

A new business model?

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A New Business Model?

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Abstract

The paper delivers an analysis of the “New Economy” focussing on the roles of new business models, the capital market and venture capital.

The capital market created a double standard in the 1990s: A high return on capital was required from old economy firms whereas money was thrown at new economy firms which had a business idea that stimulated the fantasies of financial investors but no earnings. Through the gradual burst of the tech stock bubble since spring 2000 it has come to the eyes of the public that many new economy start ups were unable to recover their costs.

This paper shows that business models related to the internet can only work under certain conditions. The sectoral distribution of power, for example, determines the prospects of the single firms to realise e-commerce in a profitable way. Digital technologies do not necessarily enhance profitability. On the contrary, they can increase competition and lead to lower profit rates. The limitation of competition appears to be a central condition of successful cost recovery.

The venture capital cycle has been an important driving force of the new economy boom, but it can also be momentum of a longer crisis. Enormous amounts of money have been channeled to new economy start ups hoping that successful IPOs will one day give venture capitalists a high return. But the burst of the bubble has brought down the IPO activity and interrupted the valorisation cycle of venture capital. Financial investors have reacted to the crisis by shifting their capital to even riskier investments, as the come-back of hedge funds indicates.

Contents

A New Business Model?	1
1. Literatures of the New Economy?	3
2. An Alternative Approach: Business Model and Cost Recovery	9
3. New Companies and Double Standards (1995-2000)	13
4. Sectoral Power and Old Defences	21
5. A New Financial Ecosystem?	27
6. Conclusion: All Over (Again)?	35
References	36

A New Business Model?

“IT innovation has (resulted in) ... a visible acceleration of the process (of) ... ‘creative destruction’ – the continuous shift in which emerging technologies push out old.”

Alan Greenspan, speech, July 2000

“The (Silicon) Valley was a little experiment in capitalism with too much capital.”
Michael Lewis, *The New, New Thing*, 1999

The quotations by Alan Greenspan and Michael Lewis epitomise two contrasting views of the “new economy”, as heroic adventure in innovation or as risky financial experiment. This difference of view suggests a research question: how could the new economy be, at the same time, both innovative adventure and risky experiment, balancing different physical and financial aspects of one process. This question is taken up in our paper through an analysis of whether and how the new economy creates new business models and undermines old ones. The answer to this question has been changed by the tech stock crash of Spring 2000 in the USA, which signalled the end of the 1990s bull market and the Goldilocks economy. Thus our paper about business models provides a retrospect on the madness of a stock market bubble and addresses the key issue of whether the new economy is over and done with or has just changed form as it enters a second phase.

The paper is organised in a relatively straightforward way. The first section presents a critical review of several literatures on the new economy, which provides the basis for our own alternative approach to business model and cost recovery in the second section. This approach is then developed in sections three and four: section three analyses the capital market double standard, a major novelty of the 1995-2000 period, which promoted new companies and unstable new business models; while section four emphasises sectoral power, a major element of continuity before and after 2000, which was used by new and old companies to establish the conditions of cost recovery. Section five takes up the issue of whether venture capital and IPOs (initial public offerings) in the late 1990s created a new financial ecosystem for funding innovation or simply pushed riskier investments in ways which amplified cyclicalities. Most of the empirics in sections three, four and five are taken from the USA because that was where the new economy influenced firms and households in ways which left a permanent legacy. The sixth and final section provides a brief conclusion to an argument whose implications are already fairly clear.

This paper does not side with those who doubt whether the new economy ever existed, instead we argue that the new economy denotes processes where financial logics dominate technology in a way that creates new policy problems and increases the risks of system instability. In that sense, the new economy of 1995-2000 is not finished but now changing form in a second phase whose unpredictable consequences are part and parcel of what we have elsewhere called coupon pool capitalism (Froud et al. 2001).

1. Literatures of the New Economy?

“The single most important event in the US economy since the Industrial Revolution.”

Jack Welch on the internet (1999)

The term new economy came into use in the mid 1990s when the technical power of connectivity was demonstrated by the networking of our PCs for email and the internet, just as the wealth creating potential of these technologies was illustrated by the rise of tech stocks with new names like Cisco or Amazon. Everybody, including Jack Welch of General Electric, slipped into the assumption that such technology was epochal and this section provides a critical review of the subsequent literatures about the new economy published (or written) before the tech stock crash of Spring 2000. The argument starts from common sense understandings of the new economy before turning to review the more analytic positions taken in the different economics, business and management literatures. Much of this literature deals in visions of transformation and the future which often date rapidly and, in this case, the literature has been quickly and cruelly superseded by events as the stock market falls and the US economy slows. But the literatures remain an important point of reference for those interested in what the new economy was and is. As well as providing an account and criticism of each literature, this section presents a table that contrasts the positions taken in the different literatures.

It is not difficult to agree on a descriptive definition of the new economy of the late 1990s, which included new companies (especially start ups), new business activities (especially in technology, media and telecoms) and new methods of delivering/purchasing goods and services for business and consumer in many other sectors. These developments, driven by digital technologies, caused so much excitement by the end of the decade because they were connected with a series of widely reported developments:

- the emergence of a knowledge based sector whose huge market and broader transformational potential set it apart from earlier demand constrained, knowledge intensive sectors such as pharmaceuticals;
- falling costs of information which created new distribution channels and products on the web and stimulated a new competition which created opportunities for prime movers just as it threatened many established corporate players;
- a disconnection of price from earnings on the stock market with a bubble in dot coms, which traded on price/expectations ratios as old companies were marked down to price/earnings of 10:1.

However, if we shift from description to analysis, different parties to the late 1990s new economy debates amongst social scientists, consultants and journalists started from different discursive a prioris and come up with different analyses of what the new economy was, and what it meant for the rest of us. The result was a series of literatures by visionaries, consultants, mainstream economists and gonzo journalists who had dif-

ferent preoccupations, concepts and measures but also confusingly recycled many of the same assertions and illustrations. If we exclude the more sociological and anthropological accounts (e.g. Castells, 1997-98) and concentrate on economics, business and management, the differences between the main literatures are presented in tabular form in table 1. The rest of this section provides a context for this table by considering each literature in turn as way of clarifying differences and identifying problems.

Table 1: Literatures of the new economy

	Speakers	Attitude + position	Evidence + the visible	Form + extent of change	What is the new economy?
Visionaries	Diana Coyle, Jeremy Rifkin et al.	Believers	Signs, anecdotes of a new world	Transformation, old vs. new oppositions	New metaphor + principle/era e.g. Weightlessness or Access
Consultants + Business schools	Evans and Wurster for BCG (with HBR); Means and Schneider for PwC	Chefs with recipes	Vignettes of firm success and failure	New rules for success after e.g. ungluing of supply chains	Management adapts and survives
Mainstream Economists	David Gordon, Paul David et al.	Agnostic technicians	Input/output ratio results	Looking better since 1996	Whatever the measures show...
Gonzos	Tom Wolfe, Michael Lewis	Cynics	Froth and money making	Bubble, bullshit and enrichment	More metaphors e.g. Racing down a dark tunnel ...

Note: Gonzo journalism is “a form of extreme ‘new journalism’ in which reporters, rather than taking the typical distanced, neutral position, interpolate their thoughts, emotions and actions into the story”. The term was coined and the genre pioneered by the US writer Hunter S. Thompson in Rolling Stone magazine c. 1970 (Green, 1998).

- (1) *Visionaries promoted the new economy in books where a metaphor/principle, such as weightlessness or access, represented the transformation/new era which the new economy brings*

As one of the visionaries admitted, a popular text on the new economy is an exercise in “viewing the world through the lens of a different metaphor” (Coyle, 1999, p. xxxi). The metaphor is typically announced through the book title: Coyle’s (1999) *The Weightless World* uses intangibility as “symbol of the economic effects of the cluster of advances in ICTs”; Rifkin’s (2000) *The Age of Access* is subtitled “how the shift from ownership to access is transforming capitalism”. If we consider these texts, all constructed on the principle of pursuing one metaphor for 250 pages, Rifkin provided the subtlest and most interesting account because his metaphor provided a multi-faceted account of the new era. His economic argument worked by setting up an antithesis between old and new: under the old economy’s system of ownership, physical capital was used to make goods which went to market where they were exchanged; in the new economy, intellectual capital is the driving force and the economy runs on

the principle of limited access (through arrangements such as leases and franchises) which are embedded within networks of long term commercial relationships.

In all the visionary texts, the reliance on metaphor was both an immediate strength and ultimate weakness. It was a strength because the visionaries were not confused by the ambiguity of events and identities; they know what is going on because the metaphor provides their map. But it was also a fatal weakness because they read capitalist history as a unitary process motored by one immanent principle that delivers a new order opposite and different to the old order; they cannot know what is going on because the map has become the road. The contradictions of any really existing capitalism then become a problem that is suppressed by focusing on fragments of confirming evidence and vignettes. Rifkin's text is classic in this respect. First, he focused on the rise of phenomena like car leasing, which confirm his access thesis, and largely ignored anomalies such as home ownership or the expansion of funded saving for old age (Rifkin, p. 10). Second, he used vignettes to illustrate the way the world is going: Hollywood is, for example, "the prototype for" the reorganisation of the rest of the world as the vertically integrated company ceases to exist (Rifkin, 2000, p. 24). The logic of this position is one best way and no boring empirics about how many and how often.

