

Empirical Analysis of Terrorism Insurance Premiums under Terrorism Risk Insurance Act of 2002

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Introduction

One of the major open issues is researching terrorism premiums collected to undertake a “more detailed analysis of the effectiveness and impact of TRIA [...]”

(The Wharton Risk Management and Decision Processes Center 2005).

Background: Terrorism Insurance

Before September 11, 2001:

- Included in the commercial insurance with no charge
- The first attack on the World Trade Center (WTC) of 1993 and the Oklahoma City bombing in 1995 didn't affect the commercial insurance policies and their premiums
- the WTC bombing of 1993: death of 6 people, insured damages of \$725 million

Background: Terrorism Insurance

After September 11, 2001:

- Total economic losses of almost \$80 billion; estimates of the total insured losses about \$32.5 to \$40.2 billion.
- Insurers didn't interpret the terrorist attacks at the "act of war" and paid the claims.
- Many insurers withdrew the terrorism insurance from their commercial coverage.

Background: TRIA

- TRIA took effect on November 26, 2002, enacted as a temporary solution to be effective till December 31, 2005, but it has been extended in January 2006 through 2007
- Insures against risk associated with the international terrorism, not with the domestic terrorism
- A terrorist attack needs to be declared by a “certified act” by the Secretary of Treasury
- All property and casualty insurers are required to offer terrorism insurance
- They may exclude losses from chemical, biological, radiological, and nuclear attacks

Empirical Analysis: Research Questions

<i>No.</i>	<i>Research Question</i>	<i>Research Hypothesis</i>
1.	RQ1: How commercial property insurance premiums are related to the terrorism insurance premiums?	The commercial property insurance and the terrorism insurance concern the commercial property but they provide coverage against different types of losses. Thus, the relationship between changes in their premiums does not necessarily need to be correlated.
2.	RQ2: What are, if any, the differences between the terrorism insurance premiums on the national level and in various regions?	Large differences in terrorist insurance premiums can be expected between large cities such as New York and Washington, DC and mostly rural areas regions.

Empirical Analysis: Research Questions

<i>No.</i>	<i>Research Question</i>	<i>Research Hypothesis</i>
3.	RQ3: What is the impact, if any, of the terrorism advisory threat level on terrorism insurance premiums?	It could be expected that the higher level of the terrorism advisory threat level causes the terrorism insurance premiums to increase.
4.	RQ4: What is the impact, if any, of the government involvement on the level of the terrorism insurance premiums?	It could be expected that as government cost sharing provisions decrease systematically over years, the insurance companies would tend to adjust their terrorism insurance policies adequately by increasing their premiums.

