SPRING/SUMMER 2000

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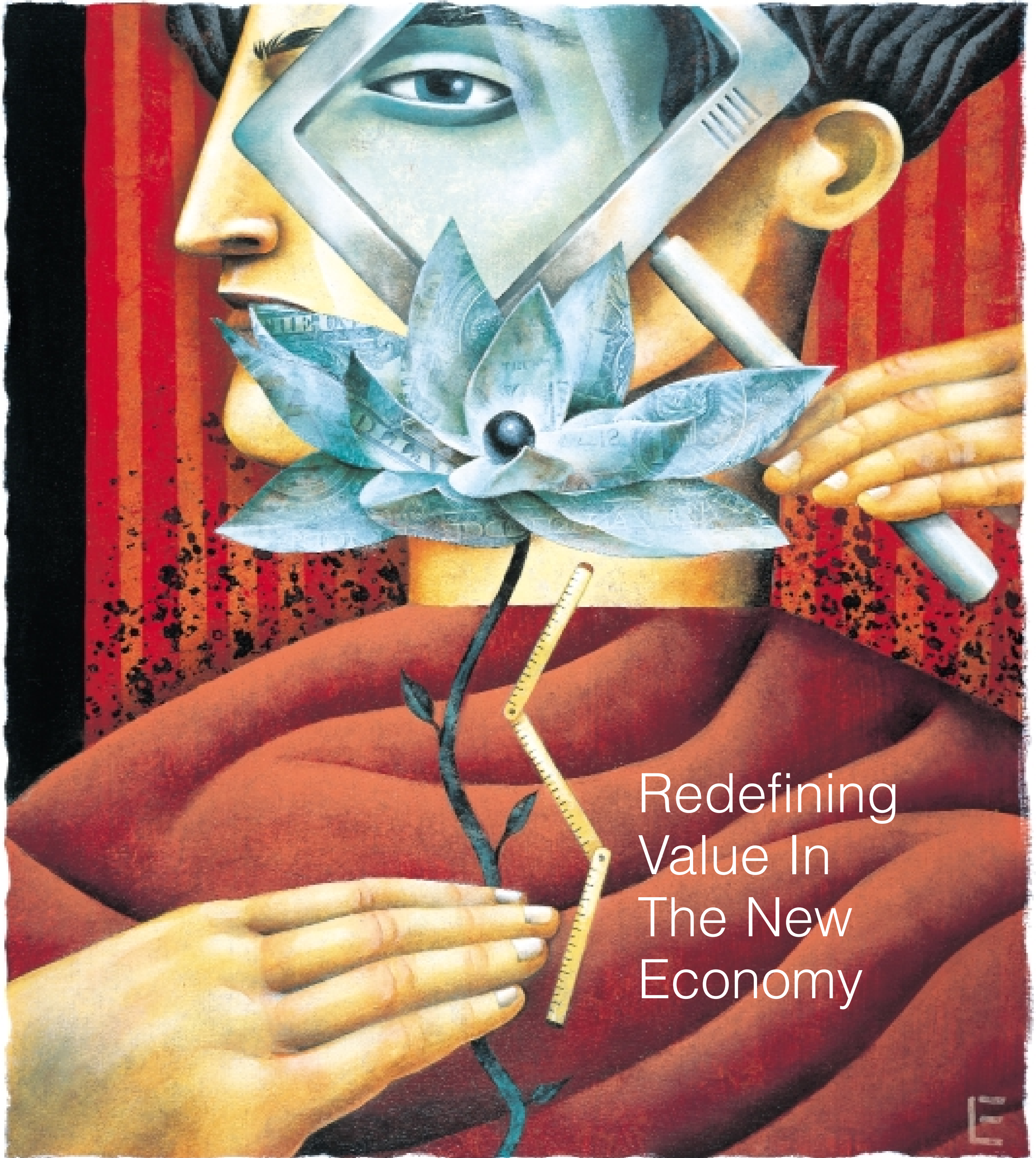
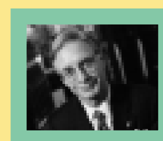


a letter from the dean



The advent of the Internet, the unprecedented growth in the U.S. economy, and the stunning rise of the stock market, have combined to present a number of challenges to investors, executives, and consumers. Accordingly, Redefining Value in the New Economy could not be a more pertinent theme for this issue of SternBusiness.

The Stern School occupies a unique vantage point from which to view the changes roiling the marketplace. A few miles to the south, at the New York Stock Exchange, equities change value by the nanosecond. About 40 blocks north, the new Nasdaq market site houses most of the New Economy companies. All around us, in lofts and refurbished office towers, Internet-related companies, intent on changing the value proposition of their respective businesses, are springing up.

For 100 years, the Stern School has sought to add value to the lives and careers of its students, faculty, and staff. And as the 21st century begins, the mission of providing the tools to better understand our world, our businesses, and our personal finances remains intensely relevant to all our students - whether they arrive to our campus on the subway or on the Internet. The Stern School is actively engaged in seeking answers to thorny questions of value in the New Economy. The Intangibles Research Project is helping practitioners more fully appreciate the value of assets such as brands and research and development. We recently launched the Digital Economy Initiative, an integrated program that effectively combines classroom teaching, research, student activities, and a partnership with industry to understand and develop new business models. A new field study course sends Stern students into Silicon Alley companies, adding value to their new business models while building a body of knowledge for future classes.

I invite you to explore these and other exciting initiatives underway at Stern at our Web site: www.stern.nyu.edu. For as always, our efforts are aimed not simply at providing value to our students -- but to the world far beyond our thriving campus.

George Daly
Dean

STERN*business*

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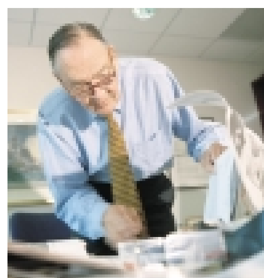

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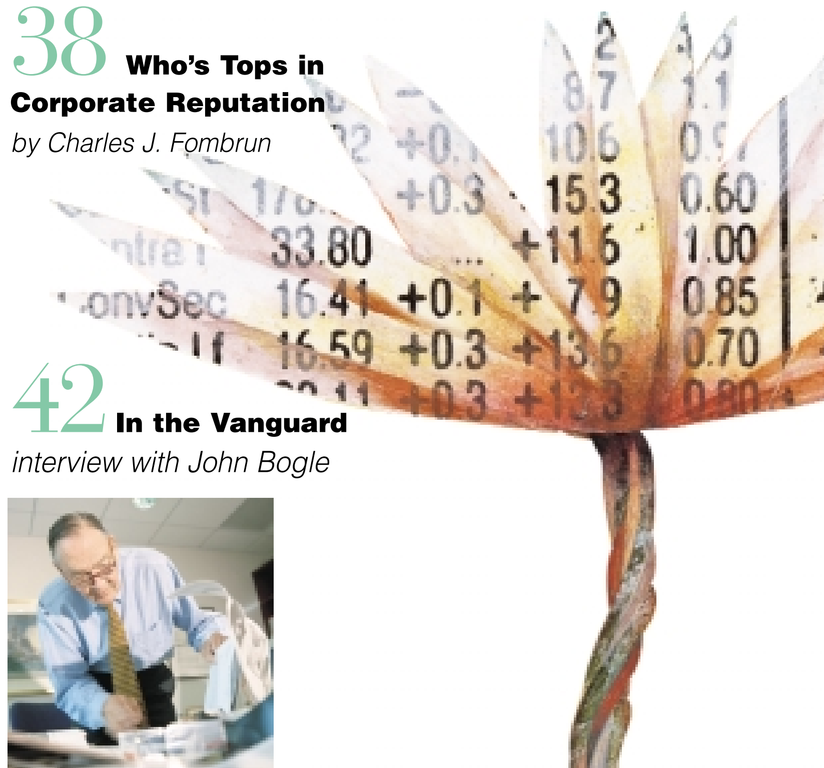

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Richard Fuld chief executive officer Lehman Brothers

Dick Fuld received his MBA from the Stern School. Through his over 25 years of service with the venerable brokerage house Lehman Brothers, and Lehman Brothers Holdings, he has risen to the very top. Under his leadership and guidance, Lehman has focused on building a number of key areas of high margin businesses, including investment banking, equities, fixed-income, merchant banking, and private banking. A member of the Board of Directors of the New York Stock Exchange, Mr. Fuld is also a member of the President's Advisory Committee on Trade Negotiations, and a recipient of the Stern School's Haskins Award for Distinguished Leadership.

This interview was conducted by Robert Kavesh, the Marcus Nadler Professor of Economics and Finance.

RK: *You've been with Lehman all these years, where is it going? What do you see happening? How do you fit into the overall financial community?*

DF: Well, there are a whole number of questions within what you're asking. The real story of the firm truly has a number of chapters. But the last piece is that we were spun off from American Express in 1994. Then, we looked at doing a couple of things. We talked about building a high margin business, which was around equities and investment banking, our private client source group, merchant banking, venture capital. During that time, we have basically moved those businesses from being about 70 percent of our $3 billion in revenues to about 80 percent of $5 billion in revenues. At the same time, we focused on our expenses, and brought down our head count by at least 20 percent. To make a long story short, we're six times more profitable today than we were five years ago.

