserving geographic dispersion. The segmentation of quality underlying risks can be created through the use of traditional risk metrics like Loss Cost, which is a measure AAL normalized by a location’s TIV.

In creating the Resilient Depopulation Package, an algorithm will seek to build a set of risks that, in aggregate, fall outside the bottom left quadrant of the 2x2 grid in Figure 85. While packages falling in the top right quadrant would be the most appealing to the market, they would result in draining Citizens of its best risks, and result in a degraded risk profile. Conversely, depopulation packages heavily weighted to the lower left quadrant will be unappealing to outside entities. Even when selecting primarily high-quality risks, geographic dispersion must be maintained to ensure the portfolio will not be overly exposed to a single hurricane scenario and to create a resilient and appealing package for external assumption.

There is no definitively optimal approach in the risk selection of the Resilient Depopulation Package. Packages located in the upper-right quadrant are the most likely to survive as stand-alone risk packages and would be the most appealing to any recipient, including outside capital markets. The yellow shaded regions of Figure 85 represent viable combinations of qualities in

the Resilient Depopulation Package, and whose potential depopulation would not necessarily negatively impact Citizens’ current risk profile. Either approach, between creating the best possible Resilient Depopulation Package and a package with a mix of high- and low-quality risks characteristics, has viability as an approach for depopulation.

Figure 85: Resilient Depopulation Package Risk Spectrum



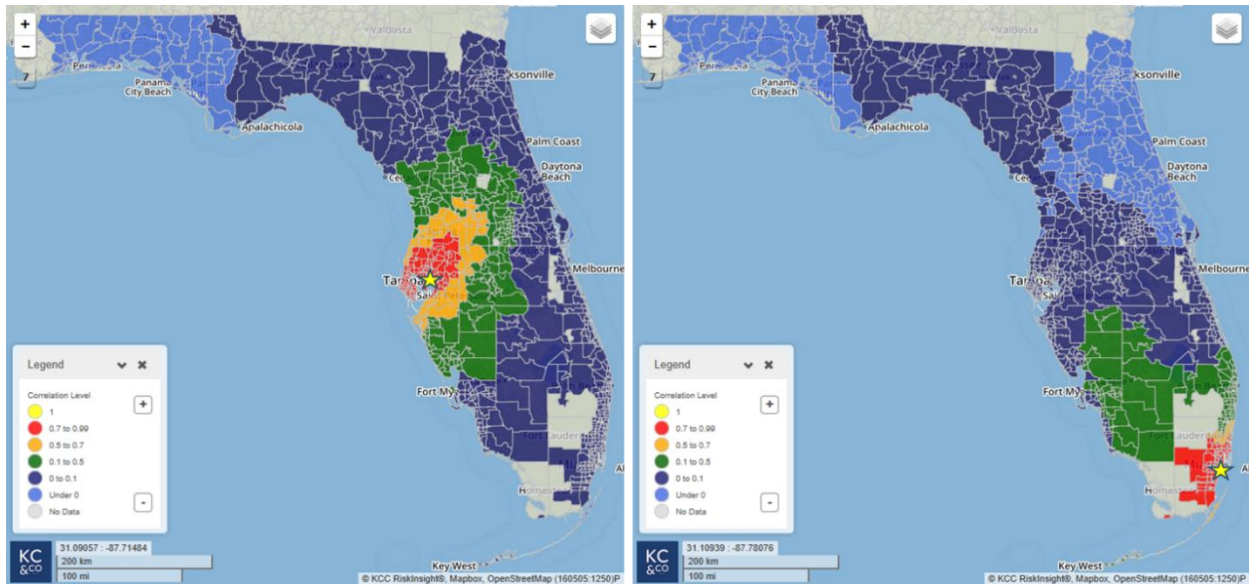
Source: Karen Clark and Company

The first key consideration is the geographic spread of the depopulation package. To create a package of risks that are geospatially diverse, the CE methodology again can be used to determine spatial correlations throughout Florida. After running CE analyses on the entirety of the risks within the state of Florida, correlation matrices are created for every ZIP code within the state. The matrices contain information on which ZIP codes, when grouped in a single risk package, result in a diverse risk profile.

The images in Figure 86 show examples of the ZIP code correlation map when specific ZIP codes are selected from Citizens’ two areas of exposure concentration, Tampa and Tri-County (indicated with a star on the maps).⁸¹ The first example indicates that when creating a depopulation package of risks with exposure in the Tampa area, locations selected from the panhandle will complement these risks due their negative level of correlation. For Tri-County, locations in northeast Florida will round out a resilient depopulation package for the same reason. Areas colored in red, orange and green indicate high to moderate degrees of correlation and would result in a depopulation package too concentrated from a tail risk perspective and should be avoided.

⁸¹ The ZIP codes used to generate correlation maps for the state of Florida represent (left to right) 33605 and 33133.

Figure 86: Sample Florida ZIP Code Correlation Maps



Source: Karen Clark and Company

With ZIP code level correlation relationships defined for the state of Florida, risk selection and allocation thresholds are then defined to complete the creation of Resilient Depopulation Packages. The specific variables and thresholds utilized in determining an optimal depopulation package can vary, but key concepts like limiting geographic density and avoiding over-selection of the most favorable risks must be preserved. To ensure geographic dispersion, county-level caps are implemented to limit the number of policies selected from a geospatially small area. Risk metric percentile thresholds are used to balance the selection of policies across a risk quality spectrum and prevent selection of only the most appealing locations. Figure 86 shows how Loss Cost can be used to capture locations of a certain risk quality. Other metrics like AAL/Premium ratio may also be used for similar effects of risk selection.

The results of the Resilient Depopulation Package methodology have considerable benefit to the Florida private insurance market, supplying potential assumption partners with both quality risks, and dispersed groupings of risk to strengthen risk profiles. This minimizes risks returning to Citizens in the long run as the recipients of these packages experience improvements to their risk profiles, and new entrants start with a balanced risk profile. Furthermore, the concept of ceding uniform packages of similar catastrophe risk can expand the potential market for ceding Citizens risk beyond traditional TOCs to alternative capital markets. The trade-off in this methodology is that Citizens, while giving up risk, is removing some of its best risks and retains a potentially weaker overall risk profile as a result.

Summary

The purpose of this section has been to examine unique and innovative methodologies to optimize Citizens' existing exposure reduction efforts. Through considerable data analysis of the Citizens portfolio, and the entire Florida private insurance market, KCC has identified three distinct opportunities for improvement in the existing Citizens depopulation algorithm. Each methodology shifts the lens of focus from an equitable distribution of premium to an optimal transfer of risk.

While all methodologies shift the paradigm to a focus of risk, each fall on different points on the Citizens-Florida private market risk transfer spectrum. Tail Minimization methodology places considerable focus on and benefit to Citizens, while Resilient Depopulation Packages largely benefit the Florida market. Mutual Diversification strikes a balance of benefitting both entities to moderate degrees. Any of the explored methodologies hold considerable potential for further improving Citizens' already effective depopulation process and minimizing its overall risk.

Assumptions and Key Considerations

The methodologies and proposed optimizations to the current Citizens depopulation process detailed in this study are not without key assumptions and opportunities for improvement. The primary assumptions and noteworthy considerations included in the analyses relate to:

- Data Quality and Granularity
 - QUASR Data Vintage
 - Private Market Exposure Approximations
- Florida Centric Exposure and Loss Calculations
- Exclusion of Net View of Risk
- Limited Scope of Algorithm Efficiency
- Catastrophe Risk Focus and Exclusion of Other Factors

Data Quality and Granularity

The foundational data for the private market analyses in this study rely on several levels of approximation. For exposure, detailed location data are not available for all Florida private residential insurers. As a result, credible approximations for private entity exposure profiles were generated using Q1 2019 QUASR county-level information and the KPD industry exposure database of U.S. property values and inventory. The Q1 2019 QUASR data export was selected for its relative recency, and low number of companies filing for trade secret designation. Certainly, a more recent QUASR data set with fewer trade secret filings would result in a more accurate view of the current Florida private market. These approximations inherently result in less accurate representations of the true exposure profiles of the private market, which results in a degree of estimation in the corresponding risk profiles and metrics. The accuracy of all catastrophe model output improves with the quality of the underlying data.

Florida Centric Exposure and Loss Calculations

During the analysis, the primary focus was hurricane losses from insured properties in the state of Florida. This geographic scope is appropriate for Citizens and Florida domestic companies but is not a full view of risk for National Insurers that have hurricane loss potential outside of Florida and may also be exposed to substantial risk from other natural perils such as earthquakes or wildfires. This constraint may make nationwide insurers appear to have lower catastrophe risk than is actually the case, when they receive the benefit of nationwide surplus but are only penalized for Florida hurricane risk in solvency calculations.

Exclusion of Net View of Risk

Quantifying tail risk is a key component of evaluating all potential opportunities for improvement of Citizens' current depopulation process. The truest way to measure threats to solvency is the use of actual reinsurance and surplus information. The current analyses incorporate surplus information from the 2018 Annual Report from the Florida OIR. While an analysis that also incorporates private reinsurance structures and the FHCF would provide a true net view of risk, the private reinsurance information is not publicly available, and the incorporation of FHCF structures can add unnecessary complexity to the analyses.

Approximations can be made to estimate the impact of private reinsurance on the Florida private market, but the decision was made to omit this approximation; it has the potential to introduce more errors, and creates a more difficult approach to implement for Citizens. Ultimately an emphasis was placed on the ease of implementation for the methodologies that were explored.

Limited Scope of Algorithm Efficiency

The focus of this analysis revolves around identifying potential improvements for Citizens' current depopulation approach, and in particular, the way Citizens identifies the policies to depopulate. The existing algorithm for depopulating risks selected by multiple TOCs places an emphasis on equitable premium allocation. The new paradigm proposed in this study shifts the emphasis to risk quantification and transfer. It should be acknowledged that while there are considerable benefits to these improvements, the depopulation algorithm Citizens implements is only a single factor in the overall depopulation process. There are many externalities, like legal restrictions and policyholder actions, that play a role in the overall feasibility of implementation for the various approaches. These factors were largely not considered in developing the potential improvements to the depopulation process from a catastrophe risk perspective.

Catastrophe Risk Focus and Exclusion of Other Factors

All analyses contained within this section view the transfer of policies and depopulation through the lens of catastrophe risk. Focusing the analysis of alternative methodologies on catastrophe risk metrics simplifies comparisons of the relative benefits and challenges for each option. However, if adopted, additional factors that influence the financial impact to Citizens and

relative attractiveness to the private market would need to be considered when implementing any changes to the depopulation process to more accurately categorize the attractiveness of each policy to all stakeholders. It is important to note the impact of implementing the additional factors would affect all the methodologies equally and should not change the observations on the respective benefits for each approach.

Additional factors would include social inflation, attritional loss, and profitability. These considerations can be incorporated into the analysis by adding these variables as factors into the process of ranking and selecting policies for depopulation. Measures such as attritional loss and profitability can be directly quantified by Citizens, and the effect of social inflation can also be reasonably estimated.

Citizens Claims Analysis

Data

Limited information for all closed claims filed by Citizens' policyholders since its inception were reviewed and analyzed. This includes claims closed through June 30, 2020.⁸²

The data provided included the following:

- Loss date: Date of loss
- Reported date: Date loss reported to Citizens
- Close date: Date claims closed
- Close year: Year claims closed
- Account type: Identifier for PLA or Coastal account policy
- Product type: Identifier for the type of homeowners insurance product purchased (includes DP, HO, and MHO policies)
- General cause of loss: Identifier for cause of loss as catastrophe, water not related to a catastrophe, or other peril
- Rating cause of loss: More specific identifier for the cause of loss as fire, water, liability/medical, hurricane, other wind, theft, non-hurricane catastrophe (NHC), vandalism/malicious mischief (VMM), or other peril
- County: County in which the property is located
- Region: Identifier for properties located in one of the southeast counties (Miami-Dade, Broward, Palm Beach, and Monroe)
- Litigation group

⁸² While information on claims closed in 2020 is included in all figures, the discussion focuses on data through 2019 given that the final number of claims that will be closed in 2020 is unknown.

- Catastrophe name: Name of hurricane, tropical storm, tornado, or other catastrophe if the loss is catastrophe-related

The following sections provide information on the trends observed over time as they relate to causes of loss as well as whether claims involve litigation and/or assignment of benefits (AOB). Given the differences in claim characteristics and loss development, overall trends as well as trends by general cause of loss and region are considered.⁸³ It should be noted that all figures are based on the year in which the claim was closed.⁸⁴

Cause of Loss

Claims related to each specific cause of loss are presented in Figures 87 through 90. As shown in Figure 87, claims peaked in 2012, with more than 66,000 closed claims. Claims began to drop the following year and reached a low of 24,600 in 2016. There was a large jump in claims between 2016 and 2017, and this increase was largely due to hurricane-related claims.⁸⁵

Figure 87: Cause of Loss, 2009-2020

Close Year	All Other	Fire	Hurr.	Liab. / Medical	NHC	Other Wind	Theft	VMM	Water	Total
2009	7,167	2,133	8,231	1,316	1,633	2,484	4,005		22,232	49,201
2010	7,155	1,820	4,002	1,169	983	1,530	4,421		24,674	45,754
2011	9,094	1,967	1,933	1,275	1,235	3,556	5,772		32,142	56,974
2012	8,731	1,966	1,082	1,760	9,104	2,331	5,527		36,065	66,566
2013	8,266	1,721	586	1,411	2,688	1,696	4,031		33,401	53,800
2014	5,303	1,228	313	1,480	836	1,729	2,268	320	25,535	39,012
2015	2,948	734	193	936	350	1,391	1,267	342	16,820	24,981
2016	2,299	641	3,263	774	799	1,222	687	242	14,673	24,600
2017	2,014	563	29,872	684	469	1,705	726	260	11,854	48,147
2018	2,746	509	22,494	813	546	2,426	447	197	13,775	43,953
2019	2,254	575	16,011	759	685	1,387	445	256	16,388	38,760
2020	996	307	5,206	436	421	1,331	163	117	9,378	18,355
Total	58,973	14,164	93,186	12,813	19,749	22,788	29,759	1,734	256,937	510,103

Source: Citizens

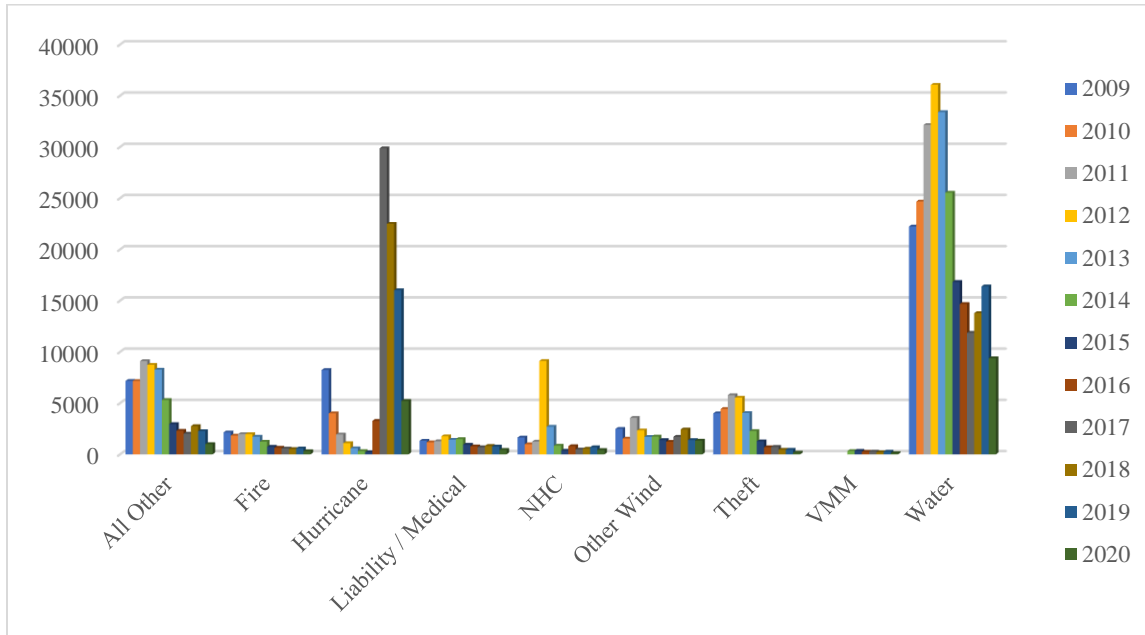
⁸³ The regional analysis presented in this section compares the Tri-Counties to the rest of the state. Given that Citizens makes a distinction in the claims data between the southeast region and the remainder of the state, the analysis is replicated using this as the comparison point. The results are presented in Appendix J.

⁸⁴ Since the number of policies held by Citizens changes over time, closed claims are also examined in relation to policies in force the year in which the claim is reported. The general findings are consistent with those presented in this section and are reported in Appendix K.

⁸⁵ These include Hurricane Hermine occurring in 2016 and Hurricane Irma in 2017. Hurricane Hermine, a Category 1 hurricane, was the first hurricane since Hurricane Wilma to make landfall in Florida. It resulted in a total of 890 closed claims with the most claims occurring in Pasco and Pinellas counties. Hurricane Irma was a Category 4 hurricane when it made landfall. It resulted in more than 68,665 closed claims, or nearly 13.5 percent of all closed claims in the sample period, and also impacted almost every county in the state.

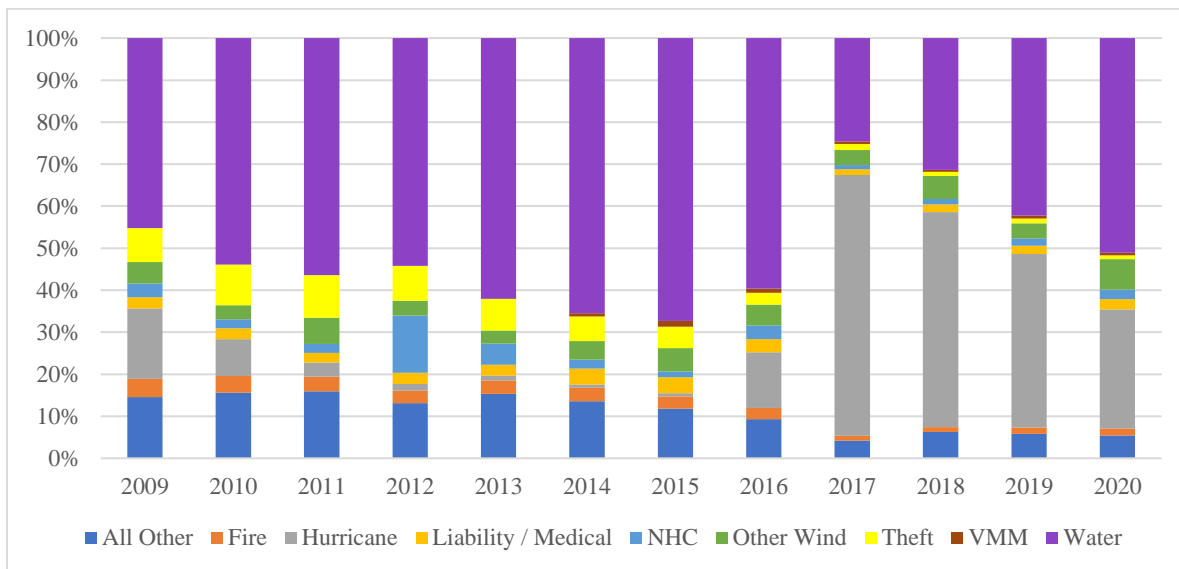
The observable decrease in the number of closed claims between 2012 and 2016 resulted from a general decline in claims across all categories except for hurricane, other wind, and water. This is visually observable in Figure 88.

Figure 88: Graph of Cause of Loss by Close Year, 2009-2020



Source: Citizens

Figure 89: Distribution by Cause of Loss, 2009-2020



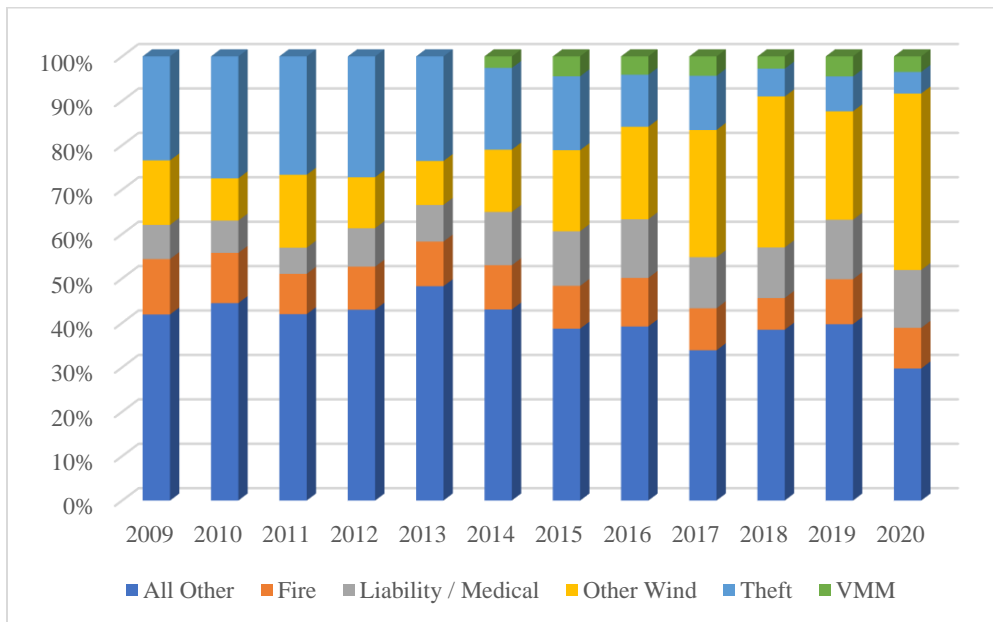
Source: Citizens

Figures 89 and 90 show the distribution of losses by cause for each year, with Figure 90 excluding catastrophe and water losses. Figure 89 indicates that in almost every year, the majority of claims resulted from water losses, followed by hurricanes.

In 2017 and 2018, hurricane became the largest category of losses, with Hurricane Irma accounting for nearly 50,000 of the closed claims in these years. An additional 18,704 claims related to Hurricane Irma were closed in 2019 and 2020.

As shown in Figure 90, when catastrophe and water-related losses are excluded from the sample, the majority of the losses in every year are the result of losses in the ‘all other’ category. While the percentage of losses attributable to most perils has remained fairly stable, there are some perils for which noticeable trends are observed. Claims attributable to other wind has increased during the sample period, growing from approximately 14.5 percent in 2009 to 24.4 percent in 2019. Additionally, claims attributable to theft have declined considerably, dropping from 23.4 percent in 2009 to 7.8 percent in 2019. The fewest claims in all years of the sample result from VMM.

