SECURITIES ANALYSTS AS FRAME-MAKERS

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Abstract

Whether as brokers, critics or analysts, market intermediaries have received considerable recent attention in economic sociology. As Wall Street specialists on valuation, securities analysts are a particularly important class of intermediary, but their function is still poorly understood: while the academic literature provides a highly critical account of them, analysts have survived and expanded as a profession for almost a century. In this paper we offer a possible explanation for this puzzle with a novel theoretical perspective. We undertake a grounded theory, qualitative content analysis of the reports on Amazon.com written by Henry Blodget and rival securities analysts during 1998-2000. We find that analysts’ reports are structured by internally consistent cognitive networks of associations between categorizations, key metrics and analogies. We refer to these as calculative frames, and propose view analysts as frame makers, that is, specialized intermediaries that help investors attach numerical measures of financial value to stocks under uncertainty, by producing calculative frames. These frames mediate the relationship between information and valuation, providing the material basis for calculation and rational decision-making, but also leading to imitation and continued framing controversies.
SECURITIES ANALYSTS AS FRAME-MAKERS

Whether as brokers, critics or analysts, market intermediaries have recently received increasing attention in economic sociology. Intermediaries such as brokers were central to the rise of modern economic sociology and the notion of embeddedness (Granovetter 1974, 1985; Burt 1992). More recently, however, intermediaries have gained prominence for the opposite reason: as Granovetter and others turned their attention from embedded to the impersonal transactions typically found in modern mass markets, attention has shifted to the ways in which market intermediaries can facilitate disembedded transactions (Callon 1998; Stark 2000; MacKenzie and Millo 2003; Granovetter 2004). Accordingly, a rich literature on critics (reviewers of art, restaurants or films) has persuasively argued that intermediaries can replace the uncertainty-reducing role played by network ties (Hirsh 1972, 1975; Podolny 1992, 1993; Rao 1998; Zuckerman 1999, 2004). Intermediaries are also at the core of a related move: as economic sociologists come to see markets, rather than hierarchies, as the main locus of resource allocation in contemporary financial capitalism (Flisgstein 2001; Dobbin 2004), intermediaries in the capital markets such as traders, specialists or investment bankers have gained corresponding sociological notoriety (Baker 1984, Eccles and Crane 1988, Davis 1991, Abolafia 1996). Thus, in short, intermediaries are at the core of the current expansion of economic sociology, from embedded to anonymous mass markets and from bureaucratic to financial capitalism.

As Wall Street specialists in valuation, securities analysts are a particularly important class of market intermediary. The reports, recommendations and price targets of sell-side analysts are the raw material that large investors use to make their investment decisions. Indeed, analysts have repeatedly been singled out as the main culprit for the overvaluation of technology stocks during the period 1998 to 2000.
Our understanding of securities analysts, however, is challenged by a puzzling discrepancy between existing theory and practice. Whereas the academic literature presents a consistently negative portrait of these intermediaries, the profession has survived and expanded for almost a century. Thus, for instance, the orthodox finance literature presents analysts as forecasters and investment advisors but provides mounting evidence that they lack forecasting ability or skill in giving lucrative advice (Cowles, 1933; Lin and McNichols, 1998; Lim 2001). Similarly, the literatures in neoinstitutional sociology and behavioral finance document the tendency of analysts to blindly imitate each other, rather than process the economic information they possess (see respectively Philips and Zuckerman 2001; Zuckerman 1999, 2004; Rao, Greve and Davis 2001; and Scharfstein and Stein 1990, Hong, Kubik and Solomon 2000). Recent sociological work on analysts emphasizes their tendency to punish companies that innovative (Zuckerman 1999). In the light of these findings, the secular growth of the analyst profession cannot be easily understood: if their performance is so disappointing, why do they still exist?

In this paper we address this puzzle with a reexamination of the intermediary role performed by security analysts. Following the current sociological emphasis on the uncertainty-reducing function performed by mass market intermediaries, we are particularly interested in the activities of analysts when the value of the companies they cover is unclear, subject to unforeseeable contingencies or under dispute (March, 1987, Knight, 1921). We ask, what is the meaning of security analysis in contexts of ambiguity and Knightian uncertainty?

We address this question with a grounded-theory, qualitative content analysis of selected research reports. Analyzing the full text of analysts’ reports provides two unique advantages: it offers an open window on the cognitive processes followed by analysts as it unfolded, and it constitutes an original data source in the study of analysts so far. To develop our hypotheses we follow the constant comparative method advocated by Glaser and Strauss (1967). We focus on a
single well-known company, Amazon.com, and compare the reports written on it by the highest-valued Internet analyst, Henry Blodget, with those of maximally different rivals. We center on the financially volatile period of the so-called Internet “bubble” of 1998-2000 because it captures the problem of analysis under extreme uncertainty, and allows us to better understand how analysts might have contributed to the over-valuation of dot-com stocks.

Our findings point to the existence of a previously undocumented phenomenon. Underlying the assessments made by each securities analyst, we found internally consistent networks of associations between categorizations, analogies and key metrics – what we label here *calculative frames*. For example, one particular calculative frame for Amazon included categorizing the company as an Internet company, seeing it as analogous to Dell Computers, and appraising its prospects in terms of its growth in revenues. Typically, this was associated with an optimistic view of the company. A contrasting frame was the view that Amazon was a book retailer, that it was analogous to Barnes and Noble, and that it should be valued on the basis of its current profits. Analysts who espoused this alternative frame tended to be pessimistic about the company. We find that these frames not only structure analysts’ position about companies, but are also robust over time, leading to sustained controversies among analysts over the value of the stock.

Accordingly, we propose to see analysts as *frame makers*, specialized intermediaries that help investors attach numerical measures of value to stocks even in contexts of extreme uncertainty. The notion of frame-makers solves the puzzling inconsistency between theory and practice regarding security analysts, as it suggests one way in which analysts add value to investors despite their inaccurate price targets and money-losing recommendations.

Our perspective contributes to the academic debate on analysts by reconciling and recombinining the rather critical perspectives on analysts into a new and positive account of their
work. The notion of frame-making partly supports the neoclassic view of analysts by specifying the material tool that allows investors to engage in calculative decision-making in the presence of ambiguity and Knightian uncertainty. On the other hand, the notion of framing controversies runs counter to neoclassic notions of market efficiency, updating, convergence and unbiased forecasts: we find, for example, that two analysts with different frames can well react in opposite ways to the same piece of information on the very same day, and that these differences persist over time. Frame-making supports the neoinstitutional notion of imitation, as some analysts and investors make their decisions to adopt or abandon a frame based on what others do. Finally, frame-making extends Zuckerman’s (1999) cognitive view of analysts as passive classifiers by specifying the mechanisms they employ; on the other hand, it departs from it by stressing the tendency of successful security analysts to deviate from the herd.

Our paper proceeds as follows. In the following section it reviews the vast academic literature written on analysts. Next, it outlines the guiding principles of our grounded theory research design. It continues with an examination of three episodes in the financial controversy over Amazon, located in December 1998, May 1999 and June 2000. Each of these yields valuable theoretical insights that build up to a model of analysts as frame-makers. The paper concludes by examining the implications of our theory of analysts for an overall understanding of analysts, market intermediaries and the capital markets.

**PERSPECTIVES ON ANALYSTS**

Despite the extensive theoretical attention received by security analysts, the literature still provides a limited account of the intermediary function that they perform. In this section we develop this assessment by categorizing existing work into three broad streams. One approach, rooted in the finance and accounting literatures, views the intermediary function of analysts as *information processing*, stressing their activities of search, assembly and communication of
information about company value. Another approach, clustering the disciplines of neoinstitutional sociology and behavioral finance, documents the tendency of analysts to mimic each other. We refer to it as the imitation perspective. Finally, a more recent approach developed by Zuckerman and others presents a sociological view of analysts as classifiers. This view addresses many, but not all, of the shortcomings of the two aforementioned streams, opening up an important need to theorize about analysts. We articulate this critique below.

**Analysts as information processors.** The information processing literature on analysts rests on a remarkable finding: securities analysts, traditionally regarded as valuation experts, are unable to provide accurate forecasts of stock prices or lucrative investment advice. Beginning with Cowles’ (1933) seminal piece, titled “Can Stock Market Forecasters Forecast?” finance and accounting theorists have documented the failure of analysts’ recommendations to produce abnormal returns, as well as their failure to provide accurate forecasts of earnings and price targets. In assessing the causes for this shortcoming, these studies have found a variety of conflicts of interests that distort the agency relationship between analyst and investor: investment banking ties (Lin and McNichols 1998, Hong and Kubick 2002, Michaely and Womack 1999), access to company information (Lim 2001), brokerage interests of the bank employing the analyst (Boni and Womack, 2002), investment interests of the clients of the bank (Sargent, 2000), or the investment interests of the analysts themselves (Schack 2001). Analysts, then, come across from this literature as conflict-ridden intermediaries.

To the empirical case against analysts, the neoclassic finance literature has added a sweeping theoretical challenge based on the efficient market hypothesis (EMH). According to this proposition, stock prices in a competitive capital market capture all relevant information about the value of a securities (Samuelson, 1967; Jensen 1968, 1970; Malkiel 1973; Fama 1991). From the standpoint of the EMH, price movements follow an unpredictable random walk, there
are no mispricings, no possibility for any actor to find extraordinary profit opportunities and indeed, no scope for financial intermediaries to help their clients do so. The bleak implication for analysts is that their forecasting and stock-picking services cannot add value, for accurate forecasting and lucrative advice are impossible in an informationally efficient market.

