Take My Profits, Please!
Volatility Reduction and Ethics

transcript of a talk by
Professor Michael Mainelli, Executive Chairman, Z/Yen Group
at
Gresham College, Barnard's Inn Hall, Holborn, London EC1N 2HH
on
Monday, 13 March, 2006 at 18:00

recording available at
http://www.gresham.ac.uk/event.asp?PageId=4&EventId=456

Good evening Ladies and Gentlemen. I'm pleased to see so many of you turn up for a lecture on volatility reduction and its relationship to ethics. Tonight we're going to explore why Corporate Social Responsibility might be financially sensible for some companies.

It wouldn't be a Commerce lecture without a commercial. So I'm pleased to announce that the next Commerce lecture will follow the theme of better choice and explore – "How Can You Have Too Much Choice?" here on Monday, 15 May 2006, at 18:00. Well, as we say in Commerce – "To Business".

Shouldn't Ethics Cost?

In the OECD countries, we seem more concerned than ever with assigning blame and exacting compensation over longer and longer periods. We have seen tobacco, asbestos and other claims span decades. Insurers are worried about future long-term claims to do with leaded paint, air-travel-transmitted diseases, polyethylene terephthalate (PET) bottles and obesity induced by fast food. Consumers seem to want a risk-free experience; nevertheless companies have jobs to do in uncertain circumstances.

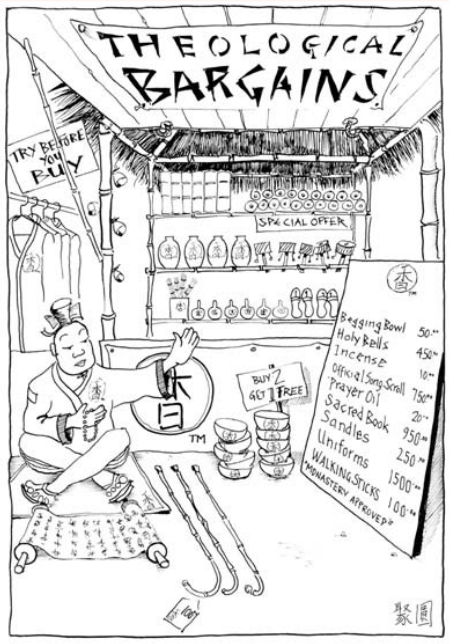
At the same time, in the OECD countries, we have increasing expectations of corporate social responsibility (CSR). People are concerned that corporations act as good citizens looking after the disadvantaged, the environment, the ethics of their employees, their customers and the countries in which they do business. Now some people think that "business ethics" is an oxymoron, but it is interesting to observe that we live in an era when personal morals are more private than ever, while we expect our corporations to be more public about their ethics; nevertheless companies have jobs to do throughout changing social mores.

5-7 St Helen's Place
London EC3A 6AU
United Kingdom

Risk/Reward Managers
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

Outline

- Shouldn't ethics cost?
- Shouldn't ethics pay?
- Calculated risks
- Valuing shape changers - volatility
- Sustainability = Stable?
- Measuring the immeasurable benefits of CSR
- Societal gains



"Get a detailed grip on the big picture."
Chao Kli Ning

Dr Gro Brundtland's forward to the World Commission on Environment and Development's (the Brundtland Commission) report of 1987 "Our Common Future" is frequently quoted when referring to society's changing expectations - "What is needed now is a new era of economic growth that is forceful and at the same time socially and environmentally sustainable." The World Business Council for Sustainable Development defines CSR:

> *Corporate social responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large. [Holme and Watts, 1999]*

As with many new fields, terminology wars proliferate. A number of terms refer to investment, such as "socially responsible investment" or "ethical investment" or "sustainable investment"; a number of terms refer to corporate activities such as "corporate citizenship" or "ethically responsible behaviour or "social responsibility"; and a number of usages roll "corporate governance", "social accountability" or "compliance" into CSR. Underneath most CSR lies the concept of sustainability. Brundtland's report provides a working definition of sustainable development as, "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

How can you argue with CSR and sustainability? Well, problems include:

- too much CSR. There are a plethora of CSR issues – "canopy grown coffee beans", "dolphin-friendly tuna", "child-free labour", "non-discrimination", "free trade",

"Sarbanes-Oxley", "animal testing", "corruption", "renewable energy", "arms control", "conflict diamonds", etc. Just about any public risk - environmental, ethical, governance, health or safety issue – can be a valid CSR issue. Yet people can disagree about whether something involves CSR at all, for instance do we need CSR on nuclear power, pornography, gambling or marketing to children? Hard as it may be to believe, each of those issues can be seen by different people as outrageous, unethical, inevitable, permissible or even beneficial;

- conflicting CSR responses to issues. For instance, some conservationists permit 'sustainable' use of natural resources while others insist on protected areas or 'no-go' zones. People can violently disagree about the means to achieve the ends, e.g. sampling whale blubber to determine toxin levels contradicts some conservationists' policies of completely non-invasive study of animals. The definition of child labour can vary, e.g. up to what age is a person a child? If children don't have jobs, where will the family get income? Is there an appropriate alternative activity for the children, e.g. access to education?
- proportionate CSR. Something as apparently simple as "canopy-grown/shade-grown coffee beans" or "fair trade" coffee would appear to affect importers, processors, distributors and retailers of coffee. Probably also organisations that use coffee in chocolates or cakes. What about organisations that do business in coffee growing countries? What about the coffee machines in every organisation up and down the country? Do the ends justify the means? Is the Common Agricultural Policy proportionate CSR or an impediment to free trade? Where are the cost/benefit calculations?
- form over substance. Just because an organisation has structured CSR programmes may not make it a better, more ethical corporation. Corporations, like people, seem to have been ethical and unethical throughout history – consider the caring Quaker companies of the 18th and 19th centuries and the Robber Barons or Satanic Mills of roughly the same period. Even Enron had a "Code of Ethics", a 64-page booklet for employees along with an introductory letter from Chairman Kenneth Lay noting the "moral and honest manner" in which the energy firm should conduct business.