Figure 90: Distribution by Cause of Loss Exc. Catastrophe and Water Losses, 2009-2020



Source: Citizens

Figure 91 compares the general causes of loss of the Tri-County area to the remainder of the state. Approximately 63 percent of all claims occur in the Tri-County area. Additional observations include:

- In every year, there were more total claims in the Tri-County area than the remainder of the state.
- In almost every year, non-catastrophe water claims account for the greatest percentage of closed claims reaching a high of 75 percent in 2015 and 2016. Though the number of closed claims related to non-catastrophe water losses make up a significant portion of closed claims in the remainder of the state, the maximum percentage attributable to this cause of loss in any year is 52 percent.
- Catastrophes were the leading cause of loss in 2017 and 2018 in the Tri-County area and the remainder of the state, reflecting the damage caused by hurricanes occurring during this time period.

Figure 91: Cause of Loss Comparison of Tri-Counties vs. Rest of State, 2009-2020

Close Year	Tri-Counties				Rest of State				Grand Total
	Sub-total	All Other	Cat	Non-Cat Water	Sub-total	All Other	Cat	Non-Cat Water	
2009	30,871	8,789	7,500	14,582	18,330	8,316	2,364	7,650	49,201
2010	29,530	8,537	4,216	16,777	16,224	7,558	769	7,897	45,754
2011	35,495	10,893	2,200	22,402	21,479	10,771	968	9,740	56,974
2012	40,429	10,828	4,791	24,810	26,137	9,487	5,395	11,255	66,566
2013	35,330	9,455	2,066	23,809	18,470	7,670	1,208	9,592	53,800
2014	26,342	6,451	890	19,001	12,670	5,877	259	6,534	39,012
2015	17,230	3,910	440	12,880	7,751	3,708	103	3,940	24,981
2016	15,315	3,136	697	11,482	9,285	2,729	3,365	3,191	24,600
2017	26,523	2,833	14,805	8,885	21,624	3,119	15,536	2,969	48,147
2018	26,286	3,280	12,447	10,559	17,667	3,858	10,593	3,216	43,953
2019	26,442	2,694	11,492	12,256	12,318	2,982	5,204	4,132	38,760
2020	12,671	1,428	4,170	7,073	5,684	1,922	1,457	2,305	18,355
Total	322,464	72,234	65,714	184,516	187,639	67,997	47,221	72,421	510,103

Source: Citizens

Litigation and Assignment of Benefits

Litigation

Figure 92 summarizes the number of litigated claims by general cause of loss. During the sample period, 69,655 of the 510,103 closed claims, or approximately 13.7 percent, were litigated. The litigation rate was 19.8 percent in the Tri-Counties (63,709 of 322,464) and 3.2 percent for the remainder of the state (5,946 of 181,693).

Figure 92: Litigation by Major Categories– Tri-Counties vs. All Other Counties, 2009-2020

		Catastrophe		Non-Cat Water		All Other	
		Claim Counts		Claim Counts		Claim Counts	
	Close	Non-	Litigation	Non-	Litigation	Non-	Litigation
Tri-Counties	2009	7,115	385	14,109	473	8,542	247
	2010	3,733	483	15,881	896	8,170	367
	2011	1,554	646	20,136	2,266	10,128	765
	2012	4,186	605	22,711	2,099	10,142	686
	2013	1,467	599	19,440	4,369	8,320	1,135
	2014	211	679	11,772	7,229	4,771	1,680
	2015	86	354	7,094	5,786	2,740	1,170
	2016	446	251	5,690	5,792	2,202	934
	2017	14,669	136	5,475	3,410	2,385	448
	2018	11,453	994	5,281	5,278	2,710	570
	2019	7,536	3,956	7,548	4,708	2,268	426
2020	2,563	1,607	4,973	2,100	1,248	180	
Sub-Total		55,019	10,695	140,110	44,406	63,626	8,608
Rest of State	2009	2,256	108	7,631	19	8,202	114
	2010	613	156	7,860	37	7,430	128
	2011	904	64	9,631	109	10,605	166
	2012	5,351	44	11,112	143	9,349	138
	2013	1,170	38	9,440	152	7,533	137
	2014	208	51	6,132	402	5,366	511
	2015	78	25	3,661	279	3,248	460
	2016	3,339	26	2,959	232	2,482	247
	2017	15,509	27	2,831	138	3,028	91
	2018	10,445	148	2,925	291	3,718	140
	2019	4,718	486	3,831	301	2,893	89
2020	1,201	256	2,155	150	1,879	43	
Sub-Total		45,792	1,429	70,168	2,253	65,733	2,264
Grand Total		100,811	12,124	210,278	46,659	129,359	10,872

Source: Citizens

The percent of claims litigated increased during the sample period, with a larger increase observed in the Tri-County area. In 2009, 3.6 percent of closed claims in the Tri-Counties were litigated. By 2019, this had grown to 34.4 percent. In the rest of the state, the percent of litigated claims rose from 1.3 percent in 2009 to 7.1 percent in 2019.

As shown in Figure 92, litigation rates varied by general cause of loss. Specifically:

- Nearly 11 percent of the catastrophe-related claims were litigated.
- Approximately 18 percent of non-catastrophe water-related claims were litigated.
- About eight percent of all other claims were litigated.

Additionally, the litigation rate was higher in the Tri-County area compared to the rest of the state for all causes of loss. In summary:

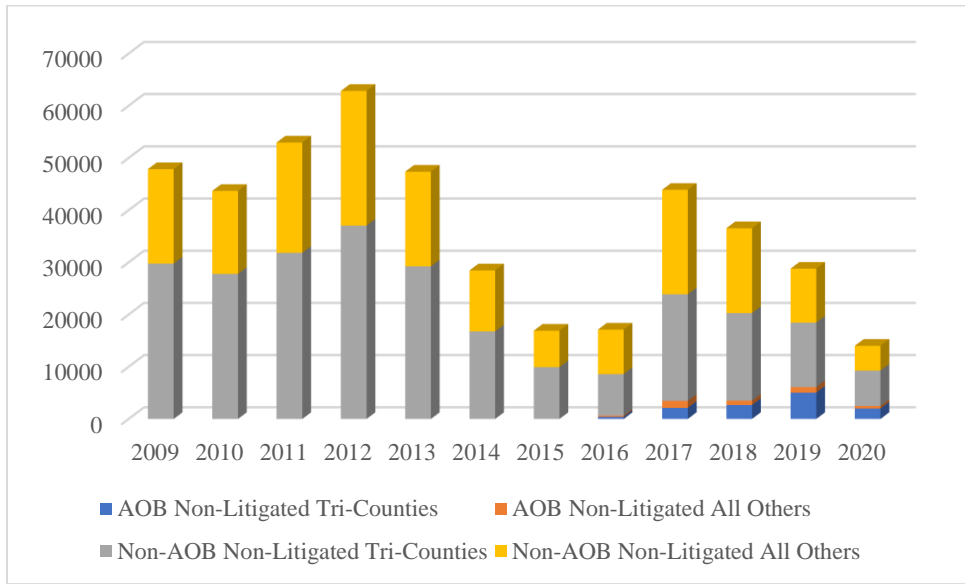
- Of the 65,714 closed catastrophe-related claims in the Tri-Counties, 10,695, or 16.3 percent were litigated. For closed catastrophe-related claims in the remainder of the state, only about three percent were litigated.
- The litigation rate of non-catastrophe water-related claims in the Tri-County area was 24.1 percent (44,406 of 184,516) compared to 3.1 percent (2,253 of 72,421) in the remainder of the state.
- Nearly 12 percent (8,608 of 72,234) of all other closed claims were litigated in the Tri-Counties compared to 3.3 percent (2,264 of 65,733) of closed claims in the rest of the state.

Litigation by Assignment of Benefits

Figures 93 and 94 summarize the number of non-litigated and litigated closed claims by AOB involvement and geographic location. As reported in Figure 93, only a small proportion of the non-litigated claims (16,241 of 424,207 or 3.7 percent) involved AOB. The figure also shows a growth in non-litigated claims through 2012, after which there is an observable decline through 2016. Although the number of non-litigated closed claims doubled between 2016 and 2017, there has been a decline in recent years. Finally, 58.8 percent of the non-litigated claims occurred in the Tri-County area.

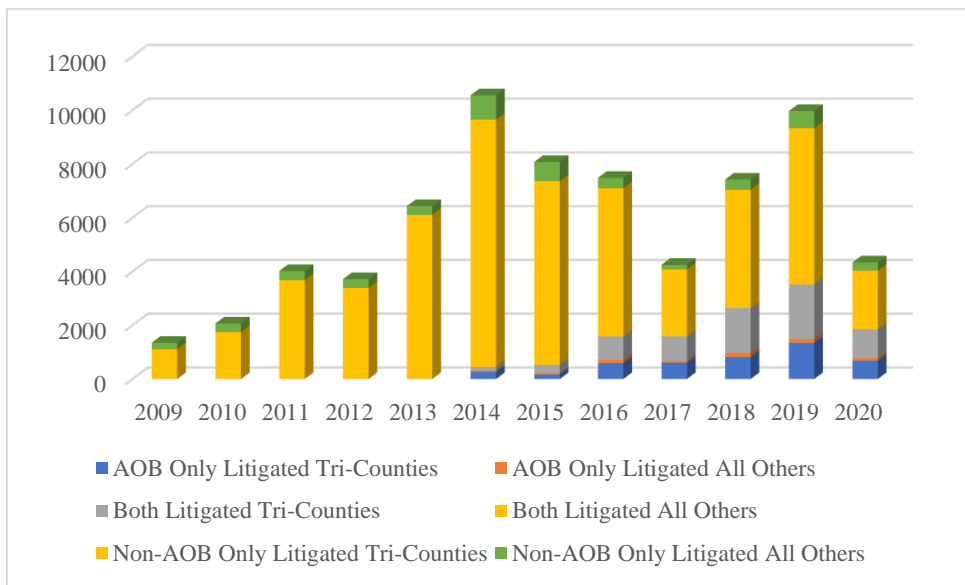
Figure 94 shows different trends as it relates to litigated claims. Among litigated claims, 17.7 percent involve AOB; about 7.4 percent involve AOB litigation only while an additional 10.3 percent involve AOB and some other cause for litigation. This is nearly five times the percentage of non-litigated claims that involve AOB. The figure also shows that the percentage of litigated claims involving AOB has increased over time, from none in 2009 to 36.1 percent in 2019, with an observable increase since 2017.

Figure 93: Non-Litigation Group – Tri-Counties vs. All Other Counties, 2009-2020



Source: Citizens

Figure 94: Litigation Group – Tri-Counties vs. All Other Counties, 2009-2020



Source: Citizens

Finally, 91.5 percent of all litigated claims occurred in the Tri-Counties. This is substantially more than the 58.8 percent of non-litigated claims occurring in the Tri-Counties as reported above.

Other than assignment of benefits, factors that have likely impacted the volume of claims litigated include the problems of unlicensed contractors, one-way attorney fees, fraud, and claims valuation and settlement issues. Additional details related to these items are provided in other parts of this report, including the discussion of hindrances. The use of alternative dispute resolution and Citizens' Managed Repair Program could be useful in reducing the volume of claims related to these issues.

Summary

In this section, Citizens' closed claims were examined. It appears that there has been a general decline in closed claims beginning in 2013 when excluding hurricane-related losses. There has also been a decline in litigated claims related to all other losses. However, there are some areas of concern. For example, non-catastrophe water-related claims represent the majority of closed claims in almost every year and have been increasing in recent years. Additionally, there is a high concentration of claims in the Tri-County area. There has also been an increase in the percentage of closed claims that are litigated, driven by the increase in litigation claims occurring in the Tri-Counties. Finally, the percentage of litigated claims involving AOB has grown dramatically, with a noticeable increase in recent years.

RECOMMENDED KEY IDEAS AND APPROACHES

Introduction

This section focuses on select ideas and approaches designed to reduce Citizens' exposure and expand the private market. The focus is on ideas and approaches that appear feasible based on the information and analysis performed by the FSU Research Team. The first section discusses ideas and approaches that could have an impact across all of the previously identified categories. This is followed by ideas and approaches specific to Citizens (although they may be beyond Citizens' control) as well as those broader than Citizens, potentially involving other agencies and organizations. All ideas and approaches are organized by the various categories outlined earlier in the 'Development of Ideas and Approaches' section this report.

Ideas and Approaches – Overall

Host workshops involving a variety of stakeholders to gain a better understanding of their perception of the Florida market as well as firsthand information on what can be done to make the Florida market more attractive.

Citizens could host a series of workshops with insurers (including Insurtechs), reinsurers and others, and could also involve key legislators and the OIR. These workshops could serve several purposes:

- Provide an opportunity to share more information about the Florida market with potential investors and private market insurers. As discussed in the 'Data Collection and Analysis' section, there are a few different strategies that Citizens can undertake to reduce its exposure, namely tail minimization, mutual diversification, and resilient depopulation.⁸⁶ To the extent Citizens elects to pursue one of these strategies, it could also conduct a targeted presentation to insurers to explain the strategy and provide information on how it could benefit investors and private market insurers.
- Conduct individual meetings with insurers interested in taking out policies to provide more specific information on portfolios of properties that may be optimal for the insurers given their capital and risk appetites.
- Create a forum for potential investors and private market insurers to share any specific concerns about the homeowners insurance market in Florida. This information could be used by legislators and the OIR to consider administrative and policy changes to make the market more attractive to the extent possible.
- Ensure that all parties understand the current state of the market and any recent as well as anticipated regulatory or other changes.

⁸⁶ It should be noted that Citizens offered packaged policies to companies participating in its takeout program in 2011. However, insurers preferred to select specific policies for takeout.

To the extent this effort leads to more insurers operating in the Florida market, this should reduce Citizens' exposure in terms of number of policyholders and total insured value.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that the reduction in exposure improves the financial position of Citizens, it should improve its ability to access the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This effort should result in a reduction in exposure and potentially an improvement in Citizens' financial position.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Category 1 – Attracting Investors

Approach 1.1 - Beyond Citizens: Encourage new entrants (including Insurtechs) to develop new business models for the Florida market, taking advantage of both traditional and alternative approaches to providing insurance coverage.

Florida's catastrophe exposure requires significant capital to support the provision of residential property insurance. New capital is needed as exposure levels continue to increase with both construction costs and new development. This capital can come from capital infusions from current insurers, traditional insurers entering the marketplace, or from new business models.

Insurtechs have created a niche in the market by streamlining and simplifying the insurance purchase process. Though Lemonade was one of the earliest Insurtechs, focusing on personal lines insurance, others have emerged that focus on other areas of insurance such as employee benefits, individual health insurance, and commercial insurance.

A recent survey indicates that 74 percent of traditional insurers expect Fintechs to result in a “disruption of their business” in the near future.⁸⁷ In particular, the majority of these insurers indicate these companies can satisfy changing customer demands with new products, use big data and data analytics to generate a good understanding of risks, and develop new ways to underwrite coverage and forecast losses (PWC, 2016).⁸⁸

To the extent that new capital comes into the market via traditional insurers or from new business models, this could lead to more insurers operating in the state and potentially result in more affordable options for homeowners. As the amount of capital in the market increases, insurers may be more attracted to the market as well. These responses could, thereby, reduce the demand for coverage from Citizens.

1. *What would the impact be on Citizens’ access to capital markets and traditional reinsurance?*

To the extent that the reduction in exposure improves the financial position of Citizens, it should improve its ability to access the capital markets and traditional reinsurance.

2. *What are the implications to Citizens’ ability to respond to significant market fluctuations?*

This should improve Citizens’ ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This effort should result in a reduction in exposure and potentially an improvement in Citizens’ financial position.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

Assuming new entrants are financially sound, no conflict is evident.

⁸⁷ Fintechs include Insurtechs as well as other companies that rely heavily on the use of technology in providing financial services.

⁸⁸ To read the full report, see <https://www.pwc.com/gx/en/financial-services/assets/fintech-insurance-report.pdf>.

Category 2 – Loss Control

Approach 2.1 - Citizens: Require Citizens' policyholders to engage in loss prevention and loss reduction efforts. This could include the use of various technologies such as water leakage sensors and alarm systems. Citizens could consider funding these efforts. Additionally, Citizens could require regular mandatory inspections of all insured properties every three to five years with Citizens to make additional loss control recommendations based on the results.

Loss prevention and loss reduction efforts can reduce the frequency and severity of claims. For example, as shown in Figure 87 of the 'Citizens' Claims Analysis' section, water damage is the leading cause of loss in almost every year, except for 2017 and 2018. To the extent that water leakage sensors could reduce the severity of water-related losses, this could improve Citizens' claims experience.

Requiring policyholders to engage in these activities would benefit Citizens to the extent these policies remained with Citizens but would also make these policies more attractive to takeout companies. Citizens could promote these efforts through targeted marketing, as discussed in Approach 6.4, demonstrating the impact of loss control techniques on premiums and policyholder out-of-pocket expenses.

Citizens currently does routinely inspect properties. Citizens bears the cost of general inspections while four-point inspections on properties over 30 years old, sinkhole inspections for properties requesting sinkhole coverage, and uniform wind mitigation verification inspections on all property requesting wind mitigation credits are paid by homeowners (Citizens Property Insurance Corporation, 2020u).

The number and types of inspections performed each year varies depending on "specific underwriting initiatives and budgeting" and Citizens is working to develop "a more aggressive and robust inspection program to assist in mitigating non-weather water loss." Given the volume of water-related losses as noted above, this more aggressive strategy could be beneficial to Citizens as it would ensure that previously identified loss control efforts are maintained and provide Citizens an opportunity to identify additional loss control techniques from which the property could benefit.

If financially prudent, Citizens could also consider bearing some portion of the loss control efforts, or these efforts could be supported by state resources. If Citizens is not able to participate in the funding of these efforts, homeowners may still engage in these activities to the extent financially feasible to the households as research suggests that the benefits generated from loss prevention and loss reduction efforts, such as lower insurance premiums and safer environments,

may be sufficient to encourage the behavior (Kleindorfer and Kunreuther, 1999; Kunreuther, 2006; Carson, McCullough, and Pooser, 2013).

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

These efforts should improve the strength and condition of the properties insured by Citizens as well as reduce its exposure, leading to improved access to the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This requirement should improve the strength and condition of the properties insured by Citizens as well as reduce its exposure by making Citizens' policies more attractive to takeout companies.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

A legislative or administrative change may be necessary to require Citizens' policyholders to engage in loss prevention and loss reduction efforts.

Approach 2.2 - Beyond Citizens: *Expand and improve the Florida Building Code. This could include incorporating the idea of "Code Plus" standards and/or creating optional standards for wind and flood for older homes that cannot meet the 2001 building code.*⁸⁹

Similar to the loss control efforts discussion provided in Approach 2.1, expanding and improving the Florida Building Code could mitigate the losses caused by a variety of exposures, including hurricanes. One current initiative in this area is "Code Plus." A study by Prevatt, Stafford, Quinn, and Vickery (2019) for the Florida Department of Business and Professional Regulation compares the performance of houses built to these new standards to similar homes not built to these standards that were impacted by Hurricanes Irma and Michael, with a focus on the

⁸⁹ Creating a retrofit code that would seal the envelope of the structure and eliminate site factors that can negate structural soundness would be beneficial to Citizens and private market insurers.

justification for enhanced building codes.⁹⁰ For example, the non-structural building envelope systems such as roofing and cladding can be enhanced with secondary barriers that prevent water intrusion and thus further reduce insured losses. Such building code changes would directly benefit Citizens to the extent these policies remained with Citizens but could also make these policies more attractive to private market insurers.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

These efforts should improve the strength and condition of the properties insured by Citizens as well as potentially reduce its exposure. This should result in improved access to the capital markets and traditional reinsurance for Citizens.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This should improve the strength and condition of the properties insured by Citizens as well as potentially reduce its exposure by making Citizens' policies more attractive for takeout.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

A legislative or administrative change would be required. It should also be noted that this could raise construction costs and the overall cost of homeownership.

Category 3 – System Efficiencies

Approach 3.1 - Citizens: *Work to expand and promote the use of managed repair programs involving certified contractors.*

⁹⁰ This report is available at [http://www.buildingasaferflorida.org/assets/Final%20Prevatt%20UF%20EnhancedBuildingOptions%20for%20FBC%20-%20FINAL27Dec2019%20\(2\)1.pdf](http://www.buildingasaferflorida.org/assets/Final%20Prevatt%20UF%20EnhancedBuildingOptions%20for%20FBC%20-%20FINAL27Dec2019%20(2)1.pdf).

Citizens does currently maintain several programs designed to assist policyholders with losses. Citizens' Managed Repair Program (MRP) focuses on non-weather-related water damage and a Managed Repair Contractor Network Program provides referrals to contractors for other types of damage. In addition, Citizens has an Emergency Water Removal Services Program which provides water removal and drying services required by a covered water loss at no cost to policyholders.

Notification of the availability of these programs is provided to every policyholder that reports a non-weather-related loss to Citizens. Recent statistics suggest that approximately 36 percent of policyholders utilize the MRP. Those that use the program are generally satisfied with the outcome, with about 81 percent indicating they would use the program again. Given the positive experience for those that use the program and the fact that participation reduces the possibility of litigation, Citizens should undertake increased efforts to strongly promote and expand the program among eligible policyholders and share information with the public on the positive impact of the MRP.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

If these efforts improved the overall financial position of Citizens, it could improve its access to capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This is unlikely to directly impact Citizens' ability to respond to market fluctuations.

3. *What is the expected business outcome and what would be the expected benefits?*

These efforts could improve the efficiency of the claims process and lead to lower claims costs.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Approach 3.2 – Beyond Citizens: *Different claims settlement processes such as alternative dispute resolution and early offers could be used to reduce the percentage of claims that are litigated or the dollar amount of claims. These processes may also be useful for both Citizens*

*and other insurers operating in Florida to limit claims costs and control fraud and abuses of the system.*⁹¹

Observations have been made regarding the growth and magnitude of litigation costs and the possible causes. The use of different claims settlement practices could be used to manage these costs. Additionally, the Florida Legislature recently addressed the issue of AOB. Other issues have been considered by the Legislature and legislative changes have been proposed dealing with a broad scope of abuses including “one-way” attorney fees and the growing application of attorney fee multipliers, all which impact claims costs. Recent fraudulent activity has also been reported in considerable detail by Johnson (2020a, 2020b, 2020c, 2020d, 2020e, 2020f, and 2020g), and O’Connor (2020c) notes that a number of insurance companies have been impacted and that the concern involves a pattern of racketeering in violation of the Racketeering Influence and Corruption Organizations Act (known as RICO).⁹² These are issues that need further study and their resolution could not only reduce Citizens’ exposure in the Tri-County area (where Citizens has substantial risk from litigation), but also help expand the private market in this area. Several stakeholders interviewed by the FSU Research Team noted that the levels of litigation impacting certain counties in Florida may explain why insurers are reluctant to write business in certain areas of the state. Strong evidence has been presented showing the large numbers of water damage claims and the growing problem.