But we have a couple of things left to do. Build those businesses to true financial performance. Carve out a place in the marketplace for ourselves where we can compete and exist as an independent. And build a culture within the firm that enables us to support the strategy of focusing on clients and customers. We're doing very well. We have increased penetration to those clients and customers where we think we want to have the focus. We're not advocating that we can be all things to all people. But we do want to offer one-stop financing capability to those clients that want that relationship.

The second question is, and I get this more from students who are thinking about

coming to work, "What's your philosophy on selling (the company)?" I have two answers. The short one, I choose not to give in public, and certainly not on tape. But the longer one is, "No." We have been owned before, and it didn't work. Our people have voted by saying, "We want to own at least 30 percent of the stock." But much more importantly, our people know that if we continue to stick with the mission and the strategy that we will get ourselves, eventually, to the point where we will have a currency where we can go out and make acquisitions.

RK: *Is there any simple or complex philosophy that you follow in trying to be the head person of this organization?*
DF: I've been there 30 years and my senior people have been with me, on average, close to 20 years. It's very unusual in a business such as ours. A lot of people that are at the firm today are people that have been hired by one of those seven people. We have had a very tumultuous history and past, first off. So we have been at war. And I think that warriors, when they come together, they build something. A lot of what Lehman Brothers is today is about culture. It's about one firm. It's about people in it together. Last year was a very tough year, with a lot of rumors about financial institutions, especially ourselves. But if it hadn't been for the fabric of the firm that held everybody together, it would have been a much more difficult time for us. What was interesting was the number of people within the firm who came to us and said, "Look, when the stock is down, let's increase the equity program so that we can own more of the firm."

I could never do it unless I had the group of senior people around me. They are responsible for making sure the trains run on time. They are responsible for all of the businesses. So if I really am going to believe in endurance and support this team, then the seven of them, together with me, is a lot better than just me. So, I've empowered them to make decisions away from me.

RK: *What do you look for when you're recruiting students. What kinds of qualities do you search for?*
DF: I don't do as much interviewing today as I used to, but I am actually involved in the recruiting. I would say probably the easiest way to put that is, in all of the schools where I do have an opportunity to speak, I know that all of the students have the aptitude. I'm looking for the attitude. There's a fine line between how you'd be excellent as an individual and how you participate as a team member, to deliver all the resources of the firm. And along the way, we have asked a number of truly talented people to leave the firm, because they could not embrace and be part of what was the fabric of the firm. We can teach you the business in six months. We can teach you the vocabulary, the dialogue. But we can't teach you how to interact. And we can't teach you chemistry and culture.

We're not advocating that we can be all things to all people. But we do want to offer one-stop financing capability to those clients that want that relationship.

RK: *How much do you and the top people in your organization worry about what might be called short-term economic and financial moods, in plotting what you're going to do in the way of tactics or in overall strategy?*
DF: We have very clear definite views around globalization, consolidation, deregulation, and we think that's going to open the markets. So there's a whole series of opportunities in Europe that we continue to invest in. The Asian strategy is very different from the European strategy. The Asian strategy is much more rebalancing and restructuring balance sheets and financing and purchasing their distressed assets. And then, of course, there's Latin America, where I have a less positive view. But the question is about short-term volatility. Does it affect any of what we think about? It clearly affects us where we step up and commit our own capital around distressed assets. Obviously we're making a bet that Thailand and Korea and Indonesia begin to come back. So, do we think about it? Yes. We think about it all the time.

Q & A with Students

Q: *Since most economies run in cycles, do you see the U.S. running near the end of its economic expansion, and therefore see greater opportunities in Europe at this time?*
DF: If you look back over the last couple of years,

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With irreverent advertisements featuring Star Trek star William Shatner and an innovative, name-your-own-price business model, Priceline.com has become a $7 billion Internet phenomenon. Jay Walker, the founder and vice chairman of Priceline.com, is responsible for business planning, strategic relationships, and long-term vision. Mr. Walker also serves as chairman of Walker Digital Corporation, the intellectual property laboratory that invented the patented Priceline.com e-commerce system.

Jay Walker

founder & vice chairman Priceline.com

ML: *Jay, welcome to the Stern School. How's business? Give us a capsule of the size and scope of Priceline.com.*

JW: The Net tends to have really two kinds of businesses: the hypergrowth and the dead. Fortunately, we're in the hypergrowth category. Our business is growing about 5 percent a week compounded, and has done so for the last 18 months. Even though we're 18 months old, we sell about 50,000 airline tickets a week. We sell about 15,000 hotel rooms a week; we sell millions of dollars of cars every week; and we do tens of millions of dollars of mortgages every month currently. So our business is in a very exciting stage.

ML: *When and how did you get the idea, and how did you turn that idea into a real business?*

JW: I'm chairman of a think tank called Walker Digital, which is a privately held company. A group of us came up with the notion of what we call a conditional purchase offer: a purchase order for which there are conditions attached to it. We recognized that the Internet would allow conditional purchase offers to be collected from an enormous number of people simultaneously with zero variable costs. So the business was created in a lab to solve a problem that all companies had, and that is: How do I sell below my retail priceline – hence the name of the company – without destroying the price integrity of my pricing system? We went about filing a series of about 20 patents, covering various systems and methods built around that concept. About a year and a half later, the Patent Office notified us that indeed we were the first to have invented much of the area that we invented.One thing led to another, and we raised $100 million worth of capital and launched the business in April of '98.

ML: *You leaped rather quickly over that, "Well, and we raised $100 million in capital." You want to give us a few insights into that?*

JW: We raised no venture capital, and went instead to private money from wealthy individuals. I went first for about $25 million. Then it was clear that I believed in it, and then I raised money from John Malone, George Soros, and Paul Allen – you know, just people who had a dollar or two.

ML: *Well, you've built quite a brand in a short period of time, less than a year. How did you build the brand?*

JW: We built awareness. That's different than a brand. A brand is a promise that means something to a consumer in a set of expectations. The way you build awareness in our celebrity culture is to

Marshall Loeb, the former managing editor of *Money* and *Fortune*, conducts a regular series of conversations with today's leading chief executives on the Stern campus.

either (a) use a celebrity, or (b) have something that is totally unique and novel that is worth telling other people about. Early on, we recognized that we had a very big idea, which is you could name your own price, initially, for an airline ticket. So it makes a natural story for the consumer to understand. So literally, Priceline built its awareness on the back of a very simple story.

Hiring William Shatner as our celebrity spokesman when Internet-based companies didn't have celebrity spokesmen in retrospect certainly looks very smart. Shatner, Bill Cosby, and James Earl Jones were our three choices, because each one of them had a voice that would cut through the clutter on the radio – radio is a very competitive, very efficient media. And Bill has a cult following, which was a wonderful plus, and ultimately, as the captain of the mythical starship, he's just a very believable voice.

ML: *Well, why did you go outside to hire a CEO, Rick Braddock, instead of just keeping that job yourself?*
JW: All businesses go through these stages of their life. There's a stage where you're very young, and you're fast-growing, and you're shooting from the hip, and you're making trade-offs, and you're there seven days a week. That would be the start-up phase. Then the business either dies or it goes to the next phase, a growth phase, where it begins to grow as a business. Entrepreneurs are very good at the first stage of the business; some of them are okay at the second stage. In the real world, that second stage is anywhere from one to 10 years. In Priceline, it happened in three months. I don't have a high opinion of my management skills. I've always reached out and found others to help manage the enterprises that I've created, because management skills are very different from creative skills. We couldn't afford the mistakes, so we had to hire people from corporate America, where they make mistakes for a living, and then put them into our business, where they hopefully wouldn't make them again.

The Net tends to have really two kinds of businesses: the hypergrowth and the dead. Fortunately, we're in the hypergrowth category.

ML: *Tell us about your plan. Is it to create a substantial number of businesses and to staff them with their own CEOs?*
JW: For Priceline.com, our plan is to take the pricing system that we know works in the hardest possible market – the airline industry – and apply it horizontally across hundreds of industry sectors, consumer and business, domestic and international. Web House Club – our supermarket business – is the first of several instances where we have licensed our proprietary trademarks, property, intellectual property, systems, etc., to a separate company that's privately held for which Priceline has warrants.

ML: *How's your supermarket business going now?*
JW: We have realized an essential truth of the retail world, which is that retailers are great at selling products, and they're great at displaying things, and they've got the world's greatest logistics system, but price is information, and guess where information belongs? It belongs in the information world, and information is the Net. On the Net, price can be managed so that customers who are willing to make different kinds of trade-offs, can get different kinds of prices. Priceline has basically said to the New York consumer: You can name your own price for 140 different categories of grocery items, if you're willing to be flexible. You need to give us two or more brands that you're willing to buy, and we'll let the brands compete for your business to see who wants your business most.

