

The Actuarial Profession
making financial sense of the future

RISK AND INVESTMENT CONFERENCE 2011
Ian Cotgias



Alternative Assets Working Party

21 June 2011

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Alternative Assets Working Party Membership / Participants

The Working Party

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Our Working Brief

Objective

- To analyse the performance of alternative assets during the recent financial crisis
- To look at practical ways to access the returns from alternative assets

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Specification challenges

Challenges

- What should we look at to answer the question?
- What are “alternative” assets?
 - “Alternative” to what?
 - And for whom are they alternative?
- What data can we use?
- What metrics should we use?

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The performance question ...

So ... what question did we *try* to answer?

- We decided to start with major alternative asset indices.
- We picked “traditional” indices as comparators:
 - FTSE All-Share TR (UK Equity);
 - MSCI World TR (Global Equity);
 - FT UK Govt TR (Gilts);
 - iBoxx TR index (Corporates).
- Comparing the indices:
 - how have they performed over the last twenty years?
 - use traditional metrics.
- Provide the profession with analysis to enable informed discussion and debate.

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Defining the parameters of the investigation

What are “alternative” assets

- We considered the definition to mean for Institutions
- Need assets with sufficient market capitalisation
- Is it only alternative assets or also alternative strategies?

– Hedge funds / Private equity	– Forestry and Farming
– Insurance-linked Securities	– Real Estate
– Commodities	– Specialist lending / bonds
– Infrastructure *	– Venture Capital *
- Did not consider small or very new alternatives
 - May be worth a Public Interest follow-up?

* No figures available on the slides that follow. Infrastructure was very highly correlated to Real Estate and Venture Capital to Equity.

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Choice of Data

Data

- Need information to compare
- Chose to use end month close data
 - Assumed last weekly close data was end month for weekly indices
 - Assumed constant quarterly growth for NCREIF Forestry / Farm data
- Needed permission to use the data
 - Have only included indices for which we have permission
 - All index providers retain all rights and
- Need to understand its limitations
 - Strong survivorship bias in some indices
 - Lack of information on constituency
 - Eliminated some indices for unrepresentative weightings

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Choice of metrics to use to compare the assets

Risk and Performance Metrics

- Looked at rolling and cumulative returns
- Correlation
 - Used a rolling 24-month correlation measure
 - Needed for significance but introduces a timing issue
 - Breaks down when looking at longer-term trends
- Volatility of log-return
- Maximum Drawdown over 24 months

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Choice of Comparator Indices

Risk and Performance Metrics

MSCI World (the Prime index for correlation purposes)

FTSE 100

UK Government Debt (Gilts)

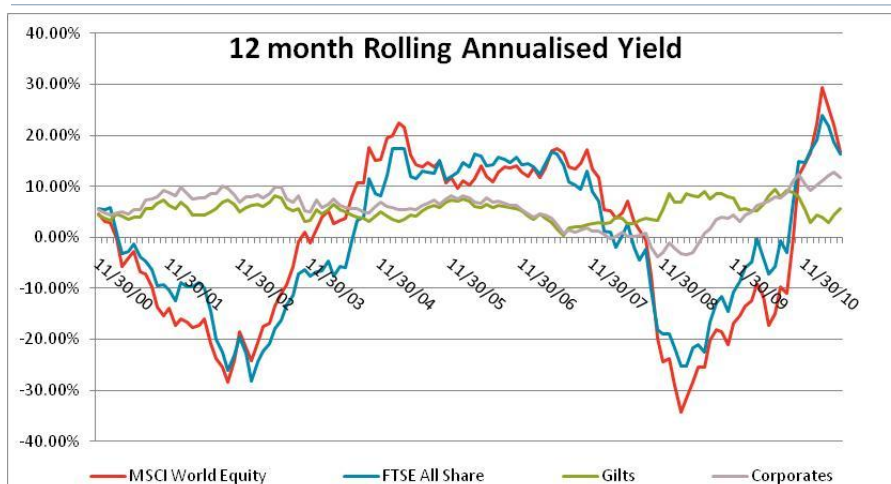
Corporate Debt (iBoxx)

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Comparator Indices: Rolling annualised yield