1. *What would the impact be on Citizens’ access to capital markets and traditional reinsurance?*

Greater control over litigation would improve Citizens’ access to the capital markets and traditional reinsurance by eliminating or reducing uncertainty of claims and could reduce loss creep.

2. *What are the implications to Citizens’ ability to respond to significant market fluctuations?*

Alternatives to litigation can reduce Citizens’ exposure (from a risk standpoint) and improve its ability to respond to significant market fluctuations.

3. *What is the expected business outcome and what would be the expected benefits?*

⁹¹ Lemonade Insurance Company founded in 2015 (see <https://www.lemonade.com/>) has promoted its business model as a way of eliminating conflicts of interest between the company and its policyholders and used artificial intelligence (AI) to pay claims quickly (in a matter of seconds after it is approved).

⁹² A complaint has been filed by the Florida Bar (Florida Bar Complaint, 2020) and Citizens has filed a lawsuit alleging fraud from sham first party claims made against the company (Citizens Property Insurance Corporation, 2020s). The Supreme Court of Florida suspended the lawyer involved from the practice of law until further ordered.

The expected business outcome would be highly positive for Citizens and the private market.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

A legislative or administrative change may be required.

Category 4 – Data Quality, Analytics, and Transparency

Approach 4.1 - Beyond Citizens: Create a statewide database that incorporates the loss control and mitigation features (including factors such as roof shape, mitigation features, age of roof, etc.) of every home in Florida like the CARFAX™ database used with automobiles.

Detailed data will help private market insurers gain a better understanding of the exposure in the state and may serve to make the Florida marketplace and takeout opportunities more appealing.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent increased data availability increased private market insurer participation in the Florida market and Citizens' exposure is reduced, it could result in improved access to the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

If this reduces Citizens' exposure, it could improve its ability to respond to significant market fluctuations.

3. *What is the expected business outcome and what would be the expected benefits?*

This should increase the number of private market insurers operating in Florida and the market share held by these insurers, thereby reducing Citizens' exposure.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

A legislative or administrative change would be required.

Category 5 – Financial Solvency

Approach 5.1 – Citizens: Change Citizens’ takeout program from one of insurers selecting individual policies (a pull approach) to an approach where Citizens formulates various portfolios of policies (a push approach) using the concept of managing tail risk.⁹³

Managing tail risk can be done using various alternative strategies based on Citizens’ objectives. These strategies are defined as: 1) tail minimization emphasizing the reduction of Citizens’ tail risk; 2) mutual diversification emphasizing a private market insurer’s ability to assume a portfolio of those policies that drive Citizens’ tail risk but could also benefit some insurers; and 3) resilient depopulation packages of policies that focus on a fixed subset of Citizens policies that would be most attractive to the private market but would not necessarily be favorable for Citizens’ tail risk reduction. While there are many details and legal considerations involved in operationalizing such a program, changing Citizens’ takeout approach from a “pull” to a “push” approach using modern risk metrics as discussed in the ‘Hurricane Modeling to Optimize the Exposure for Citizens & the Private Market’ section could attract additional capital to the state and strengthen the solvency of the system while also reducing Citizens’ exposure.⁹⁴

1. *What would the impact be on Citizens’ access to capital markets and traditional reinsurance?*

To the extent that private market insurers can diversify by taking on exposure from Citizens which are not correlated with their existing portfolio of policies, both their tail risk and Citizens’ can be reduced. This could result in improved access to the capital markets and traditional reinsurance.

2. *What are the implications to Citizens’ ability to respond to significant market fluctuations?*

Citizens could improve its ability to respond to significant market fluctuations since its risk of exceeding its PML would be reduced (lower tail risk).

3. *What is the expected business outcome and what would be the expected benefits?*

⁹³Tail risk refers to the loss that could exceed an insurer’s modeled PML. Since the PML is an exceedance probability, it is important to understand, control, and limit the probability of a large loss exceeding a PML.

⁹⁴ Previous attempts to offer bundled policies to private insurers did not tailor the portfolios of policies to individual companies or focus on companies with a risk profile uncorrelated with Citizens. Lack of interest may have been due to the fact that portfolios were not matched to insurers according to their risk.

For those insurers that qualify (their exposure has a low correlation to Citizens' exposure), this should increase the number of private market insurers operating in Florida and/or motivate existing insurers to take on more exposure without increasing their PML. Both Citizens and qualifying insurers would lower their tail risk and be more diversified.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

This could require a legislative or administrative change and issues concerning the agents' ownership of the business may need to be resolved.

Approach 5.2 – Beyond Citizens: *In cooperation with OIR and catastrophe modeling firms, consider deploying new, emerging methodologies to better evaluate the risk of financial insolvency for Citizens and private market insurers in Florida. Approaches should consider, for example, an insurer's spread of risk and its contribution to an insurer's overall risk profile in ways that can be quantified for more accurately measuring catastrophic risk exposure.*

The CE methodology presented in the 'Hurricane Modeling to Optimize the Exposure for Citizens & the Private Market' section of this report is an example that illustrates how this can be done. Risk metrics such as Tail CE/Surplus Ratios can be used to quantify the relative tail risk of an insurer's exposure profile for solvency and comparison purposes. Other hurricane models found acceptable in Florida could develop similar metrics. Advanced analytics could help attract investors to Florida as well as afford an opportunity for existing Florida insurers to expand their exposure in the market and take risks from Citizens that they may not have previously considered as beneficial to their book of business (as discussed in Approach 5.1 above).

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that more advanced analytics are used, additional information about each insurer's exposure would be known which could bolster an insurer's solvency position and reduce or eliminated future insolvencies. This should reduce Citizens' exposure and its market share as a residential property insurer.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

Citizens could improve its ability to respond to significant market fluctuations since its book of business would be less volatile if insurers are more financially sound and have a better understanding of their tail risk and overall risk profile.

3. *What is the expected business outcome and what would be the expected benefits?*

It is expected that insurers' financial soundness and potential volatility would be improved. Additionally, Citizens would have less exposure as some existing insurers would be able to expand their presence in Florida and new companies may be drawn to the Florida residential property insurance market. Also, more modern analytics could encourage new capital to be invested in Florida by both insurers and reinsurers (including the ILS markets). The management of tail risk for catastrophes is currently a process that is not transparent and results in hidden risk for insurers, policyholders, regulators, rating agencies, and investors. Additional information about risk is the key to further the science of managing catastrophe risk and instill greater confidence in all parties that are impacted by reducing volatility.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

In the short term, this could lead to an increase in the number of policies in Citizens if some insurers actively writing need to reduce their number of policies to manage their catastrophic risk exposure. However, this could be controlled by improvements to properties through mitigation, updated building code standards, tort reform, and rating changes as outlined in other areas of this report.

Approach 5.3 – Beyond Citizens: The Florida residential property insurance system needs to be regularly stress tested in the aggregate to gain a greater understanding of the impact of large events on the vulnerability and the survivability of the overall insurance system.

While some scenario testing is conducted today, additional and regular aggregate stress testing could provide meaningful information for evaluating the distribution of exposures which are in Citizens and those in the private market. Stress testing of the entire insurance system is also a way to understand the impact that insolvencies could have on Citizens, the FHCF and FIGA, considering factors such as Citizens' policyholder count, the magnitude of bonding and policyholder assessments. Aggregate stress testing would also provide an annual metric for whether the system is improving or deteriorating over time. OIR could expand its current stress testing of insurers to consider Citizens', the FHCF, and FIGA's capabilities and use both the traditional PML approach supplemented with a type of tail risk methodology (discussed above in Approaches 5.1 and 5.2).

Cummins, Doherty, and Lo (2002) conduct an analysis of the capacity of the U.S. property-liability insurance industry to finance losses in the \$100 billion range. Their results suggest that the industry, at that time, could fund a \$100 billion event, but some insurers would go insolvent, thus destabilizing the market. In a study by Nicholson, Clark, and Daraskevich (2018), the authors illustrate that a repeat of a past hurricane making landfall at certain locations in Florida could result in billions of dollars of insured losses. Generally, the system was found to be capable of funding events up to \$25 billion without significant insolvencies, but at higher levels of losses, numerous insolvencies could result. For example, 11 insolvencies could be expected from a \$25 billion to a \$50 billion loss event, 20 from a \$50 billion to a \$75 billion event, 37 from a \$75 billion to a \$100 billion event, and 48 from an event greater than \$100 billion. Note that these were not extreme hurricanes, but representative of ones that have occurred in Florida in the past. Another finding was that certain of these types of losses could overwhelm FIGA's abilities to fund its obligations requiring as much as \$40 billion of debt to finance a large loss occurring in the Miami area. At the time of the study, FIGA only had the capacity to fund around \$2 billion of debt. A 1 in 100-year hurricane loss event could also have a significant and an overwhelming impact on Citizens, resulting in the addition of as many as four million policyholders or roughly two-thirds of all the policies in the state.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

Regular aggregate stress testing of the insurance system in Florida would serve to recognize vulnerabilities and result in a more transparent understanding of the Florida market. This could reduce uncertainty for both the capital market participants and traditional reinsurers.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

Regular aggregate stress testing should identify the vulnerabilities of private insurers that need to be corrected over time. This should result in a financially stronger market with insurers willing and able to expand their writings over time. At the same time, Citizens should benefit by a reduction in its exposure.

3. *What is the expected business outcome and what would be the expected benefits?*

The business outcomes associated with regular aggregate stress testing would be the continuing improvement and strengthening of the residential property insurance system in Florida. Greater transparency would serve to ensure businesses and policyholders in the state that better catastrophic hurricane risk management is occurring, and this should help

encourage business (including insurers) to come to Florida and benefit Florida's tax base. In the long run, residential property insurance rates should be reduced, and more coverage should be available in the private market with Citizens having a smaller role as a residual insurer.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

In the short term, to the extent that companies are identified as being at risk of insolvency and corrective action is required, this could lead to an increase in Citizens' policy count. However, in the long term, this should improve the overall strength of Florida residential property market.

Category 6 – Rating Reform

Approach 6.1 - Citizens: Modify, eliminate, or replace Citizens' glide path to allow for greater percentage rate increases so that rates are closer to being actuarially sound and can better adjust to rate changes in the private market.

When Citizens was created, it was intended to be an insurer of last resort. As such, it generally required that Citizens' rates (excluding wind-only coverage) "be no lower than the average rates charged by the insurer that had the highest average rate in that county among the 20 insurers with the greatest total direct written premium in the state for that line of business in the preceding year." Subsequent legislative changes made Citizens' rates more competitive with the private market, leading to a growth in policy count between 2008 and 2011.⁹⁵

Though no major hurricanes hit Florida between 2009 and 2011, there was substantial growth in the size of Citizens during this period, likely due to Citizens' rate structure. As noted in the market share analysis provided in Figure 48 in the 'Overview and Analysis of the Florida Insurance Market' section, Citizens' rates in Dade County were lower than some of the private market segments during that timeframe. It is not until 2015 that Citizens' rates begin to outpace the Florida Focused Domestics.⁹⁶

Since 2011, the market share of Citizens in terms of direct premiums written and total insured value relative to other insurers in the marketplace has declined and the market share of Florida-Focused Domestic Insurers has grown (likely due to Citizens' depopulation activities). However, as shown in Figures 25 – 27 in the 'Overview and Analysis of the Florida Insurance Market'

⁹⁵ See earlier discussion in this report for additional details.

⁹⁶ It should be noted that this is a comparison of rates of policies in place; it is not a comparison of what Citizens would charge for a new policy relative to what the Florida Focused Domestics issuing new policies would charge.

section, Citizens continues to maintain significant market share in counties with high catastrophe exposure, including the Tri-County area. This is likely a function of how competitive their rates have been in these counties over the last 10 years (see Figures 48 - 50).

The reduction in market share of Citizens is due, in part, to depopulation activities. Citizens' total policy count declined from a high of more than 1.4 million in 2011 to approximately 440,000 in 2019. As noted in Figure 95 below, policy count has remained fairly stable despite the four hurricanes impacting Florida between 2016 and 2018.

Louisiana Citizens was created in 2003 and was patterned after the structure of Florida Citizens. Louisiana Citizens was also intended to be a residual market insurer and that its rates are, by design, not competitive with the rates offered in the private market. Specifically, access to Louisiana Citizens is limited to the highest of the most expensive coverage provided by an insurer writing in the parish plus 10 percent or 10 percent of the actuarially sound rate if there are not active private market insurers writing in the parish.⁹⁷

As with Florida Citizens, it has also undergone significant depopulation efforts including a takeout program which originally included incentives for participating insurers.⁹⁸ Though Louisiana has five parishes listed in the top coastal counties struck most often by hurricanes (Hartwig and Wilkinson, 2016), it has experienced a significant decline in market share in the state, dropping from 9.8 percent in 2008 to approximately 1.4 percent in 2018 (Louisiana Department of Insurance, 2015; Lehmann, 2019).

The success of Louisiana Citizens' depopulation efforts is due, at least in part, to its rating structure.⁹⁹ It has maintained a pricing structure that ensures the cost of coverage remains above the cost of coverage in the private market. This leads to a greater number of homeowners seeking and obtaining coverage in the private market and makes policies issued by Louisiana Citizens more attractive for takeouts.

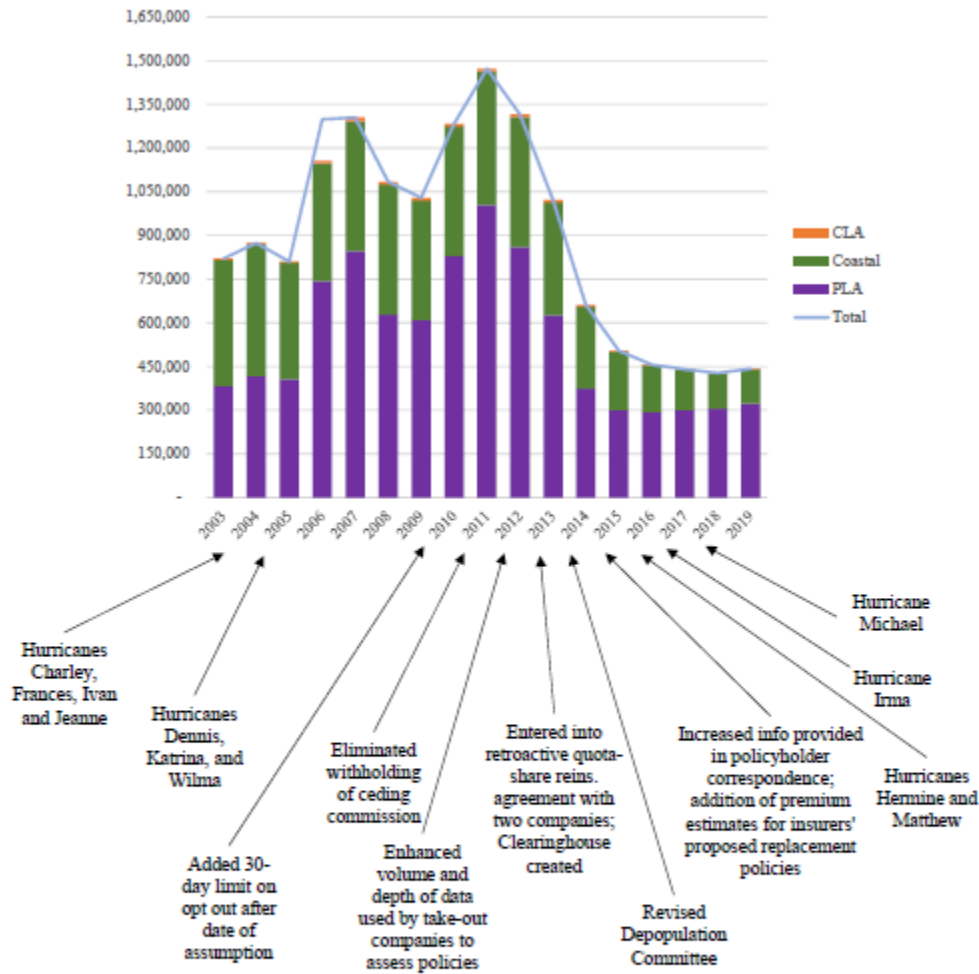
1. What would the impact be on Citizens' access to capital markets and traditional reinsurance?

⁹⁷ There is one noteworthy exception. For a few years, coastal parishes were exempt from the 10 percent add-on to the premium. However, this change was allowed to sunset.

⁹⁸ In 2007, HB 678 created the Louisiana Incentive Program which provided grants to new entrants to the state. This required at least 25 percent of companies' new premium come from Citizens. SB 153 created the Citizens Depopulation Program which created bundles of policies offered to takeout companies. The structure of the takeout program has changed some over time and now states that Louisiana Citizens "may offer some or all of its inforce policies for removal to the voluntary market. The corporation shall include in any offers for depopulation policies that, based on geographic and risk characteristics, serve to reduce the exposure of the corporation."

⁹⁹ The decline in the size of Louisiana Citizens is also likely due to the success of its takeout programs and general factors including building code changes, a rule requiring companies to continue to renew policies once they have been held for three years (with few exceptions), and the lack of AOB provisions.

Figure 95: Timeline of Select Events and Depopulation Efforts



Note: In 2006, there were 142,980 policies assumed from the Poe Financial Group included in Citizens' total policy count. As these policies remained on the Poe system at the end of that calendar year, they are not allocated at the account level.

Source: Information obtained from various Citizens depopulation documents and the Citizens website.

To the extent that Citizens' exposure is reduced, it should improve its ability to access the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This effort should result in a reduction in exposure and potentially an improvement in Citizens' financial position.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

This approach will require a legislative or administrative change. Additionally, it should be noted that this could impact the affordability of residential property insurance in the state.

Approach 6.2 - Citizens: *Limit Citizens' policyholder eligibility to only situations where the private market insurer's premium is at least 15 percent higher than Citizens' premium for both new policies and renewals.¹⁰⁰ Citizens could also consider increasing the requirement to 20 percent or 25 percent.*

In a file provided by Citizens, an analysis indicates changes to Citizens' policy count if the new policy rule was applied to depopulations. In particular, as shown in Figure 96, if the 15 percent rule had been applied to depopulations in 2017-2018, more than 111,000 policies, or 73 percent of all of Citizens policies on which offers were received, would have been moved into the private market. If the 15 percent cut-off were increased to 20 (25) percent, this would result in an additional 12,564 (20,477) policies.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that the reduction in exposure improves the financial position of Citizens, it should improve its ability to access the capital markets and traditional reinsurance.

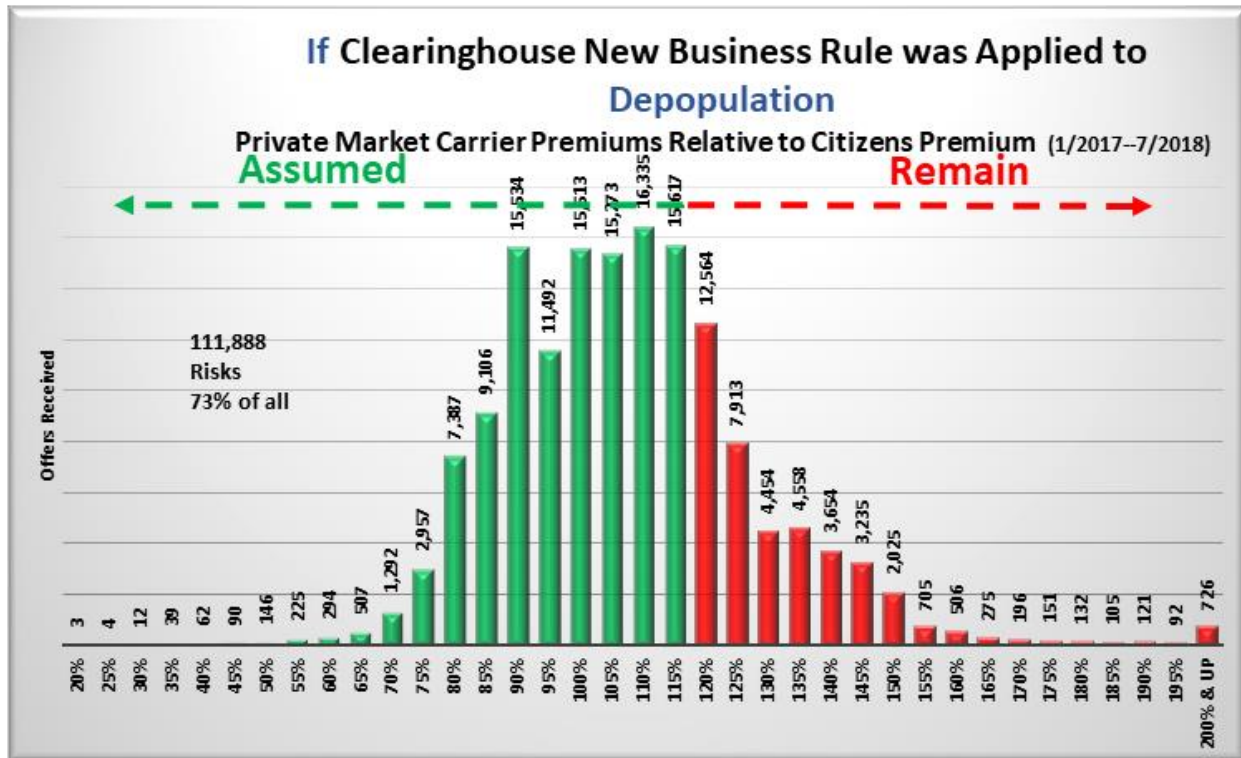
2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

¹⁰⁰ Note that the Legislature has proposed a plan that involves the standardization of eligibility requirements, the limiting of depopulation opt-outs, and allowing of surplus lines carriers to make takeout offers (provided that they are highly rated).

Figure 96: Clearinghouse New Business Rule Applied to Depopulation



Source: Depop Clearinghouse Premium 2017 2018 Data

This effort should result in a reduction in exposure and potentially an improvement in Citizens’ financial position.

4. Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?

This approach will require a legislative or administrative change.