ML: *Can you tell us some of the other things that you're working on that we can look forward to in the future?*
JW: We've also announced that we will have name-your-own-price for telecommunications services. We've announced that we will be international at some point in the future. You can expect some innovation from us in the person-to-person area, where people sell to other people, where you would name your own price for something that somebody else owned.

ML: *Tell us more about Walker Digital. What are the atmospherics like?*
JW: It's a highly collaborative environment, it's a think tank. We address problems in small groups, typically 10 to 12 inventors form an ad hoc team to address various problems. It looks a little bit like a consulting shop might look if there were no customer. I spend about 25 percent of my time there. So we spend a lot of time solving problems, and then we spend a fair amount of time figuring out if we can own the solution. If we can't

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Allen Wheat is Chairman of the Executive Board and Chief Executive Officer of Credit Suisse First Boston (CSFB), a leading global investment banking firm providing comprehensive financial advisory, capital raising, sales, and trading and financial products for users and suppliers of capital around the world. A Stern alumnus, Mr. Wheat held a variety of financial positions in New York, London, and Tokyo before joining Credit Suisse First Boston in 1990 as President and Chief Operating Officer of the company's Pacific operations. And, also in 1990, he founded Credit Suisse Financial Products, a leader in financial products headquartered in London. Mr. Wheat is also a member of the Executive Board the Credit Suisse Group, the parent company of Credit Suisse First Boston.

Allen Wheat chairman of the executive board and chief executive officer Credit Suisse First Boston (CSFB)

ML: *Do you belong to that school that believes that it's a very smart idea for every business person who tends to make his long-term career in the United States to be sure to get in at least one foreign assignment?*

AW: Markets change, industries change. And I think anybody that just comes out of school, goes into one thing in one place, you'd better have it right. The best thing you can do is work in a number of different areas. If you can go to London, Japan, Hong Kong, Frankfurt, I think that's a huge, huge advantage.

MB: *Tell us about Credit Suisse First Boston. How does being part of a Swiss-based financial Goliath distinguish you, or give you some unique selling propositions that your competitors don't have?*

AW: Well, we are part of the Credit Suisse Group. I think we've got one of the better balances between our equity business, fixed income group, our advisory businesses, and our private equities. In terms of being part of the overall group, I think it's a huge advantage because it's a source of capital. At the end of 1986, we had $1.8 billion in equity. The next year the capital was increased to about $8 billion. It's also a huge advantage because of the private banking area. We can borrow those securities. We're our own preferred trading partner.

ML: *How's the European economy doing?*

AW: I think very, very well. I think that there's a huge opportunity in some of the macro trends that are taking place: the privatizations, the big build-up in the pools of liquidity. They're going into equities. There's a disintermediation taking place which is great for the global players. I think inflation's under control, growth looks good, productivity looks good. And I think all of that is just particularly good for our industry.

ML: *Are you equally optimistic for Asia? We can divide that into two parts: Japan and the rest of Asia?*

AW: Well, if you look back a year ago August, you would have said that the whole region, non-Japan-Asia, is basically going to be slaughtered. And for a very, very long time, I could have given you five or six reasons why it would be impossible for these things to bounce back. South Korea now has been upgraded, I think twice, by Moody's and Standard & Poors. And I think the recovery is undeniable. The American consumers are buying all this stuff that these people produce, and that's helped pull them out. In Japan, I think you're starting to see some transparency in the system. Shareholder value is a buzz word. In some industries, there probably is a restructuring that's going on, which would have been hard to imagine a number of years ago.

ML: *How is technology affecting investment banking?*

AW: In every way. It's having a major impact on how we communicate internally. It's having a major impact on who are client base is. We're one of the top one or two technology franchises. That's not something that we had three or four years ago. Historically, investment banks probably would not be talking to some company that's a start-up or just has a small market cap. Going forward, it impacts actually everything we do. Starting with how we distribute securities, how we trade them, where we make the money.

The best thing you can do is work in a number of different areas. If you can go to London, or Japan, Hong Kong, Frankfurt, I think that's a huge, huge advantage.

ML: *Do you think that this will continue? The technology trend, the breakthroughs that have been going like that? Are we going to plateau?*

AW: I think it's going to keep going and going. You look at the penetration of e-commerce. You start on the West Coast, and then it's been building across the U.S. Yesterday, we had these guys in from the Deutsche Postbank. Traditionally, postbanks – no matter where they are – are the most conservative people out there. Well, these guys were talking about their new Internet banking, their Internet brokerage. It's really something.

ML: *How is it affecting your hiring patterns? Are you finding that you're more in competition with some of the high-tech companies, including the Internet companies, to get the brightest people?*

AW: I would say that a much bigger percentage are looking at technology jobs than ever before. And I think now what we're starting to see is a lot of the schools, where there are more students that are interested in talking to the dot.coms. Traditionally, our biggest competitor for people was the consulting firms, and both the consulting firms and ourselves are now looking over our shoulders at a lot of the technology banks.

ML: *When you interview somebody to hire, what characteristics would you look for?*

AW: We would tend to look for somebody that really has excelled. Somebody that has a passion, who wants to achieve. We hired someone recently that was number three in the world memory competitions in Monaco. And he said, "Well , they gave us one week to memorize decimal points in pi." So I said, "How many do you remember?" And, I'm not lying to you, but it was 20 or 30,000 decimal places. He was crushed when the person that won it did twice as many. We like to bring people in that we really think want to get involved, that work well with a team, and that really want to be engaged.

ML: *You attended Stern. What courses, in retrospect, were the most valuable for you?*

AW: In graduate school, I think, the math courses were important. Wrestling around with numbers, I thought were extremely worthwhile. As an undergraduate, I liked political science.

Q & A with Students

Q: *We've seen that technology has led to a greater disintermediation in many cases. Given that banks are basically intermediaries with supplies and users of capital, how do*

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Richard Fuld, cont'd.

you will find that there were two cycles. One was how corporations and institutions improved their earnings by cutting critical mass and bringing down their expense base. The second phase is how they've improved productivity through technology. The real question is: "When they make that technological switchover, what do they do with those unemployed people?" The key to the U.S. economy is that those people have found their way back into the work force. Europe is just beginning this process. I think they're going to be able to learn a lot from what we went through here, and be able to redeploy those people in new businesses. It's going to be a gut-wrenching social upheaval. We're doing a lot in Europe today. And I would say that the majority of our investments are going to Europe.

Q: *What do you think of online trading, and what's going to be Lehman's role in online trading in the future?*

DF: We have to be able to deliver our products and services electronically to our existing clients today. But do I think that we are going to create in Lehman Direct a service that is going to provide capabilities to touch millions of people in an independent way. Away from Fidelity, or another institution that we may choose to service within the confines of the particular institution? No.

What is my view of online trading? I am shocked today by the number of people that are in this $40,000 to $70,000 income range that five to seven years ago had a hard time making a capital purchase of $500 to $700, now very willing to invest $5,000 to $15,000 at a clip on a trade. The mentality is frightening to me.

We can teach you the business in six months. We can teach you the vocabulary, the dialogue. But we can't teach you how to interact. And we can't teach you chemistry and culture.

Q: *I was wondering what words of advice or wisdom you can give us, as we embark on a career in finance?*

DF: Read everything you can. Try and get the view of how things fit in this global marketplace. Understand some of the trends that have gone on these last five years, why some people have won, and then again why some people have failed. Try to understand what some of those strategies are about. And ask yourself, "How would I, or could I, handle some of those situations if I were there?" The question for you, and for us as we look to you, is: "Can you sit here one day, be a spokesman for the firm, and attract other young people like yourself?" Believe me, I was no great intellect. I wasn't then. I'm certainly not today. But it's about being able to have a view of how these pieces fit together. ■

Jay Walker, cont'd.

own the solution, we throw it back in the river because it's not worth having if you can't own the solution. In the center ring are the inventors, who are the marketers of our company; in the second ring are the technologists, who provide support to the marketers.

Q & A with Students

Q: *With Web House Club, you're looking at something that people buy all the time, often on the spur of the moment. Do you expect people to really spend the time on the Internet looking for these bargains the same way they would for an airline ticket?*

JW: Let's look at the facts. A hundred million Americans a week spend an average of 15 minutes looking through the newspaper to clip coupons. Most Americans consider saving money on their supermarket shopping a national pastime. This is part of their self-identity. If you look at a single mother who's raising a child, and you say what percentage of her grocery shopping is a significant portion of her variable cost overhead? It's a big deal.

Q: *You described everyone in the value chain, particularly the manufacturers, as quite happy about this new process. Is that the case?*

JW: The manufacturers are not happy now because they don't like any change. But they're very happy as soon as we get the generic brand customers to become their customers. So when Kodak gets Fuji's customers, suddenly Kodak gets happy. What I real-

ly mean to say is that we are adding value to all elements in the chain. We're not here to destroy the brand integrity or price integrity of the major brands. We're not here to disrupt the marketplace's activities as much as we're trying to completely change the world in that sense.