(2) *Consultants (and business school followers) positioned their firms for new economy opportunities by (asserting epochal change) describing new rules for success and prescribing what management must do in the new economy*

Intellectual product is increasingly used as an effective way of marketing consultancy services. Thus, we have the Means and Schneider (2000) book *Meta-Capitalism* for PricewaterhouseCoopers as well as the Evans and Wurster book *Blown to Bits* (2000) for Boston Consulting Group which expanded their original and influential essay on "strategy and the new economics of information" (Evans and Wurster, 1997) reprinted in Tapscott's (1999) collection of Harvard Business Review essays. The Boston and Harvard texts equated the new economy with new ways of value creation. In Evans and Wurster, falling costs of information unglue value chains, create new business opportunities for web based intermediaries and threaten the existing bundling of activities in car dealing, retail banking or newspapers. Many of the other ingredients are familiar from visionary texts. Tapscott asserted that "knowledge is the basis of value creation" in an economy where capital is increasingly intellectual assets and labour becomes "knowledge workers" (Tapscott, 1999, p. ix). Evans and Wurster (2000, pp. 200-01) praised the deconstructed capital and labour markets of Silicon Valley where competencies reside in the individual and the ecosystem.

Considered as intellectual product, the consultancy texts were disappointing because the consultants added so little to what we know from the sole author visionaries. Part of the problem is the consultants' consistent failure to exploit their in-house research resource and access to case material on major companies. Thus, the Evans and Wurster book reprinted their "cautionary tale" of Encyclopaedia Britannica (2000, pp. 1-7) and then added particularly blurred and impressionistic discussions of Amazon.com as well as of B2B in health care and auto parts. Nor do the consultancy texts

live up to their own ambition to prescribe as well as describe. Just as in the last panic, about Japanese manufacturing 15 years ago (Magaziner and Reich, 1982), Boston Consulting Group is strong on descriptions of the cycle of decline for “vulnerable companies”, where loss of business can throw a firm into a downward spiral, and much weaker on prescriptions of what management should do, where they recommend “almost any choice of focus” (Evans and Wurster, 2000, p. 67, 97). While this may feed the management insecurities which bring in new business, it does raise awkward questions about, what’s the consultancy product?

- (3) *Mainstream economists distanced themselves from the new economy by looking for the measurable results of digital technologies in macro input/output ratios which suggested caution about the new economy*

A few economists like Quah flirted with the ideas of paradigm shift, originally proposed in *Wired* by authors like Kelly (1998). On this view, the economics of scarcity are being superseded by those of abundance in an economy of increasing returns and extensible digital products which cost nothing to reproduce and can be used by more than one person at the same time. Most economists preferred the much narrower technical role of measurement experts who judge the new economy on the basis of input/output ratios and how digital technologies reduce the quantum of capital required or improve labour productivity. From this point of view, in the years up to 1995, the economists discussed the “productivity paradox” and emphasised that new technology had not (so far) produced a step-like increase in productivity growth rates (David, 1999). Late 1990s trends were more encouraging but some economists remained agnostic. Gordon (2000) estimated cyclical effects account for about 1/3rd of the post 1995 improvement, which was very narrowly based in digital technology with a spill over into durable manufacturing so that, as table 2 shows, the overall rate of labour productivity growth was not much higher than it was in the long boom.

Table 2: US Productivity Growth: Output per Hour by Sector, 1950-1999

	percentage annual growth rate per annum		
	1950:2 - 1972:2	1972:2 - 1995:4	1995:4 - 1999:1
Non-farm private business	2.63	1.13	2.15
of which			
Manufacturing	2.56	2.58	4.58
a) durables	2.32	3.05	6.78
i) computers		17.83	41.7
ii) non-computers	2.23	1.88	1.82
b) non-durables	2.96	2.03	2.05
Non-durables	2.68	0.8	1.5

Source: Thompson (1999), derived from Gordon (1999)

If this represents their contribution to the debate, the economists performed a very useful service by deflating some of the hyperbole around discussion of the new econ-

omy. But, at the same time, their role as technicians of productivity measurement limited their broader contribution to our understanding of what was going on in a number of ways. First, the narrow empiricist preoccupation with input/output ratios in real time, quarter by quarter and year by year, was seriously limiting. The economists offer to tell us when the transformation has happened but only some time after it has happened when transformation presumably will be obvious to many non-economists. Second, the more or less exclusive preoccupation with productivity represented a partial one-sided approach to the new economy. We would expect both profit and productivity to be implicated in any fundamental reconfiguration of the economy, as the Regulationists argue they were at the end of the long post-war boom. The general problem with technical, mainstream economics is that it has lost interest in analysis of what Marxists used to call the conjuncture and their appraisal of the new economy illustrates this perfectly.

(4) *Gonzo journalists cynically celebrated the new economy as froth and money making from digital technology whose unpredictability undermined the power of old economy actors and institutions*

The gonzos represent the “new journalism” whose accounts of the new economy added the irony and humanity so conspicuously lacking in the other literatures. Tom Wolfe and Michael Lewis who played an important role in interpreting Wall Street and the 1980s (Wolfe, 2000; Lewis, 1999) both turned to Silicon Valley in the late 1990s. Wolfe offered a history of the Fairchild Semiconductor and Intel start-ups plus caricature through factoids: half of all web site logons are at pornography sites and the internet industry created 14 new billionaires in 1999 (Wolfe, 2000, p. 5, 10). Lewis offered a more serious exploration of Silicon Valley through the metaphor of Jim Clark’s career. The founder of Silicon Graphics, Netscape and Healtheon moves from designer of chips for 3D simulations to promoter of plausible and half baked ideas for reintermediation in American health and, in doing so, turns the tables on the venture capitalists to become a billionaire. Apart from some specialist finance academics who produce technical monographs (e.g. Gompers and Lerner, 1999), the gonzos were the only commentators who took the money making seriously.

Lewis wrote the best book by far about the new economy. He offered a distinctive view of the new economy as a race down a dark tunnel, started by the intuitions of the likes of Jim Clark and sustained by the herd instincts of everybody else, including Jim’s cook and yacht crew, whose personal greed covers their absence of social or economic understanding. Lewis also had the good sense not to press his metaphor too far when Clark is obviously a one off character, fairly described as “a maniac who has his mania only partly under control” (Lewis, 1999, p. 187). The gonzo story depends on, and is ultimately limited by, point of view when Lewis’ mode of investigation was quite literally to follow Jim Clark and try to understand whatever he did. What about other companies, other sectors and broader considerations which get into the story only so far as they impinge on Clark and his activities? There is need for a more systematic analysis and it is to this task that we turn in the next section.

2. An Alternative Approach: Business Model and Cost Recovery

“The second chapter of e business will be a wiser one. And it will begin with questions. What’s the business model for profitability? ...”
Consultancy advert by IBM, early 2001

Sometime in the later 1990s, the term “business model” passed into general usage in management speak and the business press; as the quotation above suggests, the term survives in a changed world at the beginning of the 2000s as a way of flagging the new priorities of management after the tech stock crash as well as the new opportunities for consultancy. In this section, we argue the case for developing the term into a more vertebrate concept that is strongly associated with cost recovery and resolution. This strengthened concept is then used to understand the new economy in its first phase from 1995-2000 as well as subsequent developments. Our critical approach rejects the direct strategy of frontally attacking key assumptions and illustrations in the literatures; and instead prefers the indirect strategy of correction by developing an alternative analysis that rectifies absences and deficiencies in the literatures.

Frontal attack is immediately attractive when the visionary and consultancy literatures recycle the same few dubious illustrations and assumptions. One example would be their reliance on a few illustrative cases, especially Hollywood as metaphor for what replaces vertically integrated companies and Silicon Valley as prototype of a new business ecosystem. Another would be the often-repeated claim that intellectual capital is becoming more important in a world where knowledge is now the basis of value. Such assertions, identifications and claims manifestly do not rest on conceptual precision or careful empirical research and they are increasingly problematised or refuted by events since Spring 2000. As for Hollywood or Silicon Valley, these exist in the literatures as new myths for our time which replace the old myths about Ford and Japan whose empirical relation to anything like Highland Park was always fairly tenuous (Williams et al., 1992). Or again, conceptually, it was always logically fallacious to suppose that the increasing ratio of market to book values implied something about the growth of intellectual capital; even before the crash in tech stocks dramatised that point for non-accountants.

