# STATE GOVERNMENT CATASTROPHE RISK FINANCING AND THE CAPITAL MARKETS

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## INTRODUCTION

State and local governments turn to the capital markets, especially the tax-exempt bond market, for traditional financing purposes with market access generally available when needed. These governments expect market access to help bridge the gap between enormous (for them) outlays to recover from catastrophes, if only to pay for the expenses prior to receiving (all too slowly) federal disaster reimbursement. In recent years, certain states facing a high probability of catastrophic hurricane and earthquake exposures have added the burden of socializing the risk of individual and business property losses instead of leaving these private actions subject to voluntary insurance markets. In turn, these state governments have created financial intermediaries with access to the capital markets to *transfer* risks back to individuals and businesses in a new form (such as an excise tax-like levy) that serves to spread the risks among policy holders and investors. In the process, however, these state-sponsored intermediaries create financial risks for the host state government, including, but not limited to, constraints on debt market capacity.

This paper examines state-created financial intermediaries that promote public policy aimed at moving the state from risk bearer to risk shedder in natural disaster catastrophe risk financing. The first section reviews disaster relief efforts in which governments have transferred risks for low frequency, high risk events. Financial intermediary theory is used in the second section to frame the criteria for evaluating state-created catastrophe risk financing entities. Case studies of three exposure-prone states (Florida, Louisiana, and California) detail their risk financing through the capital markets. This comparative analysis of different policy designs then is evaluated by our criteria. In the last section, policy implications of these capital market approaches are discussed.

## RISK MANAGEMENT AND CATASTROPHES

Government has slowly assumed the risk of natural disasters from individuals and organizations through disaster relief. For natural catastrophic risk management, the situation has boiled down to one of two dilemmas: First, the termination of insurance services or the pricing of such services beyond the financial reach of the individual property owner by a private provider; second, the lack of a private provider of insurance. Both of these scenarios leave the property owner bare.

In response, a few state governments have created financial intermediaries that are public primary insurers or reinsurers. In both roles, governments have forced a sharing of risks with individuals, such as homeowners, by charging deductibles or placing regular and emergency assessments on all existing and new insurance policies written by private companies. The asset being securitized is a future assessment that can be attached to every property and casualty insurance product sold in the state.[1]

State-sponsored premium surcharges on all property policy holders and assessments on property insurers assessed on a broad base of persons constitute raising money for a public purpose, according to the Internal Revenue Service (IRS). Accordingly, such surcharges and assessments "qualify as taxes of general application," thereby rendering bonds securitized by these assessments as governmental bonds.[2] This means that a state-created financing entity may be able to issue tax-exempt securities secured by premium surcharges on all policy holders and/or by property insurer assessments (Schroeder, 2010).

To preserve their tax-exempt status, pre-event tax-exempt bond proceeds are for liquidity and are to be repaid out of the transaction's proceeds and investments. Therefore, the proceeds are restricted to strictly-defined "permitted investments" to avoid arbitrage. Accordingly, this means that the proceeds are invested in the tax-exempt instruments of American state and local governments. It is possible, therefore, for a financial intermediary of this type to invest in its own securities.

Private Letter Rulings by the IRS have set a precedent that may make it possible for a financial entity's funds to be deemed not taxable. Accordingly, such an entity can build its reserves from years when there are few, if any, payouts for hurricanes. Reserves, therefore, reduce the need for post-event financing (and surcharges on insurance products). These two points outline the logic behind the phenomena of state-created reinsurers and financial intermediaries for disaster financing.

## FINANCIAL MANAGEMENT THEORY

Johnson (1995) applies financial intermediary theory to public finance based upon the Greenbaum and Thakor (1995) definition that financial intermediation performs the functions of brokerage and asset transformation. In the context of catastrophe financing, a governmental financial intermediary able to issue securities can perform the brokerage function by attracting potential investors interested in the (long-term) debt of a governmental entity rather than the debt (or equity) of private (insurance) firms. An indicator of brokerage is the ability of the state-created financial intermediary(s) to issue debt measured by the amount of debt outstanding — that is, its debt market access.

In the asset transformation role, a financial intermediary makes an asset more inviting to potential investors. Moreover, a diversified pool of assets can be more inviting to investors than a single asset. Credit risk can be enhanced and "it might include turning relatively illiquid heterogeneous assets into liquid homogeneous assets" (Johnson, 1995, p. 265). This improvement in the funding liquidity of an asset advances market efficiency. When financial intermediaries can pledge revenues from an excise-type tax, such as a mandatory assessment on insurance policy holders statewide, the ratio of the current amount of assessments to the current statutory limit offers an indicator of the "tax" capacity remaining. More unused capacity allows future asset transformation.