The increasing burden of CSR may be a sign of an affluent society moving towards a risk society, i.e., one which has moved from relations based on production to relations based on risk [Beck, 1992]. It is difficult to imagine a more absurd oxymoron than, at the extreme, 'riskless capitalism', yet societal values seem to be moving sharply in this direction. Increasing expectations of better 'governance' have led to a deluge of ethical initiatives on countless topics. Stephanie Robertson [2002] points to both the enormous number of Corporate Social Responsibility (CSR) issues and the lack of appropriate management response. One might contend that it is almost impossible to have an appropriate management response to all of these issues and get anything done. It all reminds me of the philosophy student who tells his friends about the winning strategy he used to pass his ethics exam, "I cheated".

According to the Financial Times ["Slow Reaction", Martin Dickson, 10 July 2003], "Alistair Ross Goobey, one of the leading figures in the corporate governance movement, yesterday produced a neat aphorism on the ever-louder demands for better corporate social responsibility. He told an Amsterdam conference that companies are responsible for stakeholder issues but they are responsible to shareholders. And he predicted that it would take years for corporate social responsibility issues to be taken up by mainstream investors. CSR fans could face a long haul."

Risk/Reward Managers
5-7 St Helen's Place
London EC3A 6AU
United Kingdom
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

David Henderson [2001] goes further, arguing forcefully in his essay "Misguided Virtue: False Notions of Corporate Social Responsibility" that the burden of CSR on organisations is harming organisations and society. Henderson links CSR tightly with pursuing the objective of sustainable development. "Sustainable development is seen as having three distinct dimensions – economic, environmental and social" – the so-called Triple Bottom Line. He notes that CSR objectives are neither well defined nor free from controversy; that many corporations are unconsciously and irresponsibly endorsing anti-business hostility to the market economy; thus CSR has the potential to do real harm. Henderson suggests that there are four basic responses to CSR:

- enthusiastic – CSR is going to improve the world;
- moderately approving – "… judicious and well-publicised moves by firms in the direction of CSR are almost unavoidable today, and can be expected to do more good than harm";
- dismissive – it's just a fad;
- hostile – CSR undermines the proper functioning of the market economy.

This hostility to CSR is not a new concern, Milton Friedman wrote in 1962:

> *Few trends could so thoroughly undermine the very foundations of our free society as the acceptance by corporate officials of a social responsibility other than to make as much money for their stockholders as possible. This is a fundamentally subversive doctrine. If businessmen do have a social responsibility other than making maximum profits for stockholders, how are they to know what it is? Can self-selected private individuals decide what the social interest is? [Friedman, page 133]*

The above may seem like a whinge about social responsibility and the inevitable codes, laws, regulations and procedures that seem to result. Far from it – I'm really only whinging about cost-benefit. It's been a long-running argument; economists such as Keynes, Hayek and Hicks have long-struggled with definitions of sustainable. In 1939 John Hicks narrowed the definition of income to "the maximum amount that could be spent without reducing real consumption in the future". If we can't define sustainable levels of income, consumption or resource depletion, then we can't evaluate our actions.

If we wish to increase the common good, it certainly helps to optimise the performance of our economic organisations and ensure that they are acting in a sustainable way. The first big societal problem is determining what new behaviours we want from our economic organisations. The second big societal problem is rewarding organisations appropriately for sustainable behaviours. Without reward, organizations will not change their behaviour. There are a number of ways in which organizations might be rewarded for CSR initiatives, both carrots for success and freedom from sticks. Freedom from 'sticks' includes not being subject to NGO attacks, not having government impositions, not being boycotted from regions or markets, or not losing key employees with different ethical values. 'Carrots' might include good public relations, brand enhancement, access to contracts with CSR requirements, positive relations with NGOs, attracting higher-quality staff at lower rates or preferential access to capital.

5-7 St Helen's Place
London EC3A 6AU
United Kingdom

Risk/Reward Managers
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

Shouldn't Ethics Pay?

This lecture is not about the politics of CSR, nor is it about the multifarious definitions, nor is it about how to implement CSR or get others to do so. This lecture is meant to explore how we might go about evaluating CSR cost/benefits within a company and within society.

The ideal reward for CSR in commercial organisations would be a demonstrable increase in shareholder value. If there were a proven increase in value, then CSR decisions would fit better into existing financial decision-making models and would be subject to cost-benefit approaches. Paradoxically, if CSR cannot fit into financial models, then society runs the risk of poor investment decisions leading to under or over investment in CSR with the consequent waste of public resources that under or over investment implies.

In a moment, we'll examine the relationship between sustainability and share prices, but before doing so, I'd like you to imagine being a socially-concerned manager in an organisation. You might have seen numerous UK government advertisements of case studies where responsible corporations find that responsible actions increase profits. A frequent tale in these case studies is companies stating that they installed more efficient lighting that costs a bit more, but lasts a bit longer and consumes less electricity, so naturally this is good for the environment. So you go to the Head of Procurement at your company.

You point out to the Head of Procurement that you'd like to install this environmentally-friendly lighting. You make your case, showing him the government calculations. If you're right about the numbers, I do hope that you are not the manager in charge of lighting procurement, because he or she should say, "I don't need government propaganda to do my job, but I do need a decent procurement manager. I can't believe that the person in charge of buying lighting has missed this opportunity to save money for so long. Perhaps he or she won't miss their job."

