# Catastrophic Interruptions of Normal Property Cycles: The Path to Recovery through Persistence, Collective Individual Spirits and Actions

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Invited paper for the Pacific Rim Real Estate Society PRRES Conference, January 19-22, 2014, Lincoln, Christchurch, New Zealand

## Abstract

Historically there have been many types of catastrophic occurrences and events that have disrupted otherwise normal property markets. While real estate has been classified in the contemporary literature as “safe-long-term” investments, the fact is that improved property, cities and societies are temporal and depreciating assets that can lose utility suddenly as well as over long periods of time. This paper considers the historic and contemporary types of risks to property utility and equity losses due to typhoons, tsunami events, changes in global environments, government, and changes in currency, nuclear events, and other technological risks. The built environment of urban centers and economies take decades or hundreds of years to build. After catastrophic events, the need for recovery and rebuilding, and gaining the sources of capital to do so, can be daunting. Often the opportunity to replace and rebuild a more functional city can offset the tragic loss of the historic urban form. In other historical cases cities were abandoned.

# Introduction

Real Estate and its positive benefits to economic life are generally considered “safe, long-term investments,” offset by various types of negative risks and depreciations. Property generally has utility or functionality in terms of “value in use” or cash flow, and benefits that hedge investors against many types of risks such as inflation, currency devaluation, etc…. The supply and demand functions of property as an investment are generally beyond the current owners’ control once an individual investment has been purchased. The collection and accumulation of structures over long periods of time in one general area results in urban forms and economies, creating functioning cities. The exceptions to traditional cities are the new Mega Cities and Industrial Cities currently being created in China by both the central government and international joint ventures.

The Pacific Rim region of the world is perhaps the most exciting and dynamic property market and economically growing region on planet Earth. The exceptional growth of Asia and Australia/New Zealand as economic powerhouses have allowed them to join the more historic long-term powerhouses and property markets of the West Coast of the United States (i.e. California, Washington state), Europe, and Japan. The collective economies of the countries that adjoin the Pacific Ocean have the greatest current and future potential for industry and property investments for the foreseeable future.

# Types of Catastrophic Occurrences

It has long been said that good things take a long time to occur, and bad things happen in a hurry. Such is the long-term building of cities and communities that are suddenly

impacted by catastrophic occurrences. In recent years there have surfaced various types of potential risks, natural and otherwise, that are very real threats. This is evidenced by the following events that have and/or will plague the otherwise positive property markets of the Pacific Rim for years, decades, or even perpetually. No amount of superior planning or strict engineering and building codes will eliminate the following risks:

**Earthquakes:** On March 22, 2011, the direct devastation of the Christchurch, New Zealand caused billions of dollars' worth of damage to properties and indirect costs to the economy of the entire country. It has been reported that since 2011 there have been 10,000 earthquakes or tremors, (McDonagh 2013) and that seventy percent (70%) of the classic and historic central business district (CBD) has been lost.

**Typhoons/Land Storms:** On November 8, 2013, Typhoon Haiyan hit the Philippines, killing more than 6,000 people and destroying or seriously damaging the homes of more than 16 million people (*Dallas Morning News* 2014).

**Tsunami Events and Floods:** In March 2011, Japan and other Pacific islands had tragic losses of lives, property, and industry due to giant, catastrophic waves that wash inwardly for miles, destroying *everything* in their path. The direct and indirect effects of these storms impacted the immediate area, as well as the distribution supply lines for the industrial and consumer worlds, from cars (i.e. Toyota parts) to commercial fish markets.

**Nuclear Power Accidents and Pollution:** The Japanese Tsunami event in March 2011 also impacted the habitability of the land near the Fukushima plant, and perhaps the entire Pacific Ocean and every commercial fishery and seafood market in the world. There is strong

evidence that many tuna caught in California are approaching exceeding radioactive health limits for human consumption (Chang 2013). The size and scope of the negative impacts to places such as Valdez, Alaska and the Pacific Rim coastal communities after only one year of fish exposure due to the still uncontrolled and continuing nuclear contamination of the Pacific cannot be overstated. All commercial fish species are likely to be affected and will devastate Pacific Rim coastal communities as well as affect the eating habits of the entire population. Other examples of pollution that have had serious short to medium-term economic impacts to property equities and use include, but are not limited to, Exxon Valdez Oil Spill (Alaska) and the BP Oil Spill (U.S. Gulf Coast).