Approach 6.3 - Beyond Citizens: Update or eliminate the mandatory mitigation credits for insurers. Encourage private market insurers to establish what they believe to be proper discounts and charge a premium commensurate with the reduction of the risk/exposure.

Mitigation credits were developed by Applied Research Associates, Inc. (ARA) in 2001-2002 and used hurricane data from 1995 through 2000 and standard building codes in place both pre-2001 and post-2001.¹⁰¹ The study focused on a number of wind-resistant home features including

¹⁰¹ As discussed in the report, this distinction was made as the Florida Building Code in 2001 was expected to “improve the design and construction of new buildings with regard to wind loads, particularly in the windborne debris regions.”

roof strength, roof covering strength, roof-to-wall strength, wall-to-floor-to-foundation strength, and home openings (Applied Research Associates, Inc., 2002).¹⁰² Given the development in mitigation techniques as well as construction and construction costs over the years, it is likely that these credits may not fully reflect all current mitigation techniques or the current value of the mitigation techniques. Available information from interviews with various parties and studies published at the time suggests that there was concern with the initial credits when they were developed (Florida Catastrophic Storm Risk Management Center, 2010a and Florida Commission on Hurricane Loss Projection Methodology, 2010). Over time, base rate offsets approved by OIR have been able to correct some of the earlier problems.

Since the development of the original mitigation credits, there have been changes to the building code. There have also been several major hurricanes since 2000. Collectively, the use of updated data could result in the development of different mitigation credits than what was developed in 2002. As such, this may serve as a deterrent to private market insurers writing homeowners business in the state or expanding the extent of coverage they currently write. Eliminating or updating the mitigation discounts could serve to eliminate this deterrent.

While insurers can develop their own mitigation credits, this is likely only feasible for large National Insurers. As such, the use of potentially outdated mitigation credits could disproportionately impact smaller and regional insurers not able to develop their own mitigation credits, creating distortions in the market that are unbeknownst at this time. An updated study on mitigation features and their impact on loss reduction could remove some of these distortions by more properly aligning mitigation credits with mitigation features.

In addition to making the Florida homeowners insurance market more attractive to private market insurers, this approach could also result in adjustments to premiums paid by Citizens policyholders. Citizens could also benefit if rate adjustments result in more actuarially sound premiums.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that updating or eliminating mandatory mitigation credits resulted in more actuarially sound rates for Citizens and/or reduced Citizens' exposure, it would improve its ability to access the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

¹⁰² For more details on the methodology and loss relativities developed, see the full report entitled "Development of Loss Relativities for Wind Resistive Features of Residential Structures."

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This approach could have two benefits. First, updating or eliminating mandatory mitigation credits could result in more accurate rates for Citizens' policies. Second, to the extent that it encourages more insurers to write business in the state or increase the amount of business they are currently writing, it could also reduce Citizens' exposure.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

This approach will likely require a legislative or administrative change.

Approach 6.4 - Beyond Citizens: *Create a marketing campaign that educates Floridians on the "true" cost of windstorm exposure.*

Insurance premiums are not the only costs associated with living in a state with high catastrophe exposure. There are significant costs associated with losses that are borne by property owners. This includes deductible amounts, out of pocket expenses that are not covered by insurance, lost work time, time spent on the loss adjustment process, and in some cases, losses above the limits on the insurance policy. These are a just some of the "true" costs of windstorm exposure. To the extent that Floridians do not fully understand the pricing of insurance and the benefits that can be gained from building improvements and loss control efforts, an educational campaign focused on this information could improve their overall perception of the industry. This could also lead to more homeowners engaging in home improvements and mitigation efforts, which could improve the strength and condition of the homes insured by Citizens as well as make homes more attractive to private market insurers.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

This effort should improve the strength and condition of the properties insured by Citizens and potentially reduce its exposure, leading to improved access to the capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

This should improve Citizens' ability to respond to significant market fluctuations due to its reduced exposure in the state.

3. *What is the expected business outcome and what would be the expected benefits?*

This approach could improve the public's overall perception of the industry and encourage homeowners to engage in home improvements and mitigation efforts. This should improve the strength and condition of the properties insured by Citizens and could reduce its exposure by making Citizens' policies more attractive to private market insurers.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Category 7 – Miscellaneous

Approach 7.1 - Citizens: *Establish stronger requirements that policies taken out of Citizens be held for three years.*

There is a current requirement that policies removed from Citizens must be held by the insurer for a minimum of three years. The percentage of policies returning to Citizens has declined since 2013; however, there is evidence to suggest that a significant percentage of those policies that return to Citizens do so in less than three years. The percentages of the policies returning to Citizens has declined since 2013; however, there is evidence to suggest that a small percentage of policies return to Citizens after insurer takeouts. Of those that do return, most return within three years. For example, for the year 2015, less than 10 percent return within three years and for 2016 less than eight percent return. Data for 2017-2020 is incomplete.¹⁰³ Further analysis as to why these policies are returning to Citizens is needed to determine the proper requirements.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that this results in a small reduction in exposure, it may result in a moderate improvement to the financial position of Citizens, but is unlikely to have any significant

¹⁰³ This information is obtained from the charts on pages 2-3 of Citizens Property Insurance Corporation's "Returning Depopulation Summary: 2011 through 2019" published May 6, 2020, and excludes policies returning as a result of insolvencies (Document 62).

impact on its ability to access the capital markets and traditional reinsurance due to the small number of policies returning in recent years.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

To the extent that this results in a small reduction in exposure, it may result in a moderate improvement to the financial position of Citizens, but is unlikely to have any significant impact on its ability to respond to significant market fluctuations due to the small number of policies returning in recent years.

3. *What is the expected business outcome and what would be the expected benefits?*

This approach should lead to a small reduction in Citizens' exposure.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Approach 7.2 – Beyond Citizens: Work with the Division of Investigative and Forensic Services within the Department of Financial Services and other stakeholders to develop a comprehensive and centralized insurance fraud database.

Historically, examples of widespread property insurance fraud and how it was managed are difficult to find. The best examples come from auto insurance. Two states that had significant auto fraud problems and were able to resolve those problems were Massachusetts and New Jersey. The Insurance Fraud Bureau of Massachusetts was created by the insurance industry and authorized by state statute in 1990.¹⁰⁴ While it investigates all lines of insurance fraud, it is focused on automobile and workers' compensation. The Insurance Fraud Bureau of Massachusetts is funded by automobile and workers' compensation insurers in Massachusetts.

New Jersey passed the New Jersey Insurance Fraud Prevention Act in 1983, to “confront aggressively the problem of insurance fraud in New Jersey...”¹⁰⁵ The act set civil action penalties and surcharges for insurance fraud (in addition to criminal charges) and created the Division of Insurance Fraud Prevention in the New Jersey Department of Insurance. Both

¹⁰⁴ See <https://www.ifb.org/ContentPages/Public/AboutIFB.aspx> for more information.

¹⁰⁵ For more information, see <https://www.nj.gov/oag/insurancefraud/laws.html>.

entities, in partnership with insurers in the respective states, were successful in reducing auto insurance fraud.

The fraud database would create a system where insurance companies and policyholders can provide input as to fraudulent activities involving anyone or any organization associated with the insurance system regarding claims, improper practices, or other activities. The database would track claim payments and improper claims practices back to unlawful actors in the marketplace by noting trends, locations, and the various individuals involved.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

Reducing fraud could create greater confidence in the insurance system and remove unnecessary costs. This would improve Citizens' access to capital market products as well as traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

Reduction of fraud should enhance Citizens' ability to respond to market fluctuations and help reduce waste and inefficiencies in the system.

3. *What is the expected business outcome and what would be the expected benefits?*

From a business outcome standpoint, a comprehensive fraud database could result in both lower rates and financially stronger companies, including Citizens.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Approach 7.3 – Beyond Citizens: *Establish a requirement that building permits on new residential construction should require proof of private market property insurance.*

To ensure that property owners would be able to secure private market insurance coverage upon completion of construction, this would be required prior to building a new home. This requirement would limit the building of properties in high risk areas in which obtaining private market coverage would be challenging and the property must be insured by Citizens. New construction, built to the latest building codes with proper mitigation features, are not the types

of properties that residual market insurers should be insuring. Requiring proof of the ability to secure private market homeowners insurance coverage prior to issuing the building permit will also ensure that the property owners are aware of the insurance costs of that location choice and may lead to reduced development in the highest risk areas.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that this reduces Citizens' future exposure to catastrophic loss, it should result in an improvement to the financial position of Citizens improved access to capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

To the extent that it reduces Citizens' future exposure, it should improve Citizens' ability to respond to significant market fluctuations.

3. *What is the expected business outcome and what would be the expected benefits?*

This approach should lead to a reduction in Citizens' future exposure.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Approach 7.4 – Beyond Citizens: *Create a state-level program to address residential property insurance affordability.*

As noted in Hindrance #7 of the 'Market Hindrances' section of this report, affordability appeared to be one of the main drivers behind legislative and administrative actions taken in that late 2000s (e.g., CS/HB 1A in 2007, CS/CS/HB 1495 in 2009). Addressing affordability in the ratemaking process introduces more opaqueness to the process and creates opportunities for cross-subsidization. Some of the other recommendations in this report (e.g., Approach 6.1 - Removal of Glidepath and Approach 6.2 - Limit Citizens' Policyholder Eligibility) could result in substantial rate increases for some property owners in Florida. To address affordability outside of the ratemaking system, Florida can create a property insurance version of Supplemental Nutrition Assistance Program (SNAP), often referred to as food stamps. An "insurance stamps" program could be used to address affordability and allow for means testing to ensure that

wealthy property owners are not be subsidized by lower income Floridians through cross subsidies or public insurance (through Citizens, FHCF, and/or FIGA) assessments. The program would allow for clear guidelines on addressing affordability outside of the insurance mechanism.

1. *What would the impact be on Citizens' access to capital markets and traditional reinsurance?*

To the extent that this program allows Citizens to get to actuarially fair rates on all policies, it will improve the financial position of Citizens and would improve Citizens' access to capital markets and traditional reinsurance.

2. *What are the implications to Citizens' ability to respond to significant market fluctuations?*

An improved financial position should increase Citizens' ability to respond to significant market fluctuations.

3. *What is the expected business outcome and what would be the expected benefits?*

Addressing affordability outside of the insurance mechanism should help strengthen both Citizens and private insurers.

4. *Does the opportunity conflict with a boundary or constraint, and if so, what is the feasible mitigating measure?*

No conflict is evident.

Summary

Throughout various sections of this report, ideas and approaches to reduce Citizens' exposure have been discussed. This section has provided a detailed discussion on the recommended key ideas and approaches. Key to effectively reducing Citizens exposure in the long-term is expanding the availability of coverage by private market insurers. As such, prior to making changes to Citizens that would increase the cost of coverage or restrict eligibility, Citizens, in cooperation with OIR and others, should host workshops to gain a better understanding of the concerns of private market insurers and investors. Next, steps to reduce exposure to catastrophic risk by improving building codes and requiring proof of the ability to secure private market insurance before beginning construction in high-risk areas as described in Approaches 2.2 and 7.3 are needed. Catastrophic risk can also be mitigated by encouraging new entrants to the market and through efforts that would provide detailed information about properties and the strength of the Florida market, as summarized in Approach 1.1, Approach 5.2, and Approach 5.3.

Other steps to improve the environment for insurers and investors conducting business, such as taking actions to improve the claims settlement process, reduce litigation rates, and manage fraud as discussed in Approach 3.2 and Approach 7.2, are also needed. Finally, the development of current creditable mitigation credits that more accurately measure insurers' true risk exposure should make the Florida market more attractive to private market insurers.

Following the implementation of these changes, Citizens, in cooperation with OIR and others, can host additional workshops to share these updates with private market insurers and investors to motivate greater investment in Florida and expand the private market. While steps are taken to improve the capacity of the private market, Citizens could work to expand and widely promote the use of managed repair programs (Approach 3.1), encourage loss prevention and loss reduction efforts of its remaining policyholders, and require regular mandatory inspections so that continuous and up-to-date loss control recommendations are provided on an ongoing basis (Approach 2.1).

Once the attractiveness of the environment in Florida has been improved and there is increased capacity within the private residential property insurance market, some policies should shift from Citizens to the private market insurer. Changes to Citizens could then be implemented to further reduce its policies and exposure. This includes altering its takeout program to a push approach (Approach 5.1); modifying, eliminating, or replacing the glidepath (Approach 6.1); limiting eligibility for new and renewal business based on the cost of private market insurance as it was originally designed (Approach 6.2); and creating a marketing campaign to educate Floridians on the "true" cost of risk (Approach 6.4) and how such efforts if undertaken can impact the cost of insurance.

With these changes, it is possible that coverage may not be affordable to all residential homeowners. However, to achieve Citizens' goal of reducing its exposure, as noted in Approach 7.4, the issue of affordability will need to be addressed outside of the insurance process. Affordability could be addressed with a state-level program that uses means testing to provide assistance to homeowners that require it. Collectively, the strategies to improve the attractiveness of the private residential property insurance market along with some operational changes to Citizens should be effective in helping Citizens achieve its objective of reducing its exposure as well as result in expanding the private market.

The ideas and approaches discussed in this section were selected based on criteria provided by Citizens as well as other factors. Specifically, Citizens' Requested Scope of Services indicated that any idea or approach presented should address the following (Citizens Property Insurance Corporation, 2019a):

- A. Reduce Citizens' actual exposure (not just policy count);
- B. Promote the private market's retention of risk depopulated by Citizens;

- C. Maintain Citizens' tax-exempt status;
- D. Protect the favorable status of Citizens' outstanding bonds;
- E. Maintain Citizens' ability to provide levels of customer service that are comparable to the standards of the private market; and
- F. Maintain adequate organizational capacity and capability enabling Citizens to respond to significant market fluctuations.

Citizens requires that a feasible mitigating measure needs to be suggested for any opportunity that conflicts with one or more of the boundaries or constraints. Additionally, the focus of the study is to identify opportunities that would reduce Citizens' exposure while fulfilling its mission as a residual market insurer.¹⁰⁶ Thus, any idea or approach that changed the nature of Citizens from a residual market insurer was not considered by the FSU Research Team.

The FSU Research Team also considered other screening factors in its pursuit of ideas and approaches that would result in a recommended opportunity that would meet the objectives of the study (ways to reduce Citizens' exposure and expand the private market). These factors included the following:

- 1) Was there adequate data or information available to properly evaluate an idea or approach?
- 2) Was an idea supported based on objective data?
- 3) Was the idea supported by stakeholders and other interested parties participating in or involved with the Florida residential property insurance market?
- 4) Were there major hindrances associated with an idea which caused the idea to be difficult or impossible to analyze and thus draw a reasonable or logical conclusion?
- 5) Was the idea or approach considered beyond the scope of the study?
- 6) Does the idea or approach provide a long-term solution to reducing Citizens' exposure and expanding the private market?
- 7) Does the idea or approach increase the frequency or severity of assessments from Citizens, FHCF, or FIGA?

¹⁰⁶ Although Citizens' mission has been briefly stated in the first paragraph of this report, it is restated here in part with additional detail as found in the statute (s. 627.351(6)(a), F.S.) "...It is necessary, therefore, to provide affordable property insurance to applicants who are in good faith entitled to procure insurance through the voluntary market but are unable to do so..."

8) Does the idea or approach have a significant impact on Citizens' exposure?

The FSU Research Team initially developed a more extensive list of ideas and approaches. Those not meeting the criteria noted above are briefly discussed in Appendix M.

RESPONSES TO CORE QUESTIONS

Citizens provided the FSU Research Team a list of eight questions that relate to identifying new approaches for exposure reduction, ways to encourage more private market participation to reduce Citizens' exposure, the identification of hindrances to further depopulation by Citizens, ways to optimize Citizens' role to encourage private market participation in writing more risk, and ways to improve Citizens' overall financial strength. The FSU Research Team added another five questions to the list. This section provides responses to these core questions and ties them back to the evaluation and discussion elsewhere in this report, where relevant.

1. *What strategies or approaches have other residual market insurers successfully implemented which could benefit Citizens in its efforts to further reduce exposure and/or depopulate?*

The 'Other State Residual Market Insurers' section of this report provides a brief discussion of trends in policy counts and market share of state Beach and FAIR plans. Louisiana Citizens was modeled after Florida Citizens; however, Florida Citizens has undergone several significant legislative changes that have altered its rating structure and access to the residual market. Louisiana Citizens' primary depopulation effort, Insure Louisiana Incentive Program, is also discussed. The Louisiana experience is used in support of Recommended Approach 6.1. The success of Louisiana's depopulation efforts is due, in part, to its rating structure. It is also likely due to general factors including building code changes, and a rule requiring companies to continue to renew policies once they have been held for three years (with few exceptions). Louisiana also has not had issues related to AOB provisions that have significantly affected Florida insurers. Finally, Louisiana Citizens has maintained a pricing structure that ensures the cost of coverage remains above the cost of coverage in the private market, thus increasing the number of homeowners seeking and obtaining coverage in the private market and, consequently, making policies issued by Louisiana Citizens more attractive to takeout companies. To be able to implement some of the strategies utilized by Louisiana Citizens in reducing its exposure, substantial changes would need to be made to Florida Citizens. This would include changes to litigation reform, pricing, fraud protections, and building codes. See Recommended Approach 6.1 and Recommended Approach 6.2.

2. *How could Citizens further encourage private market carriers to "take out" Citizens' policies?*

The 'Data Collection and Analysis' section of this report discusses the favorable trend of takeout companies exhibiting greater capacity. Additionally, the analysis presents various approaches Citizens could utilize to increase the market share of private market insurers, including bundling of policies. This is discussed in the analysis of the hurricane modeling CE approach for optimizing the exposure for Citizens and the private market and is discussed in Recommended Approach 5.1.

Citizens can take an active role in attracting insurance investment to Florida. This could involve the holding of investor workshops to further understand why investors are not currently committing capital to Florida or why they are limiting their commitments. Additionally, questions could be asked of investors as to what it would take in terms of incentives or motivations to attract them to the state, and what needs to change about Florida's political, legal, and regulatory environment to create a favorable investment climate. A number of the recommended approaches are designed to encourage private market insurers to "take out" policies from Citizens.

3. *How could Citizens promote the retention of risk by the private market following depopulation of that risk from Citizens?*

The rate at which risks are retained by the private market for the three-year period required by the depopulation program has improved greatly over the measurable period (the three years needed to measure the rate of return has elapsed). Specifically, the three-year retention has increased from 78% for policies depopulated in 2008, to 94% for policies depopulated in 2016. Retention for more than three years has improved from 54% (policies depopulated in 2008 for which a seven-year period during which the policy could return has elapsed) to 89% (2015 for which a four-year period during which the policy could return has elapsed). This issue is also addressed in Approach 7.1 which suggests that Citizens establish stronger requirements that policies taken out of Citizens be held for three years.

The use of the "push" approach to depopulation, altering or eliminating the glidepath, updating the mitigation credits, and ensuring the strength of private market insurers through regular stress testing, would all help promote the retention of risk by the private market.

Currently, Citizens competes with the private market in many areas of the state. To ensure that policies remain with an insurer after a takeout, Citizens should not have lower rates which would attract an insured back to Citizens. And insurers need to be able to raise rates to levels needed to protect their solvency without far exceeding Citizens' rates. If an insurer's loss experience is poor, it will be required to reduce its writings in many cases. As discussed in Approach 6.1, one of the issues with Citizens' ratemaking methodology is the glide path. In 2009, it was put in place to eventually lead Citizens to actuarial sound rates but now serves as an obstacle to expanding the private market. Therefore, Citizens' glide path needs to be modified, eliminated, or replaced to allow for a greater annual percentage rate increase so that rates are closer to being actuarially sound and do not lag rates used in the private market.

4. *What are market hindrances to the further depopulation of Citizens?*

A comprehensive discussion of market hindrances is provided in the ‘Hindrances to Depopulation Efforts’ section of this report. As discussed in various sections of this report, some of the efforts to manage these hindrances will require legislative or regulatory changes. Generally, all the recommended approaches are designed to address the market hindrances.

5. *What does the impact of Florida’s property insurance market structure—with a high level of domestic carriers and a reliance on reinsurance—have on Citizens’ role as a residual market insurer?*

Having less diversified insurers with less capital and relying more on reinsurance exposes Citizens to growth in two ways. First, large storm losses are more likely to cause market disruptions that result in Citizens taking on more policies. Second, cost of capital fluctuations in the reinsurance markets can restrict underwriting capacity of the domestic carriers more and result in more Citizens growth. Ultimately, this leads to uncertainty regarding market conditions that could result in Citizens’ growth. Generally, all the approaches are designed to address Citizens’ role as the residual market insurer which is impacted by the current market structure.

6. *How could Citizens optimize its role as a residual market insurer to create conditions which would promote the availability of additional capital in Florida’s property insurance market?*

Citizens can optimize its role as a residual market insurer by taking a more active role in encouraging private insurers to increase their market share by: (1) using the modeling analysis provided in this report to create a variety of bundles that would be attractive for takeout by private insurers (Recommended Approach 5.1); and (2) encouraging homeowners to engage in mitigation of their properties (Recommended Approach 2.1). Also, Citizens should work cooperatively with the Legislature and the Office of Insurance Regulation to ensure actuarially fair rates are being approved and appropriate mitigation credits are developed. Finally, Citizens should host a variety of educational and information sessions with various stakeholders to gain insight and share information (Approach 1.1).

Additionally, Citizens needs to be better structured as a residual market insurer. This would require that Citizens not operate as a competitive insurer with the private market but serve only in a residual role as indicated in Recommended Approach 6.1, Approach 6.2, and Approach 7.1. Otherwise, Citizens’ role as a residual insurer is weakened.

7. *What additional measures could Citizens take to decrease the likelihood and/or impact of assessments?*

Citizens has already taking a number steps to decrease the likelihood and/or impact of assessments, such as its risk transfer program and provisions for liquidity. The overall reduction in exposure for Citizens, combined with the lack of landfalling hurricanes for a decade, has greatly eased the financial burden on the residual market and the likelihood of assessments from Citizens. However, this could change with a large storm that causes a significant loss to Citizens and destabilizes the private market, leading to substantial Citizens' growth concurrent with its reduction in surplus. Measures that strengthen the private market to reduce the likelihood of this occurring are discussed in Recommended Approach 5.2 and Approach 5.3. In addition, as discussed in Marlett and Eastman (1998), the use of post-loss assessments increases market volatility and intensifies problems related to affordability and availability. Any measure that Citizens can take that would attract private market capital to the market or increases the number of participants in the market will likely reduce the likelihood and/or impact of assessments. A number of the other recommended approaches are designed to decrease the likelihood and/or impact of assessments.