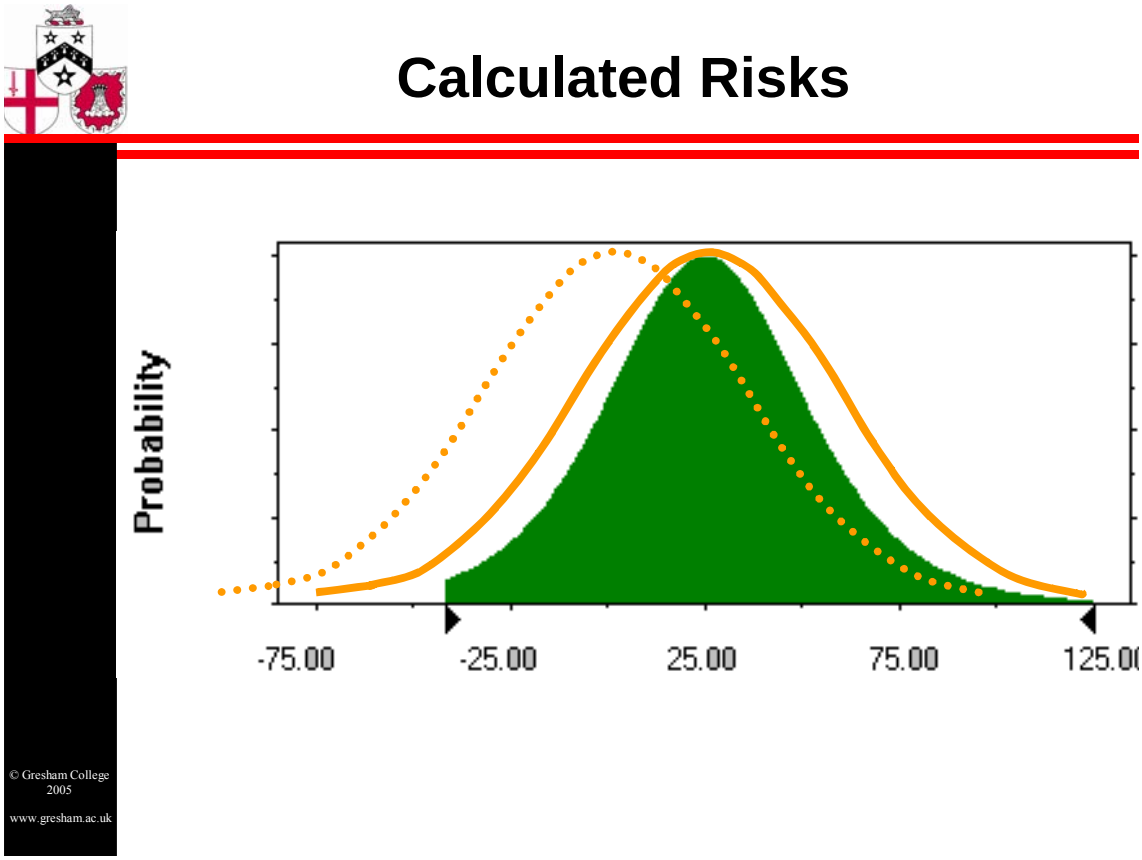
However, if you're wrong about the numbers and the lifetime cost of these new lights is higher than what you're already using, then what? Should the Head of Procurement approve the change anyway and increase costs? If we accept some assumptions, e.g. that the costs of electricity or disposal are accurate, I can't see why you should increase your costs. You have an obligation to the shareholders.

However, you're determined and you don't think the Head of Procurement or I are thinking straight about some of the longer-term implications for shareholders. So you point out to the Head of Procurement that these new lights will make the organisation seem more environmentally-aware, more 'green'. But then the Head of Procurement responds, "great, sell it to Marketing. Let them pay for the extra cost of green [sic] lighting." So you go to Marketing. In some cases, the Head of Marketing might say, "what a great idea! We need to differentiate ourselves and using green lighting will allow us to claim to be more environmentally friendly than our competitors." But in this case the Head of Marketing says, "our customers would never know the difference. All they want are inexpensive products and anything that increases our costs puts that at risk." [see Carlisle and Faulkner, 2005, for an interesting study of why CSR is not readily adopted by commodity producers].

5-7 St Helen's Place
London EC3A 6AU
United Kingdom

Risk/Reward Managers
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

However, you're still determined to install the environmentally-friendly lighting. You know that your organisation could be targeted by the Lighting Liberation Front. Unfortunately, both the Head of Procurement and the Head of Marketing see this as possible, but unlikely. Is there any way for you to make your case? This brings us to risk/reward evaluation.



Now I'm told that putting an equation into a presentation ensures that 25% of the audience leaves. I'd better warn you that we might be going through a few equations, so some of you may have to leave and come back again to make the numbers work. If I can beg your indulgence for a few minutes, I think you might find some of this interesting.

Risk/reward evaluation can be summarised in three diagrams. Imagine a company where cash generated from their current operations could range from 'on budget' (0.00) to a lot more cost (-100) or a lot less cost (+100). Managers have only three generic activities at their disposal.

The first generic activity is [1] risk avoidance: managers look to ensure that, by making decisions using better skills or knowledge or pooling or insurance, they eliminate particularly adverse outcomes. For instance, the managers might build a retaining wall for storing hazardous items.

Managers typically look mostly at the second class of generic activity, [2] reward enhancement. Reward enhancement comes through cost reduction via "increased productivity", "improved staff workplace satisfaction" or "better contracting" or relocation.

A whole range of management decisions, may lead to improved outcomes. These decisions 'shift' outcomes positively to the right.

Finally, and more subtly, there are activities that [3] reduce volatility, by more consistently delivering on cost or income and thus 'tightening' the range of possibilities. If the financial case is not made by risk avoidance or reward enhancement, for some firms actions that increase costs are still good financial bets if they reduce volatility and increase the certainty of the cashflow. For instance, giving better deals on long-term contracts to ensure more stable income or investing in education at local schools in order to ensure a supply of skilled labour are actions that reduce future volatility. In our case, installing green lighting should be seen as something that reduces possible future volatility due to the Lighting Liberation Front.

In this example, all three generic activities, risk reduction, reward enhancement and volatility reduction, combine to help managers move from a starting range of –100 to +100 with a mean of 0.0 to a range of –30 to +125 with a mean of 25, and a much higher likelihood of hitting that mean.

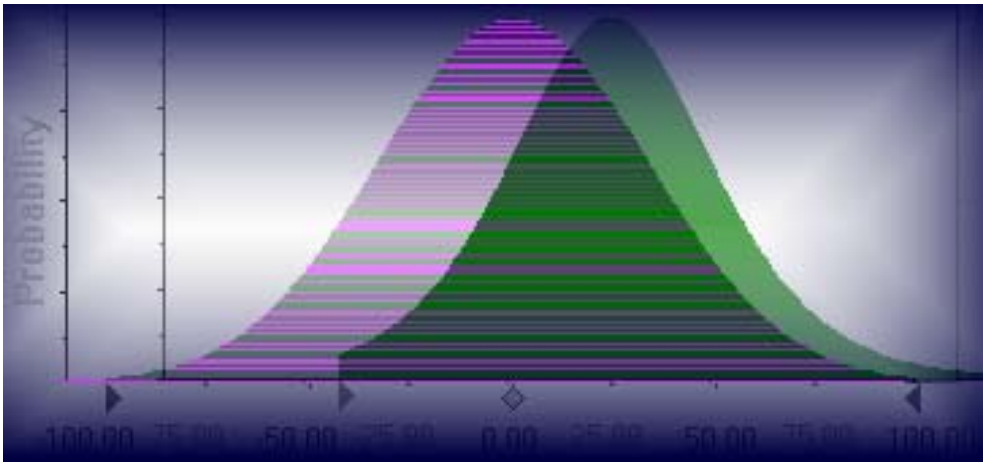
One of the interesting problems is valuing each of these three types of activity. The first generic activity, risk avoidance, is fairly straightforward to value, one multiplies the cost of avoidance times the severity and the likelihood. So if there is a 1% chance of a £100,000,000 loss, then it is worth up to £1,000,000 to fix.