**Human Migration:** Migration and immigration of people from one area of the Pacific (i.e. China, Vietnam, Thailand, etc…) to other areas of the Pacific Rim (i.e. Australia, The United States, South America, etc…), both legally and illegally, has had both positive and negative effects on property and commerce for the countries from where the migrants exit as well as the "receiving" country. There are basically two types of migrants seeking "better" or safer residences: Those who are both rich and educated, whose leaving causes a capital loss and/or brain drain to the country of origin and correspondingly benefits the receiving country; and those who are both poor and uneducated providing new potential challenges to both the built environment and society in general.

**Human and Agricultural Diseases or Plagues:**
Biological effects of diseases can and will have implications for supply, demand, and utility of all classes of property. The recent Poultry and Pig Flu disasters in Asia devastated farm economies and transfer to the human population of mutant strains were proven possibilities. From historic rabbit problems in New Zealand to destructive fruit flies transported

in commercial passenger-jet cabins, there are insects and diseases that could obliterate farm and orchard economies.

**Technology Risks and Rewards:** Technology risks and rewards can both bless and devastate local economies. Examples are long-term power outages, internet disruptions, "attacks" on commerce and banking, as well as robotic machines that can replace human labor, cutting out a vast number of jobs and "devaluing" human capital.

**Terrorism, Wars, and Civil Wars:** Terrorist attacks and wars are generally followed by rebuilding and/or replacing property with newer, "better", updated, and more functional buildings. It can take decades, however, to fully recover from the loss of human life and property.

**Currency and Financial Crisis:** Disasters in this area may not have direct impacts on the physical property or structures, but it *can* wipe out the investment equities of the owners, the value of the bonds or mortgages held by the financial institutions, and/or the capital structure of the region or country.

**Fires, Firestorms, and Other Miscellaneous Risks:** Some miscellaneous risks that are possible include volcanoes and rising sea levels, requiring moving or elevating structures and/or entire towns, etc…A new threat to coastal cities are giant ships carrying liquefied natural gas and fully refined petroleum products. If for any reason on of these vessels were to explode in an urban harbor, an entire city could be destroyed.

# Historic Perspectives of Catastrophic Events that Disrupted Normal Property Markets and Economies

There is generally nothing new from long-term historic perspectives, except locations... disasters happen. Recent catastrophic events tend to overshadow previous examples of major events throughout history, as most people believe those societies simply successfully recovered and continue today. Not all markets or societies, however, rebuild or recover. In fact, there are several examples of ancient populations of advanced societies and economies that simply disappeared with their abandoned physical buildings and improvements completely intact. See Exhibit 1.

**EXHIBIT 1:** Historic Overview and Examples of Catastrophic Occurrences that Disrupted Normal Property Cycles and Economies (7000 BC- 2014 AD)

| Event | Year | Nature of Occurrence | Recovery | Years to Recover | Sources of Funds |
|---|---|---|---|---|---|
| Chapahullo, Turkey* | 7000 BC | Volcano | Abandoned | N/A | N/A |
| Jerusalem, Israel/Palestine Region (Many Historic Names, Losses, and Recoveries) | 700 BC<br>168 BC<br>63 BC<br>20 BC<br>691 AD | Wars, Religious Wars and Conquests | Complete, Recurring | Various | "Governments" and Kings |
| Pompeii, Italy | 79 AD | Volcano | Complete | Centuries | Governments and Private Investors |
| Black Plague, Europe | 1348-1350 AD | Disease- millions of deaths | No Property Loss | N/A | N/A |
| Mesa Verde, Colorado, USA | 1400's AD | Drought, Disease (?) | Abandoned | N/A | N/A |
| Aztec, Mexico | 1520 AD | Unknown, Disease (?) | Abandoned | N/A | N/A |
| Chicago, Illinois, USA | October 1871 | Fires | Complete, Positive Replacement | 22 years | Government |
| San Francisco, California, USA | 1906 | Fires/Earthquakes | Complete, Positive Replacement | 9 years | Government and Private |
| German Cities | 1941-1945 | War, Fire Storms | Complete, Positive Replacement | 20 years | Foreign Aid and Private |
| London/UK Cities | 1941-1945 | War, Bombings | Complete, Positive Replacement | 15 years | Government, Private Insurances |
| Nagasaki/Hiroshima, Japan | 1945 | Nuclear Bombs, Firestorms | Complete | 15 years | International Cooperation and Funding |
| Chernobyl, Russia | 1986 | Nuclear Accident | Abandoned | N/A | N/A |
| New York City, New York, USA (Baen 2005) | 2001 | Terrorist Attack | Pending | 12+ years | Insurance, City Bonds and Incentives, Private Investors |
| New Orleans, Louisiana, USA (Baen 2007) | 2003 | Katrina Storm, Flooding | Rebuilding | 10+ years/Uncertain | Private, Government Flood Insurance, Government Grants |
| Christchurch, New Zealand | March 22,2011 12:51 PM | Earthquake, plus 10,000 more quakes since. 185 deaths (McDonagh) | Slow Recovery | Unknown | Private Insurance, Government and Failed Insurance Companies |
| Fukushima, Japan | March 2011 | Tsunami, Earthquakes, Nuclear Disaster | Abandoned, No-man's Land, Radioactivity | Unknown | Government (?), Power Company (?), Insurance (?) |
| Philippines | November 8, 2013 | Typhoon Haiyan, 6000 deaths/16 million homeless | None | Unknown | Unknown |
| Sumatra, Indonesia | January 9, 2014 | 20,000 Homeless | Ongoing | Unknown | Unknown |

