A psychoanalytic interpretation of dot.com stock valuations

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Version: 5.4

March 1 2005

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Earlier versions of this paper have benefited from the helpful comments of participants at the British Accounting Association Conference, Jersey, April 2002, the Financial Reporting and Business Communications Conference, Cardiff Business School, July 2002, the Decennial Anniversary Conference of the Italian Psychoanalytic Association, Rome, November 2002 and seminar participants at Cranfield School of Management and Glasgow Caledonian University. Financial support for this research was provided by the Research Board of the International Psychoanalytic Association and is gratefully acknowledged.
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Abstract

Financial economists are unable to provide plausible explanations for Internet stock valuations during the recent asset pricing bubble consistent with market rationality. Adopting a psychoanalytic perspective, this paper argues that investors became caught up emotionally with the drama leading to market prices departing in such an extreme way from fundamental value. Specifically, we propose a psychoanalytic theory of mental objects and show how this helps explain what actually took place during the different phases of dot.com mania. The paper concludes, more generally, that an understanding of how emotions determine psychic reality in stock valuations can usefully complement the contribution of conventional normative asset pricing models.

Key words: dot.com stocks, mania, valuation models, psychoanalysis, mental objects
1. Introduction

Priceline.com, an Internet company where people could name their price for airline tickets, had been in business for less than a year losing three times its $35m revenues and was employing fewer than 200 people at the time of its IPO, March 30th 1999. Its stock rose by 330% on its first day of trading, closing at $69 and valuing the company at almost $10bn, more than the market capitalization of United Airlines, Continental Airlines and Northwest Airlines combined. A few weeks later its stock reached $150, at which point this tiny company was being valued at more than the entire US airline industry. Two years later the stock was trading at less than $2 and its entire market capitalization would not have covered the cost of two Boeing 747s (Cassidy, 2002, prologue).

The meteoric rise in the prices of Internet stocks, unexplainable in terms of fundamental value, and their equally spectacular fall constitutes a dramatic asset pricing bubble (Siegel, 2003). Figure 1 shows the Dow Jones Internet Price Index rose by 500% in the eighteen months from October 1st 1998, when it was launched, to March 9th 2000, when it peaked, compared with a 35% increase in the S&P 500. The Internet sector then accounted for 6% of the market capitalization of all US public companies and 20% of all publicly traded equity volume (Ofek and Richardson, 2003). The Dow Jones Internet Index then halved in value by mid-April and by the first anniversary of its peak was down by 85%. At the end of 2002 it stood at only 8% of its high.¹

How can such dramatic changes in firm valuation occur across a whole sector over such a short period of time, and how can prices initially be bid up to such an extent for companies most of which had only been trading for a short period, were heavily loss-making and appeared to have little prospect of achieving profitability in the foreseeable future? For example, Ofek and Richardson (2002), adopting best case assumptions, demonstrate an implied Internet sector P/E ratio at the end of February 2000 of 605 assuming current profitability levels of the equivalent

¹ Siegel (2003) reports a similar pattern for the TheStreet.com Internet index and Ofek and Richardson (2003) for their own much more broadly-based index.
old economy industry. This translates into a required growth rate in implied earnings of 63% per annum for 10 years, three times higher than that of the top 2% earnings performers from 1951-1998, across the whole Internet sector.

Financial economists find it very difficult to provide plausible explanations for the dot.com stock valuations consistent with market rationality, and even adopt the term mania to describe what was happening (e.g. Ofek and Richardson, 2003). This paper argues the dot.com experience makes it necessary to consider the important role of hitherto not considered unconscious psychological factors in investor valuation models and provides a striking opportunity to explore their impact.

Psychoanalysis comprises a developed and systematic body of knowledge seeking to understand the regularities of human emotional and subjective experience based on the ubiquity of unconscious phantasy. Broadly speaking, the idea is that inner subjective or “psychic” reality is based on wishes and systems of affect regulation only loosely related to “objective” external realities. Psychic reality motivates the individual emotionally and cognitively but not in ways of which he or she can easily become consciously aware.

Taking a psychoanalytic perspective, we hypothesize the main explanation for what happened to dot.com stock valuations was that investors became caught up emotionally in what they were doing. In buying and selling dot.com stocks they were first mainly driven by compelling and exciting emotions and then by terrifying and shameful ones. In each case, these emotions, amplified by investors’ experiences as members of a group caught up in a particular collective behavior, dominated and distorted their cognitive capacities. We suggest that the way in which Internet stocks were represented in unconscious psychic reality explains how possessing such stocks became so charged and exciting that investor behavior led to valuations departing in such an extreme way from fundamental value.

Our psychoanalytically-informed theory of dot.com stock valuations allows us to link the different stages of the asset pricing bubble. The first stages describe a process of excited over-

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2 As at February 29 2000, most internet firms were actually heavily loss making. Ofek and Richardson (2002) show net losses of $10bn on aggregate sales of $27bn for those Internet firms with 1999 financial data available on Compustat; total market capitalization was $940bn.

3 As Ljunquist and Wilhelm Jr (2003, p.723) comment: “Although it is conceivable that information frictions became more severe during the dot-com bubble, it strains belief that even collectively this body of theory can account for the profound change in market behavior.”

4 These ideas will be developed below. A straightforward introduction to psychoanalytic ideas and terms, written for the non-specialist, can be found in Milton, Polmear and Fabricius (2004), especially pp. 1-38.
valuation and seeking to possess Internet stocks at almost any price, observed in the run up to the peak of the bubble. In the later stages there is a process of disillusion and panicky valuation mark-downs and price collapses and associated blame. The severity and extent of these latter processes is predictable from a psychoanalytic perspective, because the first processes involve individuals unconsciously treating “external” objects concretely as phantastic ones and then attempting defensively to deny to themselves that this is what they are doing. Normal future cash flow-based valuations were, in practice, largely irrelevant not just because of the serious estimation problems but, crucially, because of the unconscious meaning dot.com stocks represented for investors.