For the second generic activity, reward enhancement, traditional return-on-investment calculations are sufficient. Much of this is called cost-benefit analysis. We look to see the increased cashflow from a fixed investment over a period of time. So, if by investing £1,000,000 we get £1 more than we could have obtained by raising £1,000,000 and putting it in the bank, we should start to think about doing it. Having done a few cost-benefit calculations myself, I know that the technique is not completely straightforward as there are arguments over the cost of capital, what constitutes free cashflow, how to determine if an asset is impaired, etc. Nevertheless, there are widely accepted techniques that can give a good indication of how much value to place on an investment.

Risk/Reward Managers
5-7 St Helen's Place
London EC3A 6AU
United Kingdom
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

Valuing Shape Changers

Valuing Shape Changers



So, we now turn our attention to valuing the third generic activity, volatility reduction; this requires us to value the difference between the two shapes in front of you; we need to measure the value of a tighter shape over a looser shape. In theory, a tighter shape with low volatility should be of more value to managers than a looser shape. But how can we value this? Well, here we turn to one of the most exciting advances in financial theory of the 20th Century, valuing options. What is an option? For financial instruments, options can be defined as a "contract between two parties in which one party has the right but not the obligation to do something, usually to buy or sell some underlying asset". Call options are contracts giving the option holder the right to buy something; while put options, entitle the holder to sell something. Payment for options takes the form of an up-front sum called a premium.

What Is An Option?

S = current stock price, say £100

T = time till expiration, 3 months

K = option striking price, say £100

C = call premium, £5 or £65?

For example, I may buy a call option from you for a share in a large oil company. Today the oil company's shares trade at £100. I might pay you for an option to purchase the oil company's shares at £100. We may agree that the option is for three months hence. If the company's shares are above £100 at the end of three months I may decide to pay £100 to you and own the shares. If the shares go down, perhaps to £90, I won't be interested and will just walk away. However, it is an 'option', I don't have to do anything at all.

Stable or Wild: Which Is Worth More?

- Stable:
  - almost certainly between £90 and £110 at end of three months
  - stable = £110 - £100 = £10
  - stable = £90 - £100 = -£10
  - not a lot of chance to make money
- Wild:
  - anything from £30 to £300 at end of three months
  - Wild (1) = £30 - £100 = -£70
  - Wild (2) = £300 - £100 = £200
  - average of Wild (1) and Wild (2) = £65
- Option on Wild worth more than option on Stable

The problem we face is agreeing how much I should pay you for the option. Let's look at two cases. If the share price of the oil share is stable, say that historically it has stayed mostly between £90 and £110, we might guess that the correct price is a low number. If you take £5 now for the option to buy and if I decide at the end of three months to pay £100 more because against all expectations the share price hits £110, you've got your money plus £5 and I made £10 on my £5 option investment. If the share price is wild, say it has historically fluctuated all over the place from £30 to £300, £5 doesn't seem fair. If at the end of three months the share is at £30 then I won't want it, but if at the end of three months the share is at £300 then you'd rather keep the share yourself than sell it to me for £100 and watch me make £200. If both £30 and £300 are equally likely, we might agree that the option average of the two is worth £65. You can easily see that the option on a wildly-fluctuating penny share in a wildcatter is likely to be worth more than an option on a large, stable blue chip share in an oil major, as long as there is a sufficient amount of trading the real shares of the wildcatter.

Romans, Grecians, and Phoenicians traded options against outgoing cargoes from their local seaports; options were bought and sold in Amsterdam in the 16th century; the Chicago markets brought futures and options to the American heartland in the late 1800's. But until recently financial theory was unable to provide a price for an option and people found that they had frequently put themselves into a poor position inadvertently. Starting in the late 1800's, option pricing models became increasingly desirable. Charles Castelli, Louis Bachelier, Paul Samuelson, Richard Kruizenga and A. James Boness all touched on this

area, but Fisher Black and Myron Scholes are considered to be the fathers of modern option theory, with a bit of help from Merton Miller and Eugene Fama.

Black-Scholes Equation

$$C(S,T) = SN(d_1) - Ke^{-rT}N(d_2)$$

where d_1 and d_2 are:

$$d_1 = \frac{\ln(S/K) + (r + \sigma^2/2)T}{|\sigma|\sqrt{T}} \qquad d_2 = d_1 - |\sigma|\sqrt{T}.$$

C = call premium of an option on stock S with duration T
S = current stock price, say £100
T = time till expiration, 3 months
K = option striking price, say £110
r = risk free interest rate, say 4%
s = standard deviation of stock returns, say 20%
N = cumulative standard normal distribution

In 1973 Fisher Black and Myron Scholes published a paper that revolutionised the financial markets in the latter part of the 20th Century. It was called simply "The Pricing of Options and Corporate Liabilities". Before 1973, pricing an option was based mostly on gut feel. Black and Scholes' formula, the Black-Scholes equation, is one of the most famous financial equations. With Black-Scholes, analysts found that they could put in a few numbers and out would come a result that not only helped them agree terms, but was also mysteriously close to the actual prices for options on traded markets. Financial analysts were able to calculate, with alarming accuracy, the value of a stock option. Most of the models and techniques employed by today's analysts are rooted in the model developed by Fischer Black and Myron Scholes in 1973. There are a number of simplifying assumptions within the original model, such as no dividends, no commission charges, normal distributions, efficient markets, constant interest rates, and European fixed-exercise dates. Thus, there have been many enhancements, interpretations, revisions and refinements to the basic model, but it is not an exaggeration to say that the Black-Scholes model allowed all of the derivatives markets to flourish from the 1970's onwards, from basic equity and foreign exchange derivatives to the recent rise of credit derivatives.