On the other hand, a reduced but important body of research in the information processing literature has made a positive case for analysts. This research has documented several instances in which analysts issue accurate forecasts and profitable recommendations. For example, Elton, Gruber and Grossman (1986) found mild excess returns in the recommendations of a sample of analysts in the month following the recommendation. Similarly, Womack (1996) found that stock prices moved significantly after analysts issued a recommendation. More recently, Barber, Lehavy, McNichols and Trueman (2001) found that securities analysts gave valuable advice if followed to the extreme: they calculated that a strategy of “longing” the highest-rated stocks and “shorting” the lowest-rated ones would have produced excess returns. Thus, the empirical case against the processing abilities of analysts is not entirely clear-cut.

Despite the mixed evidence, the orthodox consensus in academic finance remains critical to the analysts (Boni and Womack, 2002). One reason for the skepticism is the analyst scandals of 1998-2000, in which top-ranked Internet analysts resisted downgrading their recommendations and privately criticized the companies they publicly recommended. The public uproar against analysts was such that the Securities and Exchange Commission issued explicit guidelines for retail investors to use analyst reports with precaution. In this manner, the practical public policy debate has in the end resulted in a broadly critical theoretical consensus about analysts.

**Analysts as imitators.** The information processing approach to analysts has been challenged by recent applications of behavioral finance. In an important attack to the neoclassic
emphasis on calculation, behavioral theorists have documented the tendency of analysts to imitate each other, that is, to herd (Scharfstein and Stein, 1990, Trueman 1994, Zwiebel 1995, Prendergast and Stole 1996, Hong, Kubick and Solomon 2000). According to the seminal work of Scharfstein and Stein (1990), overly comparative compensation schemes such as firing and promoting analysts based on their relative performance pushes them to copy each other to the point of ignoring their own private information if the latter is inconsistent with the views of the majority. The notion of herding has received important empirical support, most notably from Hong, Kubick and Solomon (2000), who found that the career paths of securities analysts make imitation a worthwhile strategy. “Analysts,” the authors found, “are more likely to be terminated and less likely to be promoted when they make relatively bold forecasts,” suggesting that the pressures for herding are present indeed (Hong, Kubick and Solomon 2000, p. 123).

In a related line of inquiry, the literature in neo-institutional sociology has examined how the strife for legitimacy promotes imitation and conformity among analysts (Phillips and Zuckerman 2001; Rao, Greve and David 2002). Phillips and Zuckerman (2001) showed that middle-status analysts, that is, those with insecure standing in the profession, have a greater tendency to conform to the expectations of the actors around them, including the executives of the companies they cover and their investment banking colleagues. As a result, middle-status analysts tend to be over-optimistic about the stocks they cover. In a related line of work, Rao, Greve and Davis (2002) provided a sociological account of why analysts imitate each other. Boundedly rational actors, the authors argued, respond to uncertainty with isomorphism. In the case of analysts this imitation takes the form of so-called “information cascades”, that is, sequential patterns decision-making in which the last actors to decide end up copying the decisions of the first ones, even if their private information would suggest the opposite (Bikchandani, Hirshleifer and Welch, 1992).
Where is the analysis?

Our assessment of the information processing and imitation literatures is mixed. On the positive side, these literatures have crucially helped demystify the spurious claim – often hinted at by the least scrupulous members of the analyst profession – that analysts possess better information or superior individual stock-picking skills that their clients. Another key contribution has been to highlight the dangerous agency conflicts that characterized the work of analysts. But these literatures raise as many questions as they address: from an empirical standpoint, these treatments of analysts do not take into account the perspective of the investor in assessing analyst performance. From a theoretical standpoint, they ignore the social, cognitive and material processes that sustain calculative valuation by analysts under uncertainty.

What makes an analyst valuable? The existing analyst literature adopts an overly narrow measure of the value of security analysts. The literature measures analyst performance according to their accuracy and profitability, but an important body of evidence suggests that these are not relevant to the investors. One the contrary, the latter appear to be far more interested in the knowledge content of analysts’ reports. This discrepancy surfaces clearly from the “All-American” analyst rankings complied by Institutional Investor magazine, the most widely-used measure for the value that investors accord to a analysts. For instance, in the 2003 Institutional Investor rankings, the magazine suggested eight different dimensions of analyst merit: industry knowledge, written reports, special services, servicing, stock selection, earnings estimates, market making and quality of sales force. Of these, investment recommendations and earnings estimates appeared came out as unimportant, ranked sixth and seventh in importance out of a total of eight (see Table one). The top two criteria, in contrast, were “written reports” and “industry knowledge”, suggesting that the arguments and ideas contained in the main body of the
reports are far more important than the brief recommendations and price targets that analysts attach to the reports.\textsuperscript{12}

These conclusions are supported by anecdotal evidence from investors and analysts. For instance, the analyst profession has never accepted the idea that their core intermediary function is forecasting prices or recommending stocks: as far back as 1933, an analyst replied to the charge that analysts provided unprofitable recommendations (first formulated by Cowles [1933]) by countering that research reports were intended “as educational pieces, not as investment advice” (Rhea, 1933, cited in Bernstein, 1992, p. 35). More recently, a top-ranked securities analyst argued in the \textit{Wall Street Journal} that “the analysts’ clients (…) could care less if you say ‘buy, hold or sell.’ They just want to know why” (Kessler, 2001, p. A12). Finally, a prominent analyst at investment bank Brown Brothers Harriman was recently cited as saying,

\begin{quote}
One reason institutional investors continue to value the work of an analyst whose recommendations have been off-base is that they pay less attention to analysts’ recommendations than you might think (…) the institutional clients make their own buy or sell decisions. They want the analyst to add value to their decision-making (Brenner, 1991, p. 24)
\end{quote}

Recommendations, then, do not seem to be the key to analysts’ work. What investors appear to want, according to this analyst, is diversity in opinions: “an articulate case from both the bull and the bear” (Brenner 1991, p. 25, cited in Groysberg 2001).

\textsuperscript{1} \textit{Institutional Investor} rankings differ from stock-picking skill in several other ways. A survey by \textit{Investars} in 2000 to 2002 of more than 400 analysts covering 51 industries (i.e., not just Internet analysts) ranked at or near the top by the magazine produced the following results. First, only one of the 51 highest-ranked analysts was a top-ranked stock picker. Second, 38 to 45 percent of the top analysts turned in a performance below sector average during 2000 and 2001. Third, the returns of half the top-ranked analysts lagged that of lower-ranked analysts. Fourth, none of the 51 analysts ranked "first team" by Institutional Investor were at the top of their industry group based on performance in 2000 and only one did so in both 2001 and 2002 (Morgenson 2002, p. 13).

\textsuperscript{2} Accuracy and valuable advice have been shown to be correlated with a high position in these rankings (Stickel 1992). But, as we shall see below, the two are by not means the same.
We conclude from this review of investor data that the existing literature has evaluated analysts on a very limited basis. The literature has measured their forecasting and investment advice skills, but these are not the core functions that investors value. Such inconsistency erodes the claim that analysts are redundant, begging new questions instead: how, in particular, are analysts’ “written reports” helping investors? What is the nature of the “industry knowledge” that analysts convey?

**Limited treatment of uncertainty.** The existing literature on analysts overlooks the important challenges that uncertainty poses to the activity of analysis. Whereas the information processing view provides an over-calculative view of analysts, neoinstitutional approaches espouse an under-calculative view of analysts as pure imitators. As a result, the literature results in a black-or-white portrait of analysts, as either hyper-rational robots or dumb lemmings.

**An under-calculative view of analysts.** The imitation literature on analysts is characterized by a lack of attention to the ways in which analysts calculate value. Rao, Greve and Davis (2001), for example, view imitation as an economical alternative to calculation. According to the authors, analysts imitate their peers just as social actors imitate each other in contexts of uncertainty, as in “how fast to drive on a certain stretch of highway, or how to each chicken in a restaurant” (Rao et al., 2002, p. 504). Our position, however, is that imitation cannot fully account for the intermediary activity that analysts perform. Whereas imitation emphasizes similarity, in fact we observe a great deal of empirical difference among analysts: none of the five top-ranked analysts of 1998, for example, remained at the top by 2001 (*Institutional Investor* 1999, 2000, 2001). In addition, analysts differ importantly from Rao et al.’s occasional restaurant customers in that they are Wall Street’s valuation specialists. They are generously paid for their valuations, and their positions have career-altering consequences for them (for examples, see...
Indeed, several prominent economic sociologists have recently emphasized the importance of understanding economic calculation, rather than simply denying it exists (Callon 1998, Stark 2001, MacKenzie and Millo 2003, Granovetter 2003). According to the seminal work by Callon (1998), the assumption that actors never calculate, as some sociological treatments make, is as unrealistic as the contrasting neoclassic position that they always do so. Instead, Callon argues for posing calculation as a question: how do market actors transform the barrage of news and rumors that arrive to them into neat measures of value? To address it, Callon calls for theoretical attention to “the material reality of calculation, involving figures, writing mediums and inscriptions” (Callon 1998, p. 5). Far from overlooking the social determinants of value, the injunction here is to expand the theoretical scope of “the social” to encompass how collectively constructed measuring technology shapes the encounter between information and market action (Stark, 2000; Granovetter 2004).