Q: *How does the airline ticket business differ from the supermarket business?*
JW: In the travel system, we act as a principal. We buy the seat instantaneously from the airline at a hidden price that the airline gives us, and we resell it to the consumer instantaneously in the hour in which we have the consumer's non-cancelable order. It's typically somewhere between eight and ten percent. The grocery business is different. We make money there because the manufacturer makes up the difference between the price named by the customer and the price to reimburse the retailer. We make a commission in that business, where we charge the manufacturer a small, sliding-scale commission for facilitating the transaction. ■

You've got two groups that can be profitable in that industry: big global mega-players and fast boutiques. The sort of halfway, or little bit of this, but also some of that – those people basically will get wiped out. So you've got to be one or the other.

Alan Wheat, cont'd.

you think this will affect banks?
AW: It will change the way we do business. Absolutely no question about that. And I'd be a liar if I didn't say there are going to be some areas that we're going to have to downsize and change. The margin will go away. But having said that, the opportunities for our industry are so much greater than the negatives. Distribution costs are going to go way, way down. Volumes will definitely go up; costs down. So I think that's something that's quite good.

Q: *What's your macro view on investment banking and the role of the investment banker in general?*
AW: I think it's an exciting industry. There's always something that's different. And I think the type of person that usually does well is pretty inquisitive, and tends to be a risk taker. They tend to be pretty entrepreneurial, interesting people; pretty gutsy people. And if you take just the investment banker in the narrow sense of the word – the advisor – these are people that will go in to see some company in Pittsburgh. They'll go and talk to some CEO who is 50 or 60 years old, been in that industry for 30 or 40 years, been in that company for 30 years. And this person will come in and tell him why it's screwed up. You've got to do this, or this. Now that takes a certain amount of…something.

Q: *There's been an enormous amount of consolidation in financial services in the last 10 years. What do you envision will happen in the next five to 10 years with changes in Glass-Steagall?*
AW: I think what you're having right now is a kind of an end game. You've got two groups that can be profitable in that industry: big global mega-players and fast boutiques. Those two will work. The sort of halfway, or little bit of this, but also some of that – those people basically will get wiped out. So you've got to be one or the other. If you go around the globe right now, you see an awful lot of players that are either going to have to jump this way or that way. And, if they want to jump this way, it's going to have to be with a merger or an alliance.

Q: *Where do you see the role of the sales person in the investment bank evolving over the next few years due to all the technology?*
AW: I'll tell you where it's not. What they're not going to be able to do is, 'Hey, my man! Ranger tickets! Ranger tickets!' What you're going to be doing is selling content. You're going to be selling ideas. And so, what you're going to have to have is a much more articulate sales person with much better analytic skills. ■

For more information on this lecture series and others, go to:
http://www.stern.nyu.edu/lectures

True Value

In a world awash in information, figuring out what something is worth may be the greatest business challenge.

ILLUSTRATION BY ELIZABETH LADA

What's the proper value of a Cezanne still-life? The Internet company eToys? A 6,000-square-foot house on a three-acre lot with an in-ground swimming pool? The easy answer is: whatever somebody is willing to pay for it. After all, one of the fundamental tenets of our rough-and-tumble market-based economy is that prices fluctuate with supply and demand – that value is inherently subjective. Of course, this state of affairs creates a great amount of uncertainty. Witness the 200 percent rise in the price of heating oil on the East Coast as demand outstripped supply.

The uncertainty inherent in valuing products, services, and commodities is particularly pronounced when it comes to the New Economy. The burgeoning network of servers, routers, fiber-optic cable, and robust Web sites offers consumers, manufacturers, and entrepreneurs a revolutionary new means of redefining value. Companies like Priceline.com, for example, allow consumers to determine the value of everything from an American Airlines airplane ticket to a box of Oreo cookies by naming their own price. As Priceline.com founder Jay Walker suggested at his appearance at Stern's Chief Executive Series, "We're not here to disrupt the marketplace's activities as much as we're trying to completely change the world" (p. 4).

The Internet has also facilitated another means of allowing purchasers to assign their own value on a product: auctions. Companies like eBay allow net-surfers to bid on items ranging from Beanie Babies to used books, the way well-heeled connoisseurs compete for Louis XIV chairs at Sotheby's. Given that auctions are widely misunderstood, Prof. Giuseppe Lopomo's informative primer (p. 22) on the best means for participants to maximize their own values in different types of auctions is particularly timely.

In this raging stock market, many of the tools investors and analysts have traditionally used to determine value – earnings, revenues, reason – seem to have been tossed overboard. This in an era in which investors value a money-losing company like Amazon.com at $22 billion, more than twice the market value of Sears. So how can investors place a proper value on these new kinds of companies? While arguing that "there is no reason to abandon the basic, tried-and-true precepts of valuation," Prof. Aswath Damodaran suggests that investors take into account a company's strategy and competitive standing *vis a vis* its competitors (p. 12). In a related article, Prof. Paul Brown notes that "accounting reporting practices simply have not kept up with the pace of change" in the New Economy (p. 26). Still, he offers a rigorous model for approaching the thorny topic of corporate valuation.

With publicly held companies, the mass of individual and institutional investors determines the value by bidding on the shares in a public auction. But companies – especially young start-ups in the biotechnology and high-technology arenas – can enhance their value by communicating effectively with investors. As Jonathan Fassberg, a Stern alumnus and founder of an investor relations firm, suggests in his interview with Prof. Irv Schenkler, "Building relationships and obtaining sponsorship from key players in the investment community can play a huge role in establishing the valuation of a company" (p. 30).

The biggest technology story of 2000 – and 1999 – has been the government's ongoing anti-trust case against Microsoft. Bill Gates' software juggernaut, the most valuable company in the world, has been tangling with the government over its business practices for several years, and the law seems to be winning. Prof. Nicholas Economides argues that Microsoft, as currently constituted, has provided overlooked value to consumers and the industry, and that the various remedies proposed by Microsoft critics bear uncertain costs (p. 18).

Inflation, of course, is the ultimate destroyer of value. And as the U.S. economy continues on its record-breaking expansion, the question of whether inflation has been permanently licked – or whether it is merely lurking behind the scenes and ready to explode – has assumed greater prominence. In his convincing piece, Prof. Tom Cooley argues that there is "no compelling empirical evidence that stronger growth and higher inflation go together." Equally convincing, he debunks the myth that the growth of Internet shopping is contributing substantially to keeping prices low for consumers, and hence tamping down inflation (p. 34).

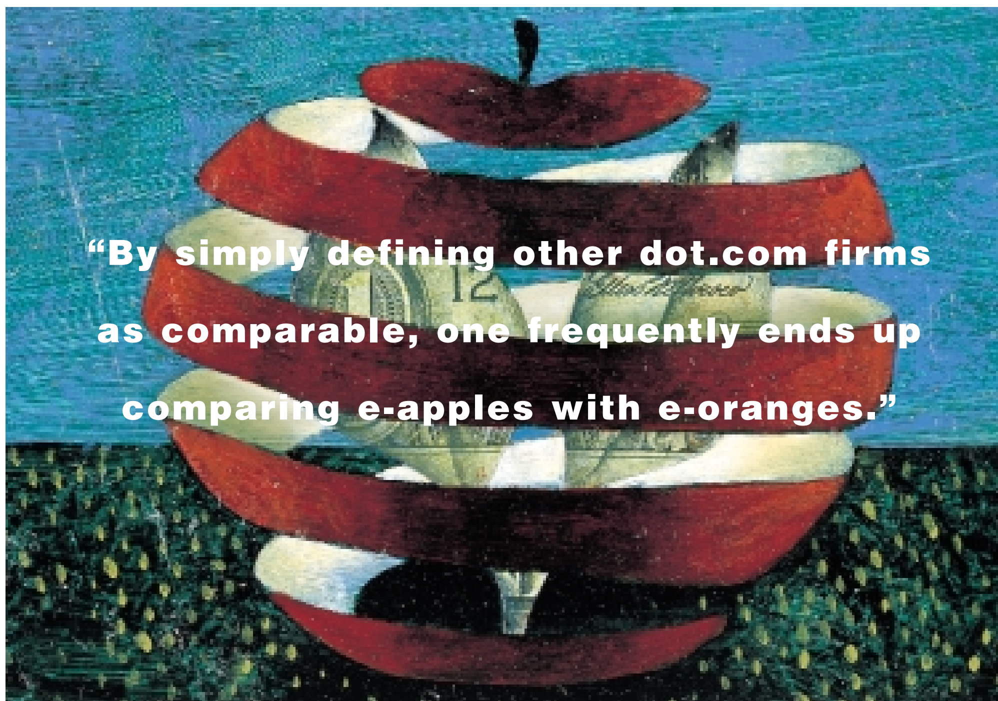
We're confident readers of all stripes will find that this issue of SternBusiness adds significant value to their understanding of this fascinating and challenging new era.

