



Westminster Energy Forum

Wednesday 6th December 2006



The Concept of Emissions Trading

- Authority caps the amount of GHG that may be emitted.
- The authority then grants free of charge, or auctions to the highest bidder, a certain quantity of allowances, or rights to emit, to the targeted emitters.
- The total number of allowances has to be less than the emissions cap
- Emitters can then:
 - cut production;
 - invest in new technology that emits less per unit of production;
 - Or buy its shortfall in allowances from another entity that has been able to cut its emissions and has thereby generated a surplus.



Kyoto and the EU ETS

- We have two such schemes operating internationally: Kyoto and the EU ETS.
- Neither scheme constructed a market in which emissions allowances could trade.
- Market players did that for themselves:
 - Physical;
 - Forward; and,
 - Futures.



Kyoto and the EU ETS

- The political process has set the emissions caps too high.
- So the market price of emissions allowances is too low to incentivise a switch to greener technology and cleaner fuels.



Benefits of Trading

- Trading levels the playing field amongst international polluters.
 - If the international effort to address climate change is robust *and is enforced* there is a shortage of emissions allowances and the price of allowances goes up.
 - If it is half-hearted then there is a surplus of allowances and the price goes down.
 - Softens any competitive disadvantage.
- Investment in clean technology in the cheapest international location - the Kyoto CDM and JI project mechanisms allow firms to invest abroad and import the benefits in the form of allowances to comply with domestic caps.



Retail Emissions

- If the level of GHGs is to be reduced it would make sense to harness the efforts of the man in the street.
- Requires local green policies based on an internationally traded instrument like the EUA.
- This generates a need for a method of buying and selling EUAs by individuals or households.
- Promotes the need for a retail emissions sector.
- Voluntary schemes on offer based on VERs



Retailers

- Many of the companies in the emissions wholesale market are likely candidates to offer emissions retail services: For example:
 - utility companies supplying gas, electricity, water or telephone services;
 - banks;
 - companies who sell petrol to the public;
 - national supermarket chains;
 - household and car insurance companies.



What's in it for the Retailer?

- Commission; and,
- The bid-offer spread



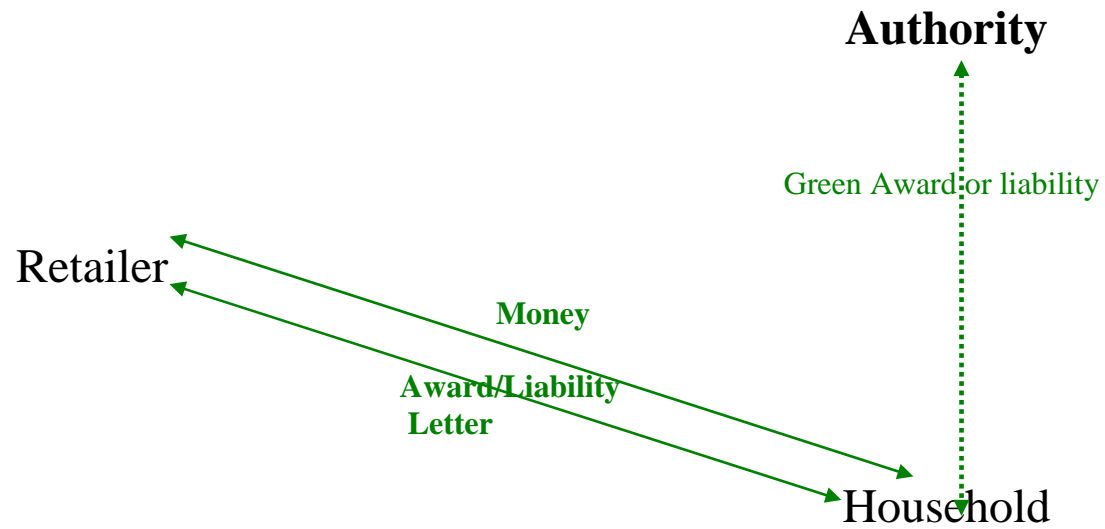
Benefits of Retail

- Easier to compare the costs and benefits of a range of different environmental choices at the international, national, regional and local level if all environmental penalties and rewards were expressed in the same way i.e. in terms of EUAs.
- Invaluable educational and behavioural impact. It would involve the wider public directly as consumers in the financial consequences of their environmental choices.
- By linking local schemes into the international effort, a local authority can be sure that local citizens are being treated fairly compared with citizens in other countries.