While nonsense of this kind should and could be criticised, the problem with the direct critical approach is that it can knock down the increasingly shaky and always half baked orthodoxies of the late 1990s without clarifying what the new economy was, is, or might be. This negative outcome is a real possibility because that was what did happen in the case of Japan, which had the same emblematic significance in early 1990s discussion of competition as the new economy had in the late 1990s. Direct attacks on lean production (Womack et al., 1990) and faltering economic performance after the end of the Hesei boom, discredited Japan as the new model and social scientists moved on to discuss other issues without being any wiser about what Japan

had represented or clearer about the basis of manufacturing competition. For this reason, while not completely renouncing direct attack, in this article we prefer an indirect approach of revisionism by alternative analysis that corrects the absences and deficiencies identified in our reading of the literatures of the new economy.

From this reading, and our own a priori as social accountants, we can develop three heuristic principles to guide alternative analysis:

(i) Understand the contradictions of new economy processes

The visionaries and consultants make strong assumptions about unitary, non-contradictory processes. An alternative analysis could renounce such assumptions by focusing on the old as well as the new economy without assuming that the old and new are subject to the same superordinate imperatives and without assuming that all the old (or new) manifests one essential identity. An alternative analysis should also reverse the tendency to focus on one level, as when visionaries and consultants concentrate on the micro level, or mainstream economics focus on meso and macro.

(ii) Understand the mediating/regulating role of the capital market

The capital market appears unsystematically or uncritically in the existing literatures: in the gonzo literature, venture capitalists queue up to give away our money to Silicon Valley entrepreneurs; while, in the consultancy literature the excesses of late 1990s IPO and venture capital are represented as a new business ecosystem which boosts innovation. An alternative analysis should provide a broader or systematic discussion of how the capital market mediates between savers and firms and how that market regulates the behaviour of old and new companies by what it gives and wants in return.

(iii) Emphasise cost recovery

Visionaries, consultants and business school literatures share a language about management “creating value” as part of their metaphysic. Against this, an alternative analysis should emphasise the task of management is to recover costs (including whatever surplus is required by the capital market). Of course, companies and sectors recover costs by adding value. But the change of language is nevertheless valuable because cost recovery emphasises management’s dependence on precarious and changing structural conditions.

If the heuristic principles identify a direction, an alternative analysis can only be delivered with the help of a concept that is up to the job. Our tactic here is to take the existing loose term “business model” and develop it into a more precise concept. In the business press or company SEC filings, the term business model is often used imprecisely in as little more than an elastic synonym for strategy. The best guide to current usage is provided by Michael Lewis who celebrates business model as a low definition term:

"Business Model is one of those terms of art that were central to the Internet boom: it glorified all manner of half baked plans. All it really meant was how you planned to make money. The 'business model' for Microsoft was to sell software for 120 bucks a pop that cost 50c to manufacture. The 'business model' for Health-e was to add a few pennies to every bill or order or request that emanated from a doctor's office. The 'business model' for Netscape was a work in progress; no one ever did figure out how to make money from Netscape; in its brief life Netscape had lost money. The 'business model' of most internet companies was to attract huge crowds of people to a web site, and then sell others the chance to advertise products to crowds. It was still not clear that the model made any sense" (Lewis, 1999, p. 274).

In our view, this loose term can be developed into a more precise concept by building on the term's existing associations with cost recovery and resolution:

(i) The association with cost recovery:

In current usage, the term business model denotes a firm level plan for cost recovery that can be explained to a journalist or venture capitalist or shareholder. That much is clear from answers to the question about when is it not a business model? It is not a business model by choice where cost recovery is not an object, as in the case of Napster, which was promoting free downloads of music before it struck its deal with Bertelsmann. Equally, it is not a business model when cost recovery fails so dramatically that the management is replaced or the firm goes out of business as in the case of boo.com or a dozen other B2C companies which ran out of money in 2000.

(ii) The association with resolution and closure:

In current usage, the term business model has strong associations with resolution and closure, which practically implies a prospect of sustained cost recovery for a period of 3-5 years (though the basis for cost recovery may change within that time). Again, examples can be used to illustrate the point. The British internet service provider, Freeserve had a business model of no fee for subscribers with costs recovered from the local call charges that they paid. When this model collapsed after 18 months Freeserve was embarrassed because it had no alternative sources of revenue. Compare and contrast the much larger US firm AOL, which has covered falling subscription revenues by generating revenue from advertising and software development.

The implication is that a more precise concept of business model can be developed by explicit consideration of whether and how the business model envisages cost recovery from product and/or capital market. Just as a more precise concept of business model should include more explicit consideration of whether and how business models can achieve resolution at firm or sector levels. Bearing these considerations in mind, we will in the next two sections of this article examine what business model means.

3. New Companies and Double Standards (1995-2000)

“There is not a single example of an established physical retailer actually taking the lead in electronic retailing in its categories.”
Evans and Wurster, 1999

This quotation from Evans and Wurster expresses the nearly universal late 1990s assumption that old companies were bound to lose in the new economy. The capital market knew no more than (maybe less than) these two consultants who made their name by announcing falling costs of information. But, the position of the capital market in present day US capitalism enabled the market to enact its prejudices and half knowledge about an imminent transformation: what TV did for the Gulf War, the stock market did for the new economy. This section analyses the immediate consequences at company level from 1995-2000 when the capital market developed a mania about new digital companies. The market operated a peculiar double standard whereby the stock market required increased earnings from viable old economy companies while it threw capital at plausible new economy companies that had no earnings. And the consequence was a (temporary) divergence of business models for old and new companies.

Faced with the prospect of epochal transformation, consultants and everybody else fixed on new companies (and new business models) as the agents and beneficiaries of change. Specifically, it was assumed that small new companies or start ups would capture the main financial benefits of transformation because the future belonged to newly created purely digital businesses who were meeting consumer or business demand or providing web infrastructure. As for old companies, they could not learn new tricks because they had the wrong competencies and too much organisational rigidity; the role of the big, old companies in this scenario was to be threatened, helpless and confused. The capital market’s participation in this speculation was crucial because the idea and reality of this kind of new economy was then appropriated and constituted through market identifications of new economy companies whose glittering digital prospects made their debt or equity coupons hugely more desirable than those of old companies.

The chronology of the stock market’s affair with new digital companies is straightforward because it was opened and closed by dramatic capital market events: the Netscape IPO in August 1995 and the tech stock crash in April 2000.

The 1995 Netscape IPO signalled that operating cost recovery from the product market apparently did not matter; the stock market was infatuated with new digital companies (or dot coms) and prepared to value them on great expectations. Netscape’s IPO produced a feeding frenzy: 5 million shares were offered at \$28 and reached a high of \$75 in the first day’s trading (*Computer Reseller News*, 28 August 1995). By traditional capital market standards, Netscape was a company which could not, and

should not, have been brought to market because it had a web browser product but no profits record and no resolved business model for cost recovery. At the point of the IPO, Netscape had been in operation for just over a year and the company had lost money on sales of \$16 million in the first half of 1995. Netscape's Navigator browser at its peak held 87% of the web browser market and allowed Netscape to move into profit in 1996 (BT Alex Brown research, 9 February 1996). But within one year of Netscape's IPO, Microsoft responded by offering its own browser, Internet Explorer, as a free add-on to the Windows operating system. Netscape was then forced to give away its browser and entered a circle of decline ended in 1999 when AOL bought the shareholders out.

The 2000 tech stock crash signalled that the market had lost its nerve and with it the bet on new companies, as the whole affair ended in disillusionment and the market rediscovered value investment. US internet stocks fell by an average of more than the 50% from mid March to mid April; in one six and a half hour stretch, internet stocks lost \$1 trillion in market capitalisation (Financial Times, 29 April 2000). The crash of the comparable European stocks was even more precipitous when in the UK the Techmark index fell from 5750 in March to 3000 in May (*Computer Weekly*, 1 June 2000). The hope that new companies could turn untried and rapidly changing digital technologies into profitable mass market products represented not a judgement about cost recovery prospects but a suspension of disbelief in a gold rush which involved sinking mines without geological surveys. The language about internet "land grab" and "prime mover advantage" implied as much. Many of the newly promoted companies turned out to be hopeless propositions that would never make any money while a few would generate huge riches. According to Morgan Stanley Dean Witter (2000), in February 2000 when the NASDAQ was near its peak, 71% of the 379 post 1995 IPOs were trading below first day close; and just 5% of these internet IPOs accounted for 72% of the gain in value. Given the number of hopeless cases, some fairly sharp market correction was more or less inevitable.

The result was a classic stock market bubble that both repeated the past and confirmed the present. The internet bubble repeated the past of the 1900s and the 1920s because earlier transformational technologies like autos or radio had triggered a boom in new company promotions and a bubble in share prices. The market usually takes sometime to realise that most of these new companies have poor prospects and are overvalued. That is hardly surprising if (as we suspect) most market players are not good at valuing fundamentals and compete to do the same thing. The bubble also confirmed the present of the 1990s, when stock prices played a central role in generating shareholder returns. Appreciating share prices accounted for 80% of total shareholder returns on the main US market in the 1990s and the NASDAQ only took this established principle further by driving up infotech stocks to a median p/e ratio of 150. The bubble only took established conditions and behavioural characteristics of the US form of coupon pool capitalism and developed them to the point of absurdity.