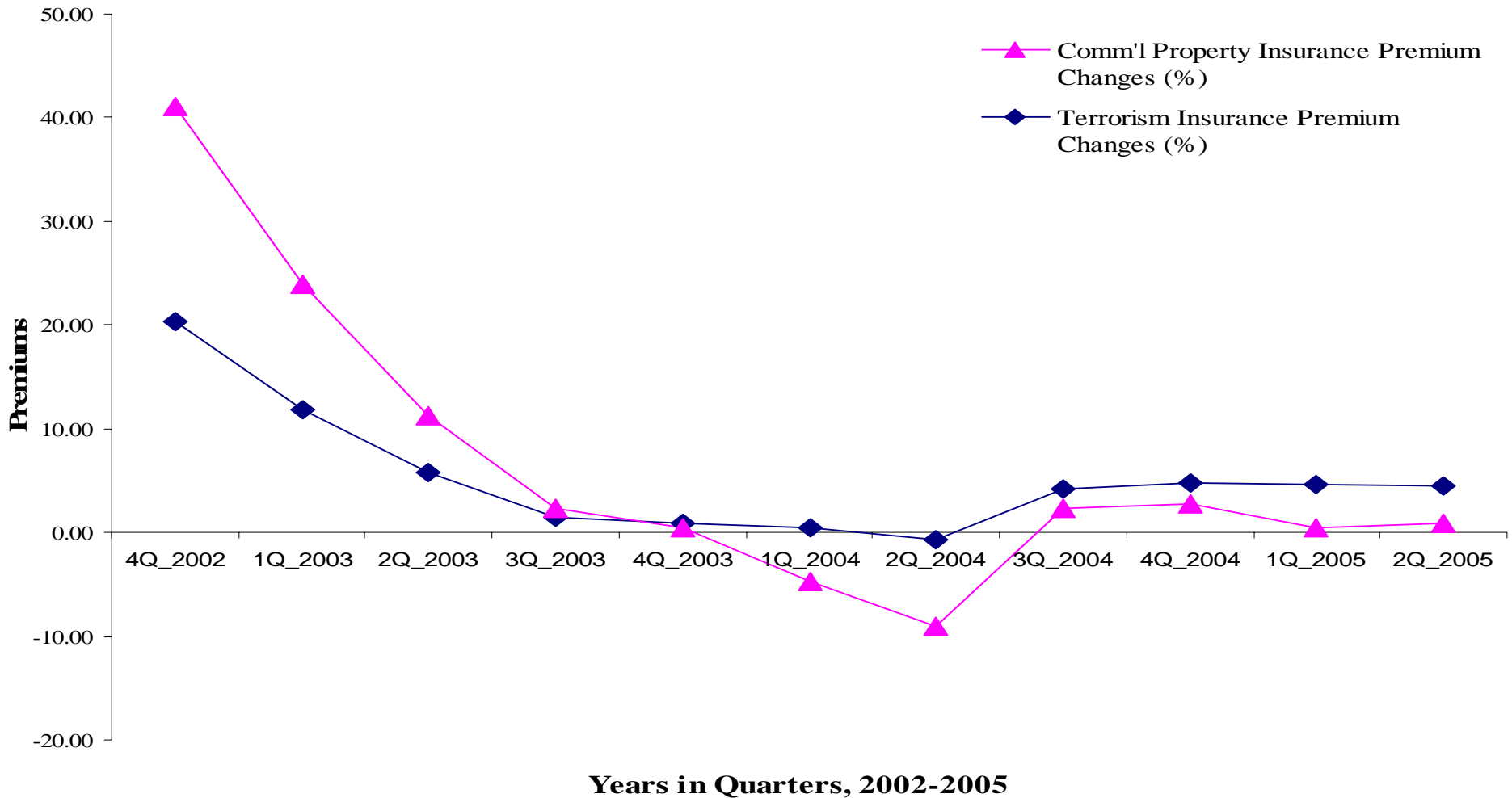
Empirical Analysis: Available Data

- The Council of Insurance Agents & Brokers' series of surveys on the premium changes in the percentage terms
- The commercial property insurance as a benchmark for the comparisons
- The sample size of respondents for each of the surveys varies from around 108 to 150.
- The available data cover the period from the fourth quarter of 2002 to the second quarter of 2005

Empirical Analysis: Results

Terrorism Insurance vs. Commercial Property Insurance Premiums (RQ1)