*9000 year old rock mural shows map of city and 2 volcanoes exploding

It should be noted that some “cities” are actually abandoned or were not rebuilt at the same location for a variety of reasons. The fact of the matter is that some places are simply not safe or suitable to build or rebuild due to know natural risk factors.

Examples are:

- Known Volcanic Risk Areas
- Known Earthquake Fault Zones
- Many coastal areas due to:
  - Tsunami risks
  - Typhoon/Hurricane risks
  - Earthquake risks
  - Flooding risks
  - Rising sea levels due to Global Warming
- Known Environmental risks and trends such as:
  - Contamination
  - Drought
  - Climate change or extremes
  - Soil/water-borne diseases (i.e. anthrax, etc…)

## Catastrophic Urban Events and Threats to Cities Are Not Exclusive to the Physical Property and Loss of Human Life

Adam Smith once presented that Land, Human Capital and Financial Capital are the foundations of wealth building and progress. Damage to the built environment and loss of human life or mass migration are the primary reasons many cities have historically failed.

Contemporary “new” threats include but are not limited to:

1) Power Outages
2) Disruptions or attacks on the internet or e-commerce
3) Failure of major currencies and lack of capital
4) New technologies that eliminate or replace employment of the masses:
    - Robotics
    - Computer effluences
    - Etc, etc…

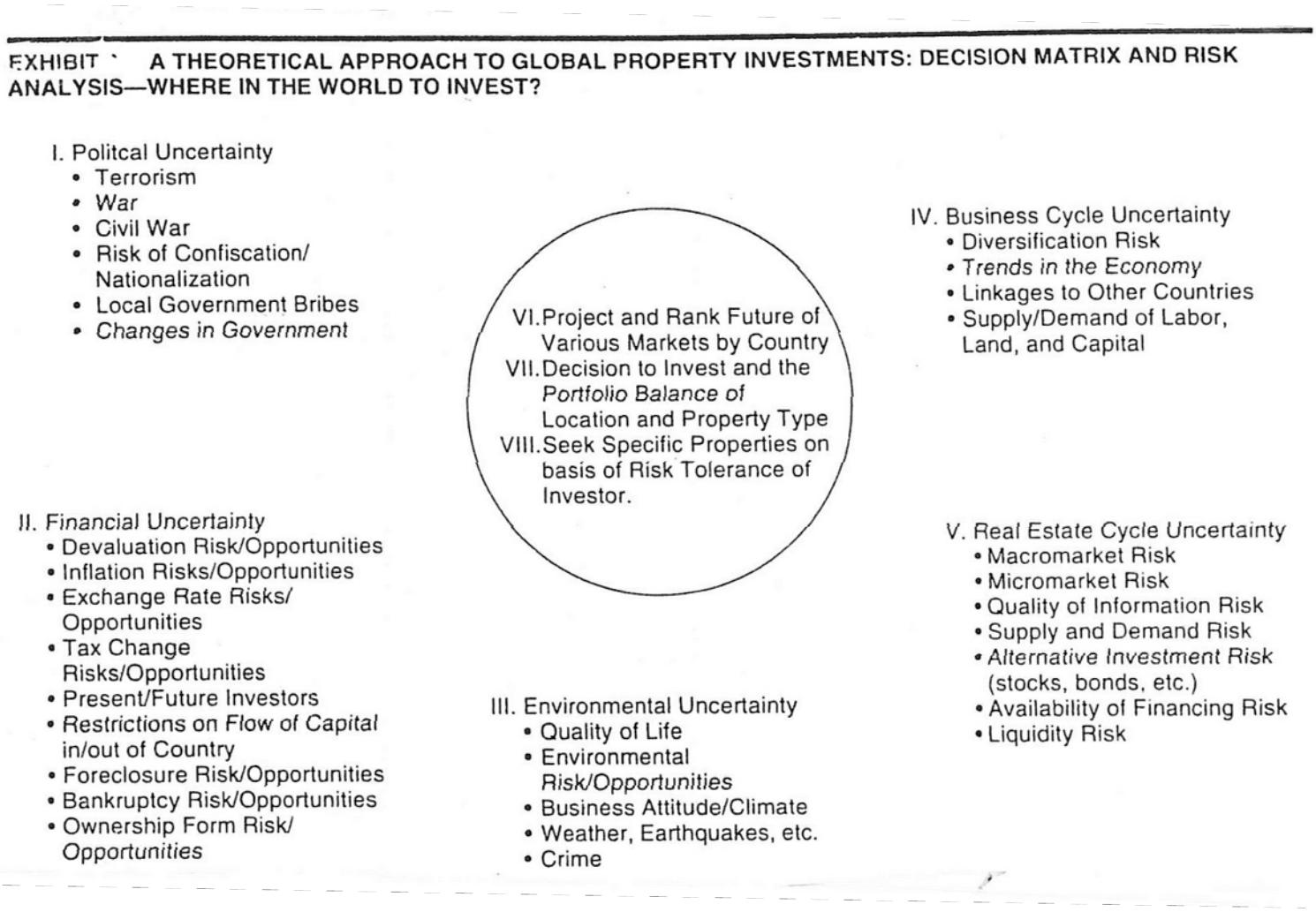
## After a Catastrophic Occurrence-Risks: Build, Rebuild, or Invest Elsewhere?