But it would be wrong to characterise the new economy as just a stock market bubble because stock market behaviour had implications for management calculation and

corporate business models. The first phase of the new economy from 1995-2000 represented a curious experiment in running the corporate economy under a capital market double standard. Under the ideology of shareholder value, the stock market required increased earnings from viable old economy companies; these were being pressed for a post tax ROCE of 12-15% which is rather better than most quoted companies managed even in the good years of the 1990s (Froud, et al., 2000). But at the same time the capital market was prepared to throw capital at new economy companies that had no earnings and uncertain prospects of profiting from digital technologies. By doing so it created an ideal new company trajectory: a successful new company would move quickly through a start up with venture capital, then sell out to a quoted company or make an IPO within three to four years, with subsequent offerings of debt or equity to finance expansion.

The double standard encouraged a divergence between the business models of old and new firms. Old economy companies were obliged to keep costs below revenue so that they could generate a surplus for the stock market, but new economy companies could draw on capital market resources to cover an excess of costs over revenue on the assumption that they were engaged in a kind of digital alchemy which could (ultimately) generate huge riches. For old economy companies in the UK or USA after shareholder value, the model was and is to keep labour (and purchase) costs steadily below sales revenue, so as to realise the 12-15% return on capital employed after tax that the stock market requires; and, if possible, achieve sales revenue growth by organic growth or merger and acquisition. For new economy companies after 1995, the model was to draw on the capital market (via venture capital, public offerings of debt or equity etc) so as to cover an excess of cost over sales revenue. At some later stage, if new technologies were exploited and market share was built, profitable sales would hopefully be found and the new company would stop burning cash. Meanwhile, sales growth and technology acquisition can be paid for by rapid acquisition paid for with equity.

The double standard did encourage new company start-ups and IPOs that recovered their costs from the capital market not the product market and, fairly predictably, most of the action came initially in the form of relatively small start-ups. As table 3 shows, the number of companies funded by venture capital in the USA grew from 803 in 1995 to 3080 in 1999, and the average commitment was around \$10 million per company. As table 4 shows, 342 internet IPOs were made between 1997 and first quarter 2000 and some three quarters of these were in the final frenetic 12 months before the Spring 2000 crash. The double standard also created the possibility of giant hyperactive firms with rapid sales growth and no profits, which covered operating losses and financed expansion from capital market not product market. The number of such hyper-actives was limited because few new firms had access to large markets and management bold enough to believe the double standard would last and operating profit could be ignored. As we argue below, only Amazon clearly fits into this category of giant hyper-active whose business model implied continuing dependence on the capital market. Thus, when the US market lost its nerve in Spring 2000 and ended the double standard, the direct impact on the real economy was small; the tech crash instead had an indirect impact as initiator of a chain of events, including inven-

tory correction and cut backs in IT investment which made recession an issue by Winter 2000.

Table 3: Venture capital funding

Year	Number of companies	Estimated venture financing (\$mil.)	Venture financing per company (\$mil)
1975	43	44	1
1976	51	49	1
1977	48	36	1
1978	119	105	1
1979	154	204	1
1980	221	331	1
1981	403	786	2
1982	574	1,241	2
1983	801	2,486	3
1984	902	2,555	3
1985	845	2,473	3
1986	843	2,667	3
1987	869	2,333	3
1988	800	3,751	5
1989	784	2,467	3
1990	663	3,629	5
1991	587	1,336	2
1992	687	2,747	4
1993	601	2,878	5
1994	647	2,722	4
1995	803	4,815	6
1996	1,374	7,872	6
1997	1,687	10,999	7
1998	2,087	17,184	8
1999	3,080	48,517	16
2000		107,684*	
Total 1975-2000		231,922	

* 2000 figure is an estimate based on the first three quarters. Estimates for 2000 have been successively revised upwards through the year.

Source: Morgan Stanley Dean Witter based on Venture Economics (Thomson Financial Securities Data)

In Spring 2000, the media began to carry stories about “burn rate”, that is, the length of time which internet companies would continue to operate before needing to raise additional cash. *Barron's*, the US business weekly, claimed in March that a quarter of the Internet companies it researched would run out of cash within 12 months (*Financial Times*, 25 March 2000); while a report from PricewaterhouseCoopers in May 2000 predicted that one in four UK internet companies would run out of cash in 8 months on average. The subtext in all the burn rate stories was that, when the cash ran out, many of these (unprofitable) internet start ups and newly floated companies would not be able to refinance by selling debt or equity because the stock market had learnt its lesson from the correction. Most of the start-up dot coms that failed or are

failing (like petgrocer and webvan), never achieved any sales volume and burnt out harmlessly when they exhausted their initial funding. In Europe, this kind of failure was epitomised by boo.com, a high profile European dot com company which had spent extravagantly on a web site with 3D pictures of fashion goods which did not shift the product (Campaign, 26 May 2000). When their game was up in May 2000, the insouciant principals gave good copy: “it’s not often you get to spend \$130 million. It was the best fun” (*Financial Times*, 23/24 December 2000). From the stock market point of view, \$130 million was not very much and its impact on sports goods retailing was quite imperceptible.

Table 4: Internet IPOs

Period	# of IPOs	Market Cap. Offer (\$mil.)	Market Cap. Cur. (\$mil.)*	Avg. market Cap at offering (\$mil.)	% trading above IPO	% trading above 1 st close
1997	16	3361	51135	210	81%	81%
1998	24	6848	87446	285	63%	50%
CQ1:99	23	11187	28515	486	52%	22%
CQ2:99	55	40771	99513	741	38%	25%
CQ3:99	72	32206	85897	447	53%	40%
CQ4:99	67	45848	60855	684	36%	15%
1999	217	130012	274780	599	48%	28%
CQ1:00	67	44369	36569	662	22%	1%
CQ2:00	18	8932	9477	496	39%	22%
Total	342	194522	459407	566	42%	26%

* # of IPOs on file with SEC

Source: Morgan Stanley Dean Witter

Amazon is the one new company with an unresolved business model that has hyperactively grown by borrowing billions to cover continued unprofitability. “The world’s best known retailer” (*Financial Times*, 30 August 2000) has grown spectacularly since 1995 to reach \$1.6 billion sales in 1999 without ever turning a profit, so that its \$2.1 billion of long term debt more or less covers the accumulated losses. Amazon’s operating position is made worse by \$1 billion of shares issued for acquisition purposes, which leave it amortising goodwill equal to 13% of 1999 sales. If Amazon did “get big fast”, it has never solved the problem of operating cost recovery from a combination of digital ordering with traditional order fulfillments. As table 5 shows, up to 40% of revenue is spent on marketing to attract customers. Amazon’s original business model was to cut prices and costs by ordering from wholesalers but that model could be imitated or frustrated by buying wholesalers (*Tribune Business News*, 6 November 1998). By 1999, Amazon had built or acquired 5 million square feet of warehouse and distribution space (Salomon Smith Barney, 8 March 2000)

which were increasingly filled with non-book lines which now account for more than half of sales and problems about rising stocks, higher fulfilment costs and write-offs.

Table 5: Amazon.com operating performance and financing

Operating performance

	Sales \$mil.	Gross Margin %	Net Loss \$mil.
1995	0.5	20.0	0.3
1996	15.7	22.0	6.2
1997	147.8	19.5	31.0
1998	609.8	21.9	124.5
1999	1639.8	17.7	720.0

Expenses (% of sales)

	Marketing and sales	Marketing*	Fulfil- ment*	Product De- velopment	General and administrative	Amortisation of goodwill
1995	39.1			33.5	6.9	
1996	38.2			15.1	8.9	
1997	27.1	16.7	10.4	9.1	4.6	
1998	21.7	11.3	10.4	7.6	2.6	7.0
1999	25.2	11.5	13.7	9.7	4.3	13.1

Capital structure (\$mil.)

	Inventory	Working capital	Goodwill	Investment in equity-meth- od investees	Long-term debt	Shareholders' equity
1996	0.6	1.7				2.9
1997	9.0	93.2				28.6
1998	30.0	262.7	174.1	7.7	348.1	138.7
1999	220.6	273.2	534.7	226.7	1466.3	266.3

* Lehman Brothers estimates

Sources: Company accounts; Lehman Brothers

But Amazon's story needs to be set in context: the problems created by Amazon's business model are by no means unprecedented in stock market terms and Amazon's continued unprofitability makes it a heroic exception amongst other large dot coms founded in the mid 1990s. The corporate promoters of transforming products and processes often leave a financial mess behind them. In Amazon's case, the operating business in book-selling is sound enough if it is separated from the balance sheet where the consequences of accumulated losses, extravagant marketing and reckless acquisition are stored up. So Amazon is to book-selling what the Channel Tunnel was to holes in the ground; this is a perfectly sound business provided private shareholders and bondholders who have funded the creation of the business write-off their coupons and renounce any claim on future earnings. In this situation it is Amazon which must now choose between restructuring itself or selling out, probably to another retailer like Walmart, while Barnes and Noble, the biggest traditional US book-

seller has not been forced out of business and can sit on the sidelines awaiting developments.