8. *How could Citizens further improve its overall financial strength, which affects, for example, Citizens' bond rating, Florida's bond rating, and the overall financial strength of the State?*

Citizens could improve its overall financial strength in several ways. First, the use of the push approach, as discussed in Recommended Approach 5.1, in designing its depopulation program could benefit Citizens and private insurers by improving the risk profile of both. Second, the use of regular catastrophe stress testing as discussed in Recommended Approach 5.2 and Approach 5.3, would provide a consistent system for tracking the financial stability of the Florida residential property insurance market. Finally, as discussed in Recommended Approach 3.1 and Approach 3.2, reducing litigation and increasing the use risk transfer could also improve Citizens' financial strength.

Citizens' financial strength is a function of the size and growth of its surplus as well as the stability and predictability of Citizens' premiums, operating expenses, and losses. To improve its financial strength, the stability of these measures needs to be monitored and improved. An appropriate investment policy that stresses liquidity, safety of principal, and competitive investment returns based on Citizens' risk profile will also support further improvements in its financial strength. Citizens' current investment policy may need to be further adjusted to account for its tail risk. Of course, the reduction of Citizens' tail risk would probably also be beneficial to all credit ratings and the financial strength of the state. A number of other recommended approaches are designed to further improve Citizens' overall financial strength.

9. *What are some potential additional sources of capital that can be used to support property insurance in Florida?*

Additional sources of capital can be generated by attracting new insurers to the Florida market, improving incentives for existing insurers to increase their market shares (thus adding surplus), and developing both traditional and alternative risk transfer sources as long-term sources of capital. See use of workshops and Recommended Approach 1.1.

10. *Does the structure of Citizens as a residual market insurer impede its ability to influence market conditions and capital availability? If so, are there any changes that can be made to the structure of Citizens so that it could have broader market influence?*

The size of Citizens and its purchase of traditional reinsurance can impact the reinsurance market. This was recognized by Citizens several years ago and motivated Citizens to consider an alternative for transferring risk using catastrophe bonds. The concern was that if Citizens purchased large amounts of traditional reinsurance, it could adversely impact pricing for the private market (the same concerns have been attributed to the FHCF's reluctance to purchase traditional reinsurance for 2020 and in the past as well). The idea for Citizens was that traditional reinsurance capacity would be preserved for private insurers and new investors could be attracted to invest in Citizens' catastrophe bonds. Citizens is one of the largest issuers of catastrophe bonds in the world and has a strong market presence. Citizens could issue more catastrophe bonds if its desire is to preserve traditional reinsurance capacity for the private market. Altering the structure of Citizens' rating methodology and its takeout program, as discussed in several of the recommended approaches, would have a positive influence on the broader market.

11. *How can Citizens become a market leader in technology and mitigation to optimize the provision of property insurance in Florida?*

As discussed in Recommended Approach 2.1, Citizens could initiate a requirement that policyholders engage in loss prevention and loss reduction efforts. This is one area in which Citizens could become the market leader in technology and mitigation, e.g., by encouraging the use of cutting-edge risk management technologies such as water leakage sensors and alarm systems. Citizens could consider funding these efforts. Additionally, Citizens could require regular mandatory inspections of all insured properties every three to five years with Citizens to make additional loss control recommendations based on the results. Citizens could also hold a series of workshops with various stakeholders, as discussed in one of the recommended approaches, to benefit from the knowledge and analyses utilized by these companies.

12. In addition to possible market hindrances to the further depopulation of Citizens, what are the possible barriers stemming from legislative, regulatory, or rating agency activities?

A discussion of hindrances stemming from legislative, regulatory, and rating agencies is included in the ‘Hindrances to Depopulation Efforts’ section of this report. As discussed in various sections of this report, some of the efforts to manage these hindrances will require legislative or regulatory changes. Generally, all recommended approaches are designed to address the market hindrances.

13. What measures can Citizens take to prevent future large increases in policy growth?

Citizens should seek to charge rates that are closer to being actuarially sound and rates that are sensitive to rate changes in the private market. This may require modifying, eliminating, or replacing the current glide path, as discussed in Recommended Approach 6.1. Rate differentials are highlighted in the ‘Overview and Analysis of Florida Residential Property Insurance Market Data’ section of this report. Citizens has consistently had the highest rates in the state, on average. However, given the properties it insures, these could be reflective of the greater risk associated with these properties. County-level data shows that Citizens’ rates are more competitive with the private market in some areas of the state. As noted in the ‘Data Analysis’ section of this report, Citizens’ rates on existing policies is very competitive with the private market. However, even this study does not compare the rates Citizens charges relative to other insurers issuing new policies in each market. Data availability restricts the ability to directly compare Citizens’ rates to insurers quoting on new policies on a widespread basis. Also, in some locations, Citizens’ market share is consistently high, and rates may be too competitive with private insurers to incentivize insureds to go to the private market. Finally, continued growth in high catastrophe exposure areas could impact the future size of Citizens. Recommended Approach 7.3 indicates that this could be controlled with the requirement of private insurance for new residential property construction.

Improving the capacity of private insurers and encouraging those with capacity to take out bundles that improve their overall diversification should, in the long term, result in greater stability in the private market. Figure 62 shows marked improvement in the capitalization of companies that have taken out policies in recent years. This should result in fewer policies returning to Citizens. See recommended Approach 5.1, Approach 5.2, and Approach 5.3.

PROJECT CONCLUSION

Citizens has made significant efforts to manage its risk and has successfully reduced its exposure to one of the lowest levels since its creation in 2002. It has a large surplus position and a strong risk transfer program, but more can be done to reduce and manage its exposure and reduce its market share in the Florida residential property insurance market.

This report by the FSU Research Team provides the results of a robust analysis to identify additional strategies that may work to further reduce Citizens' exposure in the Florida residential property insurance market and/or to expand the capacity of the private market. The report provides the results of an extensive review of the Florida market and Citizens' operations within the market to establish a context for evaluating the viability and feasibility of various approaches to managing Citizens' exposure. This includes a review of selected articles and reports, empirical analysis of current and historical insurer data, analysis of Citizens' portfolio of policies, analysis of Citizens' claims, discussions with important stakeholders, consideration of past depopulation efforts by Citizens, and evaluation of depopulation efforts of residual market insurers in other states. A broad understanding of Citizens and of the private market facilitated the identification of the recommended key ideas and approaches presented in this report.

Analysis of insurance market data identified several trends that are favorable for Citizens: the market share of Florida Diversified Insurers writing business in the state has increased, the TIV market share of Citizens has decreased, and the takeout program has reduced Citizens' total policy count. Some unfavorable trends were also identified. Capital adequacy continues to be a concern as the capital supporting insurance operations in many insurers seems low relative to the catastrophic risk the state faces. The market share of Florida Focused Insurers remains high; these insurers are not well diversified, and the combination of a lack of diversity and significant market share could lead to serious market disruptions if a major loss were to occur. Finally, in some locations, Citizens' market share is consistently high, and its rates may be too competitive with private insurers to incentivize insureds to go to the private market.

The results of the analysis of Citizens' portfolio yields three distinct methodologies for improving the existing Citizens depopulation algorithm: tail minimization, resilient depopulation packages, and mutual diversification. Each of these methodologies shifts the lens of focus from an equitable distribution of premium to an optimal transfer of risk but fall on different points on the Citizens-Florida private market risk transfer spectrum. All hold considerable potential for further improving Citizens' already effective depopulation process and minimizing its overall risk.

The examination of Citizens' closed claims reveals a general decline in closed claims since 2013, and a decline in litigated claims related to all other losses. Areas of concern that remain include the increasing number of non-catastrophe water-related claims, a relatively high concentration of

claims in the Tri-County area, and an increase in the percentage of closed claims that are litigated.

Efforts to reduce Citizens' exposure and expand the private market can be impacted by a variety of factors, including the state regulatory and legal environments, the current ratemaking process, and the overall state of the private market. This report identifies key hindrances to ensuring a healthy, robust private insurance market. These hindrances stem directly from catastrophic risk exposure or arise from various external sources, such as legislative and/or regulatory actions that impose uncertainty in the property insurance market and constrain potential reactions by Citizens. Some of the recommended ideas and approaches described in this report would address these hindrances, but a long-term plan to address all the hindrances in the Florida market should be developed.

For purposes of classification and organization and to allow for a better conceptual understanding of the various issues, the key ideas and approaches recommended in this report are grouped into seven categories and each idea is identified as being within Citizens' control or needing additional effort from stakeholders (e.g., legislators) outside of Citizens. Each recommended idea or approach is described and evaluated along four dimensions: (1) the impact on Citizens' access to capital markets and traditional reinsurance, (2) the implications to Citizens' ability to respond to significant market fluctuations, (3) the expected business outcome and expected benefits, and (4) identification of any conflicts with a boundary or constraint.

Further, the FSU Research Team applied a series of screens, including whether the idea or approach is supported by the data analysis and whether there was stakeholder support. The process resulted in 18 recommended ideas and approaches. Many of the recommended ideas and approaches are within the control of Citizens.

- **Overall Approach:** Host workshops involving a variety of stakeholders to gain a better understanding of their perception of the Florida market and provide them with information about the Florida market that would be valuable to potential investors and private market insurers.
- **Approach 1.1:** Encourage new entrants to develop business models specifically for the Florida market, taking advantage of both traditional and alternative approaches to providing insurance coverage.
- **Approach 2.1:** Require Citizens' policyholders to engage in loss prevention and loss reduction efforts. Additionally, Citizens could require regular mandatory inspections of all insured properties every three to five years so that continuous and updated loss control recommendations can be provided on an ongoing basis.
- **Approach 2.2:** Expand and improve the Florida Building Code. This could include incorporating the idea of "Code Plus" standards and/or creating optional standards for wind and flood for older homes that cannot meet the 2001 building code.

- **Approach 3.1:** Work to expand and widely promote the use of managed repair programs involving certified contractors.
- **Approach 3.2:** Utilize different claims settlement processes such as alternative dispute resolution and early offers to reduce the percentage of claims that are litigated or the dollar amount of claims.
- **Approach 4.1:** Create a statewide database that incorporates the loss control and mitigation features (including factors such as roof shape, mitigation features, age of roof, etc.) of every home in Florida, similar to the CARFAX™ database for automobiles.
- **Approach 5.1:** Change Citizens’ takeout program from one of insurers selecting individual policies (a pull approach) to an approach where Citizens formulates various portfolios of policies (a push approach) using the concept of managing tail risk.
- **Approach 5.2:** In cooperation with OIR and catastrophe modeling firms, consider deploying new, emerging methodologies to better evaluate the risk of financial insolvency for Citizens and private market insurers in Florida, considering, for example, an insurer’s spread of risk and its contribution to an insurer’s overall risk profile in ways that can be quantified for more accurately measuring catastrophic risk exposure.
- **Approach 5.3:** Regularly conduct aggregate stress testing to gain a greater understanding of the impact of large events on the vulnerability and the survivability of the overall insurance system.
- **Approach 6.1:** Modify, eliminate, or replace Citizens’ glide path to allow for greater percentage rate increases so that rates are closer to being actuarially sound and can better adjust to rate changes in the private market.
- **Approach 6.2:** Limit Citizens’ policyholder eligibility to only situations where the private market insurer’s premium is at least 15 percent higher than Citizens’ premium for both new policies and renewals.
- **Approach 6.3:** Update or eliminate the mandatory mitigation credits for insurers or encourage private market insurers to establish what they believe to be proper discounts and charge a premium commensurate with the reduction of the risk/exposure.
- **Approach 6.4:** Create a marketing campaign that educates Floridians on the “true” cost of windstorm exposure.
- **Approach 7.1:** Establish stronger requirements that policies taken out of Citizens be held for three years.
- **Approach 7.2:** Work with the Division of Investigative and Forensic Services within the Department of Financial Services and other stakeholders to develop a comprehensive and centralized insurance fraud database.
- **Approach 7.3:** Establish a requirement that building permits on new residential construction should require proof of private market property insurance.
- **Approach 7.4:** Create a state-level program to address residential property insurance affordability.

Finally, the report provides responses to a series of questions from Citizens that are specifically related to identifying new approaches for exposure reduction, ways to encourage more private market participation to reduce Citizens' exposure, the identification of hindrances to further depopulation by Citizens, ways to optimize Citizens' role to encourage private market participation in writing more risk, and ways to improve Citizens' overall financial strength. Responses to these questions include references to specific recommended ideas and approaches, where relevant.

The report indicates that Citizens has real opportunities to effectively reduce its exposure long-term. However, a combination of strategies will be necessary to ensure adequacy of rates and solvency of the private insurers operating in the residential property market. Additionally, several actions must first be taken to improve the attractiveness of the Florida market and increase the capacity of the private market before changes to the structure of Citizens can be made. Specifically, efforts focused on improving system efficiencies, reducing claims costs, and improving the legislative, regulatory, and legal environments are needed, and will require cooperation among a variety of stakeholders.

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[27] Florida Market Assistance Plan (FMAP) Annual Reports 2012-2019.

[28] Citizens Property Insurance Clearinghouse Update – Market Accountability Advisory Committee, Dates: 3/15/16, 6/21/16, 12/6/16, 6/19/17, 12/12/17, 4/10/18, 12/6/18, 3/13/19, 3/26/19, 9/19/19, 12/5/19, and 3/19/20.

[29] Returning Depopulation Summary 2011 through 2019 and 2007 to 2011 (both studies replaced with an updated study for the period 2008 through 2019) – see Document [62].

[30] Takeout Companies Participating by Year from 2002 to 2020 (including takeouts by year and takeouts for all years by company).

[31] Citizens Legislative History (prior to Citizens in 1972) from 2002 to 2018.

[32] Citizens Property Insurance Corporation Overview, Christine Ashburn, Chief – Communications, Legislative and External Affairs, PowerPoint Presentation.

- [33] Citizens – Legislative Changes from 2002 to 2020 by Bill Number with bullet points.
- [34] State Legislative Influence – Coverage Changes (effective dates) for Citizens by Bill Number and Brief Discussion.
- [35] Citizens Product Changes 2004-2019, Excel Spreadsheet with tabs by year.
- [36] Citizens – A Residual Market, September 25, 2019, PowerPoint presentation to the Citizens Board of Governors.
- [37] Excel Spreadsheet: Exposure Reduction 3d.i.1, 2 & 4 -- Citizens Property Insurance Corporation, Catastrophe Loss History by Account (Losses Greater than \$1M) as of December 31, 2019.
- [38] Traditional Reinsurance Recoveries – Hurricane Irma (Status Update).
- [39] Requests 2 (Bonding) and 4 (Investment Result) – Financial Markets General Comments.
- [40] Excel Spreadsheet: Surplus, Invested Assets, Investments (2002-2019), includes investment income by year.
- [41] Excel Spreadsheet: Citizens Property Insurance Corporation Historical Information by Account, Year End Data through 2019.
- [42] Excel Spreadsheet: 2004 and 2005 Storms: Number of Claims by County.
- [43] Presentation -- Ben Watkins Bond Update, illustrated the pay down of the state's debt showing contributions of Citizens and the FHCF.
- [44] 2019 Report of Citizens Accomplishments.
- [45] 2012-2018 Report of Citizens Accomplishments.
- [46] Excel Spreadsheet: Citizens Property Insurance Corporation – Historical Risk Transfer.
- [47] Email from Raymond James – Citizens Historical Bond Issuance from 2006 to 2012.
- [48] Citizens Property Insurance Corporation, 2020. Depopulation – Frequently Asked Questions for Agents.
- [49] Citizens Property Insurance Corporation, 2020. Excel Spreadsheet: Depopulation Clearinghouse Premium 2017-2018 Data.
- [50] Citizens Property Insurance Corporation, 2020. PDF PPT: Depopulation Choices Program.
- [51] Citizens Property Insurance Corporation, 2020. Depopulation Policy Center Assumption Process Manual (updated May 22, 2020).

- [52] Citizens Property Insurance Corporation, 2020. Underwriting & Agency Services Operational Guidelines – Depopulation & FMAP.
- [53] Citizens Property Insurance Corporation, 2020. Letter from Brandes – Citizens Depopulation Programs: Looking to 2020 and Beyond.
- [54] Citizens Property Insurance Corporation, 2020. Possible Future Actions to Decrease Policy Count (August 2020).
- [55] Citizens Property Insurance Corporation, 2020. Carrier Litigation Experience 2013-May 2020.
- [56] Citizens Property Insurance Corporation, 2020. Excel Spreadsheet: Completed Claims Litigation Triage Records – Suits Served from May 1, 2019 to July 6, 2019.
- [57] Citizens Property Insurance Corporation, 2020. Excel Spreadsheet: Citizens Product Line Summary FSU Study, July 2, 2020.
- [58] Citizens Property Insurance Corporation, 2020. Policy Counts by Policy Form Trend – Excludes Policies Tagged for Depopulation – Year-End 2016 - 2020.
- [59] Citizens Property Insurance Corporation, 2020. Citizens Product Line Summary FSU Study, July 2, 2020.
- [60] Citizens Property Insurance Corporation, 2020. PDF PPT: Citizens Property Insurance Corporation Presentation to the Financial Services Commission by Barry Gilway, President/CEO and Executive Director, June 26, 2012.
- [61] Citizens Property Insurance Corporation, 2020. PDF PPT: Depopulation Program Analysis – Depopulation Committee, September 6, 2012.
- [62] Citizens Property Insurance Corporation – Returning Depopulation Summary 2008 Through 2019.
- [63] Citizens Property Insurance Corporation, 2020. Document– QUASR Insurer Categories 2018-19, July 22.
- [64] Citizens Property Insurance Corporation, 2020. Presentation Carrier Litigation Experience 2013-May 2020.
- [65] Citizens Property Insurance Corporation: New Business Trend January 2019 to April 2020 Personal Residential Policy Types.
- [66] Citizens Property Insurance Corporation: New Business Trend February to May 2019 vs. 2020 Personal Residential Policy Types.
- [67] Senator Jeff Brandes, Letter to Barry Gilway, President, CEO, and Executive Director, August 12, 2019.

[68] Citizens Property Insurance Corporation: Risk and Assessment Reductions (2011 to 2020).

[69] State of Florida, Debt and Ratings Update, August 14, 2018, Ben Watkins, Director of Bond Finance.

[70] Barry Gilway, President, CEO, and Executive Director, letter to Senator Jeff Brandes, response to August 12, 2019 letter.

[71] Citizens Property Insurance Corporation: Excel Spreadsheet, Citizens Product Line Summary (July 2020), from Karen Holt on July 2, 2020.

[72] Citizens Property Insurance Corporation, 2020u. Email, September 23, 2020, RE: Citizens Home Inspection Program, from Sarah Harrell to Jack Nicholson.

[73] Jennifer Montero, Email dated October 7, 2020 providing a response to Jack Nicholson's email request of October 6, 2020 for any talking points that address the conversion of Citizens to a reinsurer.

APPENDIX B: Other State Residual Markets

State	Year Est.	Plan Name	Website
Alabama*	1970	Alabama Insurance Underwriting Association	https://aiua.org/
California	1968	California Fair Plan Property Insurance	https://www.cfpnet.com/
Connecticut	1968	Connecticut FAIR Plan	https://www.ctfairplan.com/
Delaware	1968	Delaware FAIR Plan	http://defairplan.com/
District of Columbia	1968	District of Columbia Property Insurance Facility	https://www.dcpif.org/
Florida	2002	Citizens Property Insurance Corporation	https://www.citizensfla.com/
Georgia	1970	Georgia Underwriting Association	https://www.georgiaunderwriting.com/
Illinois	1968	Illinois FAIR Plan Association	https://www.illinoisfairplan.com/
Indiana	1968	Indiana Basic Property Insurance Underwriting Association	https://www.indianafairplan.com/
Iowa	1968	Iowa FAIR Plan Association	https://iowafairplan.com/
Kansas	1970	Kansas All-Industry Placement Facility	https://ksfairplan.com/
Kentucky	1968	Kentucky FAIR Plan Reinsurance Association	https://kyinsplans.org/fair/
Louisiana	2003	Louisiana Citizens Property Insurance Corporation	https://www.lacitizens.com/
Maryland	1968	Maryland Joint Insurance Association Massachusetts Property Insurance Underwriting Association	mdjia.org
Massachusetts	1968	Association	https://www.mpiua.com/
Michigan	1968	Michigan Basic Property Insurance Association	http://www.mbpia.com/
Minnesota	1968	Minnesota FAIR Plan	https://www.mnfairplan.org/
Mississippi	2003	Mississippi Residential Property Insurance Underwriting Association	https://www.msplans.com/mrpiua
Mississippi*	1987	Mississippi Windstorm Underwriting Association	https://www.msplans.com/mwua
Missouri	1969	Missouri Property Insurance Placement Facility	https://missourifairplan.com/
North Carolina	1969	North Carolina Joint Underwriting Association	https://www.ncjua-nciua.org/
North Carolina*	1969	North Carolina Insurance Underwriting Association	https://www.ncjua-nciua.org/
New Jersey	1968	NJ Insurance Underwriting Association	https://www.state.nj.us/dobi/division_consumers/insurance/fairplan.htm
New Mexico	1969	New Mexico Property Insurance Program	https://www.nmpropertyinsurance.com/