Section 2 reviews the empirical valuation literature in an attempt to understand how such extreme valuations appeared to be being rationalized and section 3 outlines our psychoanalytic theory of mental objects as applied to dot.com stock valuations. Section 4 tests this theory against what took place during the bubble itself. The final section of the paper summarizes our findings and draws more general lessons about the need to complement “rational” accounting number-based models with an understanding of the important role of emotional factors in the firm valuation process.

2. Was the valuation of internet stocks “rational”?

Cooper, Dimitrov and Rau (2001) demonstrate dramatic increases in the value of firms which added “.com” to their names in 1998 and 1999, which increase in firm value appeared permanent. Specifically, they find cumulative average abnormal returns of no less than 63% for the five days around the name-change announcement date with the effect independent of a company’s actual level of involvement with the Internet. In fact, the paper provides evidence that sample companies with non-Internet related core businesses earned the greatest post-announcement returns! The merest association with the Internet seemed enough to provide a firm with a large and permanent increase in value. The authors explain their results as being “driven by a degree of investor mania” – with investors eager to be associated with the Internet at all costs. Similarly, they argue the fact that firms deriving apparently little or none of their
revenue from the Internet experienced large dot.com effects “suggests some degree of investor irrationality.”

Several recent studies set out to explain Internet stock valuations, in particular the relative importance of traditional financial information compared with non-financial web traffic measures. Clearly, in the absence of any conventional trading history in the form of revenues, profits and dividends investors had to find new measures to value Internet stock prospects and rationalise their market prices. However, as Trueman, Wong and Zhang (2000) point out, the goal of such analysis is only whether investors are pricing these stocks in a rational manner relative to each other not to determine whether they are over- or underpriced as a class. The authors conclude with the need to examine whether Internet stocks are actually being priced rationally on an absolute basis.

Keating (2000), reviewing the high valuations of Internet firms relative to non-Internet firms and subsequent price collapse, similarly argues “Research could be conducted to understand the original high valuations and reasons for the dramatic decline. Potential explanations could relate to risk, functional fixation, supply and demand factors, life-cycle pricing… or under/overreactions by investors or analysts.” (p. 169) However, all these possible reasons are quasi-rational in nature or driven by investor cognitive information processing errors, any emotional dimension is ignored. The thesis of this paper is that we are not going to be able fully to understand such dramatic mispricing and the subsequent collapse of what is arguably the biggest asset pricing bubble in financial history using conventional perspectives and models and ignoring the role of unconscious phantasies in investor Internet stock valuations.

Schwartz and Moon (2000) specifically test whether Internet stock valuations could be viewed as rational applying real options theory and capital budgeting techniques. They conclude that, depending on the parameters chosen for their model, the value of an Internet stock may be rational “given high enough growth rates of revenues” (their italics). However, as the authors demonstrate in attempting to value Amazon.com as at December 31 1999, only completely

In an associated paper discussed below, Cooper, Khorana, Osobov, Patel and Rau (2005) demonstrate the very similar impact of .com deletions following the Internet crash strongly reinforcing the argument of irrational investor internet stock valuations.
unrealistic parameter estimates, including pre-tax profit margins of no less than 30%, were required to justify Amazon’s market capitalization.6

Hand (2000) shows stocks of Internet firms were priced in a contrarian way from Q1 1997 to Q3 2000. While reported profits are positively valued, losses are negatively priced, i.e. the larger the losses the greater the market value. Hand argues that this latter reflects the source of the losses as being due to high R&D and sales and marketing expenses which the stockmarket treats as intangible investments in the future growth of the firm. However, again, as with Trueman, Wong and Zhang (2000), Hand does not focus on the post-crash fallout period. His paper also does not address the question of whether Internet stocks in aggregate are being priced rationally.

The return of “real” valuation measures after the bubble burst is the important message of Demers and Lev (2001) who document a significant structural change in the stock valuation models applied to Internet companies in 1999 and 2000. Investors were favorably disposed towards Internet companies’ aggressive cash expenditures in 1999 but were more critical of their “cash burn” rate in 2000 and also became more skeptical towards marketing and advertising expenditures subsequent to the “shakeout” in the spring of 2000. As with Hand (2000), the more Demers’s and Lev’s sample firms lost in 1999, the higher their price to sales figures. However, 2000 was in direct contrast when the more negative the cash flows from operations, the greater the net reduction in firm value.

In a somewhat related paper, Keating, Lys and Magee (2003) compare the relative contribution of financial measures traditionally associated with the residual income model and “new economy” metrics in explaining Internet stock price declines between mid-March and the end of May 2000. Annual report data was far more important than web traffic and other new economy measures in explaining stock prices both cross-sectionally and in terms of short event window returns. The authors conclude “… returns being associated with ‘stale’ accounting information is hard to reconcile with a semi-strong efficient market.” (p.230) However, as Llewelen (2003) points out, since Internet stock valuations were essentially irrational Keating, Lys and Magee (2003) are basically explaining investors’ misperceptions rather than underlying Internet firm economics (p. 243). He further argues that even given information available at the

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6 Their own valuation estimate was around $5bn, about 15% of the then actual figure. Buckley, Tse, Rijken and Eijgenhuijsen (2002) also apply real options to value Netscape at the time of its IPO. They are forced to conclude their evidence is also indicative of irrational pricing.
time a rational investor could not have believed Internet stock prices were right (p. 241). The great mystery is why Internet stock prices grew so dramatically in the first place, not why they crashed (p. 244).

It is clear that existing stock valuation models built around the assumption of rational human economic behaviour are not helpful in explaining Internet stock valuations during dot.com mania. A new theoretical perspective is required.