As for the market, Amazon would only be a problem if investors had to take the write-offs on ten or a hundred Amazons. But that is unlikely because all the other large and fast growing retail (B2C) companies like AOL, Yahoo! and eBay managed to turn a profit by 1999 or before. If their prospects now look more uncertain that is because many depend heavily on advertising which makes them cyclical, just like many old companies. The best of these companies, eBay, is actually relatively robust. The secret is partly eBay's choice of business activity, which involves less cost and surer recovery than other retail operations. As an on-line auction house, eBay offers pure intermediation with no responsibility for physical delivery and most of its revenue is derived from fees not advertising. Sales have recently been doubling each year to each \$430 million in 2000, the company has been profitable since incorporation and long term debt is negligible. The idea that all internet stocks are equally unsound is part of an hysterical post-crash overreaction which tells us more about the febrile state of current market sentiment than it does about the business models of internet companies. Thus, after spring 2000, the double standard could be rescinded without catastrophic immediate consequences. (Like Jim Clark) the stock market had kept its mania half under control and not funded too many Amazons partly because many dot com managements either found it difficult to get big fast or calculated prudently that the double standard would not last.

So the affair between the stock market and new companies ended badly, but not disastrously and mundane life was resumed in a slightly shame-faced kind of way as the capital market and the rest of us came to terms with our own foolishness and new economy boosters contemplated the need for personal reinvention. The post-2000 world was not of course the same as the 1995 world. The bubble and crash in tech stocks dramatised the overvaluation of all share prices and helped to bring the ten year bull market to an end as investors realised that the main market was, at 25:1, trading well above its long run historical average price earnings ratio. The mania about dot coms also served more broadly as an enormously effective social marketing tool for internet technology. Morgan Stanley (June 2000, Global Internet Primer) calculated that the internet reached 50 million American users or half of America's households in just 5 years, when radio had taken 38 years, TV 13 and cable 10 years to reach that number of users.

All this made things worse for old companies whose problem was not that everything changed in Spring 2000 but that nothing really had changed since 1998 or earlier. Digital technologies never went away but were pushed towards universalisation and, in competitive markets where profits are hard to find, old companies were and are still puzzled about how to integrate digital into their business models or how to prevent competitors with digital technologies undermining their already fragile cost recovery. The seepage of business school language into companies encourages many managers to see the problem as one of competencies though (in our view) the more fundamental general problem is competitive product markets. And this point can be illustrated by considering the case of Tesco, Britain's leading supermarket chain

which has used the web offensively to build the largest online grocery shopping business in the world which takes 60,000 orders per week and aims for a turnover of £200 million in 2000.

Tesco is the practical refutation of the preconception that old companies were doomed to fail on the web. But, interestingly, despite a canny strategy of controlling and recovering costs, Tesco is (just like Amazon) more successful at obtaining customers than in making profits from a business which combines digital ordering with traditional order fulfilment. The company saves investment and operating cost by van deliveries from the existing store system. But even so, Tesco's online service is losing money and the target of breaking even by 2001 can only be achieved by not allocating all head office marketing and development costs (Merrill Lynch, March 2000). Any further expansion of the online business would require new depots and more van journeys. That is problematic because delivery costs are currently covered by a charge of £5 per order, which may not be sustainable in the next phase of competition when several grocery chains offer on line shopping. The one element that remains from the original vision of the new economy is the threatened, puzzled old company that operates in competitive markets.

Insofar as the problems relate to product market competition, the problems are not confined to old companies. Amazon and Tesco both show in different ways how it is difficult to construct a business model with cost recovery from digital ordering and physical fulfilment in a competitive market. Hence the importance of sectoral power which we consider in the next section.

4. Sectoral Power and Old Defences

“For society, the internet’s a wonderful thing – but, for capitalists, it’s probably a net negative.”
Warren Buffet, 2000

In this quotation, the doyen of value investors sums up his verdict on digital technologies, which reflects his cynical belief that the internet is bad for profitability because it increases competition and reduces barriers to entry. But that suggests the question about “where’s the business model for profitability” does have a positive sectoral answer for leading firms which can limit economic competition and raise barriers to entry or acquire and use political power to set cost recovery rules in their favour. Looked at another way, these sectoral processes are solutions to the micro problems discussed in the last section. When the market’s double standard and new technology burden many new and old companies with unresolved business models, management effort and action is then displaced onto the meso level, where firms seek resolution through acquiring positions of supply chain power and product market dominance that will secure turnover and cost recovery.

The meso level of inter and intra-sectoral relations between companies was generally represented as a huge opportunity because it contained what Morgan Stanley called large “addressable markets”. These included infrastructure for the new economy provided by specialist equipment suppliers, as well as B2B which represented a much larger field of opportunity because the addressable market here included input purchases as well as output in all the sectors of the old and new economy. Table 6 illustrates this with some sectoral analysis based on US Department of Commerce input/output tables. The tables show substantial sectoral differences because the pattern of purchases and sales varies between activities. But, across the sample of sectors (excluding government and international trade), business’ final output sales to other US businesses (out of sector) account for more than 40% of final output, with the rest going to consumers. The scope for B2B is much larger than that because, as table 6 shows, intermediate consumption, or non-final B2B sales, are just as large as B2B sales of final output. If the two categories of intermediate and final sales, intra and inter-sectoral B2B are added together, business demand in total is substantially larger than final consumer demand.

But the existence of a large addressable market does not, in itself, make it easy to find turnover or guarantee cost recovery in firms that do meet customer demands. The maintenance of cost recovery at meso level depends on two conditions: first, the exercise of sectoral power, which can be used to capture turnover and establish the ground rules for cost recovery; second, the acquisition of final product market power, which ensures that the profits of capital will not be given away to consumers. The implication of this argument is that many of those who seek to exploit new sectoral opportunities will fail to find a market or secure cost recovery because they lack power. This section uses cases to illustrate how this played in two successive periods:

Healtheon and Covisint illustrate the first phase from 1995-2000, when profits were secondary for many new companies and power was used to sign up new customers; Cisco and AOL Time Warner illustrate developments since 2000, when sectoral power is being used to secure the profitability which the market now demands.

Table 6: The significance of B2B and B2C transactions in the US economy

	Sector output as a % of the economy	Intermediate consumption as a % of sector output	Sales to business as a % of sector output [B2B]	Sales to consumers as a % of sector output [B2C]
Health, education etc	5.5	37.4	2.2	97.8
Tobacco	0.3	39.5	6.7	93.3
Retail trade	5.5	30.9	7.6	92.4
Education	2.4	46.1	9.4	90.6
Eating and drinking places	2.7	49.4	13.0	87.0
Drugs	0.6	51.7	28.9	71.1
Motor vehicles and equipment	2.6	82.7	34.4	65.6
Computer software/data processing	2.0	44.6	39.9	60.1
Finance	4.9	41.7	41.3	58.7
Computer and Office equipment	0.8	87.3	41.9	58.1
Insurance	2.5	55.2	42.6	57.4
Air transportation	1.0	49.9	43.9	56.1
Hotels and lodgings	0.6	44.6	45.7	54.3
Communications	2.4	44.5	47.1	52.9
Wholesale trade	6.2	32.8	50.3	49.7
Automotive repair and services	1.5	49.4	50.7	49.3
Real estate and royalties	5.5	24.5	60.6	39.4
Utilities	2.7	48.3	65.1	34.9
Transport and warehousing	1.7	52.3	67.5	32.5
Business and professional services	8.6	32.7	69.3	30.7
Sample total	60.0	41.2	40.5	59.5
Total economy	100.0	48.3	48.3	51.7

Source: *Survey of Current Business*, US Dept of Commerce, 2000

In the late 1990s, the standard Boston and Harvard consultancy line about falling costs of information and unglued supply chains encouraged interest in reintermediation and B2B trade exchanges. Two of the new entrants were Healtheon, whose project was reintermediating US health care, and Covisint, which proposed a trade exchange for auto manufacturers and their parts suppliers. Both new companies were promoted with the pitch that they addressed huge markets that would surely make their founders rich.

Healtheon was set up in 1996 to tap the potential of healthcare, the largest internal US civil market, by reintermediating between doctors, insurance companies, HMOs and the like, whose manual billing could be replaced by digital systems on which Healtheon would charge a transaction fee. Mike Long, Healtheon's CEO, boasted

the firm to venture capitalists and investment bankers with the promise that Healtheon could be bigger than Microsoft:

"All I have to say is that there are 700,000 physicians in the United States and that we feel we have a legitimate shot in signing up 500,000 of these. Each doctor represents \$20,000 a year in revenues, I'll just say 'you do the math'" (Lewis, 1999, p. 185)

Covisint was a late comer, which announced in February 2000 that it would provide a market place for auto parts as well as technologies for supply chain management. It was sponsored by four car assemblers, Ford, GM, Daimler Chrysler and Renault Nissan (with technical partners Oracle and Commerce One) who all took equity stakes in this B2B exchange (*Business Week*, 5 June 2000). The assemblers were old companies who hoped a new trade exchange would enrich them in two ways. First, the exchange promised cost savings of \$2-3,000 on a \$19,000 car (*Financial Times*, 14 June 2000) from efficiency gains and reduction of supplier margins. Second, if the four manufacturers put part of their \$300 billion annual purchasing requirement through Covisint they could quickly make an IPO and pocket the proceeds. In spring 2000, Goldman Sachs predicted the flotation could come as soon as 2001 and estimated the potential market capitalisation as between \$ 30 and \$40 billion (*CIO Magazine*, 15 April 2000).