Mechanics

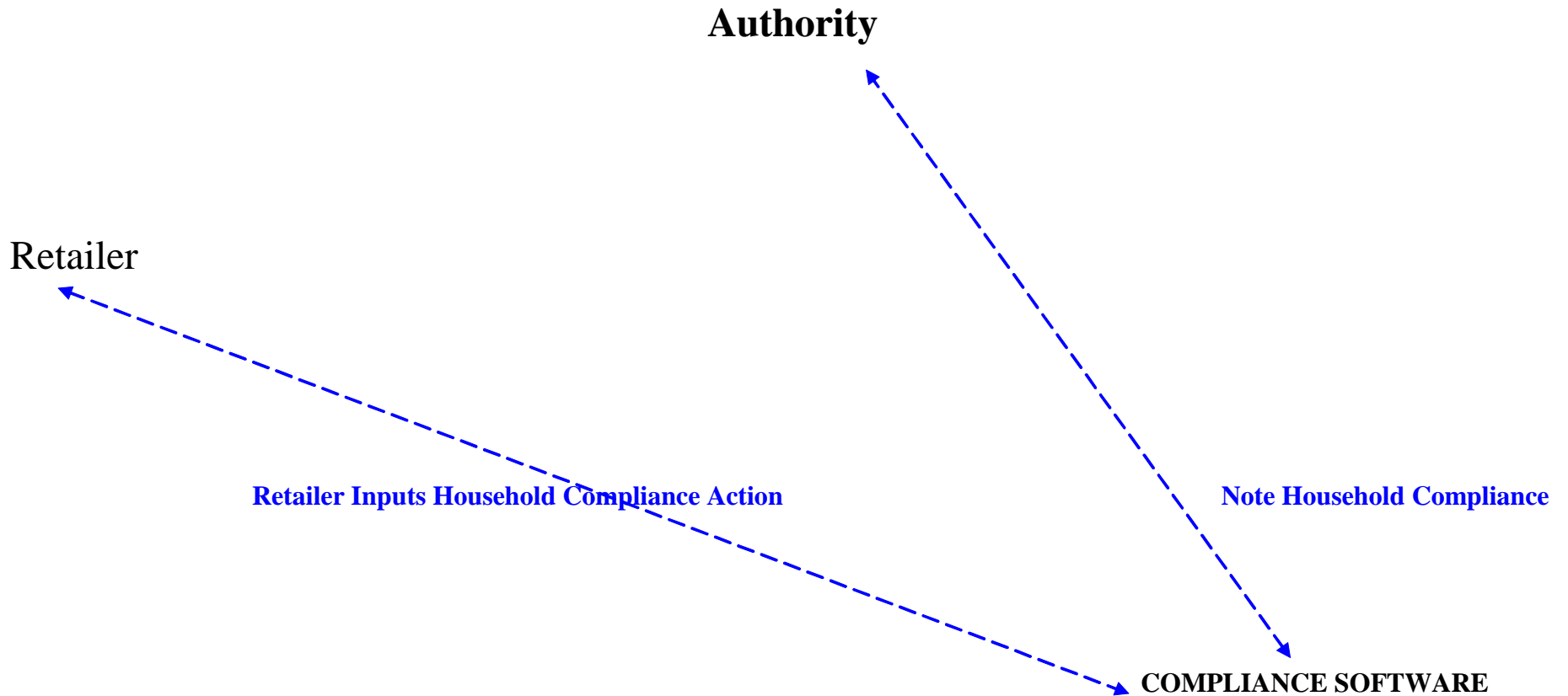
- The Authority informs the household if it is due an EUA penalty or reward under its environmental scheme.
- This will follow a measurement and verification procedure appropriate to the scheme in question.
- The household takes this letter to a licensed retailer to either buy EUAs, if the household must pay a penalty, or to sell EUAs, if it is due a reward.