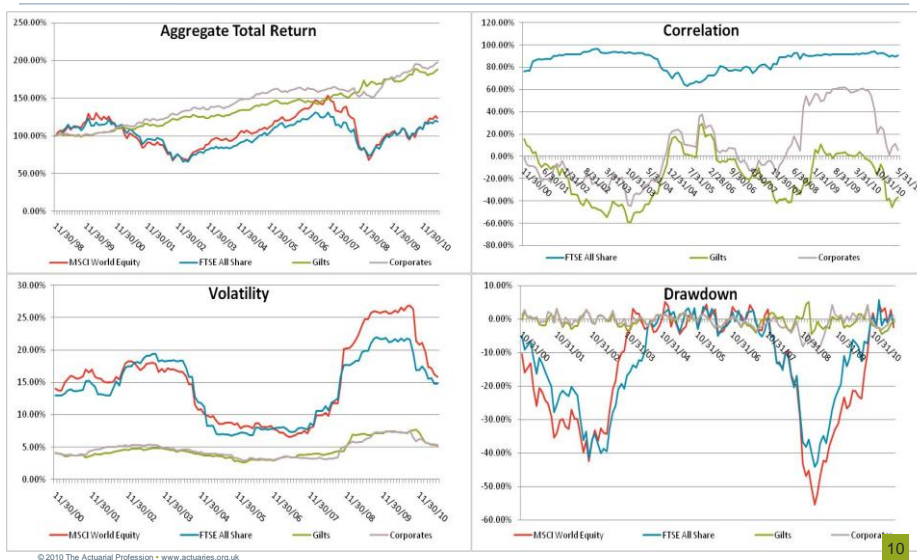


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Comparator Indices: Risk/Return Metrics



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Comparator Index Returns

- There are two main crises identified in these indices:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - FTSE: -42.1% (3110.56 to 1801.48)
 - Gilts: +19.0% (1373.83 to 1634.80)
 - Corporate debt: +25.4% (116.76 to 146.41)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - FTSE: -44.1% (3454.12 to 1929.75)
 - Gilts: +13.0% (1983.02 to 2240.05)
 - Corporate debt: -6.0% (183.53 to 172.59)

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Choice of Prime comparator for later comparisons

- FTSE correlated strongly with MSCI
- Corporates and Gilts correlated
- Both Corporates and Gilts weather the first crisis
- 2007-2009 crisis affects Corporates
- Use comparator index as appropriate for alternative
 - by observation of return shaping

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Preliminary Findings

Preliminary Summary Findings

- What follows is a long set of graphs
- The object of this presentation is to stimulate discussion

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Alternative Assets Working Party Hedge Funds

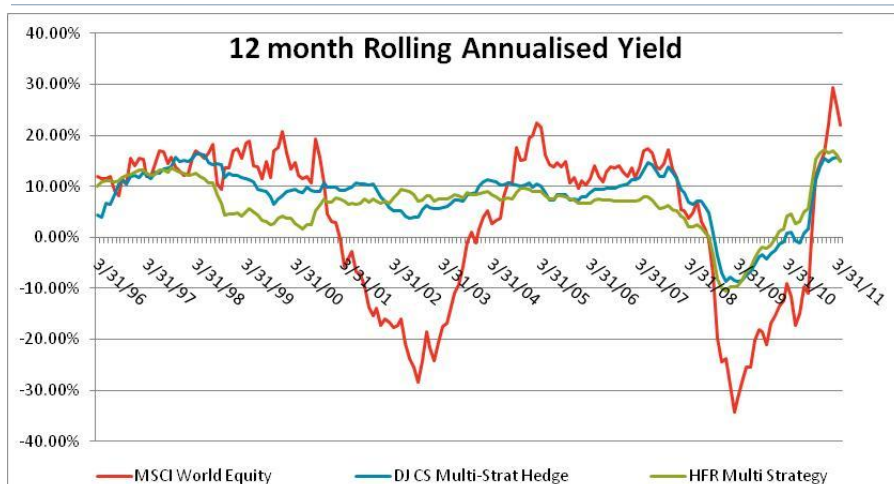
Hedge Funds

- Considered Multi-Strategy indices for the graphs
- Global and other equity strategies were investigated and have similar shapes
- Thanks to Dow Jones and Hedge Fund Research for permission to use their indices (all rights reserved)
- The information in the slides that follow cannot be used without written permission from both Dow Jones and Hedge Fund Research