Two additional functions of a state-created financial intermediary are the financial viability of the entity itself and of the primary government. An indicator of the financial intermediary's ability to preserve its strength is its credit rating. A state-sponsored financial intermediary can protect the primary government's financial sustainability by ensuring that any financial liability of the intermediary does not flow to the primary government. Despite this legal separation, to market makers and institutional investors there may remain limited appetite for debt obligations from within a particular state due to portfolio theory and risk diversification. An indicator is the ratio of the state's intermediary(s) total tax-supported debt outstanding to the amount of the primary (host) state government's debt. A higher ratio conveys more leverage and a threat to the primary government's debt capacity.

## THE CASE OF FLORIDA[3]

In the years following the devastation caused by Hurricane Andrew on August 24, 1992, Florida created three financial intermediaries to deal with private property loss due to future hurricanes: the Florida Insurance Guaranty Association, the Florida Hurricane Catastrophe Fund, and the Citizens Property Insurance Company. Each institution is examined, and its implications for the primary state government are discussed.

### Florida Insurance Guaranty Association.

The Florida Insurance Guaranty Association (FIGA) was found wanting as a guaranty fund in the aftermath of Hurricane Andrew, which led to six insolvent insurers. Quickly passed legislation allowed the FIGA to obtain access to the tax-exempt bond market through a revenue bond issued by a municipality. In 1993, the City of Homestead, dead center of the destruction zone, issued $473 million in insured revenue bonds for FIGA rated "A3," with repayment secured by a surcharge of up to two percent on all property insurance policies in the state, with some exceptions. Although this debt is now paid off, with no new debt issued, the FIGA retains authority to borrow money through cooperating municipalities.

### Florida Hurricane Catastrophe Fund.

As a single-peril entity, the Florida Hurricane Catastrophe Fund Finance Corporation (FHCF or 'Cat Fund') was created as a state enterprise fund to help participating insurers cover losses after a hurricane. Residential property insurers, with limited exceptions, must participate in the Cat Fund, retain certain loss levels, and pay annual premiums to the FHCF proportionate to their share of FHCF's risk exposure. The legal assessment rates allowed mean that, given Florida's $33.6 billion assessment base in 2011, the FHCF could levy annual surcharges of up to $2 billion for one contract period and $3.4 billion for multiple years. In 2007, the FHCF issued $3.5 billion in taxable pre-event floating-rate notes with maturity on October 15, 2012, set at 1-month LIBOR+78 basis points. This was the seventh largest municipal issue in the country from January 1, 2007, to May 2011. However, the FHCF's financial advisor has judged that the market would have less room to accept FHCF debt. The financial advisor estimated that the FHCF would need $11.22 billion in post-event bond proceeds.

Placing this bonding agenda in perspective helps. Since 2009, the largest single issuance was by the State of California for $6.54 billion in 2009. According to its financial advisor, FHCF's potential borrowing magnitudes are "extremely large by market standards" at the same time that a "smaller [overall municipal bond] market with a more limited buyer base may present challenges that did not previously exist for the FHCF in issuing bonds" (Raymond James, 2011, p. 5). With $5.65 billion in debt outstanding and despite a high-quality bond rating (Aa3/AA-/AA by Moody's/S&P/Fitch, respectively), a participating underwriter warned: "At some level, the necessary size, structure and immediacy of FHCF's borrowing needs may collide with a limited tax-exempt capital base" (Raymond James, 2011, p. 25).

### Citizens Property Insurance Corp.

Florida created the third, and most controversial, financial intermediary in 2002 as the residual property insurer of high-risk coastal areas. The Citizens Property Insurance Corp (CPIC) was established as a not-for-profit, tax-exempt political subdivision of the state, not an insurance company. The CPIC is a (discretely presented) component unit of the State of Florida, meaning that its finances are reflected in the State's audited financial statements. Given this statutory status, the CPIC qualifies as an issuer of tax-exempt securities. CPIC accesses the bond market for the largest and highest risk of its three accounts – the coastal account. To Fitch Ratings (2011, p. 1), the CPIC "can place an 'emergency assessment' on nearly every insurance policyholder in the state for an unlimited duration and in an unlimited cumulative amount to pay debt service on the bonds." As such, it is an assessment on the policy holder, not an obligation of the insurer.