Investment capital in the world today is fluid. It is best to seek opportunities with the highest yield and safety, and the lowest risks based on a number of factors beyond the location of where a disaster occurred. In fact, historically the original reason a city was built and existed at all may have been due to a sound collective decision, but sadly there is no contemporary or valid reason to rebuild today. Cities usually are built for economic reasons around:

- Ports
- Railroad centers
- Resources or agriculture

- National or regional banking or government center
- Major Employment Industry

**EXHIBIT 2**: A Theoretical Approach to Global Property Investments: Decision Matrix and Risk Analysis- Where in the World to Invest?



There are many valuation and investment factors to consider after a catastrophe and prior to rebuilding.

1) After a major occurrence, the “highest and best use” of individual/remaining buildings may be in question due to the loss of surrounding supportive uses and synergistic activities.
2) Depending on the location and extent of damage to a major city, there may be a question as to the viability of the city in the future. The previously functioning “highest and best use” and economic justification of the original “city” may be questionable after major damage.
3) The economic “market value” before the event may be much lower than the “replacement cost” after an event. Cost does not necessarily reflect value!
4) Individual owners may opt to take insurance proceeds rather than repair a building back to full utility.
5) The availability of a city to attract private or government short and long-term capital to rebuild is often questionable. This may be due to:
    - Stigma
    - Real concern about recurrences
    - Alternative investments or investment areas having real or perceived lower risk and higher rates of return
    - Broken spirit of local businesses and citizens
    - People migrating out of the area to stable employments opportunities
    - Major losses of failed businesses
    - Inability to attract new tenants to replace failed businesses

- International discrimination and changes in tourist destination patterns

The local populations' longing and desire for the rebuilding of the "built environment" that they had before is often due to nostalgic emotions, and shows their pride in their community, recalling urban life in their mind as it was before the catastrophic occurrence. Individual owners who are compensated by insurance companies or government seek to maximize their individual rate of return and quite often choose *not* to rebuild or reinvest in that market or property type. They simply move to another property market or different type of investment all together, such as financial investments instead.

Whether pursuing property or financial investments elsewhere, there are always risks beyond the physical environment that change over time by country. An example of country rankings using the BERI Country Risk Index Ranking is found in Exhibit 3.

