Ideas in Progress
Paper Number 50

Markets, indices and meaning

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The series constitute ‘ideas in progress,’ after the notion described by I.J. Good in ‘The Scientist Speculates.’ Good also describes ideas about ideas as ‘partly baked ideas’ believing that “... it is often better to be stimulating and wrong than boring and right.” While the papers do not take this tenet as an excuse for licence at the expense of rigour, they are exploratory and the ideas may change as a theme is developed over time.

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The chess pieces in the world stage are probably moving unstoppably East, a long expected rearrangement, now that Sovereign Wealth funds (and the highly skewed ownership of natural resources) are delivering both political and economic power. The crop of statements below from the FT of 23 October 2008 is simply a reflection of the emerging rearrangement.

“France is to set up a new ‘strategic investment fund’ to stop French companies from falling into the hands of foreign ‘predators’. It will focus on shoring up smaller French groups judged strategically important because of their technology or sector”

“Rome opposes sovereign funds buying more than 5% of Italian companies and sets up a national interests committee to come up with rules governing the behaviour of the funds”

“China Investment Corp, China’s sovereign wealth fund, is planning to increase its stake in Blackstone Group from 9.9 per cent to 12.5 per cent, according to a US regulatory filing”

“China’s $200bn sovereign wealth fund, which has made a series of loss-making investments in Western financial institutions since last year, could have as much as $5.4bn frozen in a failed US money market fund account”

“A top intermediary in the Gulf says Arab sovereign wealth funds are taking a different attitude to the Wall Street meltdown and will be looking for investment opportunities”

Why should this rearrangement be ‘long expected’? Even a cursory look at the table below (I took a longer one in the 1970’s in my role in the company I then worked for) is sufficient to indicate the root of the situation now engulfing the world.

The persistent population dominance of Asia, allied to the long history of intellectual and technical competence of its component countries, is enough to point to its growing economic and technical strength. While this has grown slowly throughout the past 50 years, that growth has been persistent. True there have been punctuation’s such as China’s ‘great leap forward’ and its ‘cultural revolution’; the Vietnam war, the Pol Pot regime in Cambodia and deflation in Japan, but the indigenous talent of the region has never been quenched. For example, if Russia is included, the region now contains four countries capable of near-space exploration as far as the Moon which represents considerable capability in invention and innovation, and is evidence that high science, technology and production, together with their management is widely shared throughout the world. More widely, perhaps, than has been recognised.

The long, slow growth of new capabilities in the region is typical of an ecological system and can be explained through the ‘panarchy’ metaphor (published by Gunderson & Holling in 2002), which indicates that the rearrangement of the chess pieces will continue and perhaps accelerate into a new phase as capabilities are conserved and consolidated, before their full power is released into a global reorganisation phase. Invention, innovation and their management are much in evidence during the release and reorganisation phase of the complex adaptive cycle, but throughout the entire STEEPV set, not in the limited sense of the management of technology. The conventional sense of management, with its emphasis on control and problem solving, is inappropriate in complex adaptive cycles where situations emerge and almost immediately mutate into another emergent form in a never ending cascade. The metaphor of amelioration is probably more appropriate, but implies different (and certainly unfamiliar if not presently unknown) modes and principles of management exercised across the entire STEEPV set with the modesty of recognising that ‘control,’ even in the human part of a living Earth, is not possible. What evidence is there for any of the above indications?

Perhaps the most obvious is the stability or lack of it as the modern world has become ever more tightly interconnected. The situation was set out succinctly in a recent paper as ‘the pace of migration of new science and technology has increased under the influence of the invention and later
innovation (or widespread use) of socio-economic communication technologies that have led to the world effectively being wired-up for communication at the velocity of light. It is only recently, from the middle of the Twentieth century, that a long, slow running unease with the assumption that all science and technology were ‘good things’ and that human plasticity\(^1\), mental especially, would always adapt to them, began to be challenged vociferously (Cagnin, Loveridge & Saritas 2008).’ Cybernetics has paid much attention to the phenomena of connectance and stability in many different situations (e.g. Gardner & Ashby 1970, Glaser & Halliday 1991, Haydon 2000). Ecological thinking has been turning in a similar direction over the past 30 years. One outcome has been the panarchy metaphor (Gunderson & Holling (Eds.) 2002) that invokes the notions of resilience, connectedness and potential in the behaviour of complex adaptive systems. It is time for an example that encompasses many of the above features and is of current interest: the behaviour of stock market indices.

Stock market indices are ‘inertialess’ indicators of market makers opinions of the monetary value of the publicly traded shares of a chosen set of public limited liability companies: they are also much more as will be indicated shortly. How is the index calculated?