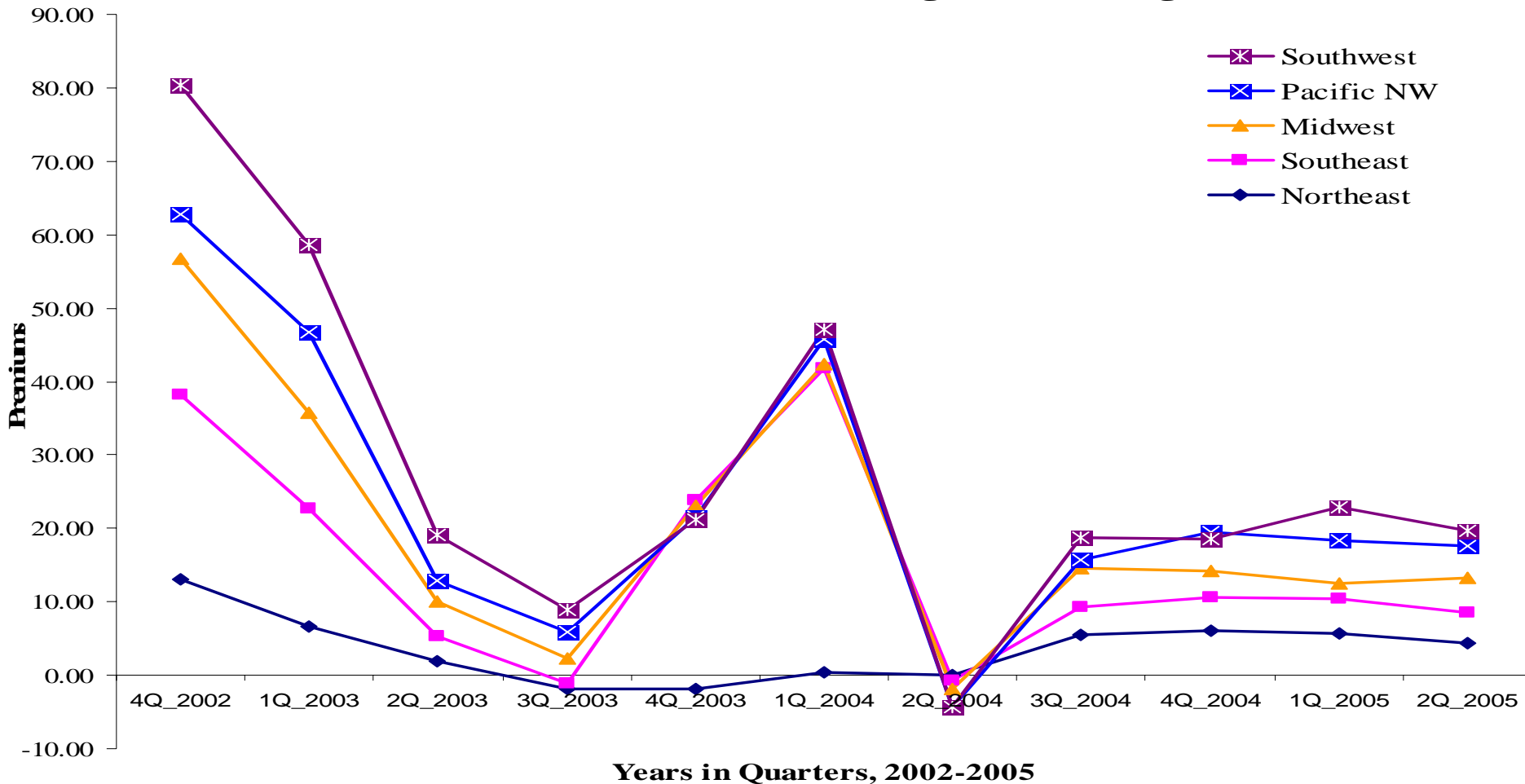
Terrorism vs. Property Insurance Premiums for All Regions



Empirical Analysis: Results

Regional Level of the Premiums (RQ2)

Terrorism Insurance Premiums vs. Regions (% Changes)



Empirical Analysis: Results

The Risk Sharing Arrangement under TRIA (RQ3)

<i>2002</i>	<i>2003</i>	<i>2004</i>
\$0-20 billion layer: Government pays 80%	\$0-10 billion layer: Government doesn't pay	\$0-20 billion layer: Government doesn't pay
\$20-100 billion layer: Government pays 90%	\$10-20 billion layer: Government pays 50%	\$20-40 billion layer: Government pays 50%
	\$20-100 billion layer: Government pays 90%	\$40-100 billion layer: Government pays 90%