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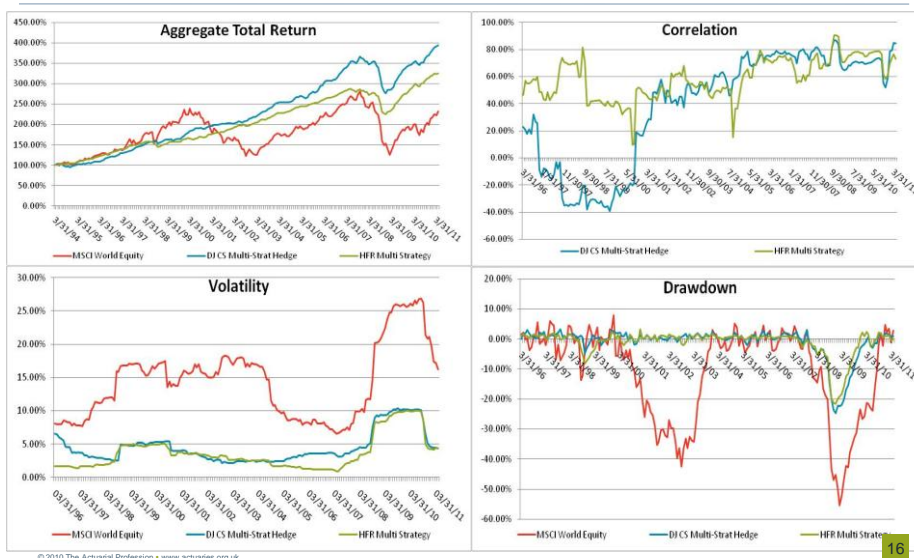


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MS Hedge Funds: Risk/Return Metrics



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MS Hedge Funds: Observations

Impact on MSHF of Financial Crises

- There are two main crises covered by these indices:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - DJ-CS Multi-strategy: +13.7% (183.16 to 208.27)
 - HFR Multi-strategy: +18.4% (3189.05 to 3777.41)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - DJ-CS Multi-strategy: -22.3% (366.37 to 284.77)
 - HFR Multi-strategy: -18.9% (5510.28 to 4467.05)
- Correlation risen from 20–60% range to 60–80%
- Risk measures increased during the 2007 to 2009 crisis.

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MS Hedge Funds: Observations

Impact on GSHF of Financial Crises

- Equivalently for a Global strategy:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - DJ-CS Global Strategy: +13.7% (229.39 to 243.33)
 - HFR Multi-strategy: no data (index started 31 March 2003)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - DJ-CS Multi-strategy: -19.5% (437.08 to 351.78)
 - HFR Multi-strategy: -24.7% (1364.47 to 1027.78)
- Correlation currently resides in the range 70–90%
- Risk measures increased during the 2007 to 2009 crisis.

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Commodities

Commodities

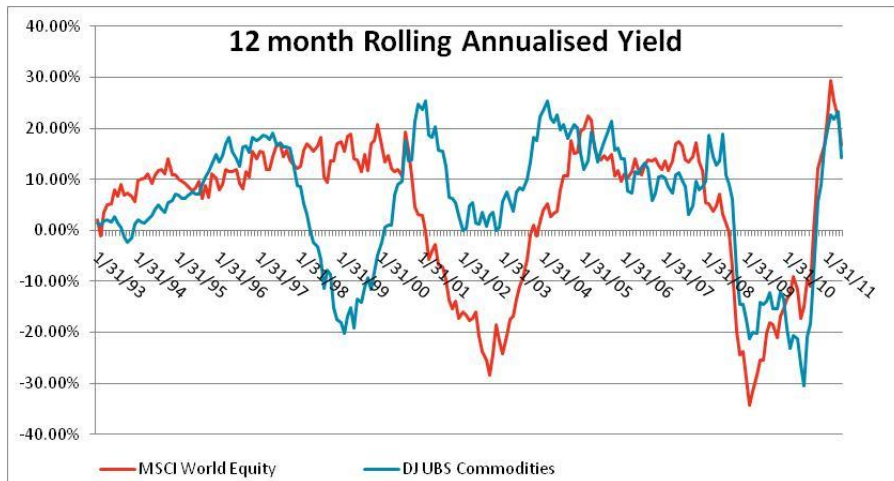
- The index represents a basket of futures contracts on physical commodities
- Other index types exist but were discarded

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Commodities v Equities: Rolling Annualised Yield