Two Cases Priced By Black-Scholes

- Stable:
  - standard deviation 10%
  - option = £2.51
- Wild
  - standard deviation 300%
  - option = £54.90

S = current stock price, say £100

T = time till expiration, 3 months

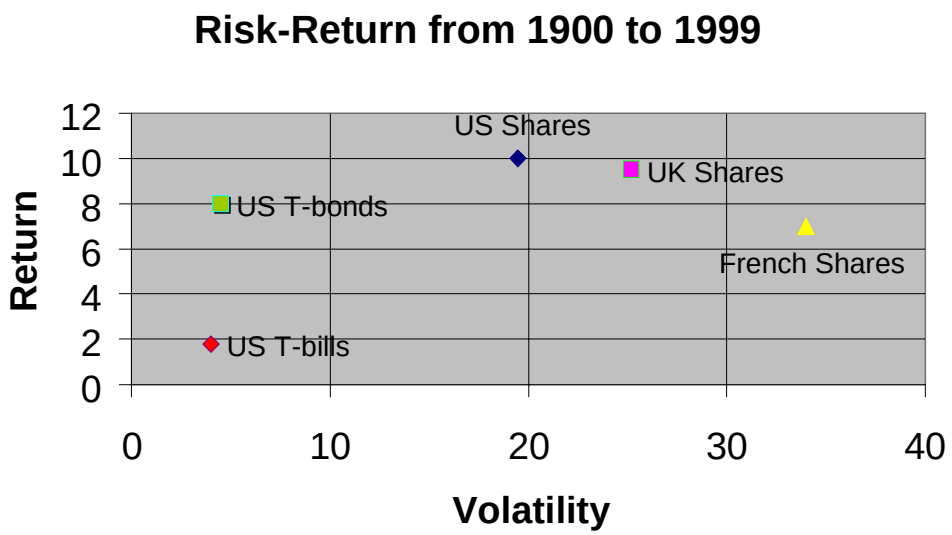
K = option striking price, say £100

r = risk-free interest rate, say 4%

Black and Scholes, as did many others, realised that the volatility of the stock price made all the difference to the price of the option. Their equation used the standard deviation of the stock price and the risk-free interest rate to provide a value. So going back to our oil share example, we can value the options using Black-Scholes and see that the value of the stable one is much less than the value of the wild one. We can also see that increased volatility, measured here as the standard deviation of the share, gives more value to option holders.

To take a real life oil example, if we look at the comparative volatility of four major oil companies over the past year, we will see the 250-day share volatility ranging from 19% to 31%. All other things being equal, this means that the lowest volatility oil company's option is worth only £7.77 while the highest volatility company's option is £11.60. On the other hand, this volatility has a depressing effect on the share price. If the 31% volatility oil firm could reduce its volatility to closer to 19%, its share price should rise, and there should be less opportunities for option traders to make money.

100 Years Of Instability

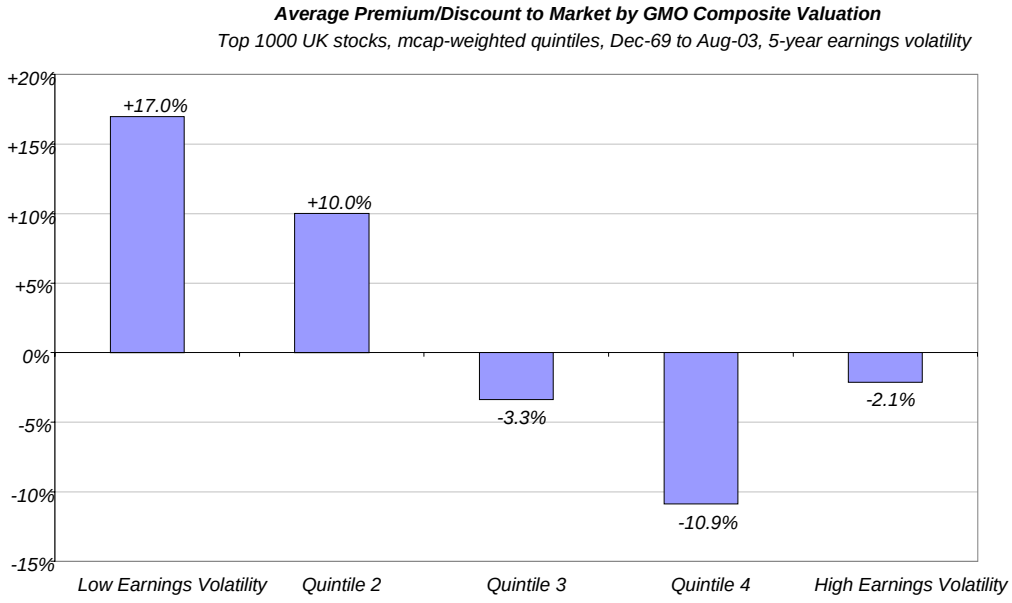


Source http://www.economist.com/displaystory.cfm?story_id=268876

You can't have your cake and eat it too. Investors expect greater returns to accompany greater volatility. All other things being equal, we would expect the oil company with the greater volatility to be riskier and to have a lower share price today, but that new investors expect either greater returns or lower volatility. This is the basis behind the risk/reward graphs beloved of many. Over 100 years here is a chart of the average returns for a few asset classes. What you can see here is a moderate relationship between returns and volatility where investors expect higher returns for higher volatility, but don't always get them. With average US inflation over the same 100 years at 5%, you can see that US Treasury Bills would, all things being equal, lose purchasing power. Of course, what we'd like to see is the relationship between investors' perceived volatility, perceived returns and the overall amount they're prepared to allocate to each asset class at the time they invest. That data is virtually impossible to obtain.

Sustainable = Stable?

Sustainable = Stable?



Source: GMO

However, we can look to see if investors favour investments that deliver greater stability in a single asset class. Looking at 1,000 UK companies over 33 years, this next chart shows that the difference between the top quintile and the fourth quintile of profit stability is a 25% to 30% share price premium for the most stable quintile. This is a very strong trend, though you might note that the very high earnings volatility fifth quintile is not so disadvantaged against the stable first quintile as the fourth quintile due to restructuring effects within the companies. Now this leads to an interesting idea. Perhaps companies invest in future profit stability in order to keep up their share price?