DANIEL GROSS *is the editor of* SternBusiness. *His new book,* Bull Run: Wall Street, the Democrats, and the New Politics of Personal Finance, *has just been published.* *Dgross6453@aol.com*

THE DARK SIDE OF VALUATION: Valuing dot.com

In the last few years, a series of seismic shifts has rocked the financial markets and the business world. Companies that use the Internet to deliver products and services have proliferated like wildflowers after a spring rain. As important, they have been rewarded with huge, frequently astronomical, market valuations. The fact that the vast majority of these firms have little in revenues and large operating losses has not deterred investors from aggressively bidding up their stock prices. In the eyes of some critics, these high market valuations are the product of collective irrationality on the part of investors, and are not indicative of the underlying value of these firms. But in the eyes of those who believe the Internet is transforming commerce in fundamental ways, the valuations are reasonable indicators that the future belongs to these interlopers. They affirm, without a doubt, that the online toy store eToys.com is, in fact, worth more than Toys“R”Us, and that online stock broker Schwab is more valuable than venerable Merrill Lynch.

By **Aswath Damodaran**



As we assess these competing views, it is worth considering how Wall Street and Main Street are dealing with the valuation of these new firms that lose money, have little revenue, and nonetheless expect to grow exponentially. Many argue that these firms cannot be valued with the old models, and that we should prepare ourselves for a paradigm shift – a change in the fundamental approach we take toward valuation. I disagree. After all, the value of a firm, whether it manufactures airplanes or hosts Web sites, is determined by a few crucial factors: the capacity to generate cash for its owners, the expected growth in these cash flows, and the risk the company faces. To be sure, e-commerce firms present legitimate estimation issues that are not factors with their more mature counterparts. Still, even in this age, there is no reason to abandon the basic, tried-and-true precepts of valuation.

Discounted Cash Flow Valuation

What's a company worth? At root, the value of a firm is the present value of the cash flows it is expected to generate, discounted back at a composite cost of capital that reflects the company's sources and costs of financing. This general statement applies equally to all companies, from All-State Insurance to Ziff-Davis. But the ease with which cash flows and discount rates can be estimated varies widely. Valuation is easiest when considering firms with a long history, positive earnings, and predictable growth – like General Motors or The New York Times Co. The task is made simpler still if the firm competes in a market space occupied by companies with similar characteristics. Data from Ford, Daimler-Chrysler, and Toyota, for example, can help analysts better estimate cash flows and discount rates for General Motors.

By contrast, the typical dot.com firm – let's call it widgets.com – is a start-up with negative earnings and a brief operating history. To aggravate the situation, there are frequently no comparable firms that can be used as benchmarks to help make the estimation easier. Can such a firm be valued using a discounted cash flow model? Clearly, if widgets.com is expected to report negative earnings forever, it will be worth nothing, no matter how quickly its revenues grow.

Now, in the case of firms that have negative earnings today but are anticipated to have positive earnings in the future, we *can* estimate value. To do so, we must forecast widget.com's earnings, starting with negative earnings in the first few years. These earnings will improve and become positive as the firm matures and increases its operating margins.

Two key inputs are required to make these estimates. The first is the expected growth rate in revenues. Many

small firms in high-growth markets can post phenomenal growth rates in sales. This input can be best estimated by looking at:

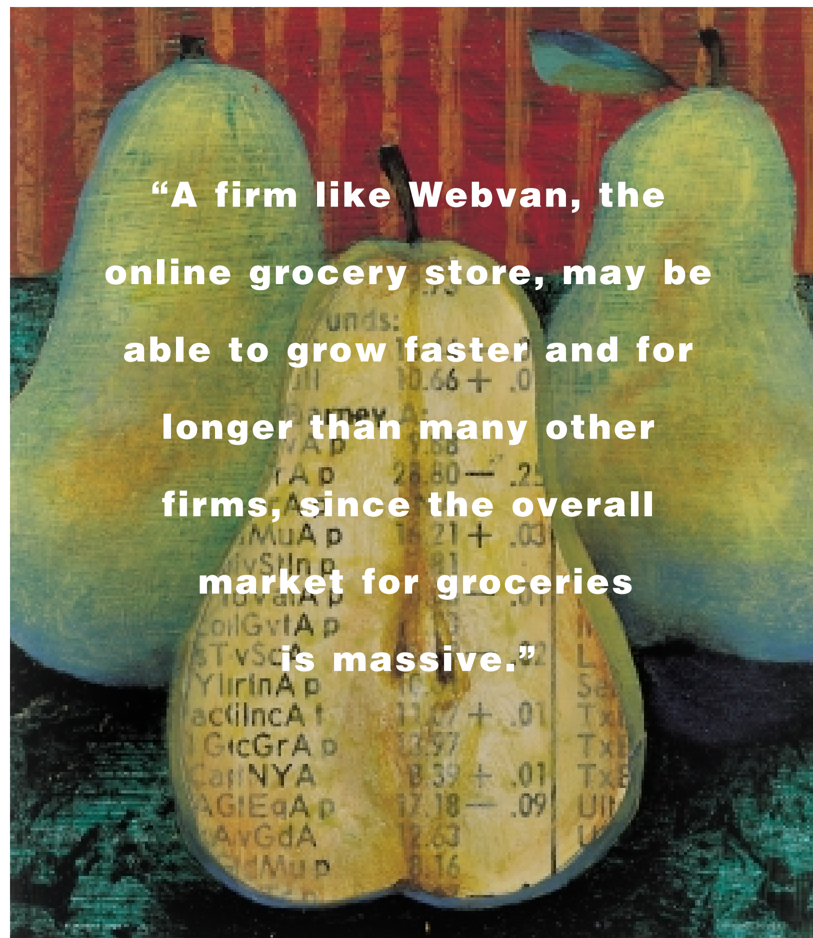
❖ The growth rate in the company's past revenues, limited though the available history might be. Thus, a company that has tripled its revenues from $50 million to $150 million in the past 12 months is likely to continue to grow rapidly in the near future. Of course, any analysis must allow for a natural slowing in the growth rate, as the firm becomes larger.

❖ The size of the market served by the firm. This calculation will determine how quickly the growth rate will decline. A firm like Webvan, the online grocery store, may be able to grow faster and for longer than many other firms, since the overall market for groceries is massive. In contrast, the growth rate for 1-800-FLOWERS.com may slow down faster, since it caters to a smaller market.

❖ The anticipated competition for growth in this market. If a number of new competitors are entering the same market, firms may not be able to grow at high rates for long periods.

The second critical input for valuation is the *expected operating margin*. The margin can be best estimated by looking at more mature companies in the same business – using a broad definition of the term "same business." To illustrate, we could estimate Webvan's expected operating margins once the firm matures by looking at established grocers like Safeway. While an online grocer may differ operationally from a traditional grocery chain, competition should ensure that the online businesses will not sustain margins significantly higher than their brick-and-mortar competitors. In short, if Webvan reports an operating margin of ten percent on its revenues, while traditional grocers earn only five percent, many traditional grocers will offer their own online stores and push product prices down until the margins converge. (What if you cannot find other companies in the same business? It is very unlikely that any firm, no matter how novel the concept it introduces, is inventing a new business.)

With these two inputs in place, one can estimate the expected cash flows to the firm. The discount rate applied to these cash flows will be the firm's cost of capital. Most dot.com firms are financed entirely with equity, and have fairly high costs of capital. As companies like our hypothetical widgets.com mature, however, it is likely that the mix of debt and equity that they use to finance their investments will change. Naturally, their costs of financing will also change. (Indeed, established Internet firms like Amazon.com have already issued substantial amounts of convertible bonds.) Accordingly, the



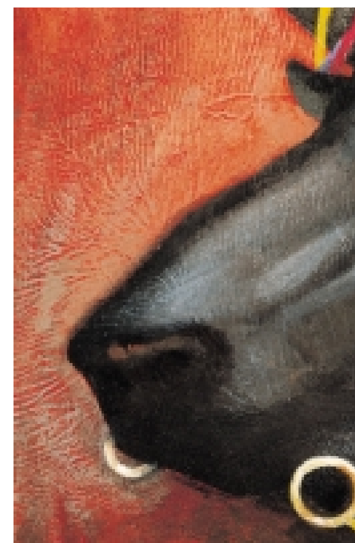
discount rate will also change over time.