Mechanics

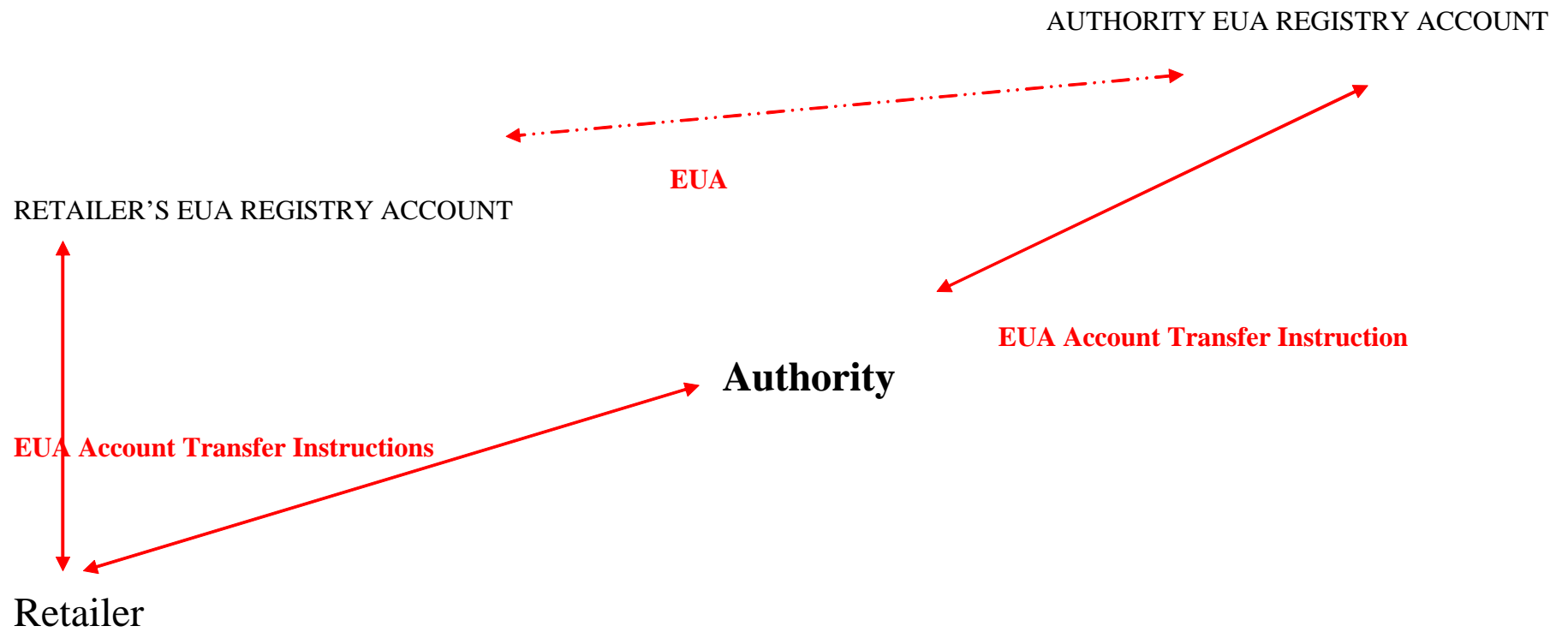
- The retailer buys EUAs from the householder or sells EUAs to the householder first checking the authenticity of the householder's letter on its electronic interface with the authority's compliance software.
- The retailer notes the transaction with the householder in the Authority compliance software and issues the householder with a hard copy receipt. The Authority notes the householder's compliance action.