3. **A psychoanalytic theory of mental objects**

The starting point of our theory is that in terms of psychic reality Internet stocks were highly desirable in a compelling and hard to resist way. Specifically, they became represented as what we will term infantile “phantastic objects”, ownership of which was felt able, magically, to transform an individual in unconscious phantasy from a normal kind of existence into an omniscient and omnipotent one. This transformation corresponds to one psychoanalysis teaches is wished for in early human mental development, and by being retained unconsciously is never entirely given up.

Our theory of unconscious mental representation of Internet stocks as phantastic objects predicts a likely trajectory for investor behavior in the Internet bubble based on several analytically distinct phases in the way individuals might be expected to relate to this type of asset in psychic reality. The course of the highly anomalous valuations of dot.com stocks during this period appears to correlate with this trajectory in the predicted way.

Kindleberger (2000, pp.14-18) posits a four-stage model of stock market bubbles: “displacement” or exogenous shock, “euphoria”, “boom” and “revulsion” or panic. However, we

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7 This is on the basis of three stylized facts: extreme price/sales ratios embedding totally unreasonable growth expectations, clear overvaluations relative to other high tech firms, and the inability to explain the sector’s total market capitalization irrespective of future growth rate assumptions.
8 Psychic or psychical reality is “a term often used by Freud to designate whatever in the subject’s psyche presents a consistency and resistance comparable to those displayed by material reality; fundamentally, what is involved here is unconscious desire and its associated phantasies” (Laplanche and Pontalis, 1973, p.363).
9 This term, phantastic object, has been coined to denote something subtle. We have in mind an object of perception whose qualities are primarily determined by an individual’s unconscious beliefs or *phantasies*. The word “phantasy” implies the existence of organized unconscious ideation – “an imaginary scene in which the subject is a protagonist representing the fulfillment of a wish (in the last analysis, an unconscious wish) in a manner that is distorted to a greater or lesser extent by defensive processes” (Laplanche and Pontalis, 1973, p.314). It is, therefore, a technical term more specific than the commonly used word “fantasy” which tends to denote notions of whimsy or eccentricity. In psychoanalytic thinking unconscious phantasies are the driving force of all significant human subjective experience.
argue it is useful to distinguish the two parts of this final stage, panic (when the bubble bursts) and revulsion (when the stock is stigmatized) because, psychologically, panic tends to give way to revulsion. So we look at five stages. With this proviso we suggest Kindleberger’s divisions not only describe the path of valuations in the dot.com bubble but are consistent with the different phases of investor valuation behavior if dot.com stocks were being mentally represented and valued as phantastic objects, as we hypothesize.

Given the way Internet stocks struck those who were responsible initially for publicizing their existence, such as financial journalists and brokerage house analysts, we predict they would readily become represented in the minds of investors as alluring phantastic objects, offering unconscious transformational potential. This is the beginning phase of our dot.com valuation model which we term “emerging to view”.

Next, we predict that, once established as phantastic objects, Internet stocks would stimulate a headlong euphoric craze among investors because of their particular power to generate further compulsive behavior driven by unconscious intergenerational as well as intragenerational rivalry. This we term the “rush to possess” phase.

Following these two phases, we predict a consequential and crucial third stage with Internet stocks remaining for many months tenaciously valued in a contrarian way, despite growing evidence that this might be foolish. This is because when the normal valuation criteria of material reality (conventionally expressed in terms of accounting number-based constructs) are applied to phantastic objects they are not necessarily salient, due to the specific ways phantasy representations are maintained in psychic reality. At this stage signs of triumphalism, which would have been growing, might reach a crescendo. This is the “psychic defense” phase.

Fourthly, a theory of Internet stocks as phantastic objects would predict the wave of enthusiasm would crest and fall. Mental highs are not indefinitely sustainable and there is an exponentially increasing emotional cost to psychic defense. External reality will ultimately intrude and force investors to ask questions of themselves they have previously “not heard”. At this point, as the logic holding dot.com prices up is no longer underpinned by their unconscious status as revered phantastic objects, stock valuations would collapse effectively overnight. Such stocks would now be felt as shameful, motivating investors to terminate their relationship with them as fast as possible. They would now be objects actually felt to contaminate and stigmatize their owners. This is the “panic” phase.
Fifth and finally, after the dramatic collapse in their valuations, we predict shame and guilt would continue to predominate in the affective relationship, causing revulsion and further stigmatization. To these features would be added the experience of loss. The defense of projection might then predominate and with it a concurrent culture of persecution where investors will look for others to condemn for being seduced by these highly emotionally charged psychic objects. This is likely to impact adversely on valuing the Internet sector rationally subsequently for quite a period of time and, possibly, the market more generally. To learn from such dramatic valuation errors it is necessary to take full responsibility for them and to face loss, which is painful. If not, the search for a new phantastic object remains to be potentially activated. This final phase has the potential for “learning from experience and maturation”, or not, as the case may be.

4. A morphology of dot.com valuations

In this section we explore the degree of fit of our psychoanalytically-informed theory of dot.com stocks as phantastic mental objects with what actually happened to stock valuations during the Internet asset pricing bubble. Although we have presented the five different phases of our valuation model as essentially sequential for exposition purposes, these are analytical concepts and clearly we would expect a degree of overlap as the psychic drama is played out over time.

4.1. The emerging to view phase

The wish to discover a phantastic type of object capable of magically transforming its owner without effort is continuously present in capital markets. In the case of the dot.com bubble, August 14th 1995, the date of Netscape’s IPO, is usually viewed as its start. Netscape’s stocks changed hands almost three times on average during its first day of trading with its stock price ending up over 100% on the offer price valuing the company at $2.2bn, or about as much as General Dynamics, the giant defense contractor. Four months later its share price had risen to six times its offer price. Netscape’s launch captured the public’s imagination and everyone directly involved with the IPO immediately became enormously rich. An exciting spectacle was

10 There were only seven previous Internet-based IPOs commencing with America Online on March 13th 1992.
created containing a particularly alluring new object which was subsequently played out fully in
the mass media creating a heady emotional climate.