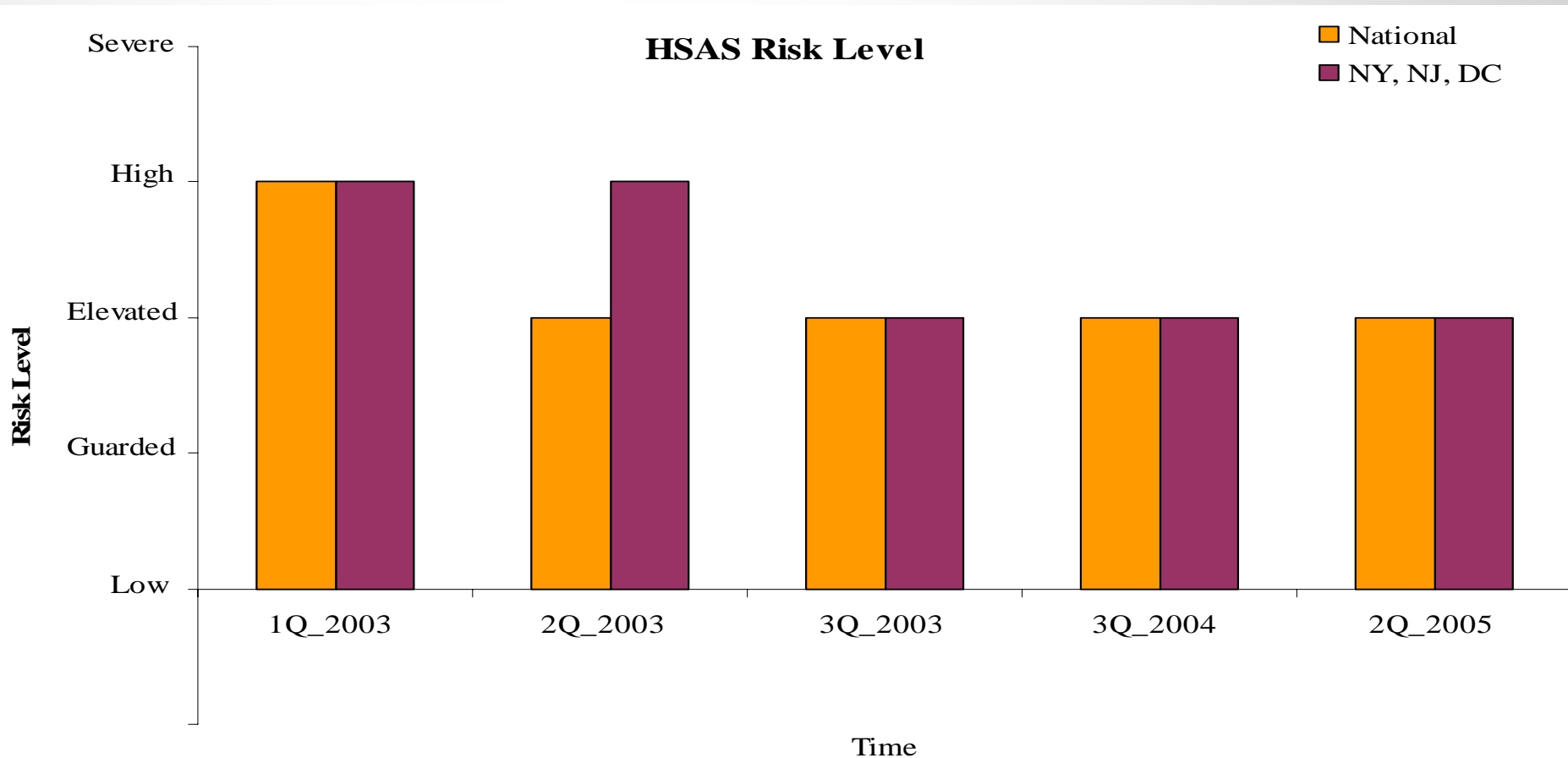
Source: Brown et al., 2002

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Empirical Analysis: Results

Impact of the Terrorism Threat (RQ4)

HSAS Risk Level as an Indicator of the Terrorism Risk



Empirical Analysis: Results

	<i>Alleged Active Terrorist Activity</i>	<i>Date</i>
1	Arrests connected with discovery of target lists in <i>Los Angeles</i> area	Aug-05
2	Alleged plot to assassinate George Bush	Feb-05
3	<i>New York</i> subway arrests	Aug-04
4	<i>Washington & New York</i> financial district alerts	Aug-04
5	Alleged surveillance of skyscrapers in <i>Charlotte, NC</i>	Jul-04
6	Alleged plot to blow up a shopping mall in, <i>Columbus, Ohio</i>	Jun-04
7	Dirty bomb attack alert	Dec-03
8	Aircraft threat alert	Dec-03
9	SAM missile sting	Aug-03
10	Albany Muslim Arrest	Aug-03
11	Security forces preparation for attack on <i>Brooklyn Bridge, New York</i>	Jun-03
12	Breakup of alleged <i>Portland</i> cell	Oct-02

Initial Conclusions

- The general trend in the commercial property premiums is similar to the trend for the terrorism insurance coverage
- Trends in the premium changes for the terrorism insurance are related to the perceived terrorist threat as indicated by the active terrorist activity within the U.S. and not by HSAS risk levels.
- Declining government contributions do not result in increases of the premiums over years
- The premiums stabilized toward the end of 2004 and stayed that way in 2005