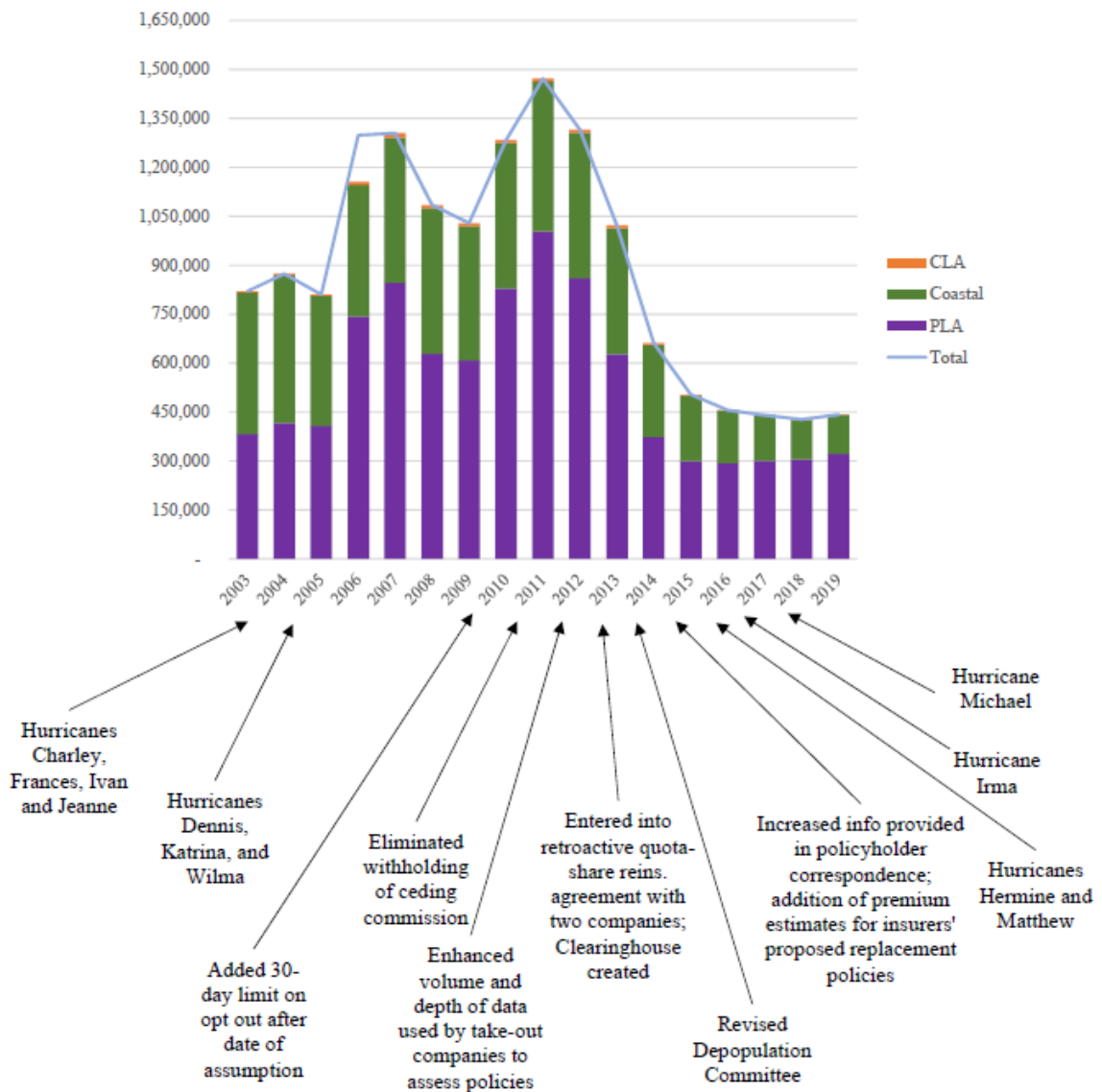
New York	1968	New York Property Insurance Underwriting Association	nypiua.com
Ohio	1968	Ohio FAIR Plan	https://www.ohiofairplan.com/Default.aspx
Oregon	1971	Oregon FAIR Plan Association	https://orfairplan.com/
Pennsylvania	1968	Pennsylvania FAIR Plan	https://www.pafairplan.com/
Rhode Island	1968	Rhode Island Joint Reinsurance Association	https://www.rijra.com/
South Carolina	1971	South Carolina Wind and Hail Underwriting Association	https://www.scwind.com/
Texas	1995	Texas Fair Access to Insurance Requirements Plan	https://www.texasfairplan.org/
Texas*	1971	Texas Windstorm Insurance Association	https://www.twia.org/
Virginia	1968	Virginia Property Insurance Association	https://www.vpia.com/
Washington	1968	Washington FAIR Plan	https://www.wafairplan.com/
West Virginia	1986	West Virginia FAIR Plan	https://www.wvfairplan.com/
Wisconsin	1970	Wisconsin Insurance Plan	https://wisinsplan.com/

* Indicates Beach Plans

APPENDIX C: Citizens Depopulation Summary

The FSU Research Team reviewed several of Citizens' depopulation reports to gain an understanding of prior efforts. A summary of these efforts, along with key events that could impact efforts and policyholder counts are provided below.

Figure C.1: Depopulation Efforts, Select Events, and Citizens Policy Count¹⁰⁷



¹⁰⁷ In 2006, there were 142,980 policies assumed from the Poe Financial Group included in Citizens' total policy count. As these policies remained on the Poe system at the end of that calendar year, they are not allocated at the account level.

Figure C.2: Timeline of Depopulation Efforts, Key Events, and Citizens' Policy Count

Date	Event/Action	PLA		Coastal Account		CLA		Total	
		Policies	% Change	Policies	% Change	Policies	% Change	Policies	% Change
2002	Citizens created								
2003		383,283		433,077		3,863		820,223	
2004	Hurricanes Charley, Frances, Ivan and Jeanne	416,521	9%	453,765	5%	3,650	-6%	873,936	7%
2005	Hurricanes Dennis, Katrina, and Wilma	407,387	-2%	399,417	-12%	3,145	-14%	809,949	-7%
2006 ¹⁰⁸	Limited takeout bonus to \$100/policy; required property insurers to provide homeowners loss mitigation credits	743,592	83%	403,509	1%	8,347	165%	1,298,428	60%
2007	Froze rates (2007-2009), created the 15% rule; added opt-out provision to depopulation process; created My Safe Florida Home Program	845,857	14%	446,184	11%	12,908	55%	1,304,949	1%
2008		629,467	-26%	445,200	0%	9,570	-26%	1,084,237	-17%
2009		609,652	-3%	410,436	-8%	9,126	-5%	1,029,214	-5%
2010	Created rate cap (glidepath); added 30-day limit on opt out after date of assumption	829,406	36%	445,679	9%	8,453	-7%	1,283,538	25%
2011	Eliminated withholding of ceding commissions; created limitations for compensation of public adjustors; time restrictions for legal action	1,003,856	21%	460,161	3%	8,374	-1%	1,472,391	15%
2012	Enhanced volume and depth of data used by take-out companies to assess policies	860,502	-14%	446,163	-3%	8,146	-3%	1,314,811	-11%

¹⁰⁸ In 2006, there were 142,980 policies assumed from the Poe Financial Group included in Citizens' total policy count. As these policies remained on the Poe system at the end of that calendar year, they are not allocated at the account level.

Date	Event/Action	PLA		Coastal Account		CLA		Total	
		Policies	% Change	Policies	% Change	Policies	% Change	Policies	% Change
2013	Citizens entered into retroactive quota-share reinsurance agreement with two companies; Clearinghouse created	627,391	-27%	386,688	-13%	7,615	-7%	1,021,694	-22%
2014	Revised the Depopulation Committee	373,617	-40%	282,863	-27%	4,681	-39%	661,161	-35%
2015	Increased information provided in policyholder correspondence; addition of premium estimates for insurers' proposed replacement policies	299,902	-20%	200,842	-29%	3,121	-33%	503,865	-24%
2016	Hurricanes Hermine and Matthew	293,118	-2%	160,834	-20%	1,891	-39%	455,843	-10%
2017	Hurricane Irma	300,507	3%	138,591	-14%	1,308	-31%	440,406	-3%
2018	Hurricane Michael	304,507	1%	121,971	-12%	919	-30%	427,397	-3%
2019		322,792	6%	118,673	-3%	738	-20%	442,203	3%

APPENDIX D: Overview of the Florida Residential Property Insurance Market

Evaluation of the feasibility and potential effects of the ideas and approaches identified earlier in this report required an understanding of the current market for residential property insurance in Florida. The FSU Research Team used several sources of data to conduct the evaluation. The following overview is provided at this point to meet three main objectives:

1. To inform Citizens of how insurers may be categorized for the purposes of evaluating certain ideas and approaches that may differentially target or affect market participants.
2. To inform Citizens of the sources and types of insurer-level data that the FSU Research Team used in the analysis.
3. To provide an initial assessment of the distribution of insurers in the state, by category, and provide aggregate measures of premiums, policies, and capitalization.

Types of Residential Property Insurers

Insurers that operate in the Florida residential property insurance market fall into one of the following broad categories, based on their legal form of organization and their exposure to residential property losses in the state. The categories are described as follows:

Domestic Insurers

Domestic insurers are those insurers that are domiciled in Florida, write residential property coverage in the state of Florida, and are not part of an insurance group.

- Florida-Focused Domestic Insurers: insurers domiciled in Florida that write 75% or more of their total DPW in personal property lines of business in Florida. The number of insurers in this category depends on the threshold applied to an insurer's exposure in Florida versus other states.
- Florida Diversified Domestic Insurers: insurers domiciled in Florida that are diversified outside of the state. As with the Florida-focused domestics, the number of insurers in this category depends on the threshold applied to an insurer's exposure in Florida versus other states.

Florida Pups

This category includes subsidiaries of major national writers that write residential property business only, or 75% or more of their total DPW is written in personal property lines of business in Florida.

National Insurers

This category includes non-domestic insurers that are licensed to operate and write residential property coverage in the state, as well as insurers domiciled in Florida that belong to a national group.

Residual Market Insurers

For completeness, a fourth category includes Citizens.

Sources and Types of Data

Information about the Florida insurance market and the financial operations of Florida insurance companies is available from several sources. Together, the sources provide insurer-level financial data that can be used to assess trends in exposure in the state and/or by county. For those insurers with operations outside the state, the data can be used to evaluate the extent to which Florida property risks are diversified. These data also allow for an assessment of growth and changes in capitalization, leverage, use of reinsurance, and underwriting performance. The main sources that will be used for this project include:

- Citizens: Financial data; policy counts.
- Florida Office of Insurance Regulation (OIR): County-level policy and exposure data, by company. The publicly available data are limited for the more recent years: 26 insurers are not included because they filed data to the state's QUASR system as trade secret in 2019.
- Florida Hurricane Catastrophe Fund (FHCF): Zip- and county-level exposures by type of property: commercial, residential, mobile home, tenants, and condo owners.
- National Association of Insurance Commissioners (NAIC): Company-level financial data; company-level underwriting operations (premiums and losses) by state; rate filings.
- A.M. Best Company: Company-level financial data and ratings.

As needed, the FSU Research Team will use other insurance industry sources. Where necessary, the data may be used to create proxies when certain data are not available.

Overview of the Florida Market

The following three tables provide a summary of the market for residential property insurance coverage statewide and in the top 6 counties using data from 2018 and 2019. As noted earlier, the domestic Florida-Focused Domestic are those companies with 75% or more of their total DPW written in personal property lines of business in Florida.

Figure D.1: Number of market participants, total exposure (total direct premiums written), and total policyholder surplus by type, 2018

Type of Insurer	N	Direct Premiums Written	Surplus
Florida-Focused Domestic Insurers	30	5,401,422,500	1,698,493,000
Florida Diversified Domestic Insurers	4	203,160,270	169,456,000
Pups	10	1,055,414,800	593,702,000
National Insurers	84	2,038,720,720	107,618,460,000
Citizens	1	782,555,850	6,230,729,000
TOTAL	129	9,481,274,140	

Source: NAIC and FLOIR/QUASR

Figure D.2: Number of market participants, total exposure (total direct premiums written), and total policyholder surplus by type, 2019¹⁰⁹

Type of Insurer	N	Direct Premiums Written	Surplus
Florida-Focused Domestic Insurers	12	2,505,453,600	785,015,000
Florida Diversified Domestic Insurers	4	169,218,770	139,266,000
Pups	8	1,101,608,600	584,774,000
National Insurers	84	1,913,981,170	121,709,888,000
Citizens	1	813,628,950	6,317,933,005
TOTAL	109	6,503,891,090	

Source: NAIC and FLOIR/QUASR

Figure D.3: Exposure in six largest counties, 2018 and 2019¹¹⁰

Broward					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 147,599,305	Citizens	1	\$ 158,267,972
Florida-Focused Domestic Insurers	30	\$ 641,671,282	Florida-Focused Domestic Insurers	12	\$ 419,216,975
Florida Diversified Domestic Insurers	4	\$ 16,909,133	Florida Diversified Domestic Insurers	4	\$ 14,887,535
Nationals	64	\$ 155,136,510	Nationals	64	\$ 154,091,472
Pups	10	\$ 96,342,402	Pups	8	\$ 91,227,272
Total	109	\$ 1,057,658,632	Total	89	\$ 837,691,226

¹⁰⁹ There is a noticeable drop in the number of insurers in 2019. This is due to companies denoting policyholder data filed with QUASR as trade secret.

¹¹⁰ There is a noticeable drop in the number of insurers in 2019. This is due to companies denoting policyholder data filed with QUASR as trade secret.

Dade					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 293,974,693	Citizens	1	\$ 290,505,810
Florida-Focused Domestic Insurers	29	\$ 563,590,036	Florida-Focused Domestic Insurers	11	\$ 381,434,652
Florida Diversified Domestic Insurers	4	\$ 14,296,685	Florida Diversified Domestic Insurers	4	\$ 15,630,978
Nationals	62	\$ 215,047,977	Nationals	60	\$ 203,387,076
Pups	10	\$ 94,276,401	Pups	8	\$ 84,324,765
Total	106	\$ 1,181,185,792	Total	84	\$ 975,283,280
Hillsborough					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 24,198,698	Citizens	1	\$ 25,296,159
Florida-Focused Domestic Insurers	30	\$ 283,734,170	Florida-Focused Domestic Insurers	12	\$ 107,056,350
Florida Diversified Domestic Insurers	4	\$ 8,711,252	Florida Diversified Domestic Insurers	4	\$ 7,263,282
Nationals	68	\$ 107,135,600	Nationals	69	\$ 101,094,591
Pups	10	\$ 73,573,350	Pups	8	\$ 80,480,410
Total	113	\$ 497,353,070	Total	94	\$ 321,190,792
Orange					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 1,430,959	Citizens	1	\$ 2,850,992
Florida-Focused Domestic Insurers	30	\$ 233,954,694	Florida-Focused Domestic Insurers	12	\$ 107,147,356
Florida Diversified Domestic Insurers	4	\$ 17,048,802	Florida Diversified Domestic Insurers	4	\$ 17,332,720
Nationals	68	\$ 126,980,381	Nationals	69	\$ 126,782,772
Pups	10	\$ 51,806,548	Pups	8	\$ 58,805,507
Total	113	\$ 431,221,384	Total	94	\$ 312,919,348
Palm Beach					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 69,928,539	Citizens	1	\$ 71,437,761
Florida-Focused Domestic Insurers	30	\$ 604,259,919	Florida-Focused Domestic Insurers	12	\$ 310,284,749
Florida Diversified Domestic Insurers	4	\$ 13,610,690	Florida Diversified Domestic Insurers	4	\$ 8,501,356
Nationals	74	\$ 266,151,442	Nationals	71	\$ 265,154,321
Pups	10	\$ 90,825,804	Pups	8	\$ 91,557,094
Total	119	\$ 1,044,776,393	Total	96	\$ 746,935,281

Pinellas					
2018			2019		
Type of Insurer	N	Direct Premiums Written	Type of Insurer	N	Direct Premiums Written
Citizens	1	\$ 75,672,838	Citizens	1	\$ 75,970,518
Florida-Focused Domestic Insurers	30	\$ 286,074,078	Florida-Focused Domestic Insurers	11	\$ 134,327,018
Florida Diversified Domestic Insurers	4	\$ 3,809,733	Florida Diversified Domestic Insurers	4	\$ 4,038,296
Nationals	62	\$ 59,383,183	Nationals	62	\$ 50,641,228
Pups	10	\$ 61,307,940	Pups	8	\$ 61,671,879
Total	107	\$ 486,247,772	Total	86	\$ 326,648,940

APPENDIX E: A. M. Best Rated Florida Domiciled Personal Property Insurers, 2020

Company Name	A.M. Best Rating Unit	Financial Strength Rating	Issuer Credit Rating
American Family Home Insurance Co.	Munich Reinsurance Co.	A	aa
American Modern Ins. Co. of FL, Inc.	Munich Reinsurance Co.	A+	aa
American Southern Home Ins. Co.	Munich Reinsurance Co.	A	aa
American Strategic Ins. Corp.	Progressive Corp.	A	aa
ASI Assurance Corp.	Progressive Corp.	A	aa
ASI Home Ins. Corp.	Progressive Corp.	A	aa
ASI Preferred Ins. Corp.	Progressive Corp.	A	aa
Progressive Property Ins. Co.	Progressive Corp.	A	aa
State Farm Florida Ins. Co.	State Farm Florida Ins. Co.	A-	a-
Tower Hill Prime Ins. Co.	Tower Hill Prime Ins. Co.	A-	a-
Vault Reciprocal Exchange	Vault Reciprocal Exchange	A-	a-
Florida Family Home Ins. Co.	Florida Family Group	B++	bbb+
Florida Family Ins. Co.	Florida Family Group	B++	bbb+
First Community Ins. Co.	Bankers Ins. Group	B++	bbb
Weston Ins. Co.	Weston Ins. Co.	B	bb u
Safepoint Ins. Co.	Safepoint Ins. Co.	B-	bb-

Source: July 2020 Market Segment Report – Florida A.M. Best

APPENDIX F: Takeout Program Participation

Company Name	Participated in Takeout Program
American Colonial Ins. Co.	2014-2015
American Integrity Ins. Co. of FL	2007-2010, 2012-2014
American Keystone Ins. Co.	2008
Anchor P&C Ins. Co.	2015-2016
Argus Fire & Casualty Ins. Co.	2005, 2008-2009
Atlantic Preferred Ins. Co.	2003-2005
Avatar P&C Ins. Co.	2008, 2013-2017
Capitol Preferred Ins. Co.	2009-2010, 2014
Cypress P&C Ins. Co.	2014-2015
Edison Ins. Co.	2008
Elements Property Ins. Co.	2013-2014
Federated National	2004, 2009
First Community Ins. Co.	2012-2015
First Home Ins. Co.	2005, 2007
Florida Peninsula Ins. Co.	2005-2009, 2011-2013
Gulfstream P&C Ins. Co.	2005
Heritage P&C Ins. Co.	2012-2016
Homeowners Choice P&C Ins. Co.	2007-2010, 2012-2017, 2019
Homewise Ins. Co.	2006
Homewise Preferred Ins. Co.	2007-2008
Landmark One Ins. Co.	2007-2009
Magnolia Ins. Co.	2008
Maison Ins. Co.	2017-2018
Mount Beacon Ins. Co.	2014-2015
National Specialty	2016-2017
Northern Capital Ins. Co.	2008-2009
Olympus Ins. Co.	2013-2015
Prepared Ins. Co.	2010, 2015
Safe Harbor Ins. Co.	2013-2014
Safepoint Ins. Co.	2014-2019
Security First Ins. Co.	2005-2006
Service Ins. Co.	2005
Southern Fidelity Ins. Co.	2005, 2009-2010, 2014, 2016
Southern Fidelity P&C Ins. Co.	2012-2014, 2016
Southern Oak Ins. Co.	2005-2019
Sunshine State Ins. Co.	2008
Tower Hill Preferred Ins. Co.	2013-2014
Tower Hill Prime Ins. Co.	2013
Tower Hill Select Ins. Co.	2013

Company Name	Participated in Takeout Program
Tower Hill Signature Ins. Co.	2013-2014
United P&C Ins. Co.	2004-2005, 2008-2009, 2011, 2013-2016
Universal Ins. Co. of NA	2004, 2013-2014
Weston Ins. Co.	2013-2018

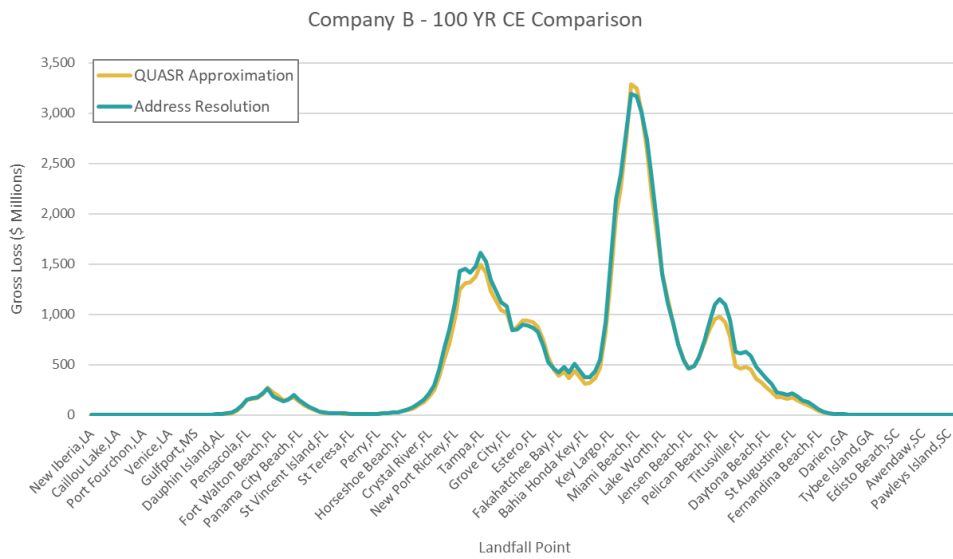
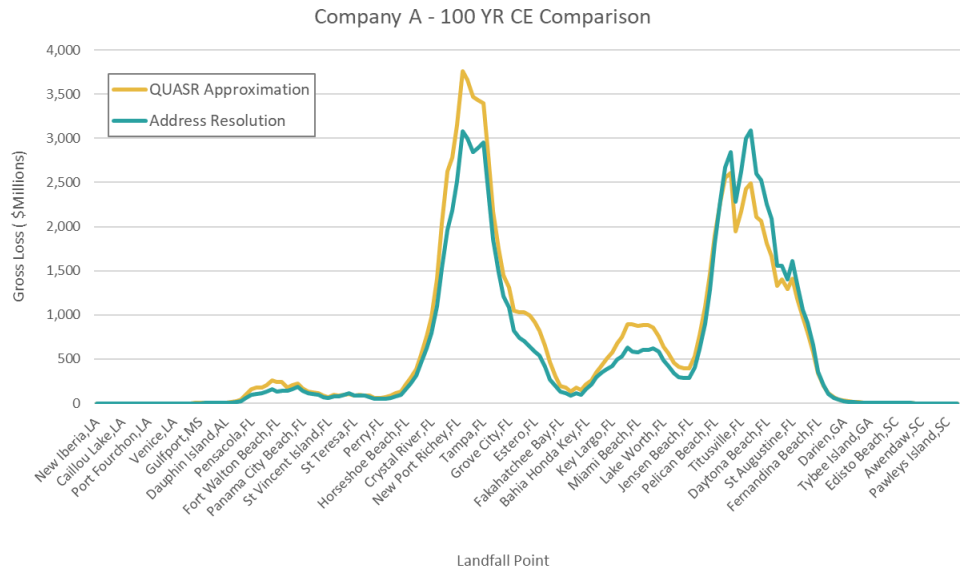
APPENDIX G: Documents & Data