An over-calculative view of analysts. In contrast to the imitation approach, the information processing perspective is hampered by the assumption that calculation is straightforward and unproblematic. This position is predicated on Savage’s (1954) seminal work of decision-making under uncertainty. According to Savage’s model, rational decision-makers develop probability estimates by updating their subjective prior beliefs with incoming news. Rational updating entails following the rules of Bayesian inference. Accordingly, two Bayesian decision-makers with different priors should update their beliefs in the same direction, even if not necessarily by the same magnitude. Thus, for example, the arrival of good news about a company should make all rational decision-makers update their assessments by valuing the company more, not less. As additional information arrives and rational updating continues,
actors are expected to converge in their beliefs to the point that the final position espoused by the different decision-makers will be one and the same, purely shaped by incoming information.

While Bayesian convergence is a useful stylized portrayal of decision making in numerous contexts, a detailed analysis of the cognitive mechanism involved in it suggests that convergence can easily break down in situations of extreme uncertainty and ambiguity. Savage’s model assumes that all rational decision-makers classify news in broadly the same manner (i.e., leading to upwards or downwards revisions in probability). But in situations of Knightian uncertainty, where the range of future possible outcomes and their probabilities is unknown (Knight 1921), unforeseen contingencies can block convergence in beliefs. Such blindspot of Bayesian models has been recognized in contemporary economic literature and referred to as the “zero-probability event” (Barberis, Shleifer and Vishny 1998, Brandemurger 2002).3 In addition, the presence of ambiguity also prevents the emergence of Bayesian convergence. In situations of ambiguity, that is, confusion over how a piece of news should be classified (March 1987) it is possible that different actors might update their beliefs in different directions. The result will be updates in different directions, again preventing convergence in beliefs.

Markets and divergent beliefs. In the absence of convergence in beliefs greater attention to diversity recommends itself: how divergent beliefs arise, diffuse and evolve among analysts. This is consistent with the developments in psychology during the past four decades, in which a “cognitive revolution” has shifted academic interest from behavior to the ways in which interior mental models mediate perception (Tolman 1948; Festinger 1957; see Gardner 1985 for a history).

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3 The mechanism here operates as follows. Humans give meaning to information by fitting it into categories (Bowker and Star 1999). Lacking a category, as is the case with an unforeseen contingency, a decision-maker becomes unable to take relevant information about a contingency into account.
The seminal notion that two individuals with different mental models can interpret the same stimuli in radically opposite manners has been extensively incorporated in the organizations literature (Hedberg, Nystrom and Starbuck 1976, Weick 1979, 1995; Gioia and Chittipeddi 1991, Dubar, Garud and Raghuram 1996; see Walsh 1995 for a review). Thus, for example, Weick (1995, p. 4) developed the notion of sensemaking (“placing stimuli into some kind of framework”) to convey the notion that “organizational life is (...) about interpretation, intellect, metaphors of theory, and fitting our history into an understanding of life” (Weick 1995: 9). Echoing the responses given by portfolio managers to the question of what makes an analyst valuable, Weick adds that in contexts of organizational uncertainty, “accuracy is nice, but not necessary” (Weick 1995, p. 60).4

Analysts as classifiers. The cognitive critique formulated above is addressed by a recent stream of literature on security analysts developed by Zuckerman and others (Zuckerman 1999, Zuckerman and Rao 2004, Zuckerman 2004). Extending the sociological work on intermediaries by Hirsh and Podolny to the capital markets (Hirsh 1972, 1975; Podolny 1993, 1994, Benjamin and Podolny 1999, Hsu and Podolny 2005), Zuckerman proposes viewing security analysts as critics, that is, specialists in conveying the worth of a good or service whose value is uncertain. As critics, the activity that analysts perform is fundamentally based on classification: given the difficulty of simply plugging information that is disputed or incomplete into a formula, analysts assess the value of a company by comparison with other companies in the same category. According to Zuckerman, however, this classification has important dysfunctional consequences. In categorizing companies, analysts conform to the accepted industry classification scheme, as not doing so might render them illegitimate. Such rigid insistence on fitting companies into

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4 An important stream of research has also examined the association between mental maps shape and strategic choice and action (Huff 1990, Garud and Rappa 1994, Porac, Thomas, Wilson, Paton and Kanfer 1995, Lant and Baum 1995, Gavetti and Levinthal 2000, Tripsas and Gavetti 2000)
existing slots (as opposed to creating new ones) leads analysts to screen out from their coverage those companies that do not clearly belong to any one existing category, thereby depressing their market value. As a result, analysts are responsible for an “illegitimacy discount” that perpetuates existing industry classification schemes and stifles innovation.

While a crucial contribution to our understanding of analysts, Zuckerman’s work still leaves several unanswered questions. Zuckerman’s claim that analysts replicate existing categories sits at odds with some salient empirical phenomena of recent years. For instance, we note that new industry categories do emerge. Turning again to the years 1998-2000 we find a new industry category called “Internet and New Media” (Institutional Investor 1999, 2000, 2001). Instead of experiencing an illegitimacy discount, companies in this category – the so-called “dot-coms” – actually traded at a rather generous valuation premium. This suggests that whereas classification is indeed an important part of the work of analysts, it does not seem to fully capture the nature of their work.

Pending questions. To sum up, the literature on analysts presented so far can be organized according to three overriding metaphors: analysts as information processors, as imitators and as passive classifiers. Our empirical objection to the processing and imitation approaches is that they are not really measuring the knowledge conveyed by analysts. Theoretically, our objection to the literature is that it overlooks the cognitive and calculative mechanisms that structure analysts’ positions Our critiques come together in a single one, namely, lack of clarity about the intermediary task performed by these professionals, analyzing stocks. Accordingly, this paper focuses on how analysts calculate value under uncertainty. In the following section, we discuss our choice of research design to address this question.
METHODS

The present study pursues a fresh account of the work of securities analysts with a grounded-theory, qualitative content analysis of selected analyst reports on Amazon.com during the years 1998 to 2000. We opted for grounded theory because it best fits the purpose of providing new hypotheses that break out of existing theoretical frames (Glaser and Strauss, 1967). Our aim, in other words, was not to verify existing hypotheses derived from the literature but to develop new ones instead. In the following paragraphs we describe the different steps that we undertook to build our theory, including our methodological choices in theoretical sampling, constant comparison, theoretical saturation and use of data slices.

Research design and sample selection. In operationalizing grounded theory, we chose a qualitative content analysis design. An analysis of the content of analyst reports best complements the existing literature because virtually all treatments of analysts have focused on narrow indicators of analysts’ positions such as price targets, investment recommendations and coverage decisions, ignoring the actual text in analysts’ reports. These reports are precious sources of data: they reveal the cognitive processes followed by analysts, and (as noted above) constitute the number-one reason why investors value the work of analysts. Content analysis is not only well established in the organizations literature (see for example Fiol 1989), but is also an emerging method in the finance literature, recently used by Kaplan and Stromberg (2004) in The Journal of Finance.

To select our reports, we undertook a theoretical sampling of companies, analysts and documents. Our choice, in other words, was made on the basis of their theoretical purpose and relevance rather than representativeness of a larger population. Thus, for instance, to address the theoretical question of how analysts confront Knightian uncertainty and ambiguity we focused on cases in which the future could not easily be extrapolated from the past, as in radical
technological change. One such instance was the emergence of the Internet sector during the so-called technological “bubble” of 1998-2000. Of the several candidate Internet companies to be analyzed, the size and visibility of Amazon.com made it particularly appropriate.

Our choice of Henry Blodget as focal analyst was also guided by the principle of theoretical relevance. The failure of existing theory to properly measure the value of analysts led us to focus on one whose work was clearly valued by investors, and ask, “what did he or she do differently?” In the particular industry and time period of choice, the star analyst was Henry Blodget. Blodget was ranked number one Internet analyst in the year 2000 by Institutional Investor, and received one of the highest annual compensations of the industry, totaling $15 million in 2000. Blodget attained celebrity status among investors, with appearances in financial television programs such as Moneyline, quotations in business publications such as the Wall Street Journal, and The Economist, as well as in virtually all Internet magazines. Blodget is of course not representative of the average securities analyst, but as argued above, this is not a concern in a theoretical sample because the point is not representativeness but effective generation of hypotheses.

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Our focus on Henry Blodget led to a generous sample of research reports, from which we selected a sub-sample of theoretically relevant pieces. Blodget’s tenure as analyst of Amazon.com spanned 28 months, from October 1998 to March 2001. During this time, he issued 63 reports on Amazon which took up between one and 31 pages (see Figure 1). We started with the document that made Blodget famous among investors according to Institutional Investor. This corresponds to his December 1998 report, titled “Raising price target to $400.” Blodget’s
report was directly responsible for his entry into the prestigious “All-American” analyst ranking compiled by the magazine. As the *Institutional Investor* wrote,

Securing third place is newcomer Henry Blodget, who joined Merrill Lynch in February from CIBC World Markets. Blodget is best known for his mid-December call on Amazon.com, when shares were trading at 240. He predicted Amazon would go to 400 in fact, it soared to 500 (*Institutional Investor* 1999).

Thus, we see that the trade magazine praised Blodget’s December report in unambiguous terms.

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**Inference of hypotheses.** To develop our theoretical categories, we followed the *constant comparative* method advocated by Glaser and Strauss (1967). We contrasted Blodget’s reports with those of similar Amazon analysts with maximally different messages. Our first comparison examined the aforementioned reports of Henry Blodget and Merrill Lynch analyst Jonathan Cohen on December 16th, 1998. Their reports were directly comparable because the two were Wall Street Internet analysts and issued their reports on the same day (thus, arguably with the same information). In comparing them, we asked, “how do these reports differ?” and generated our theoretical categories from the differences that we identified.