Two weeks after the Netscape IPO *Forbes* (August 28th 1995) anointed Marc Andreesen,
one of Netscape’s founders, as the new Bill Gates and claimed that the Internet would “displace
both telephone and television over the next five years or so.” Not long after he appeared
barefoot on the cover of *Time* (February 19th 1996) with the associated article portraying him as
a modest tycoon-cum-superman with whom ordinary investors could identify. In a similar vein
two months later Steve Case, America Online’s 37 year old chairman appeared on the cover of
*B\usiness Week* (April 15th 1996) lying on top of a pile of his diskettes with appropriate eulogistic

copy in the accompanying article.

As they began to be reported and played out in the financial press, television and general
media, dot.com businesses became an exciting spectacle, with Internet entrepreneurs presented
as charismatic figures and superstars with great new powers (Cassidy, 2002). Such attention
amplified exponentially the psychological desirability of owning Internet stocks by exhibiting
them so tantalizingly and so openly: they had all the characteristics required of phantastic objects
– super, new, exhibitable, not to mention enriching. Possession of these phantastic objects was
effectively open to everyone. Almost everyone’s unconscious wishes could now, apparently, be
fulfilled creating a powerful yet subtle group pressure to take part.\(^\text{11}\)

The psychoanalytic approach to subjective experience concentrates on feelings as
operating mentally separately from cognition. One may “feel” one has “it” while retaining
perfectly clear cognitive capacities which, if salient, would allow one to see this is a gross
exaggeration. In phantasy, by holding stock in Internet firms, investors could unconsciously feel
endowed with the actual qualities of their inventors, part of a magic circle of people “in” on the
new and possessing the mental equivalents of the primary phantastic objects of childhood. In
unconscious logic, part is equated to the whole (Blanco, 1988, p. 21), so that to own stocks in a
firm can make one feel one *owns* it. In this way, owning dot.com stocks could be felt as
magically transformational, reversing the many slights of childhood and turning the
unconsciously never-forgotten experience of being a powerless and dependent infant into the
mental phantasy of being the all-powerful parent. If this is what Internet stock ownership

\(^{11}\) Moreover, the new Internet could itself be used to buy these stocks. As early as the summer of 1996 800,000
Americans had online trading accounts; three years later no fewer than five million U.S. households held such
accounts. (Cassidy, 2002, p.127 and p.229)
represented to investors then their unconscious valuations would have borne little relationship to underlying reality or any accounting fundamentals because these would have been seen as irrelevant.

4.2. The rush to possess: introducing intergenerational and intragenerational rivalry

The dot.com spectacle took off in Kindleberger’s (2000) second stage. Between August 1995 and October 1998 there were another 69 dot.com IPOs with the NASDAQ increasing in line with the Dow Jones, both up by around 75% over this period. This “boom” stage of the bubble was characterized by the entrenchment of the idea that the US economy was being transformed into something phantastic called the “New Economy” by information technology and, in particular, the Internet. The old rules of economics no longer applied with the concomitant that in these new types of investment traditional earnings-driven valuation methods could not be used.12

Traditional methods of doing business were on the way out. Hyperbole became the order of the day. For instance, the Time (July 20, 1998) headline above a cover picture of Jerry Yang, the founder of Yahoo! read: “Kiss Your Mall Goodbye: Online Shopping Is Faster, Cheaper and Better.” Similarly, an article in Business Week (February 8, 1999), commenting on Amazon.com’s 1998 results, pointed out: “Amazon’s fourth quarter sales nearly quadrupled over 1997, and compared to that, Sears is dead” (italics added). Likewise, Josh Harris, the founder of Pseudo.com, a fledgling online television network, interviewed by CBS reported his aim was “…to take you guys out of business. I’m in a race to take CBS out of business.” (Cassidy, 2002, p. 276). Still more astonishingly Rufus Griscom, the cofounder of Nerve.com13 in a New York (March 6, 2000) cover story on Silicon Valley’s “Early True Believers” was quoted as saying: It’s incredibly powerful to feel you are one of seventeen people who really understand the world.” (Cassidy, 2002, p. 276) No normal reality here! Psychoanalytically

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12 For example, see the series of articles, by Michael Mandel, a Harvard PhD in Economics and Business Week economics editor entitled “The Triumph of the New Economy”, “The New Business Cycle” and “How Long Can This Last?” (Business Week, December 30, 1996, March 31, 1997, and May 19, 1997, respectively). In the latter case he argued that the new ways in which computers could be used could lead to good times “for the foreseeable future” (p. 39). (Cassidy, 2002, pp. 155-6)

13 Unconscious irony in the choice of name?
speaking, these claims and the level of emotional excitement signal a state of Oedipal triumph and a perverse reversal of generational difference. Of course, as in the emotional state described as mania the process feeds on its own momentum. While it is in full swing, expectation of further dot.com stock price increases stimulates demand so raising prices and excitement levels. From a psychoanalytic perspective, this emphasis on the “new” would have intensified the allure of Internet stock as phantastic objects and encouraged what would normally be considered perverse or dangerous practices. The new entrepreneurs were manifestly young and apparently also subject to different rules – unveiling a kind of adolescent paradise and stimulating the unconscious processes surrounding the rivalry that exists between generations: the desire of the young to rival their parents and the fear of the parents at being left behind. Usually, children tend to feel left out of what the parents are doing (the primal scene) but it now seemed the parents might envy and feel left out by their children, a powerful dynamic normally restricted to infantile phantasies. This impression of a reversal of generations seems to have been accentuated by the lack of any attempt by regulatory authorities to curb investor excesses. For example, in its e-commerce policy paper in the summer of 1997 the Clinton administration decided a hands-off attitude to the Internet was in the U.S.’s strategic interest (Cassidy, 2002, p. 157). Moreover, one of the most influential proponents of the New Economy doctrine was the Federal Reserve Bank Chairman, Alan Greenspan, who lent it both authoritative and moral legitimation. When prices began to fall in 1998, despite strong economic growth, he cut interest rates twice, leading to classic “moral hazard”. Instead of seeking to control the speculation, he gave it the green light (Cassidy, 2002, p. 159). An example of changes in the culture of risk control at this time is that whereas it had been usual

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14 The Oedipus Complex, so named after the ancient Greek play Oedipus Rex, refers to an “organized body of loving and hostile wishes the child experiences towards its parents.” (Laplanche and Pontalis, 1973: 282) It plays a fundamental part in the structuring of the personality, and in the orientation of desire as well as in the conscious and unconscious ambivalent relationships between the generations.