In both cases, the dreams have not so far been realised. But there is one important difference between the two failures. Healtheon failed completely because it lacked the sectoral power to sign up customers, whereas this was not a problem for Covisint where assemblers could use their power to compel parts manufacturers to sign up on adverse terms. Covisint has simply ceased to be a high priority for assemblers because they accept that the exchange business model works only for commodity parts and realise they have missed their window of opportunity on an IPO which cannot be made in current depressed market conditions.

In US health care, insurance companies saw no reason why they should re-route their business on terms which would make profits for Healtheon when they could, in due course, do their own reintermediation. Healtheon's post-1997 strategy of automating physician groups and preferred provider organisations (PPOs) was chosen after insurers refused to support its original plan for web management of employee benefits at large corporations (US Bancorp Research, October 1999). In April 1999, when six of the largest US insurers announced their own rival web venture, Healtheon lost more than half its market value. Healtheon then tried to cover its own absence of power by becoming a client of Microsoft. In May 1999, within 2 months of its IPO, Healtheon announced a merger with WebMD, a Microsoft supported rival start up. Subsequently, to encourage doctors to use WebMD/Healtheon for transactions, Microsoft and Dupont promised up to \$1.2 billion which would cover the basic service subscription fees for up to 200,000 doctors for five years (Lehmann Bros Research, June 2000). But, even with fee waiver, the doctors are not using the system; only 15% of the 100,000 doctors who have signed up actually use WebMD for transactions (*Forbes*, 17 July 2000).

Covisint makes a nice contrast because here first tier auto parts suppliers had no choice but to sign up for a B2B exchange which was set up and owned by the car assemblers, who were determined to operate it in their own interest. The announced terms and conditions for participation were unfavourable for suppliers who would pay to use the exchange “through various fee structures applied to transactions on the exchange”. By implication, the transaction fees paid by parts suppliers would finance an exchange whose auctions would then set them against each other. Some 40 suppliers were offered profit sharing participation in lieu of an equity stake but this profit sharing would come in the form of rebates on fees and the rebates would be paid only after Covisint had met profit targets (*Automotive News*, 26 June 2000). Nevertheless US parts suppliers, including major independents like Arvin-Meritor, Federal Mogul, Johnson Controls and Lear, signed up for the new exchange whose operations were finally cleared by the US competition authorities in September 2000 (Covisint web site). They had no choice because the assemblers privately insisted that they would only buy from suppliers who used the exchange; at the same time the manufacturers publicly reserved the right to take purchasing business away from the exchange after Covisint’s IPO.

After the tech stock crash, the importance of sectoral power has been reasserted in different circumstances. In 2001, as profits are increasingly required by the stock market and difficult to find from the product market, so the abridgement of competition becomes an increasingly important part of the new economy story.

Those who wrote on the new economy occasionally glimpsed the abridgement of competition through their rose tinted glasses and then generally related these developments to the technical characteristics of knowledge based products and digital technologies as part of a new economics of information. Thus Coyle (1999, p. xvi), Rifkin (2000, chapter 4) and Evans and Wurster (2000, p. 15) all endorse the kinds of arguments long since familiar from pharmaceutical company lobbying: companies will not invest in knowledge based products unless they have patents or copyrights that allow cost recovery. Elsewhere, Evans and Wurster (1997) invoke network economies of scale as a cause of monopoly: with a product like the telephone, the greater the number of people connected, the greater the value of being connected. While these considerations may have some force, they do not explain the tendency to sector domination by single firms where property rights or network economies of scale are weak.

It is more plausible to relate the abridgement of competition in such cases to management’s pursuit of sectoral power that can underwrite profitability. Since 2000 such power becomes increasingly important because it can be used to secure a resolved business model in a variety of circumstances including cyclical downturn, secular slow down in market growth or unsettling conditions of uncertainty about future technologies. This process of defending or acquiring sector power does not rest on some new economy difference but instead establishes an increasing similarity as successful new economy companies blur into old economy companies. This is currently happening in two ways, which can be illustrated by considering the cases of Cisco

and AOL. Cisco currently faces a downturn in demand for its switches and routers while AOL faces the longer term problem of what comes after narrow band access.

Cisco has grown revenue and earnings by 30-50% each year since 1995 but revenue growth is slowing with the tech downturn and Cisco projects flat sales for the first six months of 2001 (*Business Week*, 20 February 2001). The downturn has also brought a 50% fall in Cisco's share price which threatens to block acquisition which was a key element of Cisco's late 1990s business model. Cisco had used its own high priced shares to buy in strategic new technologies and personnel and had acquired some 65 companies up to the end of fiscal 2000 which then accounted for some 40% of Cisco's current turnover (*Business Week*, 20 February 2001). State of the art manufacturing techniques were another key element in Cisco's late 1990s business model. Cisco is a virtual manufacturing company with supply chain management, training and customer support all on line in ways which save time and money: Salomon Smith Barney (August 2000) claims Cisco's internet based gains include a 75% reduction in lead times and a 20-30% reduction in manufacturing cost. This, of course, means that Cisco cannot easily get further cost reduction from outsourcing and web based organisation as it moves off its trajectory of rapid growth.

Cisco's defence against all these threats is its market dominating, reference product status in internet switches and routers, where it has achieved the position which IBM held in mainframes or Microsoft holds in PC software. Out of 20 current product areas, Cisco is number one in market share in 16 and number two in 4 (Bunnell and Brate, 1999, p. 177). Cisco's main customers are large organisations and internet service providers where, in both cases, Cisco captures about half of the total market demand. Cisco also has a broader product portfolio than any competitor. Routers originally accounted for 80% of sales revenue but switches are now equally important with Cisco dominant in all categories (layer 2, layer 2/3 and layer 4-7) switches. Cisco needs to be stronger in optical networking but, as the unchallenged leading supplier of internet infrastructure equipment, Cisco has a license to print money and negotiate the transition to slower growth. The company has been continuously profitable since it shipped its first product in 1986, is currently debt free and in 2000 earned \$2.7 billion of profit on \$19 billion of sales in 2000.

AOL's problem is rather different as the opportunities of narrow band are exhausted and the possibilities of broad band are unclear. AOL has a very strong position in narrow band access. It is the largest internet service provider with a product for almost every user so that AOL products account for 33% of total hours spent on line by the US population. (ABN AMRO, 21 September 2000) Subscription services include AOL and Compuserve plus specialised portals like Moviefone and Spinner for on line music as well as an array of mail, message and MP3 communications services. But the company which has only recently become profitable with operating profit of \$458 million on revenues of \$4777 million in 1999 and its dependence on advertising revenue is worrying. More fundamentally, rates of growth for household access to the internet are slowing towards 10% per annum and new applications will require broad band access rather than narrow band via PC modem dial up (*Financial Times*, 20 November 2000). It is not yet clear whether household broad band will be achieved by cable, wireless or

modified copper wire; and nobody knows what kind of black boxes (ITV, wireless mobiles or intelligent appliances) will be used to download and connect.

AOL's response has been to acquire a different identity through merger with an old company that establishes a new sectoral position of power for negotiating the transition to broad band. The merger is with Time Warner, one of the largest media and entertainment companies as well as the second largest cable company in the USA. Its brands include CNN, Time magazine, Warner Brothers, Atlantic Records and others that are more glamorous than the financial results. In 1999, Time Warner had \$19 billion of debt, capital expenditure more or less equal to the \$2.8 billion cash flow, and a cable division which generated 40% of revenues (after huge investments) returned just 11% ROCE. But, the merger broadens AOL's portfolio in several important ways. The merged company will cover several platform possibilities with 21 million cabled homes added to AOL's 26 million subscribers and 161 million registered web users (Morgan Stanley Research, 2000). The merger also usefully adds content that could be crucial if vertical disintegration turns out not to be the coming thing: Time Warner owns more copyrights than any other company (ABN AMRO, 21 September 2000). And the downside financial risk of merger is small when the merged companies have a projected strong cash flow.

From a business model point of view, the question is not whether digital technologies can really transform corporate or individual experiences, nor how could digital technologies spin dreams of riches for everybody. The business model question is, more prosaically, under what conditions can digital technologies support corporate business with resolved business models for cost recovery? Cisco and AOL suggest the answer is to secure cost recovery by building and using sectoral power through high market shares, brands and property rights which can defend new companies and old. In consequence old and new companies become increasingly indistinguishable as some new economy companies survive and prosper by imitating traditional business models.