In keeping with the grounded theory methodology, our categories were not just inspired in the data but “worked out” from it (Glaser and Strauss 1967, p. 31). We started by analyzing and coding the content of the December reports of Blodget and Cohen following a traditional method of reading hard copies of the texts and making annotations on the margin. In parallel, we built an Excel database with the key elements in the reports such as price targets, recommendations, etc. Then, we returned to *all* the previous reports written by the two analysts
and coded their content also. We found that “calculative frames” lie at the core of analysts’ reports,

We proceeded with a procedure of inclusive sampling that led us to continue sampling based on the questions and theory that emerged from the first comparison (Glaser and Strauss, 1967). The question that followed the notion of calculative frames was, how does that affect valuation? Another episode in the Amazon saga, a controversy over the value of Amazon among Blodget and a journalist at Barron’s in May 1999, provided an answer to that question.

Our analysis included an additional third episode. Having found from the controversy with Barron’s that frames were such powerful force shaping analysts’ valuation, we asked ourselves: how do frames diffuse among analysts? The third episode, a debate between Blodget and Lehman Brothers bond analyst Ravi Suria in June 2000, addresses this question. Thus, our selection of the data was controlled by the emerging theory, instead of proceeding independently from it (Glaser and Strauss 1967).

Our sampling process stopped when we reached theoretical saturation. Having analyzed three episodes in the controversy over Amazon, we noted that the elements and properties of the calculative frames we found were the same in each instance. In all three cases, and for every analyst examined, the calculative frame had the same three elements (although different content). All in all, we examined three focal incidents in a controversy spanning the period September 1998 to July 2000, including the upward cycle in the Internet bubble, the crash of April 15th 2000 and its subsequent deflation, spanning a total of 63 reports by Blodget and ten by rival analysts.

Data and sources. Our primary sources of data were the analyst reports contained in the Investext database and the rankings of Institutional Investor magazine. We obtained full-text Adobe PDF files of reports of these analysts from Investext, a database that stores the research reports written by analysts from investment banks and other financial research institutions. In the
period under study, 1998 to 2000, there were 429 reports on Amazon.com from fifteen different analysts. We are, to our knowledge, the first ones to employ the text database to study analysts. The rankings of securities analysts during the years 1998-2000 were obtained from *Institutional Investor*. The magazine, a trade publication for large investors, has ranked sell-side analysts since 1972 in what it describes as its “All America Research Team,” and are sometimes referred to as the “analysts’ Oscars” (Groysberg 2001, p. 7). The ranking is based on the survey responses of the readers of analyst reports, institutional investors, and it evaluates the performance of analysts according to eight criteria (see Table 1 above). These rankings are widely regarded as a good proxy for analyst’s performance, and have been extensively used in the academic literature on analysts as the paramount subjective measure of analyst quality (see, for example, Phillips and Zuckerman 2001). Furthermore, these rankings are also crucial for the analysts themselves, as a position on the All-America Research Team is one of the three most important criteria for determining analyst pay (Dorfman, 1991).

We also relied a variety of ancillary sources such as price charts, the business press and interviews to analysts and portfolio managers. We contrasted Blodget’s views with the positions of other analysts in top investment banks (Goldman Sachs, Deutsche Bank, etc.) using *Ratingplotter* charts, an analytical tool developed by *Investars*, a business provider of financial information. We obtained information on the social dynamics among analysts from the *New York Times*, *The Economist* and *The Wall Street Journal*. These provided valuable information on the timing and the reasons for large sales of Amazon.com, changes in analysts’ careers, etc. We also benefited from interviews with three analysts and one portfolio manager. Such hybrid sources would be inappropriate in a hypothesis-testing methodology, but in grounded theory they are key to the density of the emerging categories, and are referred to as *data slices* (Glaser and Strauss, 1967, p. 65).
Additional considerations. Finally, we would like to highlight two important characteristics of our grounded research design. First, we note that the empirical validity of our findings does not rest on the size of our sample. Instead, our process of analytical induction validates hypotheses in the process of testing them (Glaser and Strauss 1967). The findings reported here, however, have yet to be explored in other settings. The second observation pertains the involvement of our focal analyst, Henry Blodget, in the analyst scandals of 2001. On November 2001, Blodget abandoned his job at Merrill Lynch as part of a settlement with the Attorney General of New York. The settlement ended an investigation of Blodget’s internal communications with colleagues at Merrill Lynch revealed e-mails in which he referred to companies that he was officially recommending with colorful derogatory words like "crap" and "dog". The abrupt end of Blodget’s career as analyst might be interpreted as evidence that Blodget was not helping investors but simply deceiving them, rendering reports an inadequate data source to learn about securities analysis.

While we accept that Blodget suffered agency conflicts, we contend that his conflict of interest do not weaken our case but in fact reinforce it. The evidence does suggest that at some point during 2001 Blodget provided recommendations that he did not privately believe in. We observe, however, that investors appeared to know about this problem, and ignored it. For example, subscribers of Internet financial news site TheStreet.com, a parallel analyst ranking to Institutional Investor, gave Blodget low ranking for sincerity (only two stars out of three) yet ranked him number one analyst overall out of 28 possible candidates (TheStreet.com 2000). Thus, it seems that investors valued Blodget’s work regardless of his conflicts of interests. We see this as evidence that Blodget’s particular recommendations was less important than the knowledge that he conveyed in his reports. This reinforces our claim that recommendations and forecasts are unimportant and that Blodget was doing something better than his rivals.
THE FINANCIAL CONTROVERSY OVER AMAZON.COM

Our study seeks to understand analysis under uncertainty by examining how it unfolds in contexts of controversy. We compare the work of rival Amazon analysts in three instances during 1998-2000. Amazon opened up for business on the Web three years before, in 1995, but it was not until its initial public offering in 1997 that Wall Street analysts and investors took an interest in it. The company’s stock became truly polemic in 1998, when a heated dispute over its value took prominence in the financial and business media, echoing a larger societal controversy about the economic potential of the Internet. In this section we examine three instances of this controversy to understand how analysts.

First episode: Blodget vs. Cohen

On December 16th 1998 investors witnessed a remarkable dispute over the value of Amazon. Henry Blodget, an Internet analyst at Canadian bank CIBC Oppenheimer, raised his price target to $400 from $150 following the company’s Thanksgiving sales. The change was exceptional enough to be featured The Wall Street Journal. On that same day, however, Jonathan Cohen of Merrill Lynch advanced a very different perspective. In a research note on Amazon.com issued hours after Blodget’s report, Cohen rated Amazon a “sell,” and valued it at $50, arguing that Amazon would never be able to reach the profitability that Cohen predicted. The controversy was such that volume of Amazon stocks traded on that day surpassed $100 millions, more than ten times larger than its annual average volume.

The controversy shaped the career of both analysts. By the end of the day, the price of Amazon rose by 20% to $270, and kept rising during the following three weeks past Blodget’s annual target of $400. As the price rose, Blodget’s status took off: he was voted third in the 1999 Institutional Investor raking of Internet analysts, appeared in television and business technology magazines. By contrast, Cohen was forced to abandon his lucrative position at Merrill Lynch (it...
is unclear whether he resigned or was forced to leave). In January 1999, Blodget was promoted to the job at Merrill Lynch that Cohen’s departure left vacant. Thus, the resolution of this controversy was a central event in the career of both analysts: it launched Blodget’s and broke Cohen’s.

The debate between Blodget and Cohen provides our entry point into the work of securities analysts. The uncertainty, tension and drama of December 1998 are hardly consistent with the image of analysts that stems from the academic literature. For instance, the information-processing approach presents analysts as aiming for forecasting accuracy, but the disparity between Blodget’s and Cohen’s price targets seems too wide to be attributed to inaccuracy or measurement error. Similarly, the behavioral literature view presents analysts as averse to deviating from the consensus and unwilling to upset the companies they follow. But we find Blodget and Cohen clashing directly with each other, ignoring the consensus, and (in the case of Cohen) bitterly criticizing the company he followed. What, then, accounts for the controversy among these two analysts?

**Explaining disparity: Information asymmetry and heuristics.** On closer examination, the literature hints at other hypotheses to explain this valuation gap. The information processing view, for example, emphasizes the presence of informational asymmetries in the work of analysts. Accordingly, the next paragraphs consider the question of whether one analyst knew something that the other did not. Similarly, the behavioral emphasis on herding and heuristics as sources of bias in analysts’ work prompts the question of whether analysts were calculating value in a rigorous, mathematical way, or relying on shortcuts instead.

To address these questions, we examined the full text of the December reports of Blodget and Cohen. A first reading of Blodget’s report does not reveal any instance of misinformation or oversimplification. Consider, for instance, the reasons for the analyst’s change in opinion. The
analyst justified his brusque increase in price target from $150 to $400 by referring to a specific piece of news, and accounted for it with detailed calculations: “the number of orders on the day after Thanksgiving,” Blodget wrote in December 1998, “were four times those in the year-ago period” (Blodget and Anning 1998, p. 1). This information was crucial, for Thanksgiving sales are a central piece of data in the retailing industry, commonly deemed to be the best proxy for Christmas sales, which in turn account for half of total annual sales. A retailer experiencing a four-fold increase in Thanksgiving sales could well be expected to report an increase in annual sales of similar dimension. Thus, it is conceivable that the news described by Blodget required the valuation of Amazon to be sharply updated.