Future Research

- Analysis of the **actual premiums** for the terrorism and property insurance lines
- Researching demand for terrorism insurance, with respect to chemical, biological, radiological, and nuclear terrorist attacks
- Looking at terrorism insurance abroad

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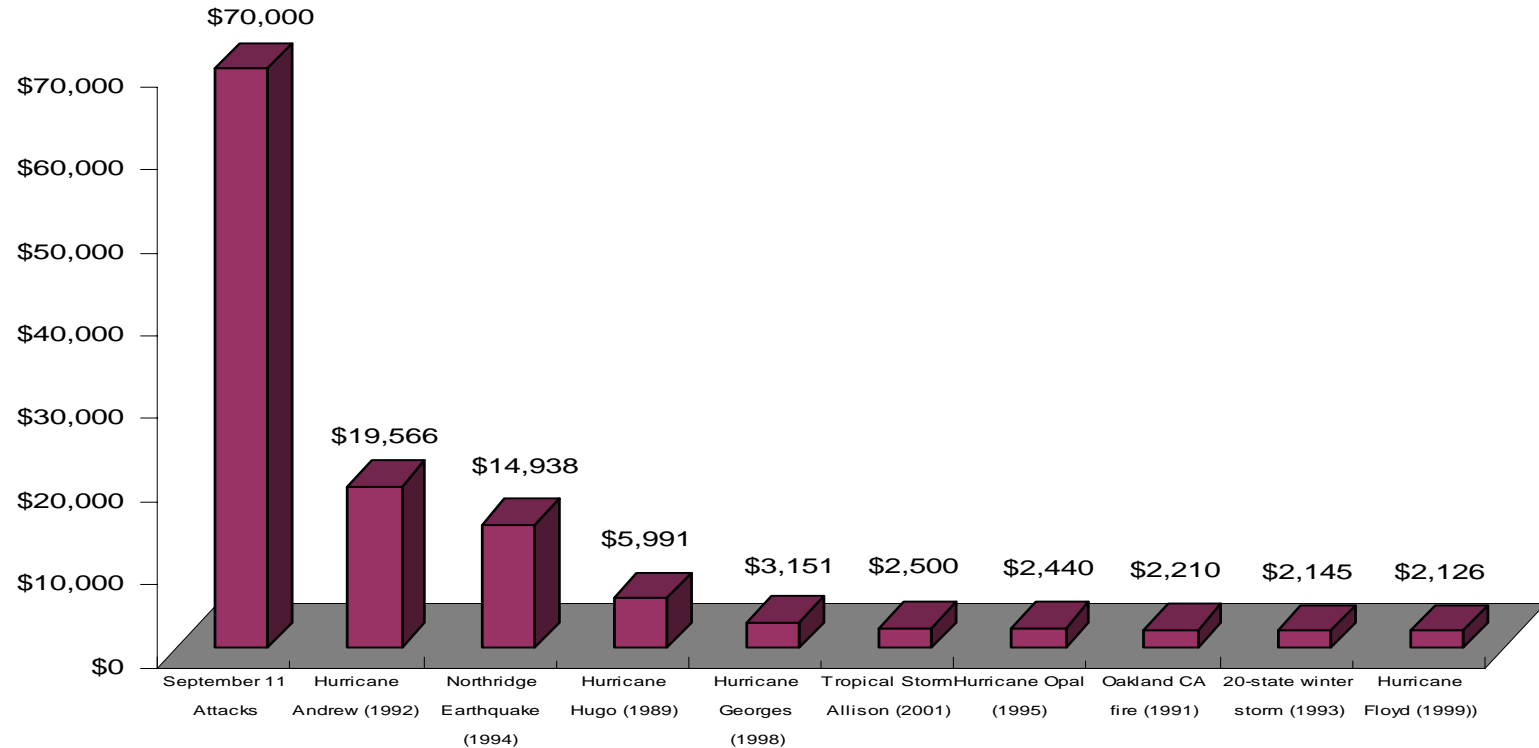
Backup Slides

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Background: Nature of Terrorism Risk

Insured Costs of U.S. Disasters in millions of 2001 dollars



U.S. Disasters

Source: (Hartwig, 2002)

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