After determining the cash flows and estimating a discount rate, one can value a firm by discounting the expected cash flows back to the present. In all likelihood, cash flows in the early years will be negative, not only because of operating losses, but also because these firms tend to reinvest substantial amounts to generate further growth. For a firm to have value, the cash flows in subsequent years must be large and positive to compensate for the negative cash flows in the early years. In fact, there is some combination of expected growth in revenues and anticipated operating margins that would justify the prices that investors are paying for Internet stocks today. The question, however, for a potential investor is whether this combination is attainable. (A more detailed version of this process of applying discounted cash flow valuation to value Internet companies can be found on my Web site under http://www.stern.nyu.edu/~adamodar/New_Home_ Page/papers.html)

Relative Valuation

While discounted cash flow valuation provides an estimate of the *intrinsic value* of a firm, *relative valuation* produces an estimate of comparative value, based upon how the market is pricing similar firms. In the last few months, as increasing numbers of dot.com firms have made initial public offerings, investors, lacking any real measure of value, have used relative valuation to justify the prices that they pay. Thus, Webvan is priced at 250 times revenues because other Internet retailers are priced at a similar multiple of revenues. While this approach may be simpler than the discounted cash flow approach, it carries two obvious risks. First, basing the value of a firm largely on the prices of other firms in the industry can lead to significant errors – especially if these firms, in the aggregate, are over- or under-valued. Second, any good estimate of relative value is dependent upon finding firms that have similar cash flow, growth, and risk characteristics to the firm being valued.

To value any firm on a relative basis, an investor must make two decisions. The first is to choose the multiple to make comparisons. For instance, companies can be compared based on multiples of earnings (Price/Earnings, Enterprise Value/EBITDA), multiples of book value (Price/Book Value, Enterprise Value/Book Value), or multiples of revenues. The second is the choice of comparable firms, and how narrowly or widely that term is defined. When evaluating dot.com firms, investors find that these choices are much narrower than they are for other firms. Since most dot.com firms have negative earnings and little or no book value, it is impossible to estimate earnings or book value multiples. Even if one can compute sales multiples for these firms, the exponential growth in sales from period to period will make the multiple extremely volatile. Thus, Webvan may trade at 250 times this year's sales but only 50 times next year's sales. In addition, finding comparable firms is much more difficult in the Internet universe. By simply defining other dot.com firms as comparable, one frequently ends up comparing e-apples with e-oranges. Priceline.com and Amazon.com may both be categorized as Internet firms, but they are in very different businesses, with different risk and growth characteristics.



So, what's an investor seeking to gauge the relative value of widgets.com to do? I suggest three basic guidelines. First, revenue multiples will work better for these firms than earnings or book value multiples, since they can at least be estimated for almost all firms. Second, avoid comparing Internet companies to all other Internet companies. If one can find other Internet firms that are in the same business, one can easily make the comparison across these firms. Thus, an Internet retailer can be compared to other Internet retailers. I would also expand the comparison to look at how the firm's more mature competitors are being priced. Third, in making this comparison, investors should look at multiples of revenues

in the future (three to five years out) rather than revenues today. Once the value of a firm is estimated using these forecasted multiples, it can be discounted back to arrive at an accurate value for today.

Is there an option value?

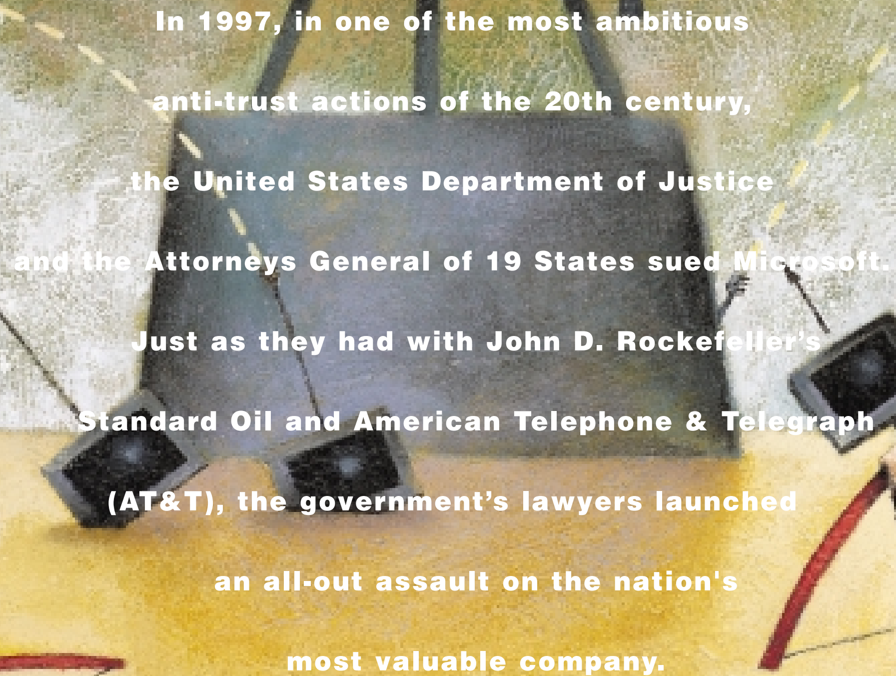
In recent months, a new theory has been promoted to explain the high valuations of dot.com firms: The stocks of these companies offer investors an option to be in a huge and potentially very profitable online market a few years from now. Consequently, investors should be willing to pay prices higher than the intrinsic values (obtained, for instance, from discounted cash flow valuations) of these firms to obtain this option.

While it is technically possible to value Internet firms as options, there are two reasons why these options, in my view, will have limited, if any, value. The first is that options are most valuable when they provide exclusive rights to a firm to take an action. That is why, for instance, a patent can be viewed as an option, because no other firm can produce the patented product during the patent's life. Looking at Internet firms, it is difficult to view them as holding exclusive rights to their business. In other words, if Internet grocery shopping proves to be as lucrative as some people think it will be, Webvan cannot keep others from entering the online grocery market. While it is true that being the first mover might give a company an advantage for a period, it is a weak competitive advantage and will constrain the value of the option. The second is that the option value comes not from the size of the potential market that the firm can enter, but its capacity to generate excess returns in that market. Here again, we are skeptical about the capacity of firms to generate excess returns in the online market. The ease with which new competition can enter will act as a natural brake on how much firms can charge and how high their returns can get. (A more detailed analysis of the use and abuse of option pricing models can be found at: http://www.stern.nyu.edu/~adamodar/New_Home_Page/papers.html)

Conclusion

I do not agree with those who view the valuations of the entire dot.com sector as a balloon floating on the hopes and prayers of irrational investors. Still, it is time that investors and analysts start asking the same questions about these companies that they have long asked about all companies: How fast will it grow? When will it make money? Internet companies must be analyzed with the same rigor with which we evaluate other firms. Some dot.com firms will find a way to differentiate themselves and be able to sustain high growth as well as high margins. These firms may be well worth the price investors are paying for them today. But the values of other firms will crumble when profits do not follow revenue growth. The key to successful investing in this sector is to identify those firms that are setting in place the strategic components that will be needed for success not this year or next, but in the years following.

ASWATH DAMODARAN *is professor of finance at Stern.*



In 1997, in one of the most ambitious anti-trust actions of the 20th century, the United States Department of Justice and the Attorneys General of 19 States sued Microsoft. Just as they had with John D. Rockefeller's Standard Oil and American Telephone & Telegraph (AT&T), the government's lawyers launched an all-out assault on the nation's most valuable company.

ILLUSTRATIONS BY ELIZABETH LADA

THE REAL LOSERS IN THE MICROSOFT ANTI-TRUST CASE

By **Nicholas Economides**

The government's crusade against Microsoft and the world's richest man could end up costing customers and the computer industry dearly.

Aside from inviting unwelcome comparisons between Microsoft founder Bill Gates and John D. Rockefeller – the richest men of their respective epochs – the Microsoft case has captured a great deal of attention. And when Microsoft refused to settle, the case went to a lengthy and closely watched trial, with an all-star witness list that included Gates himself as well as other computer industry luminaries.

U.S. vs. Microsoft raised serious issues. The government had charged Microsoft with a range of abuses, including the alleged monopolization of the market for operating systems ("OS") for personal computers by Windows, anti-competitive bundling of Internet Explorer with Windows, and various other exclusionary and anti-competitive acts against competitors and buyers.

In December 1999, U.S. District Court Judge Thomas Penfield Jackson issued a far-reaching "findings of fact" that found for the plaintiffs in almost all the allegations. (The judge's findings of law, expected by the end of March, will most likely rule the same way.) Jackson found, among other things, that:

- Microsoft has a monopoly in the PC operating systems market where it enjoys a large and stable market share;
- Microsoft used its monopoly power in the PC operating systems market and harmed competitors;
- Microsoft hobbled the innovation process;
- Various Microsoft contracts had anti-competitive implications;
- Microsoft actions harmed consumers.

These findings by no means signaled the end of the case. But they provide important guidance for the ultimate outcome, which will define the value of Microsoft and the computer industry's rules of competition for years to come.

What next? Given Judge Jackson's across-the-board siding with the plaintiffs, a negotiated settlement seems extremely unlikely in the short run, even though Judge Richard Posner, a prominent antitrust scholar, was appointed as a mediator. For any settlement would be based on Jackson's "findings of fact," which would make Microsoft unlikely to settle. Instead, the company will probably exhaust all appeal possibilities and try to settle the case after the Presidential election.