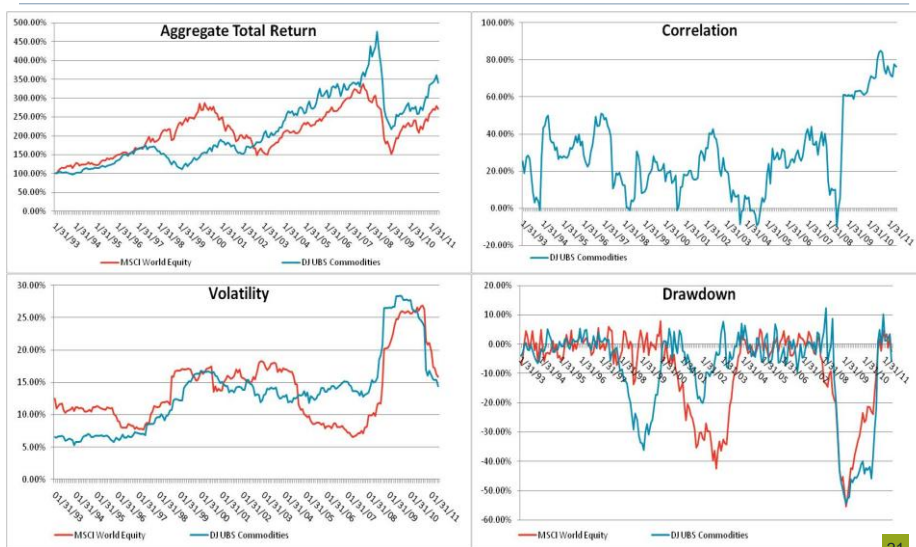


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Commodities v Equities: Risk/Return Metrics



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Commodities v Equities: Observations

Impact on Commodities of Financial Crises

- The same two main crises:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - DJ-UBS Commodities: +18.5% (151.90 to 180.00)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - DJ-UBS Commodities: -41.0% (360.13 to 212.40)
- Correlation risen from 0–40% range to 60–80%
- Risk measures consistently high and during the 2007 to 2009 crisis were very similar to equities.

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Commodities – aggregate versus individual indices

Commodities

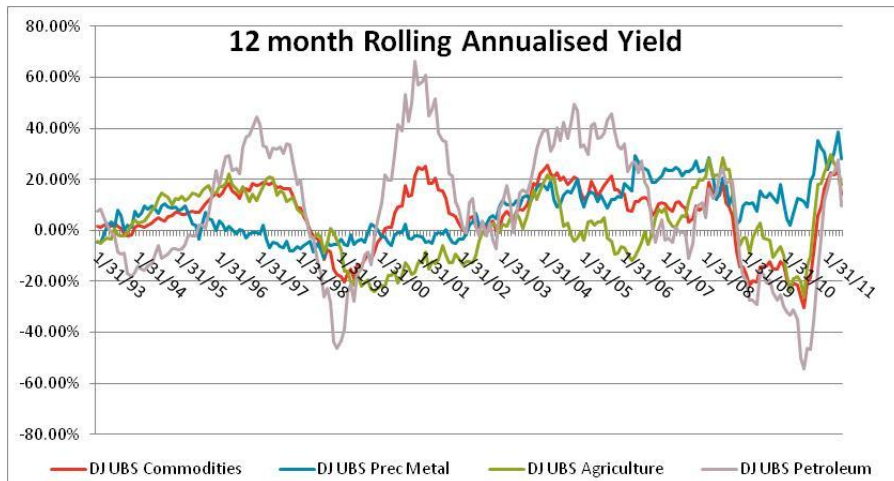
- The aggregate index represents a basket of futures contracts on physical commodities
- The individual indices represent futures indices of a specific physical commodity

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Commodities: Rolling Annualised Yield

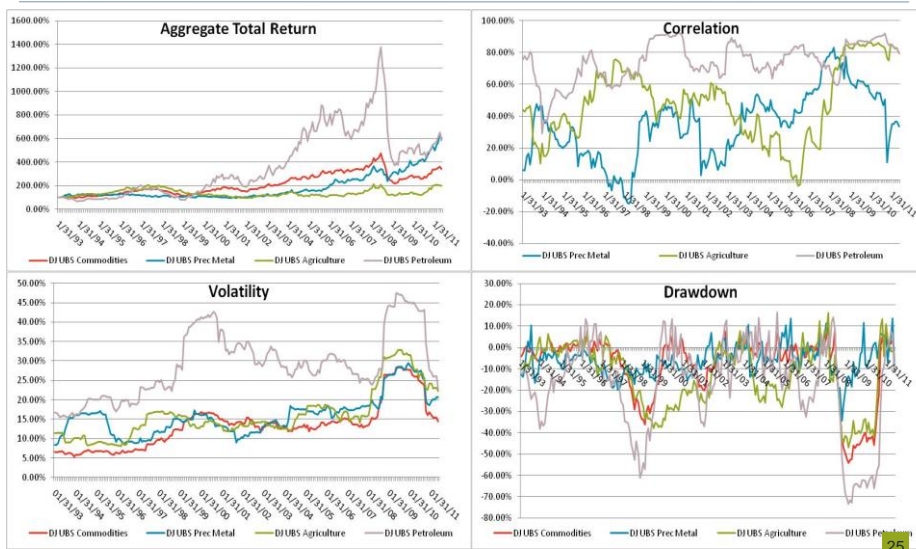


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Commodities: Risk/Return Metrics