The UK’ FTSE 100 is calculated using the following formula:

\[
\left( \sum_{i=1}^{n} \left( \left( p_i \times e \right) \times s_i \times f_i \right) \right) / d
\]

Where:

\( i = 1,2,3,...........,n \)
\( n = \)the number of securities in the Index.
\( p = \)Price
The latest trade price of the component security (or the price at the close of the Index on the previous day)
\( e = \)Exchange rate
The exchange rate required to convert the security’s home currency into the index’ base currency.
\( s = \)Shares in Issue
The number of shares in issue used by FTSE for the security, as defined in these Ground Rules.
\( f = \)Free Float Factor
The factor to be applied to each security to allow amendments to its weighting, expressed as a number between 0 and 1, where 1 represents a 100% free float. The free float factor for each security is published by FTSE.
\( d = \)Divisor
A figure that represents the total issued share capital of the Index at the base date. The divisor can be adjusted to allow changes in the issued share capital of individual securities to be made without distorting the Index.

The reason for describing the indices (many Index’ are computed in a similar way to the FTSE 100) as ‘inertialess’ is because of their sensitivity to security prices which are settled in trades in the ‘heated atmosphere’ of trading floors. How these prices are reached depends on the market makers and their analysts opinions (a subjective judgement) of the individual component company’s shares, based on the extent to which they understand (or misunderstand) the company and its business; the role the company plays in social life of the community and the economy of the country; the influence the company has on the ecology of the places, regions, etc. where the company’s business(es) are located (a surrogate for globalisation and glocalisation); the company’s ability to attract investment and many other factors. Trades are made on a combination of ‘gut’ feel and rational thought forced together by the extreme pressures of any marketplace. Given the behavioural pressures of a trading floor, the balance between ‘gut’ feel and rational decision making is likely to shift towards the former where the survival of a trader is almost certainly based on Darwinian dynamics. Nevertheless just as a street market can influence the vibrancy and fortunes of the town or village, so the antics of stock markets can have a major influence on the behaviour of publicly quoted companies, whatever their geographic reach; the country of their location and its population. In addition stock market behaviour feeds off history, the present and attempts to shape indeterminate horizons into the future either by intent or by accident. For example, from work I did with colleagues in the 1970s, we concluded that, in the UK, there is a lag of about one to one-and-a-half years between the bottoming of a bear market and its counterpart in the ‘real’ economy. There are fields where stock markets fail miserably; fuel and energy are the most prominent and are potentially the most disastrous, though outside the fuel and energy ‘world’ there is an almost universal misappreciation of this situation. Stock markets also

\(^1\) Penny Street and I used this term in a paper on ‘Inclusive Foresight’ in 2005: there is more substance to it than we realised at the time as it is used extensively in neuroscience and has been for a number of years
fail miserably in any ecologically based situation. However, let me illustrate some of the above from my records relating to the FTSE 100 Index in the UK, that go back to the 1970’s (Figure 1 overleaf)

Figure 1 Behaviour of the FTSE 100 Index 1978-2008

The immediate observation is the gross change in the regime from before the mid-1990s (say 1996) to post-1997. The usual claim is that these changes ‘could not be foreseen.’ Nothing could be further from reality. The two distinct regimes have a long history underlain by significant changes in notions of what constitutes the socio-political and value/norm base of economic activity and science, and technology, particularly in communications, that have enabled and/or promoted those shifts represented by economic activity.

The notion of ‘making money from money and not from making things’ grew up in the 1960s (Jim Slater was probably its most visible proponent) while the socio-political emphasis was probably given its public and academic blessing by Daniel Bell (Bell 1974). The idea that ‘making things’ was no longer necessary gathered strength in ‘advanced’ societies (especially Western) and gave rise, in the UK and the USA, to notions of societies based on ‘services’ without recognizing that all the components of vital societies are inter-related and inter-dependent. The notion of societies based on a more limited idea of services, perhaps more easily recognised by the absence of or a much diminished role for manufacturing industry, particularly of the ‘heavy’ variety, promoted the quest to ‘make money without making things’ in an economically globalized world ‘things could be made elsewhere,’ an evident fallacy. Western societies would become the intellectual base for newly developing world structures or so ran the myth peddled vigorously in the UK at least. In parallel, the staggering evolution of computers and communications science and technology, from 1945 onwards (Vannar Bush’s Memex machine and Colossus might be regarded as its instigators), were but another step in the long trail, over thousands of years, of ways of increasing the velocity and frequency of human interactions with the virtual eradication of time zones, a necessary condition from the equation $v=\frac{k}{\lambda}$. The coincidence of their latest incarnation, in the form of e-mail, the Internet and the world wide web (W3C), the latter evolved by Tim Berners-Lee in the late 1980s, and the idea of making money from money and not from making things (people who rejected this as unsustainable - I was one - were heavily ridiculed) fueled the stock market ‘bubble’ between 1997 and 2003. Unsustainable claims for the invention and likely innovation of ‘new kinds of economics’ and the demise of manufacturing, which had been heavily promoted in the UK and elsewhere since the 1980s, soon collapsed under the weight of their absurdity. Nevertheless, behind the frenetic activity of the growth of what became to be called the .COM era, a slower, more persistent growth of interest in and use of the W3C has blossomed into new ways of trading within the durable parameters of business activity. Its potential has probably not been released yet, though the resilience of the socio-economic system and the ‘plasticity’ of the human mind has been present throughout: these are brief interpreta-
tions of the behaviour of a complex adaptive system encapsulated in the panarchy metaphor. So much for the first bubble; what of the second?