One intriguing thought has been to assume that companies that adhere to CSR should reduce earnings volatility. In many ways, CSR should make a company more 'sustainable'. The company should be less vulnerable to actions against it (e.g. attacks from NGOs or government inquiries or bad PR or shareholder dissent), have fewer staff qualms and problems or be able to work in longer term, more stable partnerships. Reduced earnings volatility should increase value.

This takes us back to our risk/reward evaluation. Managers can use option theory to evaluate their plans for reducing future profit volatility. Further, they can estimate how reducing profit volatility may help their share price, either by looking at the sensitivity of share premia from moving to a lower quintile of volatility, or by estimating the transfer of value from option holders to shareholders from reduced volatility of share prices.

Volatility Loss = Equity Gain

- Move perceptions of future profit volatility from 50% to 20% on £10 billion market capitalisation
- Estimated gain of 15% on share price from profit volatility reduction
- Estimated gain of 10% on share price from share price volatility reduction
- Price/earnings ratio of 8 justifies investing up to £125 million for the lower figure (£187.5 million for the higher)

Naturally, as the managers' plans involve spending money, this expenditure needs to be contrasted with the value shareholders place on price/earnings ratios, as this example shows. Here the managers of this company would like to reduce perceptions of future profit volatility from 50% to 20% on a company with a £10 billion market capitalisation. They have estimated a gain of 15% on the share price from profit volatility reduction. They have also estimated a gain of 10% on share price from share price volatility reduction. As the company has a price/earnings ratio of 8, if they cut costs by £125 million, the share price would also rise by one billion. Thus, the managers are justified in investing up to £125 million in CSR expenditure that reduces their profit and share price volatility. This over-simplified example ignores a number of complexities such as reduced volatility on larger market capitalisation, liquidity issues and asset allocation motives, but nevertheless illustrates how these measures work.

In real life, I know one large telecommunications firm that began measuring internal perceptions of concerns against external stakeholder sentiment (e.g. growing the data market while protecting the vulnerable), identified conflicting stakeholder expectations (e.g. safe but cheap mobile phones), weighed the aims of stakeholders, and set out mitigation strategies (e.g. changes to sourcing or encouraging industry-wide activism). Each of these concerns had a potential risk (severity and likelihood) that affected future perceived profit volatility, but expenditure on the concern led to reduced future profit volatility. For instance, locating transmission masts away from schools cost more, but led to a reduced risk of being affected by possible future public concerns about the safety of schoolchildren near mobile phone masts. A model was built that allowed managers to estimate the effects of their risk reduction by CSR using option pricing and that model gave some basic shareholder value estimates. In a manner very similar to valuing the shape changes earlier, the firm's managers could derive cost-benefit numbers for CSR. By knowing the value of

CSR, the telecommunications firm was able to increase its pursuit of safer network provision at higher cost knowing that it was adding to net shareholder worth and protecting brand value.

Measuring The Immeasurable Benefits Of CSR

One can also try to link CSR benefits back to volatility – on this argument, companies that adhere to CSR should have lower earnings volatility and this should feed through to higher share prices. In overly-simplistic terms, the value in the volatility should move from option holders to shareholders. In order to do this we need to measure CSR in the first place. A number of organisations are experimenting with a variety of approaches. In essence, the gist of most solutions is to rate organisational adherence to CSR initiatives in a comparative rating system, for instance Business in the Environment (BiE), The Ethical Investment Research Service (EIRIS), Innovest, Sustainable Asset Management, Core Ratings, FTSE4Good, SERM or Trucost [a good overview of many of these in CSR Europe, 2002]. Each of these organizations tackles measurement in different ways, but they can broadly be categorised as either individual or index, and inclusive or exclusive. Some organizations provide individual corporate ratings; others provide an overall index comparing one 'ethical' group against a norm. Inclusive approaches attempt to rate everyone; exclusive approaches leave out certain categories, say tobacco or defence, e.g. FTSE4Good.

Attempts to measure CSR benefits are numerous. For instance, for the USA and foreign businesses rated by GovernanceMetrics International, companies with the worst governance ratings returned 5.4% for the 12 months to August 2003, compared with 11% for all stocks rated. The Dow Jones Industrial Average gained 9.7% in over the same 12 months. In Australia a 2003 study by AMP Capital Sustainable Funds sought to prove the link between sustainability and investment on performance and claimed to show over a four year period and a 10 year period that companies with a higher CSR rating outperformed others by more than 3% per annum. On the other hand, UK ethical investment vehicles may, as a class, have under-performed, or over-performed, traditional investment vehicles depending on whom you believe, which index, which comparator and which time period. In some unpublished research Kim T Christensen and Brian Khyl of Copenhagen Business School's Department of Finance examined three indices in 2002, SERM, FTSE4Good and the Dow Jones Sustainability Indexes (sic) and concluded that over certain time periods some CSR indices may outperform the market, but it was all a bit inconclusive. Other commentators have noted that society pays more attention to larger companies, so they tend to invest in CSR. Some commentators note that because those who invest in CSR tend to be larger, more stable firms in the first place, perhaps we are confusing cause and effect.

Roger Cowe in 2002 wrote that "the jury is still out" on proving that CSR links to investment success. One authoritative review in 2004 came from the United Nations Environment Programme Finance Initiative which, working with major global investment banks on 11 studies, concluded that it is too early to see definitive studies proving that CSR leads to superior performance, though that is no reason to quit – "The majority of analysts noted difficulties in comparative analysis due to the range of reporting practices for environmental, social and corporate governance risks and opportunities". There are a variety of reasons for these inconclusive results, ranging from the small sample sizes provided by current ratings, the short time periods for which data is available, the imprecision and weighting of the ratings.

Risk/Reward Managers
5-7 St Helen's Place
London EC3A 6AU
United Kingdom
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

For similar reasons, share price volatility has yet to be correlated to CSR ratings. Further research on the links between CSR and volatility may yet produce some results over longer time periods or with other performance measures such as profit or price/earnings ratios. Worth a special mention is that Gresham College supports the Enhanced Analytics Initiative that promotes international collaboration between asset owners and asset managers aimed at encouraging better investment research, in particular research that takes account of the impact of extra-financial issues such as CSR on long-term investment.