Microsoft has already suffered substantial fallout from the process, however. The company has essentially foresworn making any aggressive moves while the case continues. So even as America Online (AOL) agreed to buy Time Warner, and as companies in a range of industries continued to strike alliances and merge, Microsoft has largely been forced to stay on the sidelines.

Microsoft's future will be very bleak if the Department of Justice prevails and breaks it up. Three break-up plans have been proposed. In the first, Microsoft would be divided along lines of business into three companies: one for operating systems (Windows 98, NT, and 2000), one for Internet applications (Internet Explorer), and one for other applications (MS-Office, MS-Money, etc.). The second plan would separate Microsoft into three "identical" parts,

with each part acquiring the source code of all the programs the company presently sells and one-third of all employees. These prospective entities have been dubbed "Baby Bills." The third plan is a combination of the previous two: First Microsoft would be divided into three companies according to the type of program produced, and then the operating systems company would be broken into three parts, thus creating five Baby Bills.

Microsoft views the breakup attempt as a very serious threat. Steve Ballmer, Microsoft's new chief executive officer, noted at his appointment ceremony that a break-up "would be utterly irresponsible." Such a move would undoubtedly cause great inconvenience and challenges to Ballmer and his colleagues. But would it have a similarly negative effect on Microsoft's customers and shareholders? The answer: Yes.

First, consumers have directly benefited from the free distribution of Internet Explorer and the bundling of Internet Explorer with Windows – two tactics that Judge Jackson identified as key anti-competitive actions. When Microsoft started seriously competing with Netscape in the Internet browser market, Netscape – essentially the sole provider – charged non-academic users $40 - $50 to download the program. Microsoft, by contrast, gave its Internet browser away.

"Microsoft has already suffered substantial fallout from the process. . . even as AOL agreed to buy Time Warner, and as companies in a range of industries continued to strike alliances and merge, Microsoft has largely been forced to stay on the sidelines."

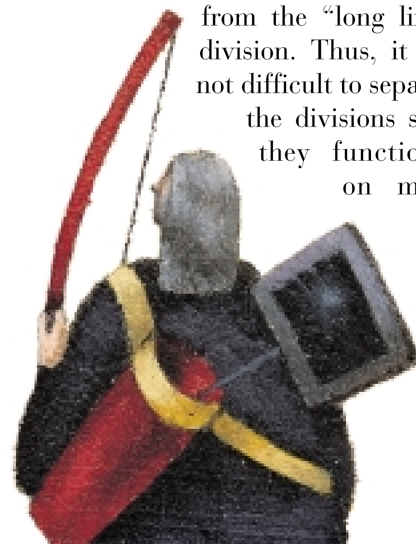
Today, with at least 40 million browsers installed in the United States, the actions of Microsoft created a direct benefit of $1.6 to $2 billion to American consumers. And since Microsoft's actions intensified competition, which in turn produced higher quality browsers, they provided further value.

Second, consumers have directly benefited from the relatively low price of Windows. Microsoft's operating system, for which computer manufacturers pay $40-$60 per copy, is cheap compared to the historical and current prices of other operating systems. For example, in the late 1980s, IBM sold OS/2 (which ran many fewer applications than Windows) for hundreds of dollars. Some Linux packages – essentially add-ons to the free Linux source code – currently sell for $150, and run far fewer application than Windows does. These price discrepancies highlight a huge contradiction in the government's case and in the judge's findings of fact. If Microsoft were a true malevolent monopoly, it would charge far more for Windows than it does. The annual consumer benefits from Windows' relatively low price may be many billions of dollars.

In arguing for a break-up, some Microsoft critics point to the successful 1982 break-up of AT&T. The company was divided into the long-distance company (AT&T) and seven regional operating companies, each of which remained a regulated local telecommunications monopoly. The destruction of AT&T's long-distance monopoly encouraged competition, which brought sharply lower prices and immense consumer benefits.

However, there are a number of key differences between the two companies and their competitive situations. And these differences make it very likely that a Microsoft breakup, besides harming Microsoft, would harm consumers and the computer industry.

In 1981, AT&T was a 100-year-old company with many layers of management. For historical reasons, the local phone companies within the old AT&T, such as New York Telephone, were managed separately from the "long lines" division. Thus, it was not difficult to separate the divisions since they functioned on many



levels as separate companies. And AT&T's rigid management structure and abundance of managers helped it avoid managerial problems in the break-up.

By contrast, Microsoft is a young, entrepreneurial company run by very few top executives (about 20), and its divisions are very fluid. While this has made Microsoft one of the most efficient and successful companies around, it also means that a break-up would pose significant managerial problems and severely reduce the company's flexibility.

Second, the industries are different. Telecommunications companies are regulated as public utilities. In the 1930s, all phone companies were forced by the government to interconnect so that anyone could place a call to anyone else. The companies emerging from the AT&T breakup were guaranteed to stay interconnected.

By contrast, it is almost certain that each of the Baby Bills, within a few months after a Microsoft break-up into three identical parts, would begin producing its own "improved" version of Windows. Each would likely be incompatible with the Windows of the other two baby Bills. Some software vendors would write programs that would be compatible with each version of Windows, while others undoubtedly would not. This would inevitably reduce the range of software that would be compatible with consumers' computers.

Emerging incompatibilities would also hurt shareholders, since the combined value of the resulting Baby Bills will be smaller than that of the original Microsoft. The situation would also be a nightmare for corporate IT departments until, in a few years, one of the three Microsofts becomes the dominant platform.

"[A break-up] would undoubtedly cause great inconvenience and challenges to Ballmer and his colleagues. But would it have a similarly negative effect on Microsoft's customers and shareholders? The answer: Yes."

Three alternatives to a far-reaching breakup have been proposed. And they may offer a set of more reasonable alternatives.

One is auctioning the Windows source code. Given the present stock market value of Microsoft, Windows source code may be worth as much as $200 billion. No company can bid that much cash in an auction. (Practically speaking, only a handful of foreign governments could.) This implies that the source code of Windows will be sold forcibly at a small fraction of its worth, and that would severely reduce the value of shareholders' equity. Auctioning the Windows code would not only effectively confiscate Microsoft's intellectual property, it would also seriously reduce the incentive for innovation. Moreover, source code evolves. Over time, different firms will add and alter the Windows code. Soon, incompatibilities will arise, with all the negative consequences described earlier.

A second solution would be to force Microsoft to disclose the so-called "APIs" (lines of software code that define interfaces between applications) that permit it to include Internet Explorer in the operating system. Microsoft routinely discloses APIs that hook applications to the operating system and allow for interoperability. Currently, it does not disclose the APIs that tie together parts of the Windows operating system, which includes Internet Explorer. If Microsoft were to disclose the APIs that hook Internet Explorer to other parts of the operating system, Netscape (or any other browser) could get the same interoperability with Windows.

A third solution – and in my mind, the best – would be to consider imposing various restrictions on the contracts that Microsoft can write with sellers of complementary goods and with competitors. This is a likely remedy that is easy to tailor according to the violation.

This remedy, combined with forcing Microsoft to disclose certain APIs, should be sufficient to guarantee that Microsoft will be precluded from taking anti-competitive actions. At the same time, it preserves the managerial and other benefits that have made Microsoft one of the most successful and profitable companies ever.

Regardless of the final outcome, the effects of *U.S. vs. Microsoft* are likely to be felt for a long time. A far-reaching break-up would likely impose the dark shadow of radical antitrust intervention on the whole computer industry. And if the Justice Department wins big on Microsoft, anti-trust suits against AOL, Yahoo, and other pioneers of the New Economy will not be far behind.

For more information, see the "Economics of Networks" Internet site at http://www.stern.nyu.edu/networks.

NICHOLAS ECONOMIDES *is professor of economics at Stern.*

Going Once, Going Twice: Auctions and the Determination of Value.

Auctions are among the oldest, and still most frequently used, means of trading goods and services. Around 500 B.C., in Babylonia, one could buy a wife at auction. In 193 A. D., the entire Roman Empire was sold at auction. Throughout the centuries, auctions have governed the traffic in everything from spices to Old Master drawings.

By **Giuseppe Lopomo**

Today, auctions are used to sell a remarkably wide range of financial assets and commodities: Treasury bills, procurement contracts, assets of bankrupt firms, offshore oil extraction leases, timber rights, Canadian tobacco, Dutch flowers, British livestock, French antiques, and Persian carpets. In the last few years, the Federal Communications Commission has been auctioning off licenses for the use of the radio spectrum. Most recently, auctions have appeared as a favored mode of doing business on the Internet. Companies like eBay and Freemarkets have established online auction houses where businesses and consumers can bid on everything from Beanie Babies to industrial chemicals.

Despite their prevalence, auctions are a frequently complicated and misunderstood phenomenon. What exactly is an auction? What are the rules that determine the final outcome as a function of the participants' behavior? Do auctions generate efficient outcomes? Do they maximize the seller's profit? What are a bidder's optimal strategies in a given auction? This article provides a primer of sorts for understanding this powerful mechanism through which buyers and sellers define a mutually agreeable value for a given product.