# **EXHIBIT 3**: BERI Country Risk Index Ranking

**EXHIBIT** BUSINESS ENVIRONMENT RISK INFORMATION—BERI COUNTRY RANKINGS 1993

| Low Risk | Category* |
|---|---|
| Switzerland | 82 |
| Taiwan (R.O.C.) | 80 |
| Japan. | 78 |
| Singapore | 78 |
| Germany | 74 |
| The Netherlands | 74 |
| Austria | 73 |
| United States | 71 |
| Norway | 70 |
| **Medium Risk** | |
| Belgium | 67 |
| France | 62 |
| Ireland | 62 |
| Spain | 62 |
| Sweden | 62 |
| Portugal | 61 |
| United Kingdom | 61 |
| Korea (South) | 59 |
| China (P.R.C.) | 58 |
| Denmark | 58 |
| Malaysia | 58 |
| Australia | 57 |
| Saudi Arabia | 55 |
| Canada | 54 |
| Czech Republic | 54 |
| Chile | 52 |
| Thailand | 52 |
| Hungary | 51 |
| Turkey | 51 |

| High Risk | Category* |
|---|---|
| Italy | 48 |
| Colombia | 46 |
| Mexico | 46 |
| South Africa | 46 |
| Indonesia | 43 |
| Iran | 43 |
| Kazakhstan | 43 |
| Venezuela | 43 |
| Belarus | 42 |
| Poland | 42 |
| Philippines | 41 |
| Argentina | 40 |
| **Prohibitive Risk** | |
| Egypt | 39 |
| India | 39 |
| Pakistan | 39 |
| Ukraine | 39 |
| Greece | 38 |
| Ecuador | 35 |
| Russia | 35 |
| Brazil | 34 |
| Nigeria | 32 |
| Peru | 29 |

*BERI Categories:

| | |
|---|---|
| 100 | Perfect country |
| 99–70 | Unusually stable and superior business environment for the foreign investor. |
| 69–60 | Typical for an industrialized economy. Any tendency toward nationalism is offset in varying degrees by the country's efficiency, market opportunities, financial entities, etc. |
| 59–50 | Moderate-risk countries with complications in day-to-day operations. Usually the political structure is sufficiently stable to permit business without serious disruption. |
| 49–40 | High risk for foreign-owned businesses. Only special situations should be considered (e.g., scarce raw materials). |
| Below 39 | Unacceptable business conditions. |

SOURCE: Business Environment Risk Information, BERI S.A., Washington, D.C. (1993) and Shapiro (1994).

# A View Toward the Future and Recommendations

Academics and economists should always be aware and monitor where any country, region or local market "is" or "was," as well as "theoretical real estate market cycles." See Exhibits 4, 5, and 6 for examples.

**EXHIBIT 4**: International Real Estate Cycles- Synchronicity of Various Real Estate Markets and Questionnaires (Baen 1996)

**Type 1: Mature Markets (European Classic Cities)**

- Old cities (centuries old)
- No available land
- Little to no urban sprawl, urban renewal, suburban growth
- Difficult, highly regulated/enforced zoning
- World-class architecture deserving of preservation
- Ownership by institutions and very long–term investors.
- Very long cycles (50–75 years)
- Very low market volatility (little new constructior
- Very infrequent sales
- Low rate of return
- Low Risk