Societal Gains

Societal Gains

The Economist August 18th 2001

A novel use for options theory

Fishy maths

Putting a price on sustainable fishing

IF THEY were grateful types, Alaska salmon fishermen would feel their future was a little more secure, thanks to an equation first developed in 1973 for pricing financial options. The Marine Stewardship Council (MSC), a not-for-profit agency that campaigns for sustainable fishing, has given the Alaska salmon industry its stamp of approval, as it has the fishing of New Zealand hoki, Western Australia rock lobster, Burry Inlet cockles (in Wales) and Thames Blackwater herring. MSC certification ensures a certain standard of fishery and environmental manage-

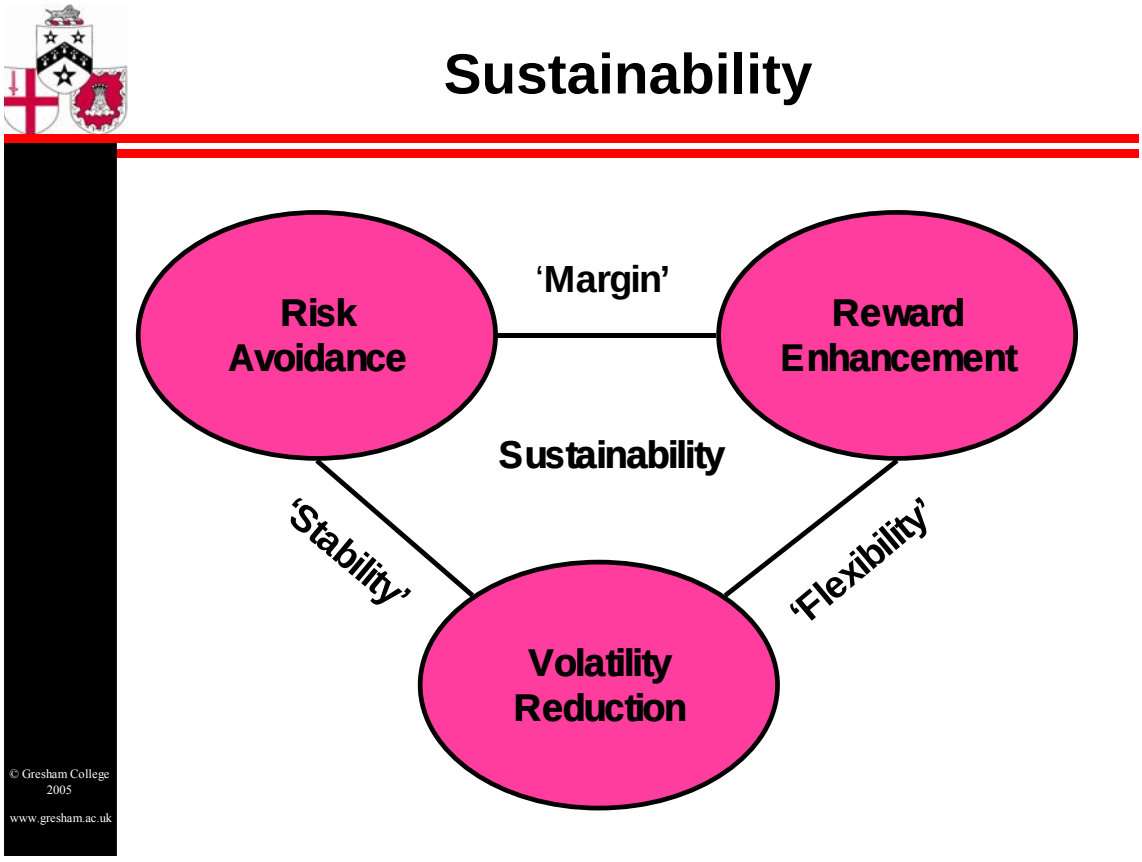
Black-Scholes ahoy

When you look at volatility and spreads, you start to see options everywhere. One final application of measuring CSR benefits using volatility is to try and estimate society's gains from reduced volatility. If something is sustainable, then it should have less volatility than something that is not sustainable. One interesting study was done with the Marine Stewardship Council (MSC). The MSC provides a logo for sustainable fishing in return for fisheries and others in the supply chain adhering to sustainable fishing and supply practices. The MSC wanted to be able to estimate the value of certification, so it turned to Black-Scholes.

The societal value of sustainable certification can be assumed to lie in a better supply of fish combined with reducing the societal cost of unused capacity. Less volatile catches mean more sustainable fish stocks – naturally assuming that the non-volatile catches are greater than zero. If fish stocks are unstable and the volatility of landed fish is very high, then the economy will have too many boats, canneries, refrigeration facilities and store shelves. In some years, the boats, canneries, refrigeration, shipping and stocking facilities are largely

idle, in other years they are working flat out. However, if fish catches were more stable and the volatility of landed fish is low, then the entire supply chain can be more optimal. Thus, capital tied up in partially used fish facilities can be released for other productive uses.

Looking at the Alaskan salmon industry's fish price data over 30 years, a reasonable estimate was that certification for sustainability could be estimated to reduce the hedging costs of just sockeye salmon from 40 cents a pound of fish to 29 cents. According to the calculations, the implied saving is more than $1m a year which is 50 times higher than the cost to the Alaska salmon industry of MSC certification - $100,000 every five years. Here we have used implied volatility reduction using option pricing to value the cost/benefits of investment in sustainable fishing. Similar arguments apply to a number of markets such as forestry, pollution or renewable energy – we should be adding the idea of valuing volatility reduction to our analyses.



Another way of viewing risk/reward is to see that a combination of all three activities, viz. risk avoidance, reward enhancement and volatility reduction helps companies to increase margin, stability and flexibility. So we have seen that volatility matters to sustainability. We saw that volatility reductions can be valued. The key point is that we can, do and should use option theory to value volatility reduction in financial terms. Consequently, in that paradoxical way of options, we frequently recommend selecting the more expensive return-on-investment option, if we can prove that the volatility reduction justifies it.