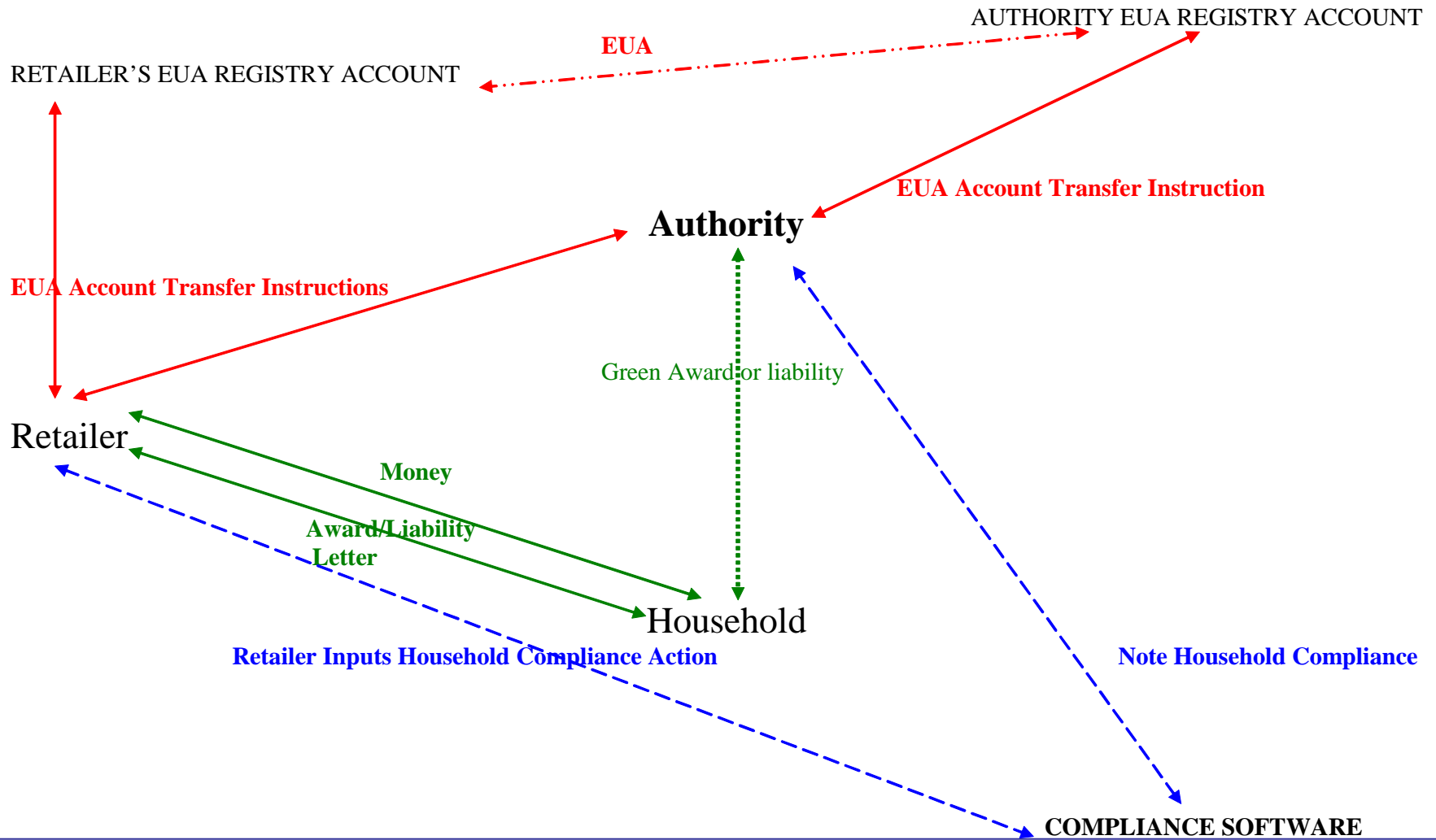




Mechanics

- Having bought or sold EUAs with a number of householders the retailer informs its own EUA registry account administrator and the Authority that a transfer of EUAs is required to balance the transactions it enters into with households.
- The Authority instructs its registry account administrator to transfer the requisite number of EUAs to or from the Retailer's registry account. This can be aggregated and done on a daily, monthly or quarterly basis as appropriate.







The Tax Alternative

- There are five problems with simple taxation:
 - There is no international, comparable tax mechanism or taxation authority;
 - Taxes have to be imposed by politicians in budgets and make an easily identifiable target for protesters and party politicians;
 - Carbon taxes have to be adjusted in different economic cycles, rather than being left up to market forces;
 - Taxes are harder on lower income groups;
 - Unless the tax is hypothecated the revenue generated can be spent by the treasury in a manner which does not reduce GHGs.