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Insurance Linked Securities (Catastrophe Bonds)

Catastrophe Bonds

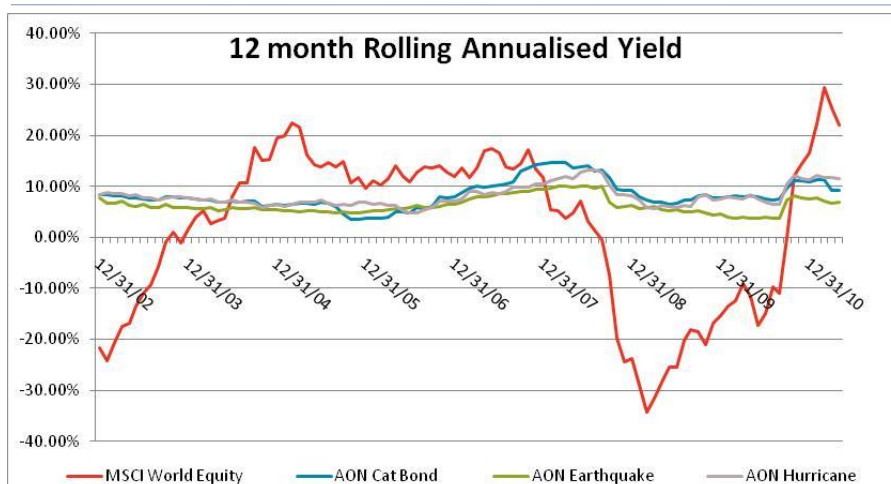
- The indices represent aggregate ILS, specific earthquake-risk or hurricane-risk catastrophe bonds
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Cat Bonds v Equities: Rolling Annualised Yield

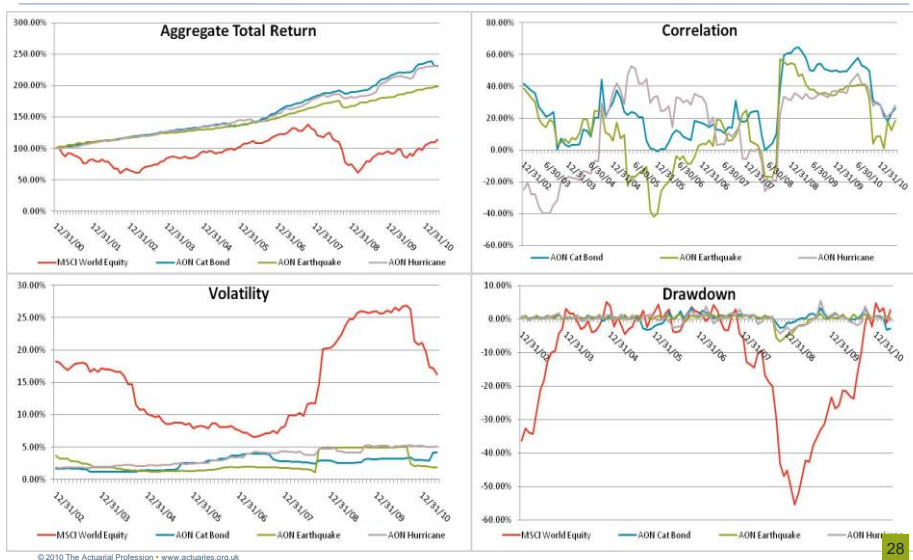


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Cat Bonds v Equities: Risk/Return Metrics



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Cat Bonds: Observations

Impact on Cat Bonds of Financial Crises

- The cat bond indices start from December 2000:
 - Period One: 31 December 2000 to 30 September 2002
 - MSCI World: -39.6% (peak 1221.25 to trough 738.18)
 - Cat Bonds: +15.6% (100.00 to 115.60)
 - EQ Bonds: +14.7% (100.00 to 114.66)
 - HU Bonds: +15.2% (100.00 to 115.20)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - Cat Bonds: +7.1% (177.93 to 190.60)
 - EQ Bonds: +4.1% (163.73 to 170.43)
 - HU Bonds: +5.6% (172.44 to 182.10)
- Correlation increases slightly in Period 2