5. A New Financial Ecosystem?

“It appears as if there is somewhat of a ‘virtuous circle’ where the growth in the activity of the US venture capital industry has enhanced the conditions that drive the value creation of this capital, which has in turn led to more capital formation.”
 Gompers and Lerner (1999) on US venture capital

In their academic account of venture capital, Gompers and Lerner rather ponderously endorsed a belief that was widespread during the period of the affair with new technology from 1995-2000. The belief was that the US had discovered a dynamic new financial ecosystem which could in a virtuous circle boost real economic performance by routing innovation through the capital market with venture capital providing start up funds, and IPOs then allowing venture capital to exit by selling to mainstream funds. This section illustrates these views, discusses what happened when the Valley over invested in a narrow range of digital technologies and observes how investment in a narrow range of technologies inside and outside the Valley contributed to cyclical and the current downturn in growth.

Table 7: The distribution of venture-based and nonventure IPOs for the period 1978-1997

Year	Number of venture-backed IPOs	Amount raised in venture-based IPOs	Total number of IPOs	Total amount raised in all IPOs	Venture-based IPOs as percent of all IPOs (number)	Venture-based IPOs as percent of all IPOs (amount)
1978	6	\$152	42	\$550	12.50	21.59
1979	4	70	103	882	3.74	7.34
1980	24	760	259	2641	8.48	22.35
1981	50	888	438	5501	10.25	13.91
1982	21	837	198	2157	9.59	27.97
1983	101	3916	848	20424	10.64	16.09
1984	44	829	516	5877	7.86	12.37
1985	35	929	507	15100	6.46	5.80
1986	79	2273	953	27122	7.66	7.73
1987	69	1818	630	22378	9.87	7.52
1988	36	1038	435	7579	8.28	13.70
1989	39	1260	371	7674	10.51	16.41
1990	43	1440	276	5478	15.58	16.29
1991	119	4352	367	19145	32.43	22.73
1992	157	4899	509	27222	30.84	17.99
1993	193	55	707	45906	27.30	12.12
1994	159	3867	564	31529	28.19	12.26
1995	205	7093	566	41099	36.22	17.26
1996	284	12455	845	43398	33.61	28.70
1997	134	4845	628	45704	21.34	10.60

Source: Gompers, P. and Lerner, J. (1999), based on Barry, et al. (1992), Ritter (1997), and various issues of *Going Public: The IPO Reporter and the Venture Capital Journal*

The belief identified an ecosystem where venture capital was part of the deconstructed alternative to the integrated corporation and the Valley was the model for all our futures. Evans and Wurster identified venture capital as an integral part of a “business ecosystem” where “Silicon Valley performs as a large decentralized corporation” (Evans and Wurster, 1999, p. 211). Malone and Laubacher (1999) identified “venture capital micro markets” as one of the necessary building blocks of an e-lance economy. As for effects, consultants, journalists and academics all identified venture capital as part of a virtuous circle that speeds up innovation. According to Means and Schneider (2000, p. 110), the “internet model” not only accelerated the movement of capital to sources of highest return but also provides “larger and more varied sources of funds for attractive investment opportunities”. Mandel (2000, p. 37) feared recession and a tech cycle but did not doubt that “the new venture capital markets drive a self reinforcing cycle of innovations, yielding a continuous stream of new companies and technological change”. More academically, Gompers and Lerner (1999, p. 325) said much the same thing and directed attention away from short run instabilities to the “more fundamental factors that determine the long run, steady state supply of venture capital”. Here they detect “quite substantial changes for the better over the past several decades” in factors such as the magnitude of fundamental innovation, the presence of liquid and competitive capital markets and the entrepreneurialism of engineers and managers.

During the period of the affair, the new orthodoxy was so strong that the policy question in other countries was how they could recreate a US type ecosystem. This was particularly notable in the UK where venture capital fits into New Labour’s ideology of enterprise and risk taking. The British Department of Trade and Industry (2000) commissioned a “scenario for success in 2005” for UK information and communication technologies. One of the six preconditions for success in this scenario was “a further improvement in the availability of venture capital, and in experimentation with new business models”. The report went on to note that, despite the growth of UK venture capital, “there is still a lack of ambition on the scale of that seen in the US” and recommended “the formation of a European equivalent to the NASDAQ stock exchange” (DTI, 2000, p. 13). The Myners (2000) Review of Institutional Investment shows that these recommendations are taken seriously. This report for the Treasury highlighted the fact that the UK venture capital industry raised less than 13% of its funds from UK pension funds and insurance companies and recommended secondary legislation to remove obstacles to pension fund investment in limited partnerships which are the usual vehicle for venture capital (Myners, 2000, p. 1, 21).

The emergence of the new orthodoxy on the desirability of (more) venture capital is startling if we remember there is no solid historical evidence that the American way brings more innovation or encourages more rapid adoption of new technology. Gompers and Lerner strive to find such evidence but they are defeated by their own fairly mechanical approach to innovation which is measured by proxies such as patents. They are also hampered by the more fundamental problem that large scale venture capital in the USA is a development of the period 1995-2000, so that the past is no guide to the future and their empiricist techniques cannot properly be applied.

If we review the evidence on what happened between 1995-2000, venture capital created a narrowly based boom and bust which was an intense part of the affair and hardly conducive to considered risk taking at the point of commitment or orderly realisation of profits at exit:

1. Venture capital was increasingly narrowly concentrated on digital technologies in general and the internet in particular. The proportion of venture capital disbursements going to internet related companies rose year on year from 12% in 1995 to nearly 50% in 2000. As table 8 shows, in the first half of 2000, internet specific investments account for 47% of all commitments; communications, computers and semi conductors account for another 40%; with all other sectors (including bio technology) negligible.

Table 8: Venture capital investment 2000 split by industry

	Investment Q1 and Q2** \$mil.	Share of Total investments*** %
Internet-specific*	25545	47.4
Communications	8503	15.8
Computer software & services	7565	14.0
Semiconductor/other electronics	3993	7.4
Medical/health	665	1.2
Other products	3310	6.1
Biotechnology	1384	2.6
Computer hardware	1366	2.5
Industrial/energy	835	1.6
Consumer related	678	1.3
Totals	53842	100.0

* Internet specific is a very narrow definition of companies that would not exist without the Internet and would not fit in any other industry sector category.

** The data related to 2 quarters not a calendar year. If the quarter's were annualised the total invested would equal \$107684 million.

*** Minor adjustments made to ensure data consistency

Source: *Venture Economics Investor Services*, Boston, MA

2. The pattern of venture capital commitments shows a “hockey stick” rise in venture capital commitments over 5 years. As table 9 shows, in 1995 venture capital commitments doubled to \$5 billion and they then more or less doubled every year to reach \$50 billion in 1999 and more than \$100 billion in 2000 before a sharp reduction set in. As table 10 shows, venture capital commitments amounted to less than 7% of private R and D in 1997 and had jumped to 60% in 2000 but will not now sustain that level.

Table 9: Corporate internally generated funds compared against venture capital commitments

Non-farm, non-financial corporate business		Venture capital commitments**	Venture capital as a % of corporate sector's internally generated funds	Venture capital as a % of corporate dividends
Internally generated funds*	Dividends			
	\$mil.	\$mil.	%	%
1980	230700	45200	661	0.3
1985	353600	71900	2327	0.7
1990	393200	118300	1847	0.5
1991	390400	125000	1271	0.3
1992	423500	133800	2548	0.6
1993	458700	148600	2545	0.6
1994	539800	157600	3764	0.7
1995	578800	178300	4227	0.7
1996	612300	200900	7501	1.2
1997	659500	216800	9060	1.4
1998	665700	239100	19210	2.9
1999	744800	249400	48336	6.5
2000	814400	260850	107684	13.2

* Internally generated funds are for US internal funds at book value

** Investment in venture capital partnerships. 2000 total is estimated using Q2+3 data

Source: *Statistical Abstract of the United States* (1999), US Census Bureau, Washington DC; *Federal Reserve and Venture Economics*, Boston, MA

Table 10: R&D Funds compared against venture capital commitments

Total R&D funds \$mil.	(Private) Industry R&D funds* \$mil.	Venture capital commitments** \$mil.	Venture capital as a % of all R&D spend	Venture capital as a % of industry R&D spend
1980	63076	30926	661	1.0
1985	114344	58013	2327	2.0
1990	151655	83374	1847	1.2
1991	160521	92484	1271	0.8
1992	164933	96404	2548	1.5
1993	165188	96702	2545	1.5
1994	168586	99324	3764	2.2
1995	183045	110985	4227	2.3
1996	196011	123520	7501	3.8
1997	205561	130952	9060	4.4
1998	220617	143714	19210	8.7
1999	244828	159241	48336	19.7
2000	264165	175662	107684	40.8

* Non-farm and non-financial business

** Investment in venture capital partnerships. 2000 total is estimated using Q2+3 data

Source: *Statistical Abstract of the United States* (1999), US Census Bureau, Washington DC; *Federal Reserve and Venture Economics*, Boston, MA

3. The pattern of exit through IPOs shows a “rocket stick” rise, which erupted for just one year in the bubble phase of the affair. As table 4 shows, the eruption came from second quarter 1999 to first quarter 2000 when \$174 billion of internet IPOs were offered (against \$3 billion in 1997 and \$7 billion in 1998). The brief rise in new issues and the ending of the eruption in second quarter 2000 correlates perfectly with stock prices: booming internet stock prices stimulated the eruption just as the tech stock crash in Spring 2000 temporarily killed off new issues.