Similarly, Blodget incorporated the information about Thanksgiving sales into Amazon’s stock price with the help of detailed financial calculations. He explained his calculations in the following “valuation exercise:”

We arrived at our new price target by averaging the results of few different valuation exercises: 1) we applied the stock’s current price-to-forward-revenue multiple, 15X, to our official 2000 revenue estimate of $1.5 billion (yielding a $380 target), 2) we applied the stock’s revenue multiple in our aggressive-growth scenario, 10X, to our aggressive-growth 2000 revenue estimate of $3.0 billion (yielding a $500 target), and 3) we discounted our five-year aggressive-growth EPS estimate of $10 at a 20% rate (yielding a $300 target) (Blodget and Anning 1998, p. 2)

Blodget thus relied on a meticulous calculation of revenues, multiples and discount rates to introduce Amazon’s exceptional Thanksgiving sales into his assessment. We tentatively conclude from this first examination that Blodget’s work appears to be informed and rigorous.

Like Blodget, Cohen’s report on December 1998 does not show signs of heuristics or informational asymmetry. In his December report, Cohen (1998b, p.1) explained in detail the reasons for his skepticism on Amazon. He wrote:

• A competitor announced this morning it thinks the shares could reach $400.
In our view, there has been no change in the fundamentals to justify the current share price.
We feel the stock is very expensive currently trading at a market capitalization of roughly $15-16B and price to revenue multiple or about 15.5X our C99E.
We do not believe the shares are trading on its current fundamentals and maintain our intermediate Reduce.

Several elements in this text suggest that Cohen was both informed and purposefully calculative. First, Cohen cited Blodget’s report ("a competitor"), demonstrating that he knew about the surge in Thanksgiving sales discussed in it. Second, Cohen specifically noted that there had been “no change in the fundamentals” to justify Blodget’s $400 price target, which indicates that he did not ignore that piece of information. Finally, regarding the possibility of excessive reliance on heuristics, Cohen was not only actively counting, but in fact denouncing oversimplification on the part of others with references to an excessive market capitalization. Cohen, in short, appears knowledgeable and rigorous.

To summarize, the discrepancy between Blodget and Cohen does not seem to be the result of informational asymmetries or oversimplifying heuristics, as the existing literature would suggest. However, the December reports are, part of a longer sequence that began when the two analysts started their coverage of Amazon in September 1998: this is clear from the many unexplained labels and categories that clutter the December pieces: Blodget’s “2000 official scenario,” or Cohen’s “C99E” earnings estimate, which are mentioned in December but developed in earlier pieces. Accordingly, in the following subsection we trace the roots of the divergence to the meaning of the facts and figures they mobilized, turning to the first reports where these figures first appeared.

**Behind the numbers: analysts’ formulae and financial estimates.** A broader survey of the work of Blodget and Cohen offers new clues about the origin of their disparity. Between September and December 1998, Blodget and Cohen wrote a total of five documents each. These
reveal the nuts-and-bolts of their calculative technique. One such tool is valuation formulae, responsible, for instance, for the $400 price target. Blodget relied on a discounted earnings approach. This mathematical expression measures a company’s worth by “discounting,” or folding back into the present the value of the earnings that a company is expected to earn in the future. Like Blodget, Cohen’s report also valued Amazon with the use of a mathematical formula; unlike him, Cohen chose a slightly different price-to-revenue multiple expression.

The differences among these formulae, however, are not the key to the analysts’ disparity. According to the standard manuals in financial valuation, the revenue multiple approach as used by Cohen is in fact equivalent to a discounted earnings approach as used by Blodget (Damodaran 2000). Indeed, Cohen himself pointed out as much: his own method, he wrote, was “meant to embody a more traditional forward price/earnings analysis” (Blodget and Erdmann, 1998, p. 5) such as used by Blodget. We conclude, therefore, that the choice of mathematical expression is not the source of the disparity between the two analysts.

Further examination of the seminal initiating coverage reports reveals that the key to the differences rested instead on their choice of estimates. Cohen’s revenue estimate for the year ending in December 2000 was $0.8 billion (Cohen and Pankopf 1998, p. 10), whereas Blodget estimated a revenue figure three times higher, of $2.5 billion (Blodget and Erdmann, 1998, p. 10). Similarly, his operating margin estimate was 10% (Cohen and Pankopf 1998, p. 6), versus a more generous margin estimate by Blodget’s of 12% (Blodget and Erdmann, 1998, p. 13). Compounded in their respective formulae, these differences produced the valuation gap of $400 versus $50.

What explains these differences? In accounting for the disparity, it is crucial to consider that none of the two analysts had any factual information about these precise magnitudes. Such opacity is only to be expected, for the two were plugging number into their formulae two full
years before the actual figure was produced by the companies. This underscores the central challenge in equity valuation, namely, discounting a future that is unknown. Equity valuation, in short, is a poster case of Knightian uncertainty (Knight 1921).

How do analysts develop estimates? Despite the lack of factual data, the two analysts did produce numerical measures for Amazon’s margin and revenue. In this section we examine how they managed to do so.

1. Margin estimate. Blodget estimated a high 2003 operating margin of twelve percent. What accounts for this figure? In explaining his choice, Blodget first rejected the use of Amazon’s current profits to predict the future operating margin of the company. As a young start-up company, Blodget argued, Amazon was still in its initial money-losing phase, and the appropriate proxy for Amazon’s long-term margin was instead the margin of a similar company. Blodget went on to consider four possible similar companies, from book retailers to Internet portals. He wrote:

Most investors appear to come to one of four conclusions regarding the future profitability of Amazon.com’s business model: (1) It will never make any money; (2) It will have a 1%-2% net margin, like other retailers; (3) It will have an 8% net margin, like “direct” manufacturer Dell, or (4) It will have a 15% net margin, like a Dell-Yahoo hybrid (p. 13).

Of these, Blodget opted for Dell Computers and its “direct” sales model. Both companies sold directly to customers, and both had the same gross margin. Thus, Blodget concluded, “a mature Amazon.com will be able to generate Dell-like profitability.” (p. 13).

Blodget offered additional support for his margin estimate by comparing Amazon to its closest rival along ey metrics such as customer acquisition costs, revenue and operating loss. In each of the three dimensions, Blodget noted, Amazon was performing much better than the
company that Blodget saw as its main rival, Barnesandnoble.com. Thus, for example, Amazon’s "staggering revenue growth" (Blodget and Erdmann, 1998, p. 3) was nine times larger than Barnesandnoble.com. Thus, Blodget concluded, Amazon was “crushing Barnesandnoble.com" (Blodget and Erdmann, 1998, p. 3).

Cohen’s margin estimate, on the other hand, was a more modest ten percent margin. He justified this lower figure by categorizing Amazon as a bookstore and adding that bookstores are characterized by low operating margins. He noted:

Bookselling is an inherently competitive and low-margin business. Because the intellectual property value contained in published works typically represents only a small portion of the price to end-users, we do not expect that moving that business to an online environment will meaningfully change those characteristics (Cohen 1998, p.1).

Thus, in short, Cohen emphasized Amazon’s book selling core, ignoring the company’s potential to leverage its e-commerce capabilities into other products.

To this categorization-based argument, Cohen added an analogy: Amazon, Cohen argued, was like Barnes and Noble (as opposed to just its e-commerce division, Barnesandnoble.com). Indeed, Cohen went as far as to argue that Amazon was inferior to Barnes and Noble in several ways because, as he noted:

Amazon’s current market capitalization of $4.0 billion is roughly equivalent to more than twice the capitalization of Barnes and Noble, a highly profitable company with more than 1,000 retail outlets and a vastly larger revenue base (Cohen 1998, p.3).

Thus, Cohen saw Amazon as a traditional bookstore. Indeed, he presented it as inferior to them, for Amazon had just one outlet while Barnes and Noble had more than 1,000 and Amazon had lower revenues.

2. **Revenue estimate.** Blodget estimated Amazon’s revenues for the year 2000 at $2.5 billion, whereas Cohen estimated revenues of less than $1 billion. Blodget justified his estimate
by proposing that Amazon belonged to an entirely new industry category, “the Internet company.” He argued:

> We see [Amazon] as an electronic customer-services company in the business of helping its customers figure out what they want to buy (...) and then delivering it to them at a good price with minimum hassle (Blodget and Erdmann 1998, p. 1).

> We see no reason, therefore, why Amazon will stop with books, music, and videos. Over the next few years, we wouldn’t be surprised were it to add software, toys, credit cards, auctions, foods or whatever product offering makes sense (Blodget and Erdmann 1998, p. 20).

Thus, we see that Blodget estimated Amazon’s total sales without concern for the number of books or CDs sold that the figure implied. Thus, we see that the categorization was crucial in developing the estimate.

Cohen also relied on categories to justify his choice of margin estimate. Unlike Blodget, he categorized Amazon as a bookseller. This implied a more limited revenue growth, for book retailing as a whole “is an inherently competitive and low-margin business” (Cohen, and Pankopf 1998, p. 1).