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Catastrophe Bonds against Corporate Debt

Catastrophe Bonds

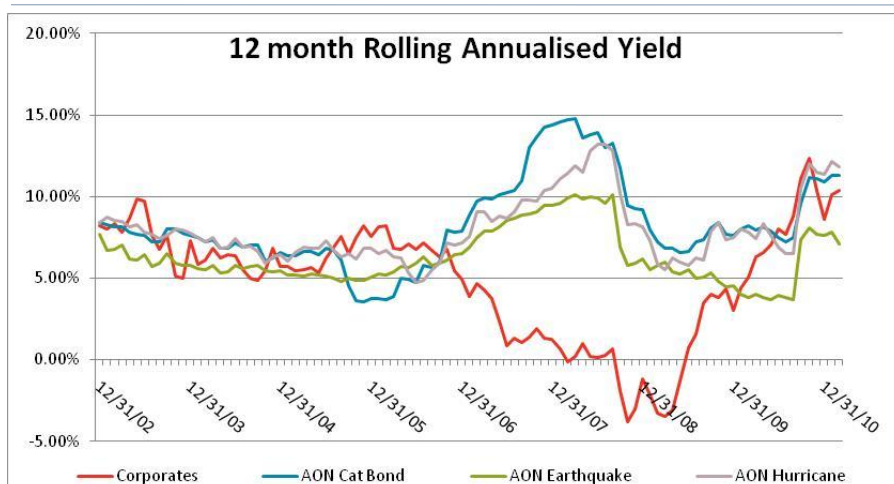
- The indices represent aggregate ILS, specific earthquake-risk or hurricane-risk catastrophe bonds
- The index performance appears more fixed interest in nature and so the comparison with corporate debt follows
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Cat Bonds v Corporates: Rolling Annualised Yield

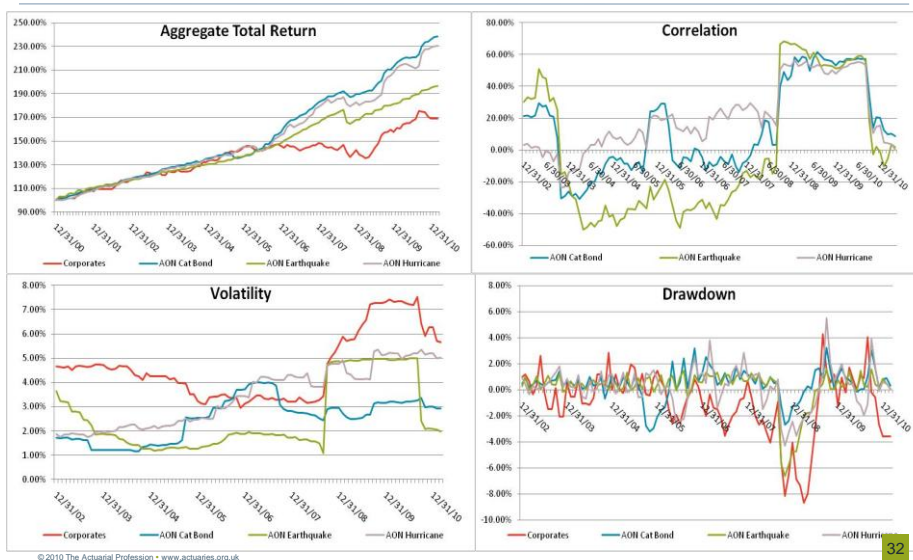


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Cat Bonds v Corporates: Risk/Return Metrics



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Cat Bonds: Observations

Impact on Cat Bonds of Financial Crises

- The cat bond indices start from December 2000:
 - Period One: 31 December 2000 to 30 September 2002
 - Corporate debt: +25.4% (116.76 to 146.41)
 - Cat Bonds: +15.6% (100.00 to 115.60)
 - EQ Bonds: +14.7% (100.00 to 114.66)
 - HU Bonds: +15.2% (100.00 to 115.20)
 - Period Two: 31 October 2007 to 28 February 2009
 - Corporate debt: -6.0% (183.53 to 172.59)
 - Cat Bonds: +7.1% (177.93 to 190.60)
 - EQ Bonds: +4.1% (163.73 to 170.43)
 - HU Bonds: +5.6% (172.44 to 182.10)
- Correlation increases slightly in Period 2