File Name	Description
002_02ExposurebyCounty123103	2002 FHCF exposure by county
003_03ExposurebyCounty123104	2003 FHCF exposure by county
004_04ExposurebyCounty123105	2004 FHCF exposure by county
005_05ExposurebyCounty123106	2005 FHCF exposure by county
006_06 exp by cty 123107	2006 FHCF exposure by county
007_07 exp by cty 123108	2007 FHCF exposure by county
008_08 exp by cty 123109	2008 FHCF exposure by county
009_09 exp by cty 123110	2009 FHCF exposure by county
010_10 exp by cty 123111	2010 FHCF exposure by county
011_11 exp by cty 123112	2011 FHCF exposure by county
012_12 exp by cty 123113	2012 FHCF exposure by county
013_13 exp by cty 123114	2013 FHCF exposure by county
014_14 exp by cty 123115	2014 FHCF exposure by county
015_15 exp by cty 123116	2015 FHCF exposure by county
016_16 exp by cty 123117	2016 FHCF exposure by county
017_17 exp by cty 123118	2017 FHCF exposure by county
018_18 exp by cty 123119	2018 FHCF exposure by county
019_19 exp by cty 123119	2019 FHCF exposure by county
020_02ExposurebyZip123103	2002 FHCF exposure by ZIP
021_03ExposurebyZip123104	2003 FHCF exposure by ZIP
022_04ExposurebyZip123105	2004 FHCF exposure by ZIP
023_05ExposurebyZip123106	2005 FHCF exposure by ZIP
024_06ExposurebyZip123107	2006 FHCF exposure by ZIP
025_07 Exp by Zip 123108	2007 FHCF exposure by ZIP
026_08 Exp by Zip 123109	2008 FHCF exposure by ZIP
027_09 Exp by Zip 123110	2009 FHCF exposure by ZIP
028_10 Exp by Zip 123111	2010 FHCF exposure by ZIP
029_11 Exp by Zip 123112	2011 FHCF exposure by ZIP
030_12 Exp by Zip 123113	2012 FHCF exposure by ZIP
030_13 Exp by Zip 123114	2013 FHCF exposure by ZIP
031_14 Exp by Zip 123115	2014 FHCF exposure by ZIP
033_15 Exp by Zip 123116	2015 FHCF exposure by ZIP
034_16 Exp by Zip 123117	2016 FHCF exposure by ZIP
035_17 Exp by Zip 123118	2017 FHCF exposure by ZIP
036_18 Exp by Zip 123119	2018 FHCF exposure by ZIP

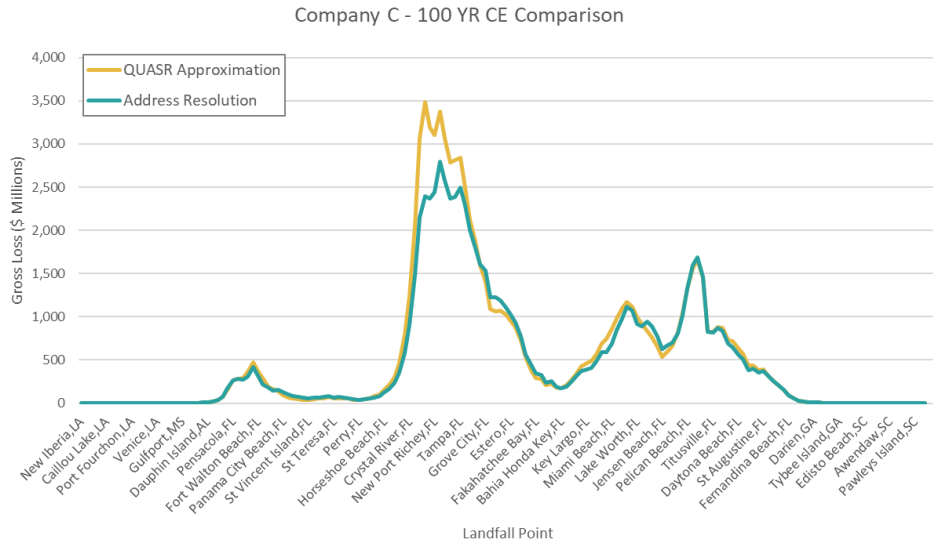
File Name	Description
037_19 Exp by Zip 123119	2019 FHCF exposure by ZIP
038_10fin_pre 033113	2010 FHCF coverage selection by company
039_11fin_pre 093013	2011 FHCF coverage selection by company
040_12fin_pre 093016	2012 FHCF coverage selection by company
041_13fin_pre 093016	2013 FHCF coverage selection by company
042_14fin_pre 033118	2014 FHCF coverage selection by company
043_15fin_pre 20181231	2015 FHCF coverage selection by company
044_16fin_pre 20181231	2016 FHCF coverage selection by company
045_17fin_pre 20191231	2017 FHCF coverage selection by company
046_18fin_pre 20191231	2018 FHCF coverage selection by company
047_19fin_pre 20191231 EXAMPLE	2019 FHCF coverage selection by company
048_QUASR_2016	2016 QUASR download
049_Q1_2019_QUASR	2019 Quarter 1 QUASR download
050_FLOIR_2018AnnualReport	2018 Florida OIR Annual Report
051_FLOIR_2017AnnualReport	2017 Florida OIR Annual Report
052_FLOIR_2016AnnualReport	2016 Florida OIR Annual Report
053_FLOIR_2015AnnualReport	2015 Florida OIR Annual Report
054_FLOIR_2014AnnualReport	2014 Florida OIR Annual Report
055_FLOIR_2013AnnualReport	2013 Florida OIR Annual Report
056_Depopulation White Paper_FINAL#1	Citizens Depopulation Study
057_Returning Depop Study 2008-2019	Depopulation Study of 2008 to 2019
058_Florida Property Insurer Financial Summary 2019YE	Summary of Florida Property Insurer Financials
059_Surplus, Invested Assets, Investments (2002 - 2019)	Yearly Citizens Surplus and Invested Asset Information
060_TOCs participating by year 033120	Takeout Company Participation by Year

File Name	Description
061_Depop Yearly Summaries - Detail_042820	Yearly Depopulation Summary Information
062_Exposure Reduction 3f.xlsx	Citizens Yearly PML and Exposure Information
063_citizens history fl property market presentation by David 2017 [23]	History of Florida Private Market
064_Deliverable #1 5-29-20f	Phase 1 report FSU prepared as part of the Citizens project
065_CITIZENSpres062612 [60]	Citizens Exposure History
066_QUASR_Insurer_Categories_2018-19	Insurance Company Classifications
067_Depop_Internal_Guide_08.14.19 [52]	Information on depopulation process

APPENDIX H: 100-Year Characteristic Event (CE) QUASR Approximation and Detailed Street Address Data for Select Companies



Source: Karen Clark and Company

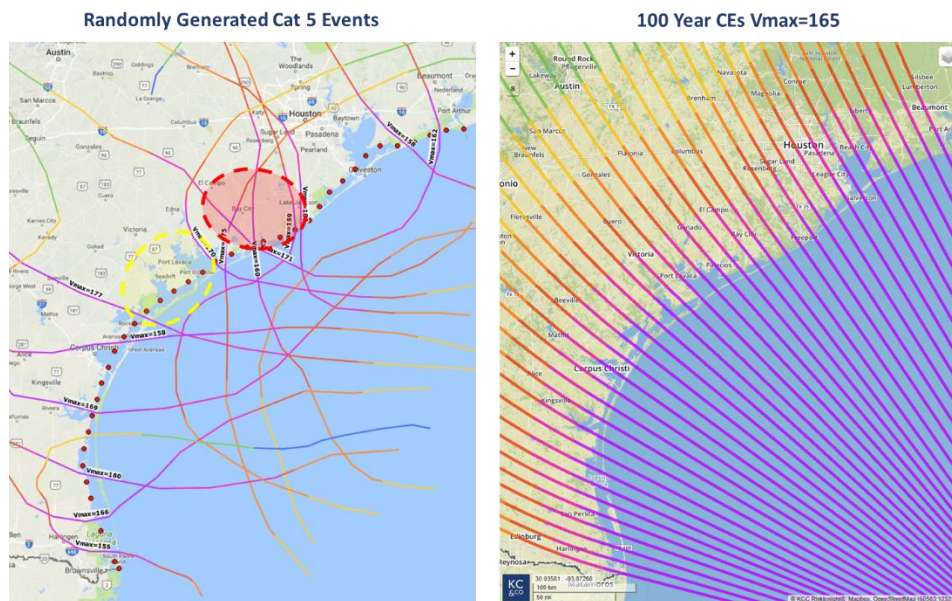


Source: Karen Clark and Company

APPENDIX I: Sampling Bias in Characteristic Event and Monte Carlo Methodologies

The Characteristic Event (CE) methodology simulates hurricanes with a given hazard return period, such as the 100-year return period or the 1% probability event, at 10-mile increments along the US coastline. Each CE follows the predominant track angle for that region of the coastline, based on the historical record and expert meteorological judgement. This results in a set of hypothetical events that completely covers the US coastline, leaving no “gaps” or regions of under-sampling because the landfall location and track direction are treated as fixed variables rather than random variables.

Figure I.1: Monte Carlo & Characteristic Event Landfall Comparison

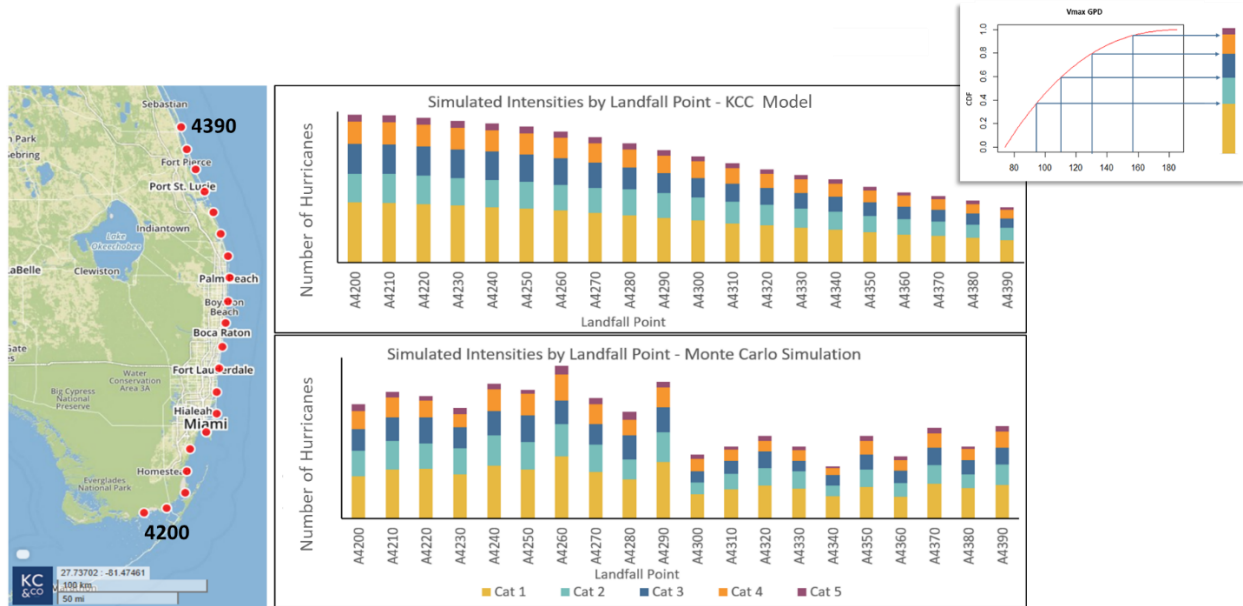


Source: Karen Clark and Company

In traditional catastrophe models, track direction and landfall point are treated as random variables. This results in a spaghetti plot for the Texas coastline similar to the image on the left in Figure I.1. While these simulations are realistic realizations of the next 100,000 years, each track is no more likely than the plot of CEs on the right. The benefit of the CE approach is that it does not create the areas of under-sampling (shaded in yellow), or over-sampling (shaded in red) that can arise when using a Monte Carlo approach.¹¹¹

¹¹¹ A Monte Carlo algorithm is one that relies on repeated sampling of random variables to obtain a numerical output.

Figure I.2: Monte Carlo & Characteristic Event Intensity Sampling Comparison



Source: Karen Clark and Company

The plot in Figure I.2 demonstrates the type of sampling error that can occur when many key parameters are treated as random variables in a Monte Carlo simulation. The CE simulated intensities preserve a logical trend in relative hazard along the southeastern coast of Florida that is consistent with the historical catalog and meteorology of the region.

APPENDIX J: Claims Comparisons of Southeast vs. Rest of State, 2009-2020

Given that Citizens makes a distinction in the claims data between the southeast region and the remainder of the state, the comparisons between the Tri-County area and the rest of the state are replicated using this as the comparison point. The southeast region includes those identified as the tri-counties (Broward, Miami-Dade, and Palm Beach) and Monroe county.

Figure J.1 summarizes the general causes of loss and compares the southeast region to the remainder of the state. This comparison yields several key findings:

- In every year, claims in the southeast region accounted for the vast majority of claims.
- The percent of total claims in the southeast region increased during the period, growing from about 63 percent in 2009 to more than 71.8 percent in 2019.
- With the exception of a few years around a time period in which several hurricanes made landfall in Florida, non-catastrophe related water damage accounted for a significant percentage of claims in the southwest and the remainder of the state.

Figure J.1: Cause of Loss Comparison of Southeast vs. Rest of State, 2009-2020

Close	Southeast				Rest of State				Grand
	Sub-	All	Cat	Non-Cat	Sub-	All	Cat	Non-Cat	
2009	31,059	8,876	7,579	14,604	18,142	8,229	2,285	7,628	49,201
2010	29,682	8,599	4,273	16,810	16,072	7,496	712	7,864	45,754
2011	35,651	10,983	2,234	22,434	21,323	10,681	934	9,708	56,974
2012	40,634	10,905	4,870	24,859	25,932	9,410	5,316	11,206	66,566
2013	35,427	9,508	2,082	23,837	18,373	7,617	1,192	9,564	53,800
2014	26,436	6,498	901	19,037	12,576	5,830	248	6,498	39,012
2015	17,306	3,959	449	12,898	7,675	3,659	94	3,922	24,981
2016	15,386	3,183	706	11,497	9,214	2,682	3,356	3,176	24,600
2017	30,464	2,967	18,589	8,908	17,683	2,985	11,752	2,946	48,147
2018	30,175	3,878	15,720	10,577	13,778	3,260	7,320	3,198	43,953
2019	27,831	2,752	12,799	12,280	10,929	2,924	3,897	4,108	38,760
2020	13,051	1,464	4,503	7,084	5,304	1,886	1,124	2,294	18,355
Total	333,102	73,572	74,705	184,825	177,001	66,659	38,230	72,112	510,103

Litigation and Assignment of Benefits

Figure J.2 summarizes the number of claims by the general cause of loss. For catastrophe claims, nearly 11 percent of the claims are litigated. This is primarily driven by claims in the southeast (14.9 percent) when compared to the rest of the state (2.5 percent). There is also evidence of an

Figure J.2: Litigation by Major Categories– Southeast vs. All Other Counties, 2009-2020

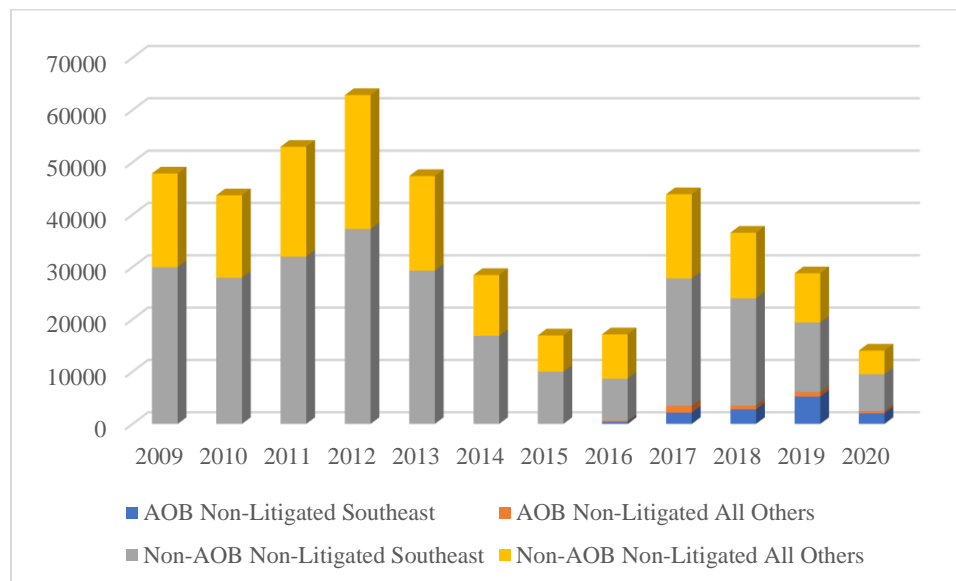
		Catastrophe		Non-Cat Water		All Other	
		Claim Counts		Claim Counts		Claim Counts	
	Close Year	Non-Litigation	Litigation	Non-Litigation	Litigation	Non-Litigation	Litigation
Southeast	2009	7,190	389	14,131	473	8,629	247
	2010	3,779	494	15,913	897	8,230	369
	2011	1,585	649	20,166	2,268	10,214	769
	2012	4,261	609	22,757	2,102	10,218	687
	2013	1,478	604	19,461	4,376	8,368	1,140
	2014	217	684	11,798	7,239	4,812	1,686
	2015	92	357	7,108	5,790	2,781	1,178
	2016	450	256	5,702	5,795	2,243	940
	2017	18,450	139	5,495	3,413	2,517	450
	2018	14,676	1,044	5,293	5,284	3,304	574
	2019	8,587	4,212	7,567	4,713	2,323	429
2020	2,775	1,728	4,982	2,102	1,282	182	
Sub-Total		63,540	11,165	140,373	44,452	64,921	8,651
Rest of State	2009	2,181	104	7,609	19	8,115	114
	2010	567	145	7,828	36	7,370	126
	2011	873	61	9,601	107	10,519	162
	2012	5,276	40	11,066	140	9,273	137
	2013	1,159	33	9,419	145	7,485	132
	2014	202	46	6,106	392	5,325	505
	2015	72	22	3,647	275	3,207	452
	2016	3,335	21	2,947	229	2,441	241
	2017	11,728	24	2,811	135	2,896	89
	2018	7,222	98	2,913	285	3,124	136
	2019	3,667	230	3,812	296	2,838	86
2020	989	135	2,146	148	1,845	41	
Sub-Total		37,271	959	69,905	2,207	64,438	2,221
Grand Total		100,811	12,124	210,278	46,659	129,359	10,872

increasing trend in the percentage of claims that are litigated in recent years, though the highest percent litigated is observed in 2014 and 2015.

The percentage of non-catastrophe claims litigated during this period, is higher, at more than 18 percent. This is also driven by the claims in the southeast region where the average percent litigated is about 24 percent, relative to about 3 percent in the remainder of the state. The highest litigation rates are generally observed between 2014 and 2018; although there has been an increase in the percent of litigated claims overall, there has been a decline in recent years.¹¹² A lower percentage of claims are litigated when compared to catastrophe and non-catastrophe claims. Less than 8 percent of these claims are litigated, with the litigation rate being higher in the southeast (11.8 percent) relative to the rest of the state (3.3 percent). As with the non-catastrophe water claims, the highest litigation rates are generally observed between 2014 and 2018, with litigation rates declining in recent years.

Figures J.3 and J.4 provide information on the number of litigated and non-litigated claims involving AOB, comparing the southeast to the remainder of the state.¹¹³ These figures indicate that although there is not much difference between the southeast and the rest of the state when considering non-AOB non-litigated claims, significant differences are observed in all of the other categories, suggesting that there are a disproportionate number of claims in the southeast when compared to the rest of the state when AOB and/or litigation is involved.

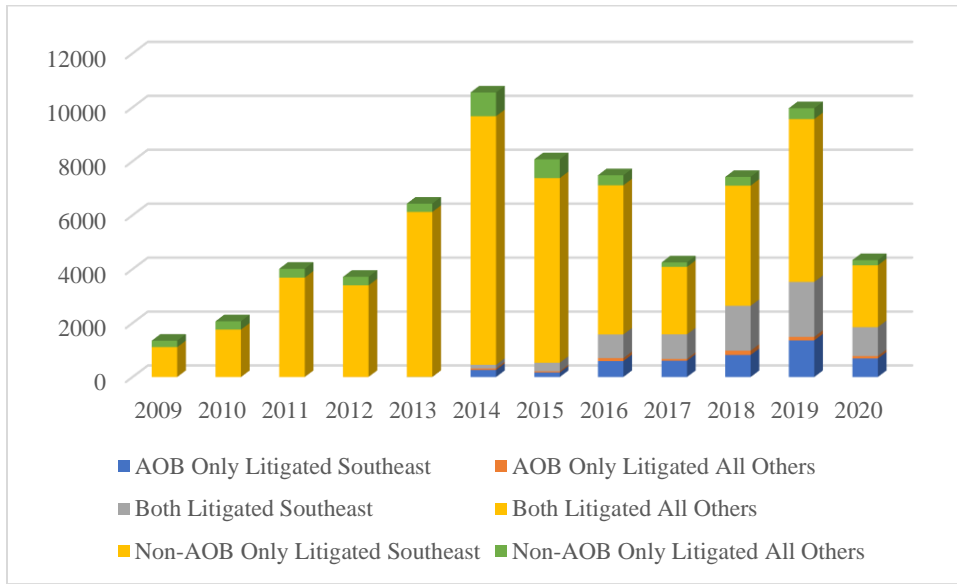
Figure J.3: Non-Litigation Group – Southeast vs. All Other Counties, 2009-2020



¹¹² It should be noted that this refers to trends in closed claims only. Revised litigation rates in the future, once additional claims have been settled or litigated, may reflect a different trend.

¹¹³ Comparisons were also made between the top DPW counties and the remainder of the state similar trends were observed when examining litigation activity and AOB involvement.