**Categories, analogies and key metrics.** We observe a striking regularity in the arguments of these analysts. Both draw from three cognitive devices, namely, categories, analogies and key metrics. Blodget justified his margin and revenues estimates by reference to a category, arguing that Amazon was an Internet company. Cohen also categorized Amazon, and estimated a narrow profit margin for Amazon because it was a bookseller. The two analysts also relied on analogies: Blodget argued that Amazon would have a Dell-like profitability, whereas Cohen argued that its margins would not exceed those of Barnes and Noble. And, both analysts singled out some “key metric” to support their estimates: Blodget focused on 1998 revenue, while Cohen was Amazon’s 1998 losses. (See Table 1 below.)
We also observe a tight logical consistency between these categories, analogies and key metrics. Blodget’s categorization of Amazon fit the analogy he used to describe it, for presenting the firm as a technology-intensive Internet company invited association with Dell Computers. His analogy was also consistent with his choice of metrics, for viewing Amazon as a start-up Internet company suggested that revenues, not profits, were the relevant measure of value. The same applied to Cohen’s frame: for instance, categorizing Amazon as a book retailer invited comparison with Barnes and Noble, the largest American chain bookstore store. Thus, we note that the choice of category, metrics and analogies were not capricious, but internally coherent in a way that made the set of three more than the sum of the parts.

**Calculative frames.** Our findings so far suggest that the different elements noted above – categories, analogies and metrics – make up a whole with an entity on its own. To underscore this point and highlight its theoretical relevance, we denote by *calculative frame* the internally consistent network of associations, including (among others) categories, metrics and analogies, that produce the necessary estimates which go into the valuation formulae for a company. The concept builds on the Goffman’s (1974, p. 10) sociological notion of frame (“principles of organization” that “govern “social events and our subjective involvement in them””) but emphasizes its metrological aspect. Calculative frames are the central core of the controversy among Blodget and Cohen, as they justify the choices of margin and revenue estimates that led to a valuation gap of $400 vs. $50. (See Figure 3 for a representation of these calculative frames).

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Insert Table 3 and Figure 3 about here
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**Securities analysts as frame-makers.** The notion of calculative frames offers a new perspective on the intermediary function performed by analysts. The case of the two analysts
suggest that this is an important part of their work of analysts, and that it helps investors by equipping them with the tools that are needed to measure company value. We denote by frame-making the activity of creating, providing, and promoting calculative frames that we see in Blodget and Cohen. The expression frame-making echoes Weick’s (1995, p. 4) cognitive notion of sense-making, but pertains to the domain of market intermediaries rather than organizations, and narrows its scope from generic cognition to analysis.

We find evidence for frame-making in several newspaper accounts of Blodget’s work. One prominent commonality in journalist reports is that they typically emphasize the cognitive guidance provided by Blodget. Thus, for example, according to the *New York Times*, Blodget’s work was “a guide for some investors looking for a roadmap to the new economy” (Hakim 2000, p. C1). Similarly, *TheStreet.com*, the premier Internet site for financial commentary, referred to one of Blodget’s analyses as follows: “None of this is shocking or even novel. But once again Blodget has done what he does best: he has put the whole universe of consumer Net stocks into perspective” (Lashinsky, 2000).

**Second episode: Blodget vs. Barron’s**

The notion of frame making put forward so far gives rise to pressing questions: how do these frames shape the way analysts use information? How do opposing frames coexist? In this section, we address these issues with the analysis of another episode in the controversy over Amazon. The starting point of this second dispute was a statement issued by Amazon in April 1999 announcing that it expected larger losses than it initially forecast. One month later, a highly critical article in *Barron’s* written by journalist Abel Abelson interpreted Amazon’s statement as proof that the company was severely over-valued. One month later, Blodget addressed Abelson’s arguments in a special research report, titled “Amazon.Bomb? Negative Barron’s Article.”
Thus, we see again two disparate reactions to the same piece of information, namely, Amazon’s expected results in 1999. Where did such differences in interpretation come from? To find out, we turn once again to the full text of the reports. Consider first Abelson’s article. Abelson criticized Amazon’s strategy on several grounds: margins in book retailing, he claimed, were low; Amazon’s model of a virtual bookstore did not help matters; and Amazon’s expansion into CDs "only (…) proved so far (…) that it can lose money selling books and lose still more money selling CDs." Compared to its nearest competitor, Abelson concluded, Amazon was overvalued. The journalist proposed a total value for Amazon between $10 and $25, a paltry one seventh of the company’s market price at the time.

Blodget’s reply to Abelson’s used the same information, but interpreted it differently. Blodget began his report by acknowledging Abelson’s criticisms, but then went on to address each of the points raised in Barron’s, concluding that most of them were not reasons for concern and indeed, that in some cases they were a reason for buying the stock in the long term. Consider, for example, Blodget’s treatment of Amazon’s lack of profitability. As noted above, Abelson had emphasized Amazon’s losses. In reply to this, Blodget wrote,

As any smart investor understands, there is a big difference between ‘losing’ money and ‘investing’ money. Amazon.com is investing money, not losing it, so near-term profitability is not a good measure of future worth. Put another way, if Amazon.com were to cut back on its investments in order to post a near-term profit, we believe it would be worth considerably less in three to five years than it will be if its current investments pay off. (Blodget and Anning 1999, p. 6).

Blodget thus presented Amazon’s losses to present them as investments, performing a judo-like maneuver that reinterpreted his opponent’s information in a way that not only altered but actually reversed the implications that this information had for the valuation of the stock.

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Interpretation vs. Bayesian updating. The disparity in the assessments of the two analysts challenges the Bayesian model that guides the information processing literature. According to Bayes’ model, rational analysts should update their probability assessments in the same direction; instead, we observe that Blodget and Abelson did so in opposite ways, and that these differences are explained by the frames used by the analysts. Abelson categorized Amazon as a traditional general retailer, saw it analogous to Barnes and Noble and chose to focus on its lack of current profitability. (See Table 3 below.) As a result, greater losses were an additional sign that Amazon’s business model was not working. Blodget, on the other hand, did not see losses as a relevant measure of future value, prompting him to focus instead on how its investments could increase Amazon’s future revenue. Thus, we see that analysts’ frames shaped their interpretation of the news. The theoretical lesson here is that in contexts of ambiguity, when different and inconsistent bodies of meaning are available to explain the same set of news, analysts accord meaning to it with recourse to their existing frame. In short, calculative frames mediate how analysts accord meaning to information.

Framing controversies. An additional lesson is that discrepancies among frames persist over time. News of greater losses did not make Blodget modify his December 1998 frame on Amazon; instead, it prompted him to redefine them. We conclude that x, analysts tend to persist in their positions. We refer to these continued disparities as framing controversies: sustained differences in valuation that arise from diversity in frames and that persist over time. Controversies play out as rhetorical disputes in the research reports of the analysts, but have dramatic significance beyond the reports: as the December 1998 episode shows, winning or losing a controversy can turn an analyst into a star or send him or her into unemployment. The notion of framing controversies builds on the notion of scientific controversies developed in the
literature on the social studies of science, and extends it to the capital markets (Bloor, 1973; Nelkin 1979; Latour 1987).

Contemporary newspaper accounts suggest that the controversy was not limited to Blodget and Abelson, but in fact extended among Internet analysts. For instance, McGough and Wingfield (2000) of the Wall Street Journal, commented extensively on the divergence in price targets and recommendations among different security analysts of Amazon. They wrote,

Amazon is now the scene of (...) widespread, fierce and public disagreement among brokerage-house research analysts. Analysts clash over the company’s business plan, its prospects during the coming holiday season and how quickly it can turn a profit (McGough and Wingfield 2000 p. C1)

The dispute between Blodget and Abelson, in other words, was not an exception but the norm. Indeed, the journalists went to the extreme to describe Amazon as “a modern-day version of Kurosawa's classic film ‘Rashomon,’ which recounts different versions of the same incident” (McGough and Wingfield 2000, p. C1).

Third episode: Blodget versus Suria

The two previous episodes pointed to the presence of calculative frames and framing controversies underlying analysts’ assessments. But these raise yet additional questions: if two frames can coexist for a sustained period of time, does that mean that a frame can survive forever, in spite of accumulated evidence against it? To address this question, we set out to examine the mechanisms of frame-adoption and frame-abandonment decisions made by analysts and investors.

Our third episode presents a striking change in the fortunes of Henry Blodget. On June 3rd 2000, rival analyst Ravi Suria of Lehman brothers wrote a scathing report about Amazon. Suria, a convertible bond analyst, proposed a broad revision of the prevailing thinking about company. He argued that Amazon was a traditional retailer, that when measuring Amazon as a retailer its
performance was in fact mediocre, and that the company could well run out of money within a year. He rated Amazon a “sell,” prompting intense trading activity during that day as well as several articles in the financial press (e.g., The Economist 2000, p. 65). One month later, on June 29th, Henry Blodget countered Suria’s attack with an optimistic report. This time, however, Blodget’s arguments failed to persuade investors. The analyst gradually fell out of favor with portfolio managers in the Institutional Investor rankings, and Suria’s contrarian success turned him into a star analyst (Vickers 2000, p. 25).

Such reversal of fortune invites the question of what led investors to believe Blodget in December 1998 and change course two years later. However, the reports themselves do not offer clear hints in this respect, for both Suria’s attack and Blodget’s response on relied on a solid, three-pronged calculative frame based on categorizations, analogies and key metrics (see Table 4). In search for an explanation, we enlarged our lens to include the economic and social context of the investors.