The seeds for the second bubble, evident from 2003 to the present, were sown, in the UK, in the late 1960s (as already referred to above) with the beginnings of the ‘credit society’ based on value/norms shifts towards behaviour favouring immediacy and immediate, rather than deferred, gratification of wants rather than the satisfaction of long-felt and durable needs. The culmination has been a UK society (and perhaps more widely) based on the norms (not values) of the three AAA’s, Affluence, Appearance and Achievement (the behavioural characteristics of the AAA’s society will not be discussed here: it involves notions from Mitchell’s VALS1 hierarchy and Goleman’s notions of psychological maturity).

At the beginning of the 1960s mortgages were very difficult to obtain; considerable down-payments were de facto (required 10% and often more of the capital value plus satisfactory due diligence). Credit cards were a novelty not widely available, exchange controls were in place and overseas travel was a rarity. Throughout the ensuing four decades credit became more readily available (sure there were periods of restriction during the 1970s in periods of recession) but from the early 1980s onwards credit became steadily easier. Credit cards became a form of financial confetti while personal indebtedness rose sharply and has continued to explode in the US and the UK.

In the UK the notion of a property owning democracy, long a feature of British culture, received a hefty boost during the 1980s. Many people were able to climb onto the property ladder for the first time, but not without some less visible shifts in the lending practices of building societies and banks (who entered the mass mortgage market during this period - before then it had been the domain and raison d’être of mutual building societies). Whereas pre-the 1980s mortgages were granted on the basis of the ‘breadwinners’ salary and job security only, the new lending tactics were based on a couples’ (cohabiting or married) joint income up to multiples of four (later up to even seven). Other tactics were to mortgage properties to two or more couples/families in a pseudo ‘upstairs and downstairs’ fashion. Property values and indebtedness rose alarmingly until the property crash of the late 1980’s and early 1990’s, itself being stimulated by the stock market crash of 1987 fueled by the ‘big bang’ of 1986 and the introduction of programmed trading in securities, both of which depended on the fusion of computers and communications technologies. At this time many people found themselves with negative equity in their property and unable to service their mortgages: repossession rates climbed alarmingly. The expansion of personal credit and the general easing of credit conditions became re-established in the mid-1990s. The laxity of credit conditions thereafter enabled the .COM crash of 2003 to pass relatively unnoted save by those entrepreneurs who believed W3C really opened a new virtual route to everlasting prosperity and found it, and they had not.

The claim that the ‘credit crunch’ could not have been foreseen is simply untenable. Many people in the UK and the USA knew that personal indebtedness was rising and getting out of control: many people were deeply enmeshed in debt. Mortgage advances and other lending well in excess of 100% of the property/asset value were widespread and well known, while low interest rates, combined with low inflation, simply allowed the ‘Irish experience’ in the property market of the 1990s to be repeated in the UK. Lending practices had become extremely lax even permitting borrowers, in the absence of any thorough ‘due diligence’ by lenders, to ‘self-certify’ their financial status a truly astonishing action. Less obvious to the populace was the creation of a raft of ‘gee-whizz’ financial instruments (Credit Default Swaps, Collateralized Debt Obligations, Mortgage Backed Securities, Computer Loan Origination and many other instruments) were created to manage ‘apparently’ what is now called ‘toxic debt.

What relevance does this hurried canter through the recent past have for invention and innovation? The most obvious inference is that the most telling inventions have been in ideas of ‘new’ forms of society, perhaps culminating in the three AAAs, in which science and technology, contrary to common belief, have played a supporting role and not a leading one. It took Slater a matter of seconds to enunciate the idea of ‘making money not things’ but, as I have indicated, his invention and the ensuing innovation in every element of the STEEPV acronym has supported Slater’s contention. To parody the title of Niall Fergusson’s recent book, money has ascended from being a trusted means of exchange to a mistrusted object of human endeavour, to make money from money not from making things: a form of industry in itself. Indeed a ‘service’ industry that has led to a ‘service’ economy. The sheer volatility of a ‘financial’ economy is illustrated in Figure 2 overleaf.

Outrageously, perhaps this degree of volatility characterizes the AAA society of ‘celebs.’ that may (or may not) be collapsing now. The question is then typified by the current TV advert of a young couple looking
for car insurance. After facing a bewildering array of vehicles and linked insurance opportunities, the somewhat bemused man is told by his female partner, after an unknown selection process, ‘gut’ feel most likely, ‘that’s the car insurance settled’ followed by the immediate and eagerly urgent demand ‘What’s next?’ followed by an immediate visit to the inevitable two dimensional world of the computer screen, the doorway to the W3C world. ‘What’s next?’ we’ll see in the next installment.

Figure 2 Monthly volatility of FTSE-100 Index

![FTSE 100 Index Standard Deviation in Month](image)

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