**Type 2: Middle-Aged Markets (American Older Cities)**

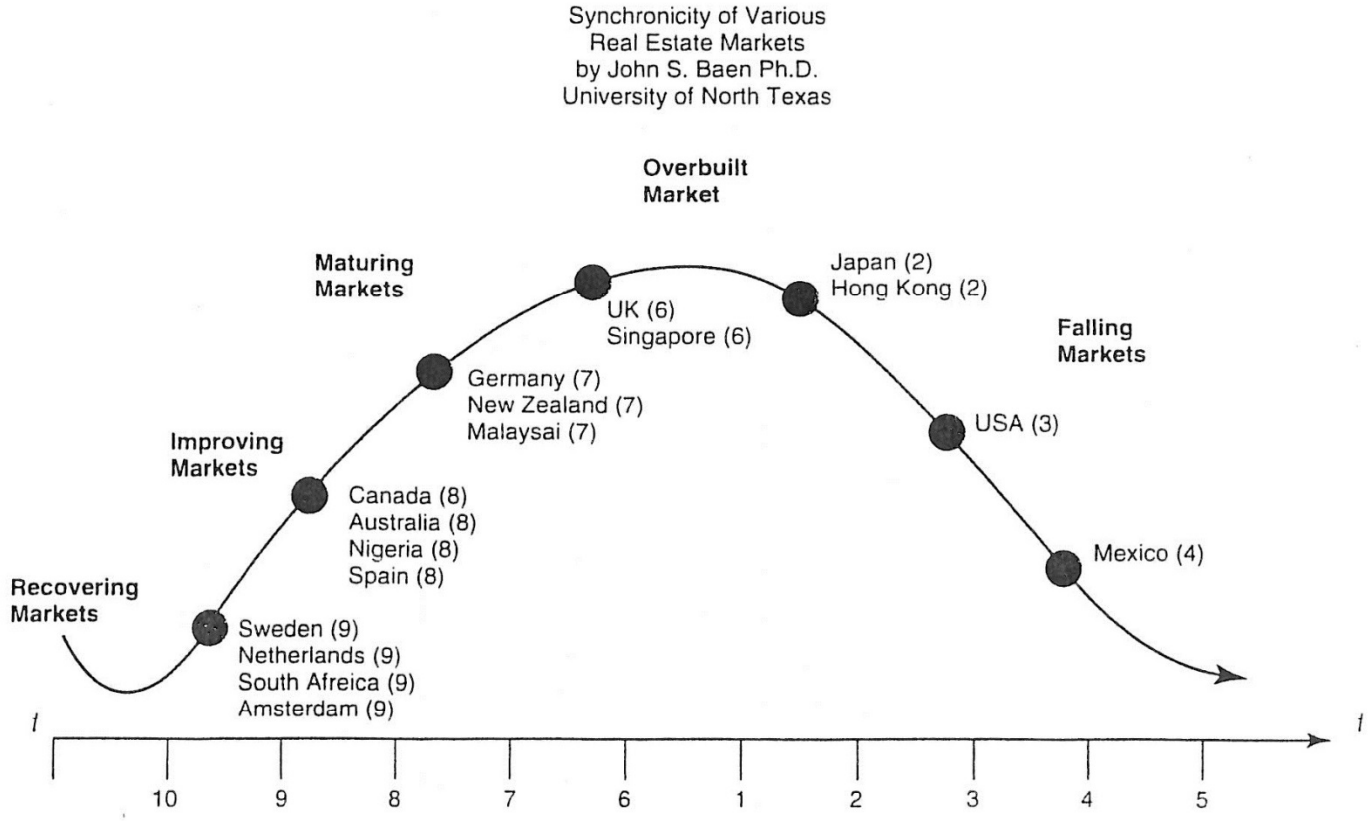
- Middle-aged cities (100 years old or less)
- Limited available land through urban renewal or slum removal
- Limited suburban growth
- Supportive zoning to encourage new building and increase tax base
- Few buildings worthy of preservation
- Mixed ownership by institutions, long- and medium-term investors that can be termed "traders"
- Medium-length cycles
- Medium market volatility
- Occasional property sales
- Medium rate of return
- Medium financial risk

**Type 3: Younger, Growing Markets and Developing Countries**

- Boom/bust cities
- Rapidly developing economies
- Available land in the inner cities and suburbs
- Wide-open zoning
- Contemporary buildings
- Short-term and speculative building owners and financial institutions through foreclosures
- Short-length cycles (7–15 years)
- High market volatility
- Frequent property sales and foreclosures
- High rates of return (projected)
- High financial risk

**Exhibit 5:** Results of International Research and Collection of Data from Academics on Where on the Theoretical "Real Estate Cycle" They Perceived Their Home Country Was

12. Where would you characterize your market as being on the following *generalized* Property Market Cycle? (Please circle a number that corresponds to your estimation and put an "X" on the cycle at some point.)




NOTE: Assumes each country is somewhere on the same conceptual property cycle. Real estate cycles at each location may vary in amplitude and velocity (time) as each market is unique.

13. Please estimate the number of years for a *complete* generalized property cycle for your country

10 yrs 20 yrs 30 yrs 40 yrs 50 yrs 60 yrs 70 yrs 80 yrs 90 yrs 100 yrs

Roulac and Kaempf-Dern (2013) have presented data and published papers from 2003-2012 on the topic "real Estate Investment Research Dominates Global Real Estate Research," which is forthcoming in the *Journal of Real Estate Education and Practice*. There is a need for knowing where a market *was* in relation to any catastrophic occurrence before deciding to rebuild a city. There are many investment questions and urban planning issues that need to be considered prior to any decision to rebuild. From a positive standpoint, a clean slate to recast a city in a new direction and form should be viewed as an opportunity, although a tough and multiyear project.

1) There is a need for more research standardization and reporting on all property markets in order to make wise investments in the future.
2) There is currently no common and consistent data or form to collect contemporary market information. Academics and the International Real Estate Society could participate as an unbiased reading force in property markets for viewpoints on recovery prospects to any market. How did the destroyed city compare to other cities in the world market? What successful city would they aspire to be *more like* while trying to retain some flavor of their original form and function?
3) Wherever catastrophic events occur, there is a need for unbiased consulting and viewpoints beyond the borders of any country where tragedy occurs and property markets are disrupted or destroyed.
4) Governments, companies, the United Nations, and others need advisement on whether to rebuild, what to rebuild, and/or whether to abandon various areas completely.
5) The question of sources of funding and how to attract private and public capital, as well as tenants/users for rebuilding in an already risky and

possibly stigmatized market area is perhaps the largest hurdle for a recovering city.