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Insert Table 5 and Figure 5 about here

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Perhaps the most crucial change in the context was the continued unprofitability of Amazon. Back in 1998, Blodget recommended the stock for “strong-stomached, long-term investors,” and written that he “expected the company’s accumulated deficit to balloon to more than $300 million before it finally starts reporting profits in the spring of 2001” (Blodget and Erdmann, 1998, p. 25). Two years later, however, that profitability seemed more distant than ever: by October 1999, for instance, the company announced that it would pursue diversification rather than profits. Blodget reacted by admitting to be “simply exhausted by the endless postponement of financial gratification" (Blodget 1999b, p. 1). When, on July 26th 2000,
Amazon failed to reach the revenue forecast that Blodget had predicted, the analyst appeared hopelessly out of touch. On the following day, six analysts simultaneously downgraded Amazon.

Blodget’s frame was also weakened by the crash in Internet stock prices of April 2000. During the so-called “dot-com crash” on the week of April 15th, the value of the Nasdaq Composite Index (heavily weighted with Internet companies) fell by 25.3 percent in five days, triggering comparisons in the business press to the crash of 1987. The crash sent the message that investors no longer believed in the simple association between current revenue and future profits (The Economist, 2000). Instead, investors moved on to search for more explicit relationships between revenues and profits, a shift appropriately captured by the expression “path-to-profits”. We contend that this generic shift eroded confidence in Blodget’s specific Amazon frame.

**Determinants of frame adoption and abandonment.** The contextual incidence of Amazon’s losses and dot-com crash on the frame adoption decisions adopted by investors and analysts has important theoretical implications, suggesting that the diffusion pattern of calculative frames is shaped by two main elements, time and the social context.

1. **Asynchronous confrontation.** Amazon’s continued losses played a crucial role in how investors confronted frames with ongoing economic events. Frames involve simplified representations of the future; as such, they are impervious to disconfirming data in the present. But as time passes and the future becomes the present, investors gain the ability to confront analysts’ claims with economic information from the companies. For instance, in May 1999 Blodget’s claim that Amazon would produce profits in 2001 made him invulnerable to the company’s losses at the time, allowing him to prevail over Abelson. One year later, however, Amazon was still experiencing losses despite a staggering volume of sales, discrediting Blodget’s frame. Time, then, is an central piece in explaining the abruptness with which
Blodget’s frame was rejected in July 2000. As with the proverbial time-driven explosives featured in action films, the purposive mobilization of time gave the analyst temporary advantage but made him a victim of the ticking bomb when time run out. We highlight this mechanism with the term *asynchronous confrontation*.

The notion of asynchronous confrontation is consistent with emerging academic treatments of time in the innovation management and sociology literatures. In the innovation literature, Garud and Karnoe (2001) have argued that time determines whether technological innovators take feedback from others as a constructive criticism or a threatening attack. In sociology, Bordieu (1977) argued that time determine whether an act is framed as a gift or a payment: according to Bordieu, immediately corresponding a gift with an counter-gift reframes the original present as a retribution, whereas allowing time to elapse in between the two retains the altruistic, non-retributive frame that characterizes gifts.

2. Frame imitation. The importance of the dot-com crash of April 15th also suggests that actors imitate others in their frame-adoption decisions. The crash made clear that Blodget’s optimism no longer prevailed among investors (*The Economist* 2000). Three months later, Suria’s challenge to Blodget’s frame was met with enthusiasm, as Suria’s frame allowed investors to extend to Amazon the general shift in Internet company frames. Thus, we find imitation in the pattern of frame adoption.

Imitation also explains the success of Blodget over Cohen and Abelson in the previous two episodes. In December 1998 and in May 1999 the controversies among analysts took place over the background of enormous interest and optimism over the Internet and e-commerce. In that context, adopting Blodget’s frame gave investors a way to legitimize their conformity to
widely held investment practices. Thus, social context not only explains Suria’s success, but Blodget’s previous prevalence as well.\(^5\)

**DISCUSSION**

The model of analysts that emerges from our research recombines the existing approaches to analysts, building up to a far more optimistic understanding of these professionals and to novel practical insights.

Frame-making vs. information processing. Calculative frames depart from the narrow neoclassic notion of rationality as *unbiased forecasting* (Lucas, 1971). In contrast with the neoclassic view that rational analysts learn from their errors and therefore do not repeat mistakes, the concept of framing controversies argues that analysts persist in their frame in the face of disconfirming evidence. This, however, is not the result of irrationality or cognitive limitations, but a sensible response to ambiguity and Knightian uncertainty. Indeed, calculative frames support a broader view of rationality as *consistency in decision-making* (Savage, 1954). By guiding investors in their interpretations of incoming information, calculative frames promote consistent market responses to economic news. In this way, securities analysts add to the rationality of the market, stabilizing the meaning of incoming news across the investor community and over time. This resonates with the findings of Zuckerman and Rao (2004), who noted that about Internet analysts altered their assessments of value in a consistent manner. Thus, in contrast with the behavioral economics literature, we conclude that analysts *help bring about collective rationality* to the capital markets.

\(^5\) A further sign that frame adoption is shaped by imitation is that the analysts themselves pay close attention to social trends in their own reports. This manifests itself in the form of numerous references to investor “sentiment” and “momentum” in the main body of the reports. For example, Blodget referred to it in the very first page of his reply to Barron’s (Blodget 1999, p. 1). Similarly, the analysts also referred to the price of Amazon: for example, Abelson started his own 1999 report by referring to the recent decrease in the price of Amazon (Abelson, 1999, p. 6). In these two cases, analysts were addressing the imitative frame adopter by making the case that the frame they proposed was consistent with ongoing social trends.
While supporting the idea that external economic realities matter to analysts’ assessments, the notion of asynchronous confrontation extends the information processing view of how market actors use information. In effect, analysts appear to be using economic data to assess both the value of Amazon with the help of their calculative frame of choice (as the information processing view would suggest) as well as whether they should continue using their calculative frame of choice or adopt an alternative one. This is consistent with emerging economic models that seek to incorporate frames in economics (Hong and Stein, 2004).

**Frame-making vs. imitation.** The notion of frame-making supports and as well as departs from the imitation approach to security analysts. While imitation lends support to the behavioral notion of herding and isomorphism, it is also emphatically different from it. Our data suggests that analysts calculate value rather than blindly imitate their colleagues’ assessment. On the other hand, they copy the frames of their colleagues. Such imitation stems from the irreducible uncertainty involved in discounting the future: analysts’ frame adoption and abandonment decisions are not amenable to calculation, because they concern the very basis for calculation itself. Accordingly, analysts rely on imitation. In our perspective, then, imitation does not replace calculation but actually supports it.

**Frame-makers vs. passive classifiers.** Our concept of frame-making extends and qualifies Zuckerman’s (1999) view of analysts as critics. It extends Zuckerman’s emphasis on the classificatory-cum-calculative activities performed by analysts by including analysts’ use of analogies and key metrics. This richer toolkit can better explain how analysts create new categories. For example, Blodget made the case that Amazon constituted a new category by recombining different elements of existing ones, and accomplished this by associating it to Dell Computers, start-ups and e-commerce. Thus, our frame-making model contrasts with
Zuckerman’s critical stance towards analysts by explaining how they deviate from existing cognitive structures, thereby promoting technological change.

**Frame-making and market intermediaries.** Frame-making implies a novel view of intermediation based on the concepts of *association* and *durability*. In contrast with the neoclassic view of intermediation as search (for information), frame-making suggests that association is the paramount activity performed by analysts. And in contrast with the purely relational view of intermediation as building social ties (i.e., brokerage), our perspective highlights its *socio-cognitive* quality: the associations that frame-makers establish do not connect people with people, but companies with broad categories, other companies and metrics.

In addition, frame-making extends the sociological literature on critics by highlighting the precise *material* form that valuation adopts. Calculative frames are not just an abstract entity, but also have a tangible presence that takes the obvious form of text, tables and numbers in the reports of analysts, as well as of Excel spreadsheet files.6 Our focus, then, is consistent with the current emphasis in economic sociology to extend “the social” to disembedded mass market transactions (Callon 1998, Stark 2000, Mackenzie and Millo 2003, Granovetter 2004). We do so by showing how collectively constructed metrological machinery mediates value, an argument that dovetails with the emerging literature on the *social studies of finance* (Beunza and Stark 2004, Knorr-Cetina and Bruegger 2003, Preda 2004, Lepinay 2004, Muniesa 2004; see Knorr-Cetina and Preda 2005 for a comprehensive review of this literature).

**Frame-making and financial bubbles.** Security analysts have been singled out as the main constructors of the Internet bubble (Boni and Womack, 2002). From a sociological

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6 We found anecdotal evidence about the latter in an interview with a portfolio manager at a large Wall Street mutual fund. Having said that he “rarely” used the price targets and recommendations produced by securities analysts, the portfolio manager added: “what I do is, I call up the analyst and say ‘hey, can you send me your model?’ Then he sends me the spreadsheet and I can find out exactly which are the assumptions that go in.” One sign that sharing Excel files is a prevalent practice on Wall Street that the first page of analyst reports always cite the direct phone number and email address of the analyst, one for each analyst if the report is co-authored.
perspective, the behavioral notion of bubble (Schiller 1999) can be seen as an instance of social construction in which stock prices are the result of mutually reinforcing interpretations rather than fundamental economic realities (Kilduff and Abolafia 1988; Berger and Luckmann 1966). Our notion of calculative frames, however, departs from a purely socially constructive view. While the concept of framing controversies suggests that analysts ignore those portions of “reality” that challenge their frame, our countervailing notion of asynchronous confrontation ultimately departs from social construction. Indeed, the June 2000 episode suggests that frames are eventually confronted with real economic data such as Amazon’s persistent lack of profits. The resulting model is one in which analysts espouse competing frames for some time, despite partial disconfirming evidence, but eventually confront their frames with external data and abandon some of those. Furthermore, this confrontation takes place regardless of the status, social standing or political skill of the analyst who promoted them.