Venture capital is not a system but a cycle with individual investments exited after 3-5 years by IPO or trade sale, while the limited partnerships which raise funds and make investments typically have a fixed life of ten years. If the flow of funds through these conduits is cranked up, the result is almost inevitably an amplification of cyclical and instability in financial flows and returns. The availability of venture funds itself depends on cyclical factors, as we can now see in 2001 when funds are being closed as venture capitalists take fright at declining returns. If the funds are narrowly focused on specific sectors, the supply of funds may outstrip the ability of those sectors to absorb investment. If the flow of venture funds is high in peak years, that may well produce a volume of IPOs 3-5 years later which tests the market’s appetite for new issues. Even in a booming market, the pressing of new issues may derange the market: Mary Meeker of Morgan Stanley argued that a glut of new issues helped stimulate the tech stock crash in spring 2000.

From this perspective, those who are impressed with the ecosystem should re-read Aesop’s fable of the tortoise and the hare. Re-routing innovation through the capital market may produce bursts of speed but does not guarantee that the Americans will steadily and in the long run more effectively exploit new technology than German or Japanese firms with long term productionist views and in-house R and D. As for the vertically integrated firm, that was much disparaged by those who believed in Silicon Valley. But, any integrated corporation which competes across a range of markets and occupies a span of production chain is of course a fairly robust device for acquiring cash from a portfolio of operations. Historically, corporate disbursements for R and D have been fairly stable and did not vary with cash flow over the business cycle.

The narrowness of the venture capital boom and bust limited the immediate damage when everything fell back to earth. But the new economy did have some enduring financial consequences because, as Michael Mandel (2000) has argued, the new economy was partly about persuading savers and corporations to accept riskier investments and, we would argue that it is not clear that this phase is over.

The typical long term stock market saver in the USA (Froud, et al., 2001) is a household in the top 40% of the income distribution whose holdings are increasingly professionally managed. For more than 30 years, US pension funds and insurance companies have been allowed to invest in ordinary shares (rather than bonds). But their exposure to risk has been moderated by two principles. First, the big managed funds invest most of their money in a small number of large blue chip companies whose earnings and share price generally move slowly and with the stock market, partly because they reflect the surplus creating efforts of thousands of workers in established product market positions. Second, the blue chips operate in industries where the

main risk is of management investing in low return projects; in industries like retail banking, pharmaceuticals or integrated oil, management does not generally lose after betting the company on one or two mega projects. But, after 1998 and towards the end of the affair, several developments began to undermine the principles of risk moderation:

(1) *Venture capital took US pension funds and insurance companies into higher risk areas*

The funding for venture capital has came mainly from US pension funds and insurance companies. Since 1979 they have been allowed to include some high risk investments in their portfolios and by the late 1990s held \$1 of venture capital for every \$100 of publicly traded equity (Gompers and Lerner, 1999, p. 326). As table 11 shows, pension funds have, since 1979, accounted for 40-55% of venture capital commitments in most years; with cash rich corporations contributing an extra 20-30% in recent years. The venture capital business was always been high risk investment in search of a block buster where, just like Hollywood movies, one hit covered many misses: one third of a venture fund's investments would typically fail completely and high profits depended on taking one or two successes to IPO. After the boom of the last 5 years, failure rates are increasing, blockbusters are harder to find and exit via IPO is near impossible. So, the high returns which brought the money into venture capital are collapsing: the average return on venture funds was 164% in 1999, 43% in the first nine months of 2000 and is predicted to be negative for the fourth quarter of 2000 (*Business Week*, 22 February 2001).

Table 11: Source of venture capital commitments

	Individuals/ families	Endowments/ foundations	Insurance com- panies/banks	Foreign investors	Corpora- tions	Pension funds	Total*
	%	%	%	%	%	%	\$mil.
1980	16	14	13	8	19	30	661
1985	13	8	11	23	12	33	2327
1990	11	13	9	7	7	53	1847
1991	12	24	5	12	5	42	1271
1992	11	18	15	11	3	42	2548
1993	7	11	11	4	8	59	2545
1994	13	21	9	2	9	46	3764
1995	17	23	19	1	2	38	4227
1996	7	11	3	2	20	57	7501
1997	14	10	1	0	31	44	9060
1998	11	9	5	3	20	52	19210
1999	19	15	9	9	19	29	48336
2000							107684

* The total is of investment in venture capital partnerships. 1994, 1996 and 1998 residual amounts are allocated to each category by size. 1998 and 1999 residual error/unidentified allocated proportionately to each category. 2000 total is estimated using Q2+3 data

Source: *Statistical Abstract of the United States* (1999), US Census Bureau, Washington DC.; *Venture Economics*, Boston, MA.

(2) *Some large old and new economy companies were tempted into desperate "bet the company" gambles on digital technology*

The classic example here would be European telecoms which is a major element in some US and all European fund portfolios. In February 2000, telecoms accounted for 23% of the value of the UK all share index and one year later European telecoms was publicly described by an Intel executive as "an industry heading for bankruptcy" (*Financial Times*, 24/25 February 2001). The problem is that, since January 2000, Europe's telephone companies (old utilities and new mobile only companies) have spent 150 billion Euros on Third Generation licenses and, in the first 3G auction in the UK, they bid 628 Euro for every man, woman and child in the population (*Financial Times*, 11 February 2001). Yet nobody knows what products or services 3G will provide leave alone how providers might recover costs. Mass market deliveries of handsets will be delayed partly because of problems about standards for the wireless internet. And (after the problems about floating Orange) the escape route is blocked for old telephone utilities like France Telecom and BT who hoped to reduce debt by selling a stake in their mobile businesses.

It could be argued that the venture capital and telecom company debacles are both part of the affair that ended in 2000. Now that value investment is back, most corporate executives will not want to bet the company on new technology. But there are interesting questions about whether and how household savers (and their professional managers) will now scale back their expectations of gain or provoke some kind of system shock by shifting into riskier investments and/or saving more?

One disturbing current development is the US renaissance of hedge funds just 3 years after the Long Term Capital Management crisis nearly brought the world financial system crashing down. The new hedge funds already have \$400 billion in assets and 25% of that comes from pension funds including \$1 billion from CalPERS. Much of the rest is contributed not by the super rich but the moderately affluent who can individually invest as little as \$10,000 through a mutual fund (*Business Week*, 20 February 2001). The main business of the new hedge funds is "shorting" a falling market. In the 1990s, the market went up by 10-20% per annum and good returns could be made by holding shares; by early 2001 the S&P 500 is 20% down on the previous year's peak and the only way to make money is to bet on the timing of further decline, especially in volatile sectors.

Harvard Business School and the Regulationists, Hayes and Abernathy (1980) and Chesnais (1997) agreed that a financially oriented capitalism preoccupied with short term returns would focus on less risky investment projects: it was assumed that such a system would be risk averse because corporate managers would avoid long term projects with uncertain paybacks. This ignored the dynamic of the US kind of coupon pool capitalism where high returns from a decade long bull market, followed by a tech stock boom, have encouraged savers' appetite for gain and dulled perception of risk.

6. Conclusion: All Over (Again)?

The argument and empirics in the later sections of this article suggest some provisional conclusions. The business model concept brings out the distinctiveness of the affair period from 1995-2000 when the capital market operated double standards and bet on new companies. As for more recent developments since the 2000 tech stock crash, business models will again converge as some new companies will successfully blur into old companies; even though cost recovery from digital technologies remains a problem and puzzle for many old companies in competitive markets. The role of finance and the capital market was central in the period of the affair and is currently undecided, although it could make things much worse.

If the new economy was about digital technology, we might argue about whether the revolution was over because the major benefits of digital technologies had already been appropriated. Institutional historians of technology, like Paul David (1999), have argued that it is usually some time before the full potential of new technologies is realised: the full transformative benefits of electrification which started in the 1890s in the USA were not realised till the 1920s, with electricity in every house and motors on individual machines. The French Regulationists would add the argument that the exploitation of techniques requires a suitable social and institutional armature: thus, Fordism required suitable employment relations and stabilisation of demand to sustain a long boom.

But, as we have demonstrated, the new economy is about processes where financial logics dominate new technology. It is impossible to conceive of a counterfactual USA that had the internet without the stock exchange. In this case, the dominance of new technology by finance may change form and consequences but cannot easily be abolished as long as there is a large scale flow of US household savings into the capital market. If our technical capacity to exploit digital technology increases exponentially, the end result will always be another instalment in the history of capitalism's social failure to keep pace with technical inventiveness. It is hard to see how the new economy could represent anything else insofar as firms with unresolved business models directly and indirectly intensify and extend the contradictions of the US form of coupon pool capitalism.

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