15 The imagined highly charged scene of sexual intercourse between the parents from which the child is usually excluded (Laplanche and Pontalis, 1973, p. 335). This scene is also the unconscious mental template for all experience of “spectacles”, whether as participant or spectator.

16 E.g., see Alan Greenspan Monetary Policy Testimony and Report to the Congress, July 22nd 1997. “Alan Greenspan will go down in the history books as the Fed chairman who oversaw the greatest speculative boom and bust that the US has ever seen …He wasn’t the only person responsible for the Internet bubble but his actions encouraged and prolonged the speculative mania.” (“A saint or a sucker”, The Financial Times, March 2/3, 2002, p. 10)

17 “This is a way of telling everyone the lifeguard is back on duty, you can go back in the pool.” (Bill Dudley, chief economist of Goldman Sachs, quoted in The Washington Post, October 16, 1998: A1). The rescue of Long Term Capital Management in September 1998 may also be viewed in this context.
previously for top investment banks to avoid high-risk issuers to protect their valuable “reputational capital”. Internet IPOs eventually became over 40% more likely to be underwritten by one of the six most prestigious underwriters (Schultz and Zaman, 2001).

From a psychoanalytic perspective, the normal internal sense of moral order – referred to with the concept of the super-ego – was removed and the usual checks on investor excesses would be ignored. In particular, the usual stigma or doubt associated with very excited or particularly risky investor behavior would actually be ridiculed.

Unchecked, the headlong rush to possess Internet stock became matched to a stampede to become associated in almost anyway with it: the euphoric stage of the boom in which it seems nobody could afford to be left out. Between October 1998, when Dow Jones launched the Dow Jones Internet Composite Index, and the end of March 2000 no fewer than 325 Internet IPOs took place, or an average of 18 a month compared with under 2 a month over the previous three years. From October 1st 1998, when the Dow Jones Internet Index stood at 72, to March 10th 2000 when it peaked at 510, its monthly rate of increase was almost 12%. Its 600% increase over this period was exactly twice as great as the broader based NASDAQ technology index, whereas the Dow Jones Composite only increased by 20% over the same period.

Among the 325 new issues in this period, average first day returns over the euphoria period were around 90% (Schultz and Zaman, 2001). In fact, companies were coming to the market with business models that by the normal rules might have seemed completely implausible. Significantly, although this was being made explicit in offer documents, it did not dampen enthusiasm.

The psychoanalytic concept of the super-ego as an internal source of control over untrammeled and dangerous desire and based on the capacity to internalize parental figures is implicit here (Laplanche and Pontalis, 1973, p. 435).

See section 4.3 below.

Three dot.com IPO examples can be used to illustrate what was happening to valuations at the time: (1) At Home listed on Nasdaq on July 11th 1997. This broadband Internet business had just 5,000 subscribers when it announced it was going public and warned that “there can also be no assurance that the Company will ever achieve profitability”. Nonetheless, At Home’s opening market capitalization was no less than $2bn, reflecting a price to sales ratio of 1350 times; in due course its market capitalization reached $22bn. (2) eToys was floated on Nasdaq on May 20th 1999. By the end of the first day of trading its price was up 280%, valuing the company at 220 times its revenues, or $7.8bn, substantially exceeding the market capitalization of Toys’R’Us with sales almost 400 times larger. At its peak, eToys was valued at well over $10bn, despite losing $4 on every order, even ignoring marketing costs. (3) Webvan was an on-line grocery home delivery business which filed for an IPO in early August 1999, just two months after it started selling groceries. Its prospectus forecast losses of over half a billion dollars between 1999 and 2001! Nonetheless, when Webvan finally listed on November 5th 1999 its stock rose by two thirds on the offer price, valuing the firm at $8bn, 20,000 times its annualized revenues. The claims and the valuations proved hopelessly unrealistic. At Home filed for bankruptcy.
Analysts were confronted with a serious problem – how could they value such phantastic objects in any meaningful way? They had the unexciting or even depressing option of regarding such Internet stocks as largely worthless or had to find some way to value them that would, as the boom and then euphoria progressed, justify the market’s valuations and show the prices paid by investors were reasonable.\(^\text{21}\) The idea, therefore, was not to concentrate on such old economy measures as earnings, cash flows or dividends, which in most cases were likely to be highly negative or non-existent for many years into the future. Instead, new economy concepts were used such as profits net of most costs, revenue growth, mind share, website activity measured in terms of eyeballs, reach and stickiness, lifetime value of a customer, or even less tangible still, a vision of the future.\(^\text{22}\) The Internet “…has all introduced a brave new world for valuation methodologies. …we believe that we have entered a new valuation zone” (Mary Meeker US and the Americas Investment Research, Morgan Stanley Dean Witter, September 26 1997, p. 1).

As Cooper, Dimitrov and Rau (2001) demonstrate in their study of the impact of the addition of a dot.com suffix, asset valuation in the dot.com bubble was based on unconscious identification with and possession of the phantastic object (dot.com stock). Valuations were based on an emotional sense of Internet stock value and its capacity to transform the investor, not on any possible rational estimates of future cash flows or potential returns. In this heady atmosphere justifications of valuation procedures are rationalizations of idealized phantasies alone.