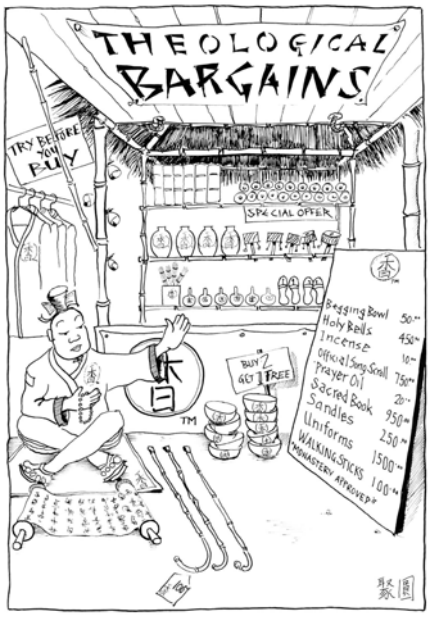
CSR initiatives seem to be here for the medium-term, despite Henderson's and Friedman's misgivings. CSR initiatives do cost companies money, but are intended to produce better returns, attract investment or reduce the volatility of certain key performance measures. If, over time, CSR cannot be shown to improve financial performance or valuation for

companies that sign up, people will need to re-think CSR and how they should really measure corporate contributions to society. In the meantime, studying the link between CSR and financial performance remains a fruitful area for investment research.

And it is the thrust of that research that leads me to my final point. If all of this research proves that CSR can be measured, that CSR investment can be quantified and that CSR returns are superior, where are the ethical problems in doing the obvious? Does a choice have ethical issues when a proper financial process will arrive at the same decision? Clearly, many people may not be using the right tools, and that itself may be an ethical lapse. Moreover, I realise that some decisions must be made under great uncertainty; that other decisions are made in markets that are not competitive or free; that some decisions involve externalities that are not properly priced; but … Is whether to invest in CSR activity that does 'pay back' an ethical choice or just a normal business investment choice?

Discussion

1. Is there anything intrinsically wrong with being 'good for profit'?
2. If NGO activism on an issue increases uncertainty for companies, is this rational for the NGO?



"Get a big picture grip on the details."
Chao Kli Ning

Thank you.

Further Discussion

1. Is there anything intrinsically wrong with being 'good for profit'?
2. If NGO activism on an issue increases uncertainty for companies, is this rational for the NGO?

Further Reading

1. Beck, Ulrich, Risk Society: Towards A New Modernity, (Mark Ritter, translator) Sage Publications (1992).
2. Black, Fisher and Scholes, Myron, "The Pricing of Options and Corporate Liabilities", Journal of Political Economy (1973).
3. Carlisle, Ysanne M and Faulkner, David O, "The Strategy of Reputation", Journal of Strategic Change, Volume 14, Number 8 (December 2005), pages 413-422.
4. Cowe, Roger, "SRI Results: The Jury Is Still Out", Special Issue on Sustainable Development, European Business Forum (2002).
5. CSR Europe, A Guide to Sustainability Analysis Organisations (2002).
6. Friedman, Milton, Capitalism and Freedom, University of Chicago Press (1962 and 1982).
7. Henderson, David, Misguided Virtue: False Notions of Corporate Social Responsibility, Hobart paper 142, Institute of Economic Affairs, London (2001) - http://www.nzbr.org.nz/documents/publications/publications-2001/misguided_virtue.pdf.
8. Holme, Richard and Watts, Phil, "Corporate Social Responsibility: Meeting Changing Expectations", World Business Council for Sustainable Development (March 1999) - http://www.wbcsd.org/DocRoot/RGk80O49q8ErwmWXIwtF/CSRmeeting.pdf.
9. Holme, Richard and Watts, Phil, "Corporate Social Responsibility: Making Good Business Sense", World Business Council for Sustainable Development (January 2000) - http://www.wbcsd.org/DocRoot/IunSPdIKvmYH5HjbN4XC/csr2000.pdf.
10. Kemp, Vicky, "To Whose Profit: Building A Business Case For Sustainability", World Wide Fund for Nature UK (2001) - http://www.wwf.org.uk/filelibrary/pdf/towhoseprofit.pdf.
11. Michael Mainelli, "Ethical Volatility: How CSR Ratings and Returns Might be Changing the World of Risk", Balance Sheet, The Michael Mainelli Column, Volume 12, Number 1, pages 42-45, Emerald Group Publishing Limited (January 2004). http://www.zyen.com/Knowledge/Articles/ethical_volatility.htm.
12. "A Novel Use for Options Theory – Fishy Maths", The Economist (16 August 2001) - http://www.economist.com/displayStory.cfm?Story_ID=739631.
13. Robertson, Stephanie, Dilemmas in Competitiveness, Community and Citizenship, The London School of Economics and Political Science (August 2002).
14. "Sustainability Pays", Forum for the Future (July 2002) - http://www.forumforthefuture.org.uk/publications/Sustainabilitypays_page712.aspx.
15. United Nations Environment Programme Finance Initiative, "The Materiality of Social, Environmental and Corporate Governance Issues to Equity Pricing" (June 2004).

5-7 St Helen's Place
London EC3A 6AU
United Kingdom

Risk/Reward Managers
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com

Further Surfing

1. Crook, Clive, "Survey: Corporate Social Responsibility", The Economist (20 January 2005) - http://www.economist.com/surveys/displaystory.cfm?story_id=E1_PVVVNTN.
2. World Business Council for Sustainable Development – www.wbcsd.org.
3. CSR Europe - http://www.csreurope.org/.
4. AccountAbility - http://www.accountability.org.uk/.
5. Black-Scholes background - http://en.wikipedia.org/wiki/Black_Scholes.
6. Numa option calculator - http://www.numa.com/cgi-bin/numa/calc_op.pl.
7. AMP Capital study - http://www.ampcapital.com.au/corporatecentre/research/pdf/SRIIndustry_StudyMA.pdf?DIRECT.
8. Marine Stewardship Council – www.msc.org.
9. Observatoire sur la Responsabilité Sociétale des Entreprises, "A Guide to Sustainability Analysis Organisations" - http://www.orse.org/gb/home/download/guide_to_sustainability_analysis_organisations.pdf.
10. Enhanced Analytics Initiative – www.enhanced-analytics.com.
11. World Resources Institute - http://www.wri.org/.
12. CSR Wire - http://www.csrwire.com/mediabuddies/article.cgi/4972.html.

Thanks

My thanks on the thinking behind this lecture to Ian Harris and to Brendan May and the Marine Stewardship Council for giving us our first opportunity to try out these ideas.

5-7 St Helen's Place
London EC3A 6AU
United Kingdom

Risk/Reward Managers
tel: +44 (020) 7562-9562
fax: +44 (020) 7628-5751
www.zyen.com