A “Normal” ongoing base-line data base would be important to establish and maintain on property markets internationally in order to know where you are on the general or specific property cycle.

Without general base-line knowledge of where you were, it would be folly to contemplate rebuilding after a catastrophic event. More to the point would be, were the collective property types that existed prior to an event (i.e. major earthquake) economic and justified? Will users, tenants and capital migrate to other markets that have less risk and greater momentum in other international markets? How will those markets compete or affect any plan to rebuild a city struck by destruction?

It is strongly suggested that unbiased (noncommercial) data be collected on a regular basis by the International Real Estate Society and their collective regional member organizations (ARES, PRRES, AFRES, etc…) to supply information to assist countries and cities when catastrophic events occur. A general and basic framework or starting place for discussions is presented in this paper in Exhibit 6.

# **Exhibit 6:** International Real Estate Cycles- World Property Market Research

**EXHIBIT : INTERNATIONAL REAL ESTATE CYCLES—WORLD PROPERTY MARKET RESEARCH**

Please answer the following questionnaire about your country's *generalized* real estate market.

1. Your name and address_____

   Phone _____ Fax_____

   Your profession or association with property markets: _____owner _____academic_____lender _____tenant _____other

2. Country_____

3. Date_____

4. What is your country's form of currency? _____

   What is the current exchange rate in German Marks? _____

5. How would you describe the following in your country's *generalized* real estate market?

| (Circle One) | (1 = Decreasing; 5 = Stabilizing; 10 = Increasing) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Office property values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Office vacancy rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Office rental rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Office construction trends | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Office property sales | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail/commercial property values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail/commercial vacancy rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail/commercial rental rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail/commercial construction trends | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail/commercial property sales | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Bankruptcies/foreclosures | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial property values | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial vacancy rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial rental rates | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial construction trends | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial property sales | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

6. How would you describe the future prospects of the following types of property in your market for the next five years? (10 = Significant Appreciation; 8 = Modest Appreciation; 5 = Stable; 3 = Modest Declining Value; 1 = Significant Declining Value)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Farm land | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Residential | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Multi-family | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Industrial | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Office | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Retail | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

7. I would currently rate the various risk factors for property investments in this country as: (Please circle one for each question. 1 = High; 5 = Medium; 10 = Low)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Political uncertainty | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Inflation risks/hedge | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Tax change risks | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Business cycle uncertainty | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Lack of market information risk | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Potential for overbuilding risk | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Lack of available financing risk | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Property liquidity risk | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Foreign investor restrictions | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

**CONTINUE EXHIBIT 9 INTERNATIONAL REAL ESTATE CYCLES—WORLD PROPERTY MARKET RESEARCH**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Exchange rate risk for your country's currency | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| Environmental risks (regulations, crime, weather) | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

8. Would you consider participating in future research requests in regards to a World Property Index proposal?
_____YES _____NO

9. Do you feel that the broader world view is significant to property investments you own or purchase in your market?
_____YES _____NO

10. Without "hard" data, how comfortable are you that your assessment of your country's overall commercial real estate market is valid?
(10 = Confident; 5 = Comfortable; 1 = Very Unsure) 10 9 8 7 6 5 4 3 2 1

11. What are the most commonly used investment measures used by property professionals in your country? (Please list in order of primary importance—i.e., CAP rate [NOI ÷ value], return on equity, internal rate of return, discounted cash flow, financial manager's rate of return.)

_____

_____

_____

_____

_____

12. Where would you characterize your market as being on the following *generalized* Property Market Cycle? (Please circle a number that corresponds to your estimation and put an "X" on the cycle at some point.)