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NCREIF Timberland and Farmland Indices

NCREIF Indices

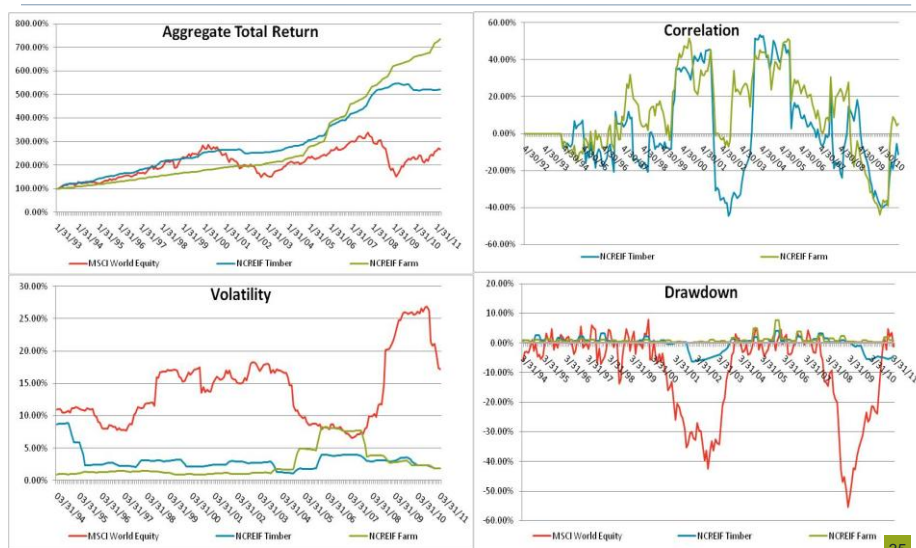
- The indices represent (an increasing) collection of companies acquired for investment purposes only, mostly by pension funds
- Timberland is timber companies, farmland is agricultural companies
- Thanks to the National Council of Real Estate Investment Fiduciaries for permission to use the indices (all rights reserved)
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NCREIF: Risk/Return Metrics



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NCREIF: Observations

Impact on NCREIF indices of Financial Crises

- The same two main crises:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - Farmland: +11.5% (1900.01 to 2118.80)
 - Timberland: -1.3% (11211.14 to 11060.13)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - Farmland: +23.4% (5336.75 to 6587.02)
 - Timberland: +17.2% (20396.56 to 23895.99)
- Correlation variable throughout
- Risk measures consistently low.

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US Real Estate Indices

Dow Jones US Real Estate Index

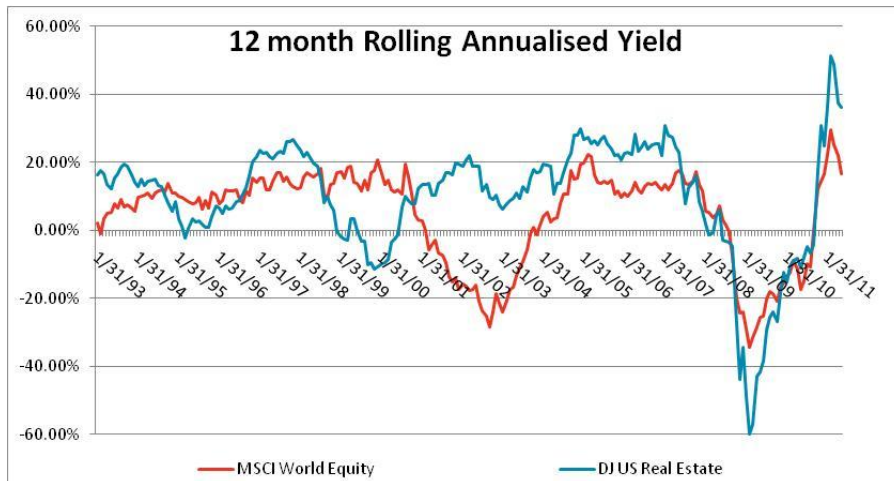
- The indices represent a collection of REIT and Real Estate companies

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US Real Estate Indices: Rolling Annualised Yield