Debt capacity for all three Florida entities is a concern. In each case, their bond offering statements are clear that the bonds are payable solely from specified pledged revenues and are not a pledge of the taxing power or general credit of the State of Florida or of any instrumentality thereof. There is concern that if post-event bonds were needed by one or all of the entities, the "headline risk" of the disaster could lead to higher interest rates and, at the same time, the other state-sponsored hurricane financing intermediaries would likely face similar capacity needs, thereby leading to an "overload of Florida debt issues in the capital markets" (Newman, 2005, p. 75).

## THE CASE OF LOUISIANA

Beginning in 1968, the State of Louisiana created a series of last resort insurance entities that were consolidated into the Citizens Property Insurance Corporation (LCPIC) in 2003, which under federal tax law means that its income is exempt and its debt obligations qualify for tax exemption. To Fitch Ratings, the LCPIC is authorized to issue assessment revenue bonds backed by emergency assessments on "nearly every property insurance policyholder in the state for an unlimited duration and in a sizable, cumulative amount to pay debt service on the bonds." That its finances are reported as a (discretely presented) component unit of the State of Louisiana's audited financial statements confirms the State's financial accountability for the LCPIC.

Insurance claims resulting from Hurricanes Katrina and Rita in late 2005 wiped out its reserves, requiring the LCPIC to issue bonds backed by emergency assessments. Once it became clear that emergency assessments of 15 percent on all property insurance policy holders throughout the State would be imposed for losses incurred in south Louisiana, the governor and lawmakers quickly sought avenues to offset the imposition, even offering tobacco settlement securitization transactions to generate funds for a one-time refund to property policy holders (Desue, 2006). In December 2006, legislation passed that allows ratepayers to claim a refundable income tax credit for LCPIC emergency assessments paid. The LCPIC bond offering statements are clear that the bonds are not a debt or liability of the State of Louisiana. Instead of carrying the State's "AA" rating, the LCPIC debt of $912 million has an "A-" bond rating.

## THE CASE OF CALIFORNIA

Following the January 17, 1994, Northridge earthquake, the insurance industry severely curtailed the availability of earthquake coverage for residential and commercial policy holders. To pre-

*Table 1*
**Financial Intermediary Evaluation Criteria**

| | *Florida* | | | *Louisiana* | *California* |
|---|---|---|---|---|---|
| *Entity* | *FIGA* | *FHCF* | *CPIC* | *LCPIC* | *CEA* |
| *Purpose* | *Insolvent Insurers* | *Hurricane Risk* | *Residual Insurer* | *Residual Insurer* | *Residual Insurer* |
| 1. Debt Outstanding [BROKERAGE] | None [Note: $1] | $5.65 billion | $4.60 billion | $912 million | $189 million |
| 2. Entity Bond Rating (Fitch) [ENTITY STRENGTH] | n/a [Note: A3] | AA | A+ | A- | A |
| 3. Current Assessment | 0% [Note: 0.0000001] | 1% | 1% | 4% | 0% [Note: 0.0000001] |
| 4. Maximum Emergency Assessment | 2% | 10% | 10% | 10% | 2.653% |
| 5. State Bond Rating (Fitch) | AAA | AAA | AAA | AA | A |
| 6. Total State Tax Supported Debt | $23.56 billion | $23.56 billion | $23.56 billion | $10.38 billion | $90.61 billion |
| ASSET TRANSFORMATION (3/4) | 0% | 10% | 10% | 40% | 0% |
| STATE LEVERAGE (1/6) | 0.00% | 23.98% | 19.52% | 8.79% | 0.21% |
| | Florida Combined State Leverage: 43.51% | | | | |

Note: Nominal amounts used for computation purposes; historical bond rating serve a market, lawmakers created the California Earthquake Authority (CEA) in 1996 as a residual insurer. To Fitch Ratings, the CEA is treated as a private insurer and uses that term (unlike the Louisiana and Florida catastrophe intermediaries, which are treated as "tax" like and by their public finance credit group). Moreover, the State of California does not consider the CEA as part of its financial accountability so the CEA's financial information is not included as part of the State of California's audited financial statements, again a practice that differs from its Florida and Louisiana counterparts. However, as an instrumentality of the State, the CEA has tax-exempt status under the federal income tax and can issue tax-exempt securities.