Synchronicity of Various
Real Estate Markets
by John S. Baen Ph.D.
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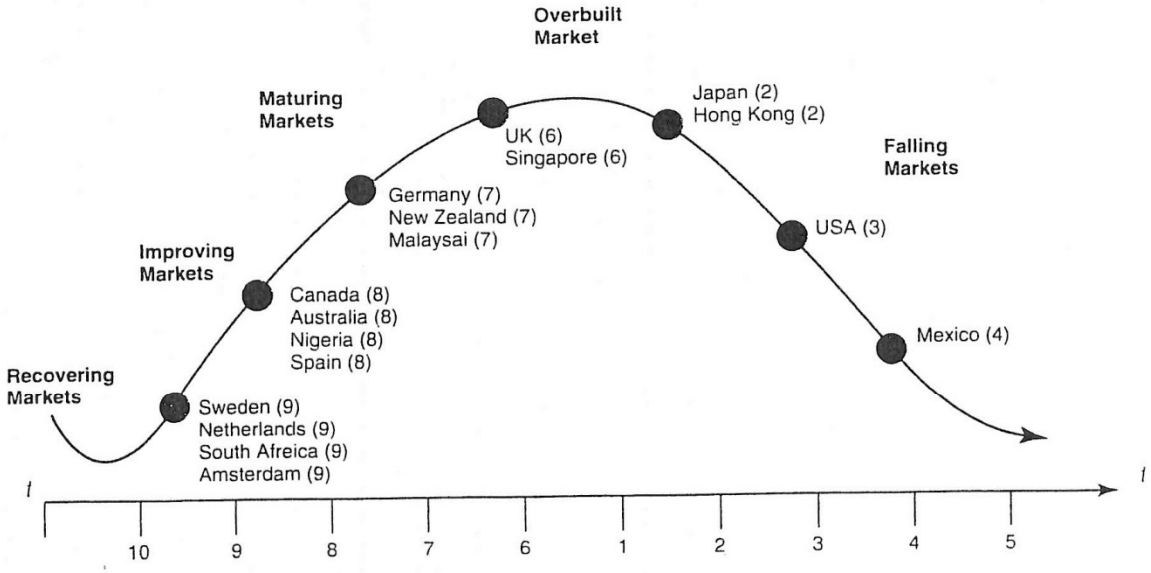


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13. Please estimate the number of years for a *complete* generalized property cycle for your country

10 yrs 20 yrs 30 yrs 40 yrs 50 yrs 60 yrs 70 yrs 80 yrs 90 yrs 100 yrs

# Conclusion

Catastrophic occurrences disrupt and destroy normal property cycles. The decision to rebuild should be based not only on the local peoples' desire to restore their community, but also on the sound investment analysis, supply/demand, mass market analysis, and human and financial resources required. The possibility of repeated or continuing risk factors cloud the decision making prospects even for the most positive and forward-thinking investors. History, however, has shown many times that even after the total loss of many cities, over time, with proper planning and investments, a better, more modern and functional city and economy often rises in its place. China is building thirty nine new Mega Cities from scratch on farmland for their "new economy" at locations where they have determined their people will live in the future. Cities built from "scratch" have worked in places like the new capital city of Brazil. After a catastrophic loss of a city, bold decisions on location and property uses need to be made. The world's population is exploding, people and capital are migrating like never before, and the demand is increasing for safely built, quality environments.

## Sources/References


Baen, J.S. “Synchronicity and Indexing Theory of International Real Estate Cycles: A Proposal for a World Property Index.” *The Real Estate Finance Journal*, Spring 1996. Pp 69-79.

---. “Urban Functionality and Extreme Natural Disasters: The New Orleans-Katrina Case for New Federal Policies and Programs for High Risk Areas,” *American Real Estate Society Journal of Real Estate Literature*. Volume 15 Number 2, 2007.

Baen, J.S. (Editor). 1990 Australian Real Estate Educators Conference Proceedings- Christchurch, New Zealand at Lincoln University (40 published papers from 80 countries)

Baen, J.S. and Dermisi, Sofia V., “Urban Functionality and Corporate Location Decisions After September 11, 2001-Benefiting from the New York Experience,” *Journal of Homeland Security and Emergency Management*, Volume 2, Issue 2, 2005.

Chang, Alicia. “Radioactive Bluefin Tuna: Japan Nuclear Contaminated Fish Found Off California Coast.” *Huffington Post*. November 14, 2013.

*Dallas Morning News*. December 29, 2013. Pp. 16A

Johnson, R., Thorp, G., et. al. “A Clash Over Sacred Ground.” *The Washington Post*. December 15, 2013. Pp. 27A

Johnson, I. “Picking Death Over Eviction in China.” *New York Times*. September 9, 2013. Pp. 1

McDonagh, John. Email from Lincoln University

Oil and Gas Investors. *Map of Pacific Rim Drilling.* October 2013.

Roulac, S and Kaemph-Dern. “Real Estate Investments Research Dominates Global Real Estate Research.” *The Journal of Real Estate Education and Practice*. 2014.
Stephen@roulacglobal.com