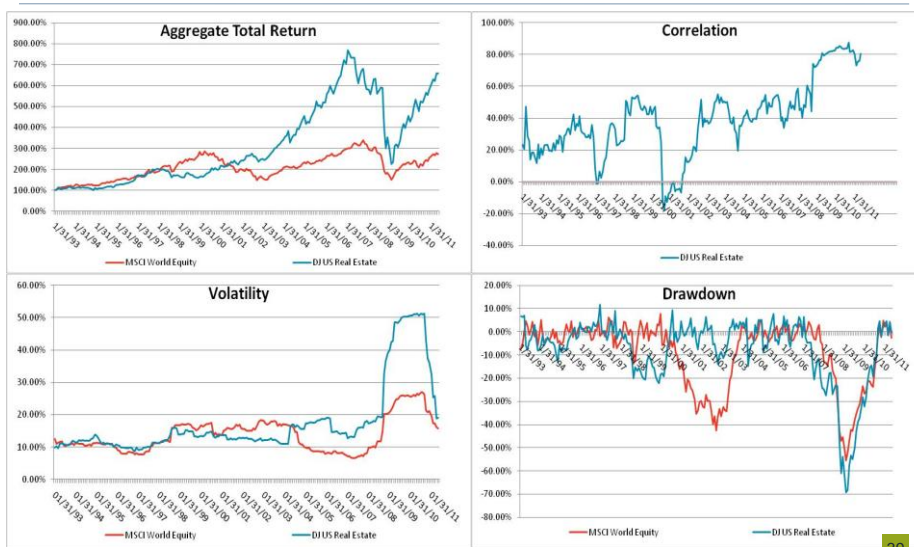


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US Real Estate Indices: Risk/Return Metrics

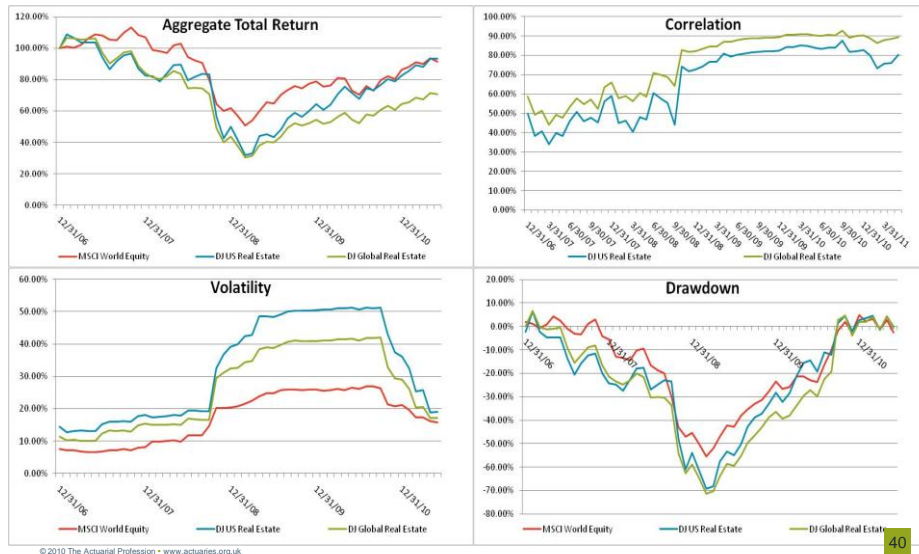


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US/Global Real Estate Indices: Risk/Return Metrics



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US/Global Real Estate: Observations

Impact on Real Estate indices of Financial Crises

- The same two main crises:
 - Period One: 31 March 2000 to 30 September 2002
 - MSCI World: -48.4% (peak 1431.94 to trough 738.18)
 - US Real Estate: +47.3% (1436.58 to 2116.43)
 - Period Two: 31 October 2007 to 28 February 2009
 - MSCI World: -55.4% (peak 1682.35 to trough 750.86)
 - US Real Estate: -66.7% (5757.85 to 1915.69)
 - Timberland: -68.8% (1387.21 to 432.95)
- Correlation steadily increasing
- Risk measures heavily correlated.

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Summary findings

Summary

- Ten to twenty years is the limit for comparison
- 2000-2002 and 2007-2009 were major crises
- All alternatives appear to have weathered the first crisis
- Very few weathered the second
- Two possible reasons for this:
 - Investor behaviour has changed asset behaviour
 - Different fundamental reasons for the two crises

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Still to do and possible follow-on work...

- Summarise the means of realistically accessing alternatives
- Expand the list of alternatives being researched
 - Desirable for the profession's public interest role
 - Proliferation of assets claiming to be "alternative" or "absolute return"
 - The challenge is obtaining the data
- Adjust returns for survivorship bias
 - Likely to require investment by the profession to obtain constituency data.

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