Figure J.4: Litigation Group – Southeast vs. All Other Counties, 2009-2020



APPENDIX K: Closed Claims by Policies in Force

Given loss development of claims and other issues surrounding claims, the analysis in the claims section includes only closed claims and is based on close year. However, the number of policies held by Citizens has changed considerably over time. To determine whether the patterns of claims noted in this section are due to fluctuations in the number of Citizens' policies, closed claims occurring each year are also examined related to policies in force in that year.¹¹⁴ The Figure K.1 shows results generally consistent with the trends shown in the claims analysis section. In particular:

- Claims per 1,000 policies in force are higher in catastrophe years
- More claims per 1,000 policies in force occur in the Tri-Counties compared to the rest of the state
- More claims per 1,000 policies in force are litigated in the Tri-Counties compared to rest of state

Figure K.1: Closed Claims Summary by Policies in Force

	Close Year	Total	Per 1,000 PIF	Non-Litigation	Per 1,000 PIF	Litigation	Per 1,000 PIF
Tri-Counties	2003	112	0.14	81	0.10	31	0.04
	2004	1,750	2.00	1,571	1.80	179	0.20
	2005	12,726	15.71	9,754	12.04	2,972	3.67
	2006	1,434	1.24	1,257	1.09	177	0.15
	2007	2,710	2.08	2,018	1.55	692	0.53
	2008	10,855	10.01	9,588	8.84	1,267	1.17
	2009	22,918	22.27	20,781	20.19	2,137	2.08
	2010	29,586	23.05	25,501	19.87	4,085	3.18
	2011	40,784	27.70	33,666	22.87	7,118	4.83
	2012	45,280	34.44	37,335	28.40	7,945	6.04
	2013	30,223	29.58	22,623	22.14	7,600	7.44
	2014	20,527	31.05	13,678	20.69	6,849	10.36
	2015	15,205	30.18	8,510	16.89	6,695	13.29
	2016	12,739	27.95	7,803	17.12	4,936	10.83
	2017	53,532	121.55	44,229	100.43	9,303	21.12
	2018	10,106	23.65	8,692	20.34	1,414	3.31
	2019	8,714	19.71	8,410	19.02	304	0.69
Sub-Total		319,201		255,497		63,704	

¹¹⁴ Specifically, the number of claims reported in a given year is divided by the total number of policies in force in that year and multiplied by 1,000.

Rest of State	2003	23	0.03	14	0.02	9	0.01
	2004	1,869	2.14	1,546	1.77	323	0.37
	2005	1,013	1.25	828	1.02	185	0.23
	2006	352	0.30	264	0.23	88	0.08
	2007	865	0.66	715	0.55	150	0.11
	2008	5,030	4.64	4,842	4.47	188	0.17
	2009	15,437	15.00	15,232	14.80	205	0.20
	2010	15,992	12.46	15,685	12.22	307	0.24
	2011	23,440	15.92	22,915	15.56	525	0.36
	2012	26,494	20.15	25,935	19.73	559	0.43
	2013	16,353	16.01	15,860	15.52	493	0.48
	2014	11,113	16.81	10,213	15.45	900	1.36
	2015	6,383	12.67	5,884	11.68	499	0.99
	2016	9,719	21.32	9,338	20.49	381	0.84
	2017	33,215	75.42	32,269	73.27	946	2.15
	2018	10,935	25.59	10,773	25.21	162	0.38
	2019	6,929	15.67	6,904	15.61	25	0.06
Sub-Total		185,162		179,217		5,945	
Grand Total		504,363		434,714		69,649	

APPENDIX L: Characteristic Event Methodology

The Characteristic Event (CE) methodology was developed to address limitations in the traditional catastrophe risk metrics, most notably PMLs and TVaRs derived from EP curves. In particular, these traditional risk metrics are reliant upon and only applicable to an individual company's portfolio of exposure taken at a particular point of time, and consequently are deficient when performing strategic analyses such as relative comparisons across multiple companies, evaluating how individual companies aggregate to impact an entire insurance market, or monitoring changes in a single company's catastrophe risk over time.

The traditional EP curve is created by estimating losses on an individual exposure set, sorting losses from highest to lowest, and ranking them by probability of loss. As the portfolio exposure changes (between companies or over time), so does the order of the catastrophe model events that correspond to each loss probability point on the EP curve. Consequently, EP curve metrics cannot be effectively added across companies to generate a market view or compared across companies to determine if they have correlated risk profiles. This limitation is illustrated in Figure L.1 by the highlighted portion signifying that the 100-year PML is represented by the simulation of different years, whereas using CE methodology the simulated events are the same across companies allowing for additivity and comparative analysis.

Figure L.1: Illustration of EP Curve Non-Additivity

Company A – EP Curve				Company B – EP Curve			
Rank	Return Period	Sim Year	Loss (\$ million)	Rank	Return Period	Sim Year	Loss (\$ million)
1	10,000	838	2,478	1	10,000	902	2,422
2	5,000	76	2,068	2	5,000	505	2,113
3	3,333	1407	1,836	3	3,333	39	1,820
4	2,500	6234	1,623	4	2,500	5194	1,711
...
100	100	587	341	100	100	312	341
...

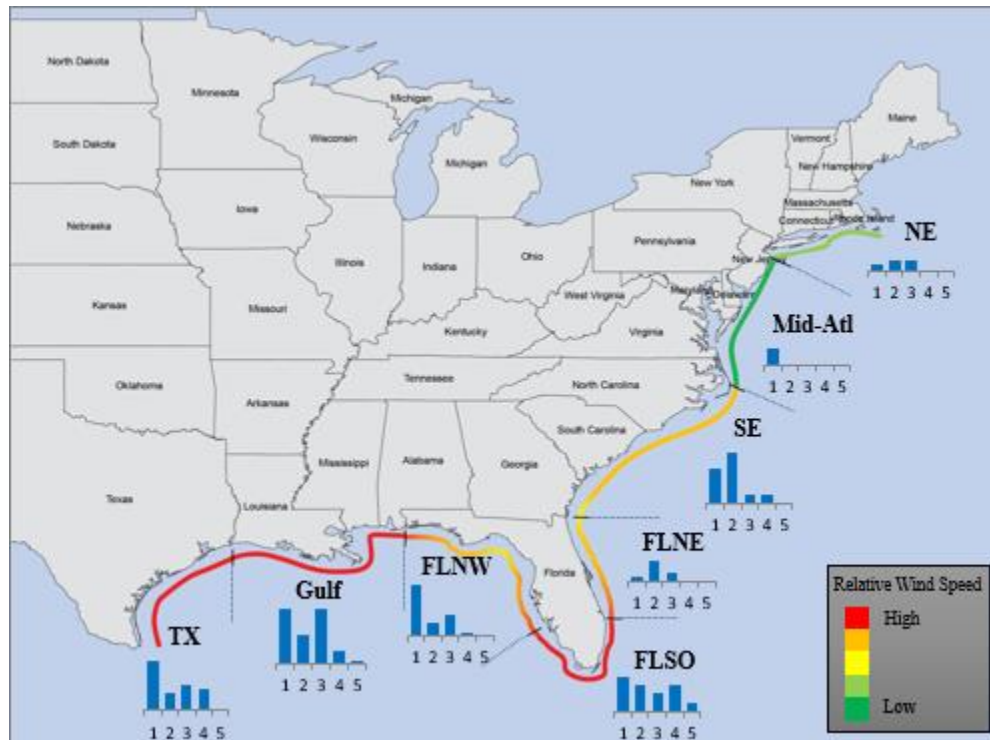
Probable Maximum Loss (PML) – Point on the EP Curve

In light of these limitations and the challenges they pose for risk management decisions, KCC introduced the CE methodology. In the CE methodology, the hazard probabilities are quantified and then the losses are calculated for different return period events by landfall point. It is the flip side of the EP curve approach and is not dependent on any individual exposure set and can be applied uniformly to any company in an insurance market or the same company over time. The probabilities are based on the *hazard* versus the *loss*.

In deriving the Characteristic Events for the U.S., the coastline is broken out into eight regions of similar meteorological makeup, similar to how the USGS calculates earthquake risk and

determines hazard maps. The eight regions used for the creation of Characteristic Events are: Texas, Gulf, Northwest Florida, South Florida, Northeast Florida, Southeast, Mid-Atlantic, and the Northeast. These regions are individually validated against the historical record (back to 1900), as seen in Figure L.2. This validation is then coupled with expert scientific judgement to develop events with characteristics corresponding to particular return periods of interest, like the 50, 100, and 250 year.

Figure L.2: Characteristic Event Generation

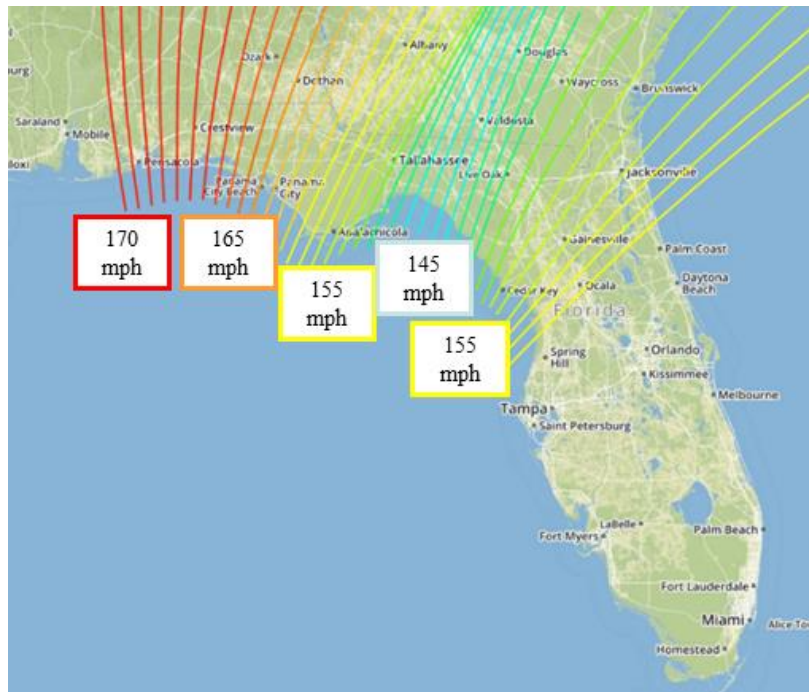


Blue bar charts represent historical frequency of Saffir-Simpson Category storms in each region

Figure L.2 also illustrates how the relative hurricane risk varies along the U.S. coastline – with the areas in red near Texas, the Gulf, and Southern Florida representing the most hurricane exposed regions.

Each Characteristic Event has its major storm parameters, like radius of maximum winds, and maximum sustained wind speeds, defined by standard meteorological formulae and relationships, after which factors like surface friction and filling rates are accounted for. The CEs are then floated every ten miles along the U.S. coastline with a predominant track angle consistent with the historical record and regional meteorology, as illustrated in Figure L.3.

Figure L.3: Characteristic Event Tracks and Intensities



The ten-mile spacing of the CE landfall points ensure that there is complete spatial coverage along the entirety of the U.S. coast, even for intense storms with small wind fields. This culminates in a framework for new and innovative risk metrics, like the CE Profile, that provide much richer illustrations of an entity's true risk profile.

APPENDIX M: Additional Discussion of Ideas and Approaches

The FSU Research Team considered an extensive list of ideas and approaches to reducing Citizens exposure. As discussed in the ‘Recommended Key Ideas and Approaches’ section, the selected ideas and approaches were determined based on criteria provided by Citizens as well as a variety of other factors. The ideas and approaches discussed in this appendix do not fully meet the criteria for the reasons noted below.

Ideas/Approaches Directly Related to Citizens

Category 1 – Attracting Investors

- a. *Modify the structure of Citizens such that Citizens becomes a market maker for catastrophe investments (i.e., Citizens Capital Markets Corporation). See Miscellaneous section below for more details.*

This idea would significantly change the role of Citizens and its mission. It addresses one of the largest hindrances to a properly functioning private insurance market: catastrophic risk. Removing catastrophic risk from the private market and concentrating it in Citizens would likely increase the number of insurers willing to do business in Florida and reduce the concerns of the capital position of the Florida domestic insurers. It would also enable Citizens to leverage their relationships with capital market providers to negotiate the best terms for both reinsurance and alternative risk financing.

There are also significant downside risks, not only from catastrophic exposure, but from market fluctuations and potential political risks. These, consequently, work against the objective of reducing Citizens’ exposure. The idea was discussed with stakeholders and the FSU Research Team concluded that there was not sufficient interest. Further, it was uncertain whether this is feasible and in line with Citizens’ mission. For these reasons, the FSU Research Team did not pursue this idea further.

Category 3 – System Efficiencies

- a. *Revise takeout requirements to allow more companies, such as direct writers and surplus lines insurers, to participate.*

This idea would likely require developing a compensation plan for agents and could create situations that may be adverse from a policyholder perspective. The FSU Research Team considered that the approach may be controversial in that it impacts the role of agents’ ownership of their business and measuring the benefits and costs would be difficult without a pilot program. Without a pilot program, it is not clear whether any direct writers or surplus lines insurers would be willing to participate. There are currently

few direct writers actively writing in Florida and it is not clear that participating in the takeout program is any type of incentive to get them more involved. It is also unknown whether the surplus lines market would be able and willing to offer “affordable” property insurance since rates and forms are not reviewed for acceptability by the OIR.

- b. *Create policyholder claims committees to lower costs associated with claims disputes and facilitate faster processing of claims.*

Approaches to reduce settlement costs are addressed in Approach 3.2. The FSU Research Team recommends that alternative dispute resolution and early offer approaches may hold promise but does not think claims committees would be feasible in the current environment. Therefore, this idea was not evaluated further.

Category 5 – Financial Solvency

Strengthen the financial requirements for insurers participating in depopulation/takeout plans.

Recent depopulation statistics show a large proportion of policies returning to Citizens. Based on the 2008-2019 depopulation study, 55% of the takeout policies returning to Citizens were from insolvent insurers. For companies that were solvent, 15% of those depopulated policies returned to Citizens. The combined returning percentage was 21%. However, the FSU Research Team noted a positive trend in the capitalization of companies involved in depopulation, suggesting stronger financial requirements may not be warranted. Approaches 5.1, 5.2, and 5.3 address improving the solvency of all private insurers, which would necessarily work to this end as well.

Category 7 – Miscellaneous

- a. *Create Citizens Capital Market Corporation (CCMC), similar to Fannie Mae/Freddie Mac by splitting Citizens into a residual market insurer and a market maker for catastrophe investments. The market maker portion (CCMC) takes most, if not all the wind risk in the state by splitting the wind coverage off from the standard HO policy. CCMC would determine a “conforming wind policy,” and private market insurers that sell a conforming wind policy could resell it to CCMC. CCMC could set the price for its coverage and insurers could be allowed to sell the policy for less. CCMC would then securitize the bundles of wind policies similar to Fannie Mae/Freddie Mac and issue them out into the capital markets (e.g., different layers of reinsurance, cat bonds, mutual funds investing in wind risk, etc.). This will enable investors to provide capital to the Florida insurance market at higher levels of the loss distribution. CCMC can determine*

the optimal transfer mechanisms at the different layers to minimize the overall cost of capital.

This is addressed in Category 1a. above.

- b. Create two Citizens insurers. One company would function more like a temporary holding residual market insurer designed to handle fluctuations in the market such that policyholders are temporarily held by Citizens for the purpose of being taken out by the private market when the underwriting cycle changes and the markets softens. The rates for such policies would be, in many cases, competitive with the private market. The other insurer would be designed as an insurer of last resort. This would involve risks that are truly undesirable by the private market and expected to remain in Citizens for longer terms. The rates would be above what is charged in the private market and the rate differential would be large, such that there would be no level of private market competition.*

This approach would add complexity to the current Citizens structure and underscores the distinction of Citizens' role as "an insurer of last resort" versus a residual insurer. The idea of Citizens having dual companies, with one being competitive with the private market although its purpose is to serve as a holding facility, may cause some unintended consequences. There are no models, currently, for how such a structure might be established and how the two companies would cooperate with each other. It is also unknown whether Citizens might end up increasing its exposure which would run counter to the purpose of this study. For these reasons, the FSU Research Team did not pursue this idea further.

- c. Use an approach similar to the auto residual market and require insurers writing in Florida to take a percentage of high-risk policyholders, potentially ex-wind policies. Citizens could offer coverage for wind-only policies for those that need it. This approach could be phased in over time, thus gradually increasing the percent allocation of high-risk homeowners to insurers over several years.*

This approach would require that Citizens be ultimately converted to a program that would appear to be similar, but perhaps more expansive (in terms of territories) than the prior FWUA (Florida Windstorm Underwriting Association). It is unknown but possible that this approach would increase Citizens' exposure which would run counter to the purpose of this study. For these reasons, the FSU Research Team did not pursue this idea further.

- d. *Change Citizens' policies to make them less competitive (for example, provide lower policy limits on certain types of policies or change Citizens' policy forms to a more barebones coverage).*

Reducing coverage would reduce Citizens' exposure while also making policies more affordable, but at the cost of residents being potentially underinsured. When considering how to make Citizens' policies less competitive, the FSU Research Team focused instead on strategies to address pricing differentials between Citizens and private insurers across the state. Recommended Approach 6.1 addresses pricing, which would help to make Citizens' policies less competitive. Further, the issue of affordability is addressed in Approach 7.4.

- e. *Encourage more companies to participate in takeout efforts and retain takeout policies by creating/providing capital incentives and longevity bonuses to participating companies.*

This idea has been attempted by Citizens before with the use of bonuses and other ideas to provide financial incentives for taking policies out of Citizens. The concern is that any incentive of this type is difficult to quantify and justify as a permanent solution for reducing Citizens' exposure and expanding the private market. In addition, it could drain Citizens' surplus, make the likelihood of future bonding and assessments greater, and/or increase Citizens' need for more transfer products that would attach at lower loss levels and therefore be more costly. The objective should be to increase the capacity of the private market or attract more capital to enable the expansion of the private market. It is not a given that takeout bonuses would bolster surplus unless the bonuses are set up as a matching surplus commitment.

Recommended Approach 5.1 provides an alternative way to encourage private market participation in takeout and retention of policies, where Citizens offers insurers portfolios of policies using the concept of managing tail risk. The FSU Research Team suggests this idea over the establishment of bonuses.

- f. *Modify the structure to allow Citizens to be a reinsurer. This would require coordination with or the changing of the role of the FHCF.*

Florida has a state-run type of reinsurer already – the FHCF. Several operational and implementation concerns for this approach have been raised by Citizens which require careful consideration (Citizens Property Insurance Corporation, 2020v). Converting Citizens to a reinsurer could have the consequences of increasing Citizens' exposure

(from a risk standpoint). If additional reinsurance capacity is needed, efforts should first be directed at the FHCF, not Citizens.

If Citizens is converted to a reinsurer, risk would be transferred to the policyholders and taxpayers of Florida, unless the risk was passed through to the broader reinsurance and/or ILS markets. A major concern is the potential that such a program could result in an indirect taxpayer subsidy to Florida insurers. The idea would also change the mission of Citizens. Opportunities for transferring Citizens' risk outside of the state are discussed in Recommended Approach 1.1.

- g. Allow Citizens to operate on a quota share basis either as a primary writer or on a facultative reinsurer basis.*

This is addressed in Category 7f. above.

- h. Modify the structure of Citizens so that it acts as a service provider to solely provide services to the private market.*

While this idea would essentially eliminate Citizens' exposure, it changes the fundamental mission of Citizens. As a service provider, Citizens could perhaps offer focused catastrophe risk management and claims services, in which it may have some particular expertise that is missing in the private market. However, this change would also eliminate a source of coverage for certain properties. It is not clear if, or how, policyholders would be insured by the private market and whether there would be an aggregate improvement in efficiency or affordability over the current system. For these reasons, the FSU Research Team did not investigate this approach any further.

Ideas/Approaches Beyond Citizens

Category 1 – Attracting Investors

- a. Develop metrics that provide information about the health of the Florida market. Create a dashboard for the purpose of monitoring results and sharing this information with stakeholders and potential investors.*

Recommended Approach 4.1 addresses the need for more and higher quality data to gain a better understanding of the exposure in the state, which could increase the appeal of takeout opportunities. Additional metrics may be considered, including data that would help stakeholders and potential investors better assess the health of the Florida market. The FSU Research Team did not evaluate the specific types of information that might be

collected and/or shared, and the consequential costs associated with developing a dashboard system. While market-level data might help predict policy growth from insolvencies and restructurings, it is unclear how this information would contribute to the goal of reducing Citizens' exposure and expand the private market. Thus, the FSU Research Team did not provide further evaluation of this idea.

Category 3 – System Efficiencies

- a. *Eliminate unnecessary fees and expenses going to third parties where possible. This would require reform of the legal system and strong and effective alternative dispute resolution and arbitration provisions.*

This idea was considered by the FSU Research Team in conjunction with other ideas for increasing efficiency in the settlement process. The discussion is provided in Recommended Approach 3.2.

Category 4 – Data Quality, Analytics, and Transparency

- a. *Revise Florida statutes to require street address data to be reported to the Florida Hurricane Catastrophe Fund (FHCF) as well as OIR. This could allow FHCF to better evaluate reinsurance options and the OIR to conduct more accurate stress testing (which is covered in Category 5 - Financial Solvency).*

The FSU Research Team considered this idea to be beyond the scope of the study since did not directly relate to reducing Citizens' risk or expanding the use of the private market. However, Approach 4.1 does include a discussion of the need for improved data quality for solvency monitoring and advanced analytics. Recommended Approaches 5.2 and 5.3 provide additional discussion of the need for individual company and aggregate (market) stress testing to improve solvency.

- b. *Improve the quantitative analyses to better geographically and financially spread risk. This would require the Florida Commission on Hurricane Loss Projection Methodology (Commission) to review new methodologies and develop enhanced standards to provide consistency for evaluating solvency.*

This is a tangential idea that is specific to changes for another state program (the Commission). Strengthening and improving solvency analytics is recommended in Approach 5.2.

Category 5 – Financial Solvency

- a. *Expand the Florida Commission on Hurricane Loss Projection Methodology to include modeling for additional factors such as loss reserving to prevent loss creep.*

Discussions with modelers pointed out that dealing with loss creep is more related to social inflation and the legal environment than hurricane modeling. The modelers pointed out that generally actuaries provide the greatest input for loss development. For these reasons, this idea was not pursued further.

- b. *Create a system that evaluates rating agencies and require that insurers that write business in Florida be rated by a state-approved rating agency. This would require conducting a study to determine the factors to consider in the evaluation process.*

The FSU Research Team considered this idea to be only tangentially related to reducing Citizens' exposure and expanding the use of the private market. The Recommended Ideas and Approaches in this report favor direct strategies designed to improve the financial solvency of the market over the development of additional metrics for evaluation.

Category 6 – Rating Reform

- a. *Eliminate the requirement that rate filings with a 15% or larger rate request be subject to a public hearing.*

The FSU Research Team examined the rate filing data for three property lines of business: homeowners, mobile homeowners, and personal property – fire and allied lines. Figures 59-61 illustrate that the number of rate change requests around the 15 percent threshold is small and not likely to be binding. The Team determined that further consideration of this idea was not motivated by this evidence.