Weather and Insurance



Adaptation or Mitigation?

- Today the cost of mitigation > the cost of adaptation.
- Adaptation to extreme weather might appear preferable at this stage but if the IPCC are correct in their predictions, the financial cost of adaptation will increase and far outstrip the financial cost of mitigation.



IPCC

- IPCC predict more
 - flood, landslide and avalanche damage,
 - more soil erosion,
 - an increase in damage to building foundations caused by ground shrinkage and higher pressure on government; and,
 - private flood insurance systems and disaster relief.

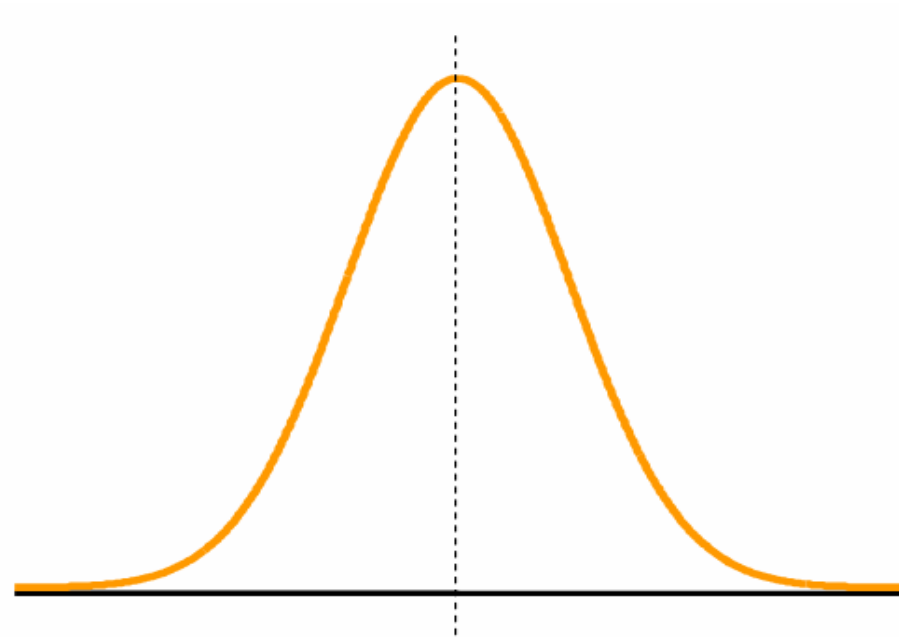


‘Disaster’ More Likely

- The cost of weather disaster insurance will increase.
- Insurance premia are calculated by actuaries based on the probability of an extreme event coming to pass.
- The mathematical representation of the distribution of events represented by the Normal or Gaussian distribution or simply the “bell shaped” curve’.