4.3. Keeping stock values high: the phase of psychic defense

There were many occasions during the dot.com bubble when commentators questioned the assumptions and expectations implicit in the pricing of Internet stocks. These provided opportunities for those involved to reflect, but they did not. When doubt was expressed there is clear evidence it was ignored or even denigrated. For instance, on April 15, 1996 Fortune published a cover story “How Crazy is this Market?” arguing a “confidence-shattering crash” was inevitable at some point and, 15 months’ later (July 21, 1997), with the Dow 2,000 points

\(^{21}\) E.g., “… analysts are slicing, dicing and torturing numbers until they can be molded into what might pass for a rationale to back up a table pounding investment recommendation.” (J.M. Laderman and G. Smith, 1998).

\(^{22}\) “What this shows you is that valuations are very arbitrary. You’re really just buying a vision of the future.” (Henry Blodget quoted in Wooley [1999]).
higher, it ran another sceptical cover story, “Time to Cash in Your Blue Chips?”. Similarly, *Business Week* (July 20, 1998) “Click Here for Wacky Valuations: The latest buying frenzy overinflates most net stocks’ potential” concluded “… the flip side of this stock-buying mania -- web depression.”

The cover story of the September 21, 1998 edition of *Forbes* entitled “Armageddon: When the Music Stops…” warned the demand for Internet stocks was based on gambling fever and *Fortune* (March 1, 1999) in “The Price Tag on You is What Drives Net Stocks” commented “… Wall Street has lost its mind and now values companies in a way that cannot be justified by any calculation previously known to man or accountant.” In a parallel vein *Barron’s* (August 30, 1999) “Que Pasa? Quien Sabe? In Other Words, Who Can Understand the Valuation of This Thing?” begins “We all know that evaluating Internet stocks encompasses less science than does opting whether to hit or hold in Atlantic City….” However, such realistic voices were swamped by a parallel media bubble (Cassidy, 2002, ch. 12) both in print and on such business television stations as CNBC and FNN with journalists loudly eulogistic of the Internet and the opportunities it offered to make a lot of money very quickly. The *Economist* (April 18, 1998) and the *Financial Times* (April 22, 1998) questioned what was happening, and describing the US as experiencing a serious asset price bubble called on Alan Greenspan to take action. In response to the *Financial Times* the *New York Times* published an editorial defending the nation’s amour-propre (April 29, 1998) and *Newsweek* dismissively poked fun at *The Economist* article (May 11, 1998) – a sign of the need to draw on the power of contempt. There were other distinguished doubters.23

In fact, analysts and other commentators dismissed sceptical claims and kept advising investors to keep buying. Comparing the dot.com market with tulip mania, Mary Meeker wrote: “The difference is that real values are being created. Tulip bulbs would not fundamentally change the way the companies do business.”(Cassidy, 2002, p. 217) Henry Blodget was still more effusive:

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23 Milton Friedman, told the *New Yorker* (August 17, 1998) “I think there is a good deal of comparison between the market in 1929 and the market today ….I think both of them are bubbles …if anything, I suspect there is more of a bubble in today’s market than there was in 1929.” Another Nobel Laureate, Paul Samuelson, was equally blunt “…there has been an element of bluff in the market for at least two years, possibly longer…(Greenspan had) painted himself into a corner. He is now dealing with the physics of avalanches.” (Cassidy 2002, p. 183)
“The overall Internet stock phenomenon may well be a ‘bubble’ but in at least one respect it is very different from other bubbles: there are great fundamental reasons to own these stocks ....The companies underneath are (1) growing amazingly quickly, and (2) threatening the status quo in multiple sectors of the economy ....With these types of investments, we would also argue that the ‘real’ risk is not losing some money – it is missing a much bigger upside.” (Internet/Electronic Commerce Report, Merrill Lynch, March 9, 1999)

Psychic objects are subject to test in psychic reality rather than accounting reality. In psychic reality, there is no particular difficulty about being able to carry on life dominated by imaginary or phantastic beliefs for quite extended periods of time. Psychoanalysis devotes much effort to a description of defenses against the experience of unpleasant reality (e.g., Sandler and Freud, 1985). Individuals have available sophisticated and very satisfying unconscious mental mechanisms that can be used to shut out and modify the unbearable feeling of the mental pain accompanying loss, anxiety and guilt. They can, for instance, “pretend” what they don’t want to acknowledge is not happening (denial), “believe” it is the other, not me (projection) or disassociate mutually inconsistent and potentially undesirable ideas (splitting). As time goes by, an increasing number of such defenses will be necessary to maintain any phantasy belief that is manifestly at odds with underlying reality, such as in the case of dot.com valuations accounting fundamentals. However, the belief in the transforming powers of possession of the phantastic object represented by Internet stock cannot be dropped without acute mental pain.

In the grip of the pursuit of the phantastic object in the third phase of the dot.com bubble twin factors seemed to be operating. On the one hand, the market was still driven by infectious excitement. On the other hand, specific defenses against painful perception in the form of denial, splitting and noisy dismissal were operating to attack and to prevent awareness of more material reality. It is a clinical maxim in psychoanalytic treatment that awareness of being just ordinary in an excited manic state is unwelcome to the point of being terrifying and potentially leading to complete depressive collapse and panic. Such knowledge is felt to threaten the loss of the phantastic object as well as unbearable avalanches of anxiety about what has been done in the
frantic effort to possess it. The possibility the bubble will burst threatens pain in the form of loss, humiliation and shame, redoubling the wish to deny.  

So, while the euphoric stage of the bubble lasted, such potentially painful feelings and anything or anyone stirring them up were quite literally to be hated, leading to the manic contempt and dismissal of skeptical analysts or commentators felt to be seeking to deny the value of the phantastic object structure and trying to spoil the party in the process. Clearly such a process is inimical to thought and rational asset pricing.

4.4. The collapse: the panic phase

What appeared instrumental in finally helping to prick the bubble was a long article in Barron’s on March 20th 2000, 11 days after the Dow Jones Internet Index all-time high, entitled “Burning Up”. The conclusion was that at least a quarter of dot.com companies would run out of cash within a year.