To protect its claims paying capacity, the CEA purchases reinsurance contracts (of an innovative manner[4]) but has entered into only one issue of municipal securities - $315 million taxable revenue bonds in 2006. An annual mandatory sinking fund payment of $31.5 million prevents the CEA from treating this as a bullet maturity with all coming due at one point, ten years later. Pledged policy holder premiums are used to pay the semiannual interest and annual sinking fund payments. Bond proceeds are invested for the payment of future claims. The CEA's 2006 bond offering statement is clear that the bonds are not a debt or liability of the State. CEA's "A" credit rating by Fitch Ratings is the same as the State's.

## EVALUATING THE CASES

Evaluating state-sponsored risk financing intermediaries by public financial management criteria provides a comparison of single-peril entities across several states facing potential natural catastrophes. Table 1 offers a summary of the indicators and results. A financial intermediary's brokerage function is achieved if it has accessed the capital market to match issuer and investor. By this measure, each state's set of financial intermediaries, having accessed the tax-exempt capital market, meets the brokerage criterion. With $10 billion in debt outstanding, Florida leads the studied institutions in performing the brokerage function.

In its asset transformation role, a financial intermediary acts as a pooling agent. Having the authority to impose emergency assessments on nearly all property insurance policy holders, even those outside a disaster area, is a risk sharing mechanism that enhances the ability to borrow money. Treating special assessments as a tax-like fiscal structure allows the generation of a "tax capacity" measure, which is the ratio of current to maximum assessments. Louisiana tops the studied financial intermediaries as having the highest asset transformation (at 40 percent). This result means the capacity to make future asset transformations is diminished, thereby limiting responses to future catastrophes, short of obtaining new assessment ("taxing") authority.

A financial intermediary must preserve its financial strength for sustainability. The financial intermediaries examined here enjoy a strong, investment grade rating that can translate into lower borrowing costs. Preserving that rating requires discipline in the issuance of new debt, or else risk a downgrade that can increase the cost of borrowing.

State governments that create financial intermediaries for natural catastrophe risk financing run the risk of having these entities overly leverage the state's capacity to borrow for other public purposes. By this measure, Florida runs the risk of having its efforts to deal with one peril endanger its ability to address other matters. Rationing this capacity may be in order. However, the renewed discussion of federal income tax reform, and the related loss of the tax exemption for interest on municipal bonds, offers another sobering prospect for state financial intermediaries building their assumptions on the ability to borrow in a tax-exempt capital market with its lower cost of capital.

## CONCLUSION

In these cases of catastrophe planning, government risk management has forced consideration of using the capital markets to deal with catastrophes. First, governments have regulated policy holders' premium payments and insurance surcharges to accumulate reserves immediately and helped, in some cases, by serving as the insurer of last resort and/or the initial reinsurance provider. Second, governments have created credit facilities with the power to levy emergency assessments similar to an excise tax on insurance policies to meet low frequency, high risk events. Common to the financing entities created by Florida and Louisiana to deal with hurricane risks and by California to deal with its earthquake exposure is the expectation that the capital markets will have the capacity to accept the spreading of the risk of post-event claims-paying ability. This paper has offered a set of criteria for evaluating state financial intermediaries based on finance theory. By the criteria applied here, these catastrophic risk financial intermediaries have been successful in their brokerage and asset transformation roles. Moreover, these financial intermediaries currently enjoy strong credit strength thus far.

Catastrophes, however, can overwhelm the states and their financial intermediaries. Capital market constraints of various forms, including the long-tail of the Great Recession, may add to the restrictions facing post-event recovery. One proposal advanced at one time or another by the three states profiled here (Sigo and Watts, 2009), and presidential candidate Obama (2008), is to have a form of a federal risk financing option. Under that scenario, federally guaranteed, taxable, post-event borrowing would be available. One example is the Terrorism Risk Insurance Act that was enacted in November 2002. Absent such alternatives, state governments have to resort to financial intermediaries that share risks. Financial intermediaries, by purpose and action, are leverage mechanisms, thereby imposing financial risks that can impede state actions to address other public purposes.

## Notes

1 Although there are statutory definitions for terms such as regular assessments, emergency assessment, and surcharge for each of the entities discussed in this paper, for our purposes the terms are used interchangeably unless otherwise noted.

2 Interestingly, Fitch Ratings states that an "emergency assessment is not a special tax" but Moody's Investors Service calls them "tax-like."

3 Case study source material citations are available from the senior author.

4 Instead of relying solely upon the traditional reinsurance (insurance for insurers) market, the CEA entered into the catastrophe bond market in 2011 with a $150 million transaction that ceded to capital market investors the liability for claim expenses covered by the contract.

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