Normal Bell Curve



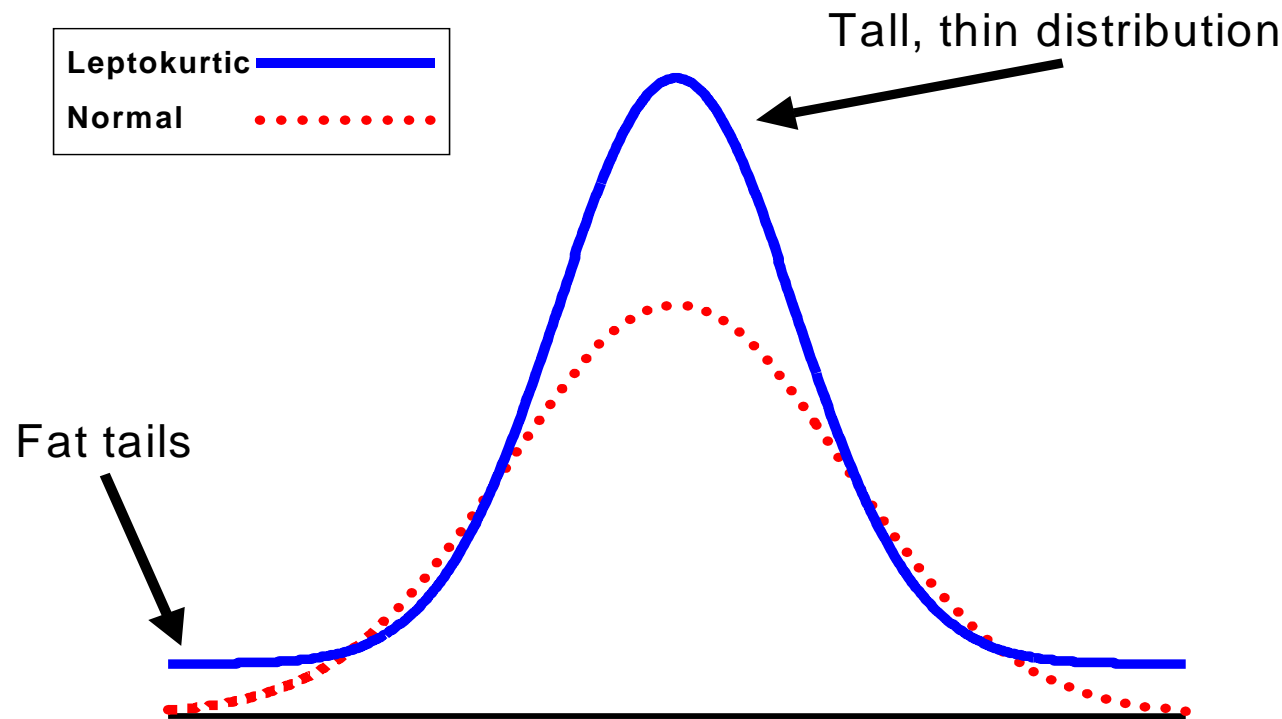


Leptokurtosis

- If we consider the normal distribution of weather events as climate changes we are going to see leptokurtosis in the weather curve i.e. “fat tails”.



The extreme event more usual





Insurance Premia

- Insurers typically provide financial compensation for the extreme event, ***usually beyond two standard deviations from the mean.***
- The insurers finance pay-out of claims with the premia paid to them by the majority of payers, who will actually experience normal weather and who will therefore not submit an insurance claim.
- The fatter the tails on the normal distribution curve of weather, the more claims will be submitted and the more the insurers will charge for weather protection.



Insurance

- To claim against an insurance policy must demonstrate that:
 - the event could not be foreseen; and,
 - damages and an actual loss have occurred.
- The insurance company reimburses only actual audited damages.
- Businesses that rely on 'good' weather that fails to occur for non-catastrophic reasons, for example, a ski resort with little snow or a festival that gets rained off, cannot usually claim against insurance.
- Such events are within one standard deviation of the norm and an insurance policy usually will either not provide cover, or will charge extremely high premia to do so.



Weather Derivatives

- New source of competition for insurance companies- weather derivatives.
- These derivatives are an alternative method of managing weather risk, which approaches the question of risk somewhat differently from the insurance market.



A Bet on the Weather

- Weather derivatives pays out automatically if:
- the rainfall in a particular location is greater than x inches over, say, a three day period; or,
- if the temperature is less than a certain average amount in a specified place, like a beach resort, in a particular season.



Mechanics

- The derivative provider analyses meteorological office weather data for the location in question over a historic time period
- assesses the risk and then quotes a price for the derivative.
- The deal is normally expressed as a swap, so is not risk free i.e. if the weather is better than expected, the buyer of the derivative must pay out to the derivative provider.



A Fight for the Middle Ground?

- As insurance companies are required to insure less extreme events they are lay off some of their risk themselves in the weather derivatives market.
- As the weather market becomes more competitive, the derivatives providers will have to look at hedging increasingly extreme events to earn a margin.



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Liz Bossley, CEAG Ltd, 311 East Block County Hall, Forum Magnum Square,
London SE1 7GN.

Tel: 020 7928 1222/3111. Fax 020 7401 9040. Mobile 07901 555556. Email
lizbossley@ceag.org