The realization that a phantastic object is not what it was felt to be, when it finally occurs, creates panic and other undesirable feelings that all of us have experienced much earlier in life and have had to work hard psychically to overcome. Such sensations may include a shameful feeling one has been metaphorically soiling one’s hands. The immediate emotional consequence for many investors would be to feel compelled to wash their hands of their situation and to try to get rid of the now defiled objects (dot.com stocks) as quickly as possible.

The rapid and dramatic collapse in the Internet index after the bursting of the bubble is exactly consistent with these expectations – once seriously questioned, the phantastic object could no longer maintain its previous meaning and there was no other logic to hold dot.com valuations up. Continuing to own such stocks became a source of embarrassment and those publicly involved with the sector appeared sullied by the association.

24 As Freud (1908) himself puts it: “hardly anything is harder for a man than to give up a pleasure which he has once experienced. Actually, we can never give anything up; we only exchange one thing for another.” (p. 145)

25 Interestingly, Henry Blodget’s and colleagues’ criticism of internet stocks Merrill Lynch was recommending as buys in internal e-mails disclosed by Eliot Spitzer, the New York attorney-general (Financial Times, April 10, 2002), was scatological. Descriptions used included ‘piece of shit’ (24/7 Media, October 10, 2000), ‘POS’ (Lifeminders, December 4, 2000), ‘such a piece of crap’ (Excite@home, June 3, 2000), and ‘piece of junk’ (Infospace, July 13, 2000).
4.5. Revulsion and learning from experience

Whereas at the height of the bubble no one seemed to take much notice of adverse comment, after the crash the fantasy that it was possible to make easy money by buying and selling pieces of paper was seen as just that. Activity turned to blame with venture capitalists, Internet analysts and the investment banks who promoted Internet stocks targeted. Insofar as repressing any memory of one’s excited possession is impossible in the face of stark material reality, there is likely to be the desire to find someone or something else to blame for the heavy losses and the associated painful bad feelings engendered. The combination of the desire to dump the now hated object and the anger about feeling let down, generates fear, helplessness, shame and guilt.26

We believe this scenario explains the emotional tone of the highly critical and dismissive “wise after the event” comments occurring after the collapse of the dot.com bubble. For example, a series of long articles in the New York Times variously blamed Wall Street research analysts and their incentive systems (“How Did So Many Get It So Wrong?”, December 31, 2000), corporate and analyst “propaganda” in their use of “public relations” valuation metrics (“Those Lofty ‘New Economy’ Measures Fizzle”, March 18, 2001), investment banks (“Just Who Brought Those Duds to Market?”, April 15, 2001) and sell-side analyst and Wall Street firms’ conflicts of interest (“I.P.O. Conflicts Bedevil Analysts”, May 27, 2001). Similarly, Business Week, in an almost 5,000 word long article “The Great Internet Money Game: How America’s top financial firms reaped billions from the Net boom, while investors got burnt” (April 16, 2001) blamed finance firms, venture capitalists and Internet stock analysts as well as institutional and individual investors, although reserving most opprobrium for those promoting “almost worthless” internet companies. A month later in similar vein Fortune (“Betrayal on Wall Street,” May 14, 2001) blamed the investment banks posing the fundamental question “Can companies still trust Wall Street – or has the credibility gap in the post-bubble market widened too far?” A final example is Business Week a year later (“How Corrupt is Wall Street? New revelations have investors baying for blood, and the scandal is widening”, May 13, 2002) which blames the collapse of ethical standards and inherent conflicts of interest leading to a “feeding

26 This is not only driven by the unconscious greedy pursuit of the phantastic object but also by the associated phantasies of “overturning” the established order.
frenzy in taking companies public. Such illustrations of media response to the collapse are a good example of being wise after the event. Spotting the next dot.com to go bankrupt became a popular spectator sport with websites encouraging users to submit predictions for the next dot.com failure. (Cassidy, 2002, p. 301)

We would expect a parallel process by Internet companies of divestment of such a stigmatized association, now the bubble had burst. Just as in the boom period adding a .com suffix to a company name had a sharply positive effect on its subsequent market valuation so we would predict .com name deletions would have a similar positive impact on the associated stock prices after the fall. In fact, Cooper, Khorana, Osobov, Patel and Rau (2005) find exactly this. Investors react similarly very positively to firm .com name removals post-crash producing abnormal positive returns of around 70% for the 60 day period surrounding the announcement day, an order of magnitude similar to the findings of Cooper, Dimitrov and Rau (2001) relating to the market impact of .com name additions during the run up of Internet firm stock prices in 1998-1999. The authors again attribute their results to investor irrationality as there are no changes in firm-specific economic fundamentals associated with the .com name deletion events. It is such observations that, once more, make us suppose that with Internet stocks we were dealing with a phantastic object; why should changing a name back again have such a significant impact on share valuation when any kind of actual link to future cash flows is tenuous in the extreme?

27 The $1.4bn global settlement extracted by US regulators from 10 leading Wall Street investment banks in April 2003 for their excesses in the technology boom and continuing associated blame for heavy investor losses can be viewed in this light. The high profile series of lawsuits against such icons of the dot.com boom as Henry Blodget, Merrill Lynch’s chief internet analyst, Jack Grubman, Salomon’s star telecommunications analyst, Frank Quattrone, Credit Suisse First Boston’s star technology banker and Mary Meeker, Morgan Stanley’s “Queen of the Net”, and their employers for investor losses, conflicts of interest and such practices as improper distribution of shares in hot IPOs in return for investment banking business (“spinning”) will also be noted in this context.

28 Their names, such as Dotcomfailures.com and FuckedCompany.com, highlight the perverse triumphalism inherent in this activity. The New York Post created a “dead dot.com of the day” column and Fortune ran a regular Dot-Com Deathwatch column for two years until the end of 2001 which was wound up on the basis “Internet start-ups have become a relic of the 1990s” (December 24, 2001).