CONCLUSION

Our aim in this paper was to provide a new theory of the intermediary function performed by security analysts. The central insight that emerges from our examination of the selected analyst reports on Amazon.com concerns the existence of a previously undocumented phenomenon, which we label here calculative frames. The notion of calculative frames led to additional constructs such as frame-makers, framing controversy, frame imitation and asynchronous confrontation.

Taken together, our proposed perspective bridges several core insights from the finance, sociology and behavioral literatures on analysts by presenting them as both calculative and mimetic. The central claim in the orthodox finance literature is that market actors calculate in a purposeful and sophisticated manner. Neo-institutional sociology and behavioral economics qualify this by adding that they nevertheless face uncertainty and bounded rationality, forcing
them to rely on non-calculative solutions such as heuristics and imitation. Our notion of calculative frames reconciles these approaches: in line with neoclassic economics, it contemplates market actors as intendedly but limited by ambiguity and Knightian uncertainty. Investors could in principle circumvent these by avoiding calculation altogether, but professionals can do better than that by relying on material tools of calculation built by others. Analysts step in to attend to this need. They provide calculative frames, the cognitive and material structure that supports the calculative work of investors.

Calculative frames promote a selective use and interpretation of incoming information that deviates from the Bayesian model of rational decision-making, but also make decision-making internally consistent. Over time, however, investors face the question of what frame to adopt; calculation cannot inform this decision. Instead, analysts and investors draw from imitation and confrontation with past experience, what we label here frame imitation and asynchronous confrontation. Thus, the notion of frame-making provides a novel and positive perspective on security analysts that reconciles rationality with mimesis in market activity by positing an additional layer of phenomena, calculative frames, that underlie both.
REFERENCES


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Weick, K. E. 1979. The social psychology of organizing (2nd ed.). Reading, MA: Addison-Wesley.


Table 1: Industry knowledge and written reports make analysts valuable

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<th>$30 to $75 b.</th>
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* Company visits, conferences, etc.

Figure 1: Blodget’s stream of analysis
Date, type and number of pages of the reports issued by Henry Blodget on Amazon.com. Explanation of the legend: **Previews** are regularly issued in the immediate days before Amazon was about to release quarterly financial data. **Reviews** were released once the company had already released the data. **Updates** were unscheduled documents, issued when Amazon disclosed important news about its strategy. Source: *Investext*.

Figure 2: Divergent revenue estimates.
“[Amazon is] not a book retailer; electronic customer-services company.”

“We believe that online retailing has very high barriers to entry (…) merchant-customer relationships on the web, once established, are much stronger than those in the physical world.”

“Selling stuff online is a heck of a lot more difficult than it looks and that having a strong brand in the physical world means next to nothing when it comes to building a business on the web.”

“Online retailing is a scale business and right now Amazon.com is the only online retailer with scale.”

“Bookselling is an inherently competitive and low-margin business.”

“Because the IP value continued in published works typically represents only a small portion of the price to end-users, we do not expect that moving that business to an online environment will meaningfully change those characteristics.”

“Amazon believes that the four most important parameters are selection, convenience, price and service. We believe that with the exception of service, those factors could be seen as subject to rapid commoditization.”

“We compared three business models and concluded that Amazon.com’s business model more closely resembles the direct sales model of Dell than it does land based retailer B&N or vast wholesale distributor Ingram Micro’s.”

“The recent performance of Amazon.com and B&N.com suggests that Amazon.com is crushing B&N.com.”

“This [selling books online] is not like Microsoft where I sell an extra 100,000 copies of Windows 95 and my cost of goods is zero. This is not like Yahoo! where the feeding frenzy allows me to triple my rates for search engine space which all drops t the bottom line.”

“B&N, as the largest bookseller in the world (and a leading direct mail competitor) has the ability to maintain a cost-based advantage over Internet-specific competitors.”

“B&N and Borders simply represent stronger brands.”

“[Amazon.com’s] management goes out of its way to point out that historical rates of revenue growth – more than 30 % per sequential quarter since inception – are not sustainable, but it is interesting to note what would happen if they were; in March 2000, Amazon.com would become the largest book and music retailer in the world.”

“[That] the equity market continues to focus primarily on revenue generation in establishing the company’s valuation (…) is not something on which we would necessarily rely.”

“We believe that Amazon.com deserves to be evaluated and valued principally on the basis of its retail opportunities.”

“It is probably premature to apply an Internet portal-based valuation construct to Amazon.com’s shares.”
Figure 3: Blodget and Cohen’s calculative frames for Amazon.com
Blodget’s calculative frame included a choice of category, analogy and key metric to value Amazon.com. Cohen’s frame included the same elements, but of different content.
“[The claim that Amazon is a brick-and-mortar company] is true, but it is not a surprise, and it is not necessarily a negative. Orders have to be fulfilled, and if Amazon.com can control the level of service and the points of margin associated with the fulfillment as opposed to giving them to a third-party distributor, all the better for its customers, and its shareholders.”

“Amazon.com is buying up more bricks and mortar distribution centers, so it is beginning to look more and more like a traditional retailer.”

**ANALOGIES: Dell vs. Wall-Mart**

“Amazon.com is indeed a middleman, but in industries in which middlemen are valuable—such as retailing—the best ones can be worth a lot, even if they have skimpy margins (...) We continue to believe that there are important differences between Dell selling direct in the computer industry and publishers or authors selling direct in the book or music industries—differences that we believe favor the existence of middlemen in the latter industries.”

“Amazon.com is just another middleman, and increasing competition from authors and publishers selling direct, other booksellers, and Wal-Mart will soon render it less attractive.”

**KEY METRICS: Revenues vs. operating earnings**

“Amazon.com’s ‘pro forma’ results (pre-merger-related expenses) are irrelevant.”

“This is not true, in our opinion. In this industry, as a result of the subjectivity and randomness involved in calculating 1) goodwill amortization schedules, 2) goodwill, 3) acquired R&D write-offs, and 4) the fair market value of both acquirer and acquire, as well as the existence of “permissible” pooling mergers, (...) investors should focus on operating earnings and return on invested capital.”

“This is true, and, as discussed below, it is an issue for the stock price, but it is not a surprise.”

“Amazon.com’s revenue growth is slowing.”

**CONCLUSION: Long Term Buy vs. Sell**

“AMZN is a core holding for two basic reasons: 1) we believe that online retailing will be big enough that the leaders, including Amazon.com, will ultimately grow into their valuations, and 2) we believe that Amazon.com has one of the smartest and most disciplined management teams in the industry.

“Amazon.com isn’t profitable now—so it probably will never be worth much of anything.”

“Will Amazon ever make money? We were – and are – doubtful.”

**Table 3: Framing controversies: same data, different frames, disparate conclusions.**

Figure 4: Blodget and Abelson’s calculative frames for Amazon.com
Both frames included a choice of category, analogy and key metric to value Amazon.com, but of different content.
Henry Blodget, June 29th 2000

CATEGORIES: Internet vs. retailing

“AMZN has been very weak recently as a result of poor sentiment surrounding the e-commerce sector and concern about its cash burn and revenue growth.”

Ravi Suria, June 23rd 2000

“The company is displaying the operational and cash flow characteristics of a normal retailer, despite its 'virtual' pedigree. (…) The company's inability to make hard cash per unit sold is clearly manifested in the weak balance sheet, poor working capital management and massive negative operating cash flow -- the financial characteristics that have driven innumerable retailers to disaster throughout history.

ANALOGIES: AOL vs.

“On a macro level, we find it interesting to note the many similarities between Amazon today and AOL in 1996 -- long before the latter company became the profitable, blue chip internet play it is today.”

“We compare various balance sheet, cash flow, and working capital characteristics of Amazon to a number of the real world retailers, which spans across the company’s product lines. The companies that we chose include a broad array of firms such as Best Buy, Musicland, Barnes & Noble, Borders, and Books A Million.”

METRICS: opportunity vs. cash flow

“We remain comfortable with Amazon’s cash position.”

“We believe Amazon shares many of the characteristics that made AOL worth the risk even in its darkest hours; a big opportunity, strong management, an improving financial model, and a battered, controversial stock.”

“Amazon has essentially funded its revenues through a variety of sources over the past year. From 1997 through the last quarter, the company has received $2.8 billion in funding (…) - a whopping $0.95 for every dollar of merchandise sold.”

“In its current situation of high debt load, high interest costs, spiraling inventory and rising expansion costs, we believe that current cash balances will last the company through the first quarter of 2001 under the best-case scenario.”

“From a bond perspective, we find the credit extremely weak and deteriorating.”

CONCLUSION: Buy vs. Sell

“Although AMZN will likely remain volatile throughout the summer, we believe that the current weakness provides a particularly good entry opportunity for long-term investors.”

“Going into what is arguably its most challenging holiday season, we believe that that the combination of negative cash flow, poor working capital management and high debt load in a hyper-competitive environment will put the company under extremely high risk”

**Table 4: Two solid frames.** The categories, analogies and key metrics used by Blodget and Suria in June-July 2000. Source: Blodget and Good (2000) and Suria (2000).
Figure 5: Blodget and Suria’s calculative frames for Amazon.com.
Source: Suria and Oh (2000), Blodget (2000a)