29 This is just what happened. “Now that dot-com fever has turned into a plague, companies left and right are changing their names to disassociate themselves with the stigma of failure …. Industry officials say thriving dot-coms are trying to avoid being lumped in with the roiling corpses of failed dot-coms …. Companies are distancing themselves from the smell.” (Associated Press News Wire, August 30, 2001, italics added for emphasis)
One common reaction to disaster is to feel persecuted. If such anxieties predominate, it will be difficult to face reality except by seeking to project the blame and take revenge on the other. A second reaction is “depressive”: to accept loss experience and to give up the phantastic dream. If feelings of loss can be tolerated and understood then mourning can take place which ushers in the experiences and allows the development of new capacities which Melanie Klein described under the heading of the depressive position (Klein, 1935). The overvalued phantastic beliefs can be relinquished by being mourned as lost objects – a process that is linked with realizing and tolerating the distinction between what is mental and what is material (Britton, 1995).

Psychoanalytical theory, therefore, suggests that it is important when the consequences of the kind of overvaluation process that took place in the dot.com affair are revealed, that they should be “worked through” (Laplanche and Pontalis, 1973, p. 488) so that they can be learned from. Otherwise, there is the danger of repetition. The feeling of being cheated by reality may fester and so create the conditions for a new search driven unconsciously by the desire to undo the humiliation, guilt, shame and hurt – to clear one’s name or to get back at and take revenge on those who are felt to have cheated one of one’s prize.

Implications for stock valuations are two-fold. We would predict first that the whole Internet sector would remain tainted and “devalued” for a considerable period of time including even those Internet stocks with viable business models and intrinsic valuations measurable in fundamental terms. Second, we might expect equity markets more generally also to be affected by the pain, shame and guilt of those caught up in dot.com mania with all stocks viewed unconsciously, almost irrespective of sector, as having the same potential for letting investors down so frighteningly. This would lead to a collapse in equity markets generally as well. While time may help memories of what can only be described as an unsafe Dionysian orgy to dissipate and stock valuation methods begin again to reflect investment fundamentals and

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30 Judge Milton Pollack’s dismissal of class action lawsuits against Henry Blodget and Merrill Lynch by investors blaming them for their losses is illustrative. He accused the investors themselves of being “high-risk speculators” who decided to join a “free wheeling casino that lured thousands obsessed with the fantasy of Olympian riches.” (Financial Times, July 2, 2003)

31 Between 2000 and the end of 2002, the Dow Jones Internet Index had fallen by over 90% and S&P 500 by almost 40%.
underlying accounting realities, the reputation of the market would clearly have been tarnished in the mind of many investors.  

5. Summary and conclusions

This paper sets out to explain stock valuations during the dot.com bubble by drawing on a literature new to finance, one that deals directly with the unconscious phantasies and drives that determine much of human behavior. Conventional firm valuation models based on discountable future cash flows and/or earnings broke down not just in the absence of meaningful historic accounting numbers and realistic forecasts but, crucially, because of the unconscious psychic meanings dot.com stocks possessed as phantastic objects. The existing empirical valuation literature on dot.com mania largely takes a rationalist perspective focusing on such issues as what might have been driving cross-sectional differences in Internet stock valuations and the relative importance of traditional financial measures compared with new economy metrics, both before and after the crash. However, the key psychological dimension of the valuation process which, in this case, seemingly completely dominates conventional analytical approaches, is ignored. The question is not why one dot.com stock is valued more or less highly than another, but why the average Internet stock should be valued on an implied P/E ratio of 605 in February 2000 (Ofek and Richardson, 2002) and why its price should rise five-fold in 18 months and then fall by a similar amount over the following year.

This paper suggests dot.com stock valuations can usefully be understood as being driven principally by compelling, exciting and then terrifying and shameful emotions which dominated the thoughts of investors and of which they were largely unconscious. These defined their subjective or, psychoanalytically speaking, their psychic reality rather than conventional rational firm valuation models.

We propose a five-phase psychoanalytically-based theory in an attempt to understand dot.com stock valuations and test this against what happened during the asset pricing bubble. We argue that during this period there was an exceptional degree of distortion in valuation realities into which it was very difficult not to get drawn and to which investors clung tenaciously by “falling for” more and more unrealistic valuation propositions. Normal valuation realities

\[32\] From the beginning of 2003 to November 2004 the Internet index rose from the low base by 110% and the S&P 500 by 33%. 

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became suspended while those who raised doubts were triumphantly mocked and denigrated. There was an enormously heady atmosphere associated with a curiously excited moral tone—both in the claims first made for the Internet and the new economy and then in the denigration of such stocks afterwards. Our theory sees these features as striking and consistent with the view that in inner psychic reality Internet stocks became mentally represented as unconsciously idealised infantile phantastic objects. We believe this idea and the associated quality of perverse hidden intergenerational (Oedipal) rivalry help to explain in a consistent manner core characteristics of the exciting rise and the dramatic fall in dot.com stock valuations, as well as the apparently phobic way the sector was subsequently treated.

Such ideas, although novel to the financial literature, seem to us to be worth a more empirical investigation. Moreover, the dot.com experience appears to have had a considerable impact on stock valuations for a number of years after the bubble’s collapse. Also, it has had significant restrictive legislative consequences including a fundamental alteration in the rules governing investment banks.

We suggest that while the dot.com experience is a dramatic example of how asset valuations may be driven more by emotion than cognition, knowledge of the subtle and complex way emotions and affects determine psychic reality will be of ongoing use in understanding stock valuations more generally and complement the contribution of conventional normative valuation models. It has long been recognized that markets are driven by greed and fear; the psychoanalytic theory of psychic reality provides a complex systematic model with which to begin to investigate and more systematically understand and apprehend these phenomena.
REFERENCES


Figure 1: Dow Jones Internet Price Index