What Exactly is an Auction?

The word "auction" comes from the Latin word "augere," meaning "to increase." The most popular form of auction is the "English auction," where the price increases, starting from an initial low level. There are, however, other forms of auctions, whose main common feature is the requirement that participants submit trading proposals. Each specific auction form is identified by the rules that determine the final outcome as a function of the bidders proposals.

One criterion that can be used to classify auction forms is whether the bidders' proposals are made simultaneously or sequentially. In the first case, the auction is said to be a sealed-bid auction. Sequential auctions are sometimes called open-outcry auctions. Among sealed-bid auctions, discriminatory auctions are those where different units are sold at different prices. In contrast, all units are sold at the same unit price in uniform-price auctions. Typically, in all sealed-bid auctions, bidders' demands are ranked in decreasing order, starting with the one with the highest proposed price. In the discriminatory auction, the bidders whose demand is satisfied pay the unit price that they bid; in the uniform price auction, all units are sold at the same unit price, equal to the highest rejected bid. Recently, some of the Treasury bills' weekly auctions have switched from discriminatory to uniform-price auctions.

In open-outcry auctions, the final price is determined by a sequential adjustment process. In the Dutch auction – so-called because it originated with the flower trade in the Netherlands – the price moves down, starting from an initial high level. Each bidder can indicate a quantity at any point in time, thus committing to pay the current price. What keeps the bidders from waiting until the price drops to zero is the fear that others may snap up the supplied quantity.

In the English auction – by far, the most popular auction – the price rises from an initial low level continuously or in discrete jumps. At each level, bidders indicate their demands and the price increases if the total demand exceeds the total supply. The auction stops at the first price where the total demand does not exceed the total supply.

Often many, possibly identical, objects are sold in a single auction. For simplicity, we will focus on the case where only one indivisible object is sold, e.g., an art object, a procurement contract, or a company. If only one unit is sold, the sealed-bid discriminatory auction becomes what is called a first-price auction, since the sale price equals the highest bid; and the uniform price auction becomes a second-price auction, since the sale price equals the highest rejected bid.

Uncertain Values and Private Information

One clear reason for using auctions as selling procedures is the need to establish a reasonable sale price.

Typically, auctions are used to sell goods in "thin" markets – i.e., ones with only a few sellers and buyers. They are also used when the goods for sale do not have a well-established price, and when the uncertainty about the buyers' preferences is significant. It is important then, in analyzing auctions formally, to assume that each trader is unsure of the others' willingness to pay.

In one possible case, each bidder knows the value of the object to him, but is unsure what value the other bidders place on it. For example, while I know the maximum amount I am willing to spend on a painting at auction, I am unsure how much other bidders are willing to pay. In the case of a supply contract, it is reasonable to assume that each bidder knows the production costs for his company, but does not know his opponents' costs. In these situations, the bidders are said to have private values.

In other instances, the value of the object, although uncertain, is the same for all bidders. In this case, we say that the bidders have a common value. For example, when "the object" is the right to extract oil, each bidding company bases its valuation on the same variables, such as the quality and amount of oil in the reserve and the anticipated market price. Each company may acquire some information about some of these variables (e.g., with a geological test), and thus formulate an estimate of the object's value. Of course, each bidder may revise his estimate if he learns the estimate of another bidder.

Optimal Bidding Strategies with Private Values

The use of game theory is particularly appropriate in studying auctions. The rules of each auction specify the game the bidders are playing. Given this, it is possible to determine the bidder's optimal strategy in each type of auction assuming he or she has private values.

English Auction

Let's assume a Kilim carpet is being auctioned off in a "going-out-of-business-final-sale." You examine the fine craftsmanship and decide that $2000 is the most you are willing to pay. The auctioneer starts calling "one thousand... , one thousand fifty... , eleven hundred... " When should you drop out of the bidding? Your optimal (i.e., dominant) strategy is to drop out of the auction exactly when the price reaches $2000. If you drop out before the price reaches $2000 and the bidding is still ongoing, your payoff is zero. If you stay in, there's a chance all the other bidders will drop out, in which case you'll buy the carpet for less than $2000 and make a profit.

What happens if the price passes $2000 and you are still in the auction? If you plan to drop out at $2100, and another bidder is still active, then you won't buy the carpet. If, however, all the other bidders drop out before, say $2050, you will pay $2050 for a carpet that you only value at $2,000. Your net loss? $50.

Thus, your optimal strategy is to drop out exactly when the price reaches $2000, your maximum willingness to pay. It is the best course of action, no matter how many other bidders you are competing with and no matter what you think they will do.

It is reasonable to predict that all bidders follow their dominant strategy in an English auction. And because the carpet will always go to the bidder who has the highest value, the English auction always generates an efficient allocation. The winner's payment (i.e., the

seller's revenue) is the second highest value; and his net surplus is equal to the difference between his value and the second highest value.

Second-Price Auction

What if the carpet is sold using the sealed-bid second-price auction? Remember the rules: All bidders submit their bids simultaneously in sealed envelopes, and the Kilim is awarded to the highest bidder, who pays the second highest bid.

This auction is, in essence, identical to the English auction. And you should also bid your true value: $2000. For if you do, your net surplus is positive if you win, and zero if you lose. Let's say you take a chance and bid less than $2000. This would produce a different outcome if, and only if, there is a bid in between your bid and $2000, in which case you would go home without the carpet. On the other hand, bidding more than $2000 changes the outcome only if the second highest bid is between $2000 and your bid, in which case you get the carpet but pay more than your value.

First-Price Auction

Suppose now that the auction is a first-price auction: The highest bidder wins the carpet and pays his bid. In the first-price auction there are no dominant strategies. Accordingly, we have to look for a so-called "Nash equilibrium," strategy profiles for the buyers such that, given the opponents' strategy, each buyer is maximizing the expected difference between his value for the object and the price that he pays if he wins.

Assume, for simplicity's sake, that you have only one competitor in the auction. You think his value is somewhere between zero and $3000, with a uniform probability distribution. Also, your competitor, who knows his actual value, thinks that your value lies within a similar range. Where should we start looking for an equilibrium?

First, we can rule out any bid above $2000 for you: If you win, you pay more than your value. In addition, if you bid exactly $2000, your surplus is always zero, so you fail to gain a surplus whether you win or lose. This suggests that, in a Nash equilibrium, that each auction participant will bid below his value.

In fact, counterintuitive as it may seem, your best equilibrium strategy under these assumption is to bid the average value of your opponent, assuming that his value is less than $2000. Thus, you should bid $1000. Doing so means you will win only if you place a higher value on the carpet than your opponent does.

The analysis done for the first-price auction carries over to the Dutch auction, which is simply a first-price auction in disguise. After all, deciding to stop the clock at a certain point – if nobody has done so already – is no different from a bidder simply deciding to pay his intended price, knowing it will be the highest bid.

There's another surprising conclusion that can be drawn from this analysis. Given the rules we've laid out, from the seller's perspective, there's not much difference between the various types of auctions in terms of the end result. For if the bidders' values are independent, all four auctions – English, Dutch, first-price and second-price – will generate the same expected revenue for the seller! If auction participants pursue their dominant strategy of bidding their private values, the different formats will produce essentially the same results.

GIUSEPPE LOPOMO *is assistant professor of economics at Stern.*

HAVE CORPORATE FINANCIALS OUTLIVED THEIR USEFULNESS?

By **Paul R. Brown**

Each spring, our mailboxes – actual and virtual – overflow with glossy corporate annual reports. These reports naturally invite their readers – investors, analysts, professors – to sift through the data and reach conclusions about the merit of buying the company's stock. But visually appealing as they are, corporate reports, especially those issued by the newest companies, are frequently a mixed bag. After all, how does one assess a company that barely generates sales? What accounting information is most useful when evaluating a company driven primarily by highly complex human capital and technology? And does it make sense to rely on accounting numbers to invest in a company that has been in existence only a couple years?

ILLUSTRATIONS BY JAMES YANG/SIS

Having been trained as an accountant, I quite frankly often struggle for good answers when examining the data these companies provide. The task is made more complicated by the fact that accounting reporting practices simply have not kept up with the pace of change.

But this doesn't mean investors should simply ignore corporate financials. Rather, we should approach them with a healthy degree of skepticism. (This is particularly necessary when evaluating the data released by the dot.com companies that so dominate the financial press.) And, we should complement accounting information with other, sometimes more relevant, financial and non-financial data. Corporate reports are simply one of many sources used when evaluating a company's prospects.

The evaluation and investing model I favor is grounded on this advice. A tribute to traditional investor analysis, it can be used to analyze all types of companies – regardless of the industry they operate in, their growth stage, or their length of existence.* Surprising as it may seem, many of the tried and true techniques of analysis are still relevant. At times, however, they may need serious modification. And whether you are analyzing the newest companies in emerging industries – like Yahoo!

or Qualcomm – or the most established companies in mature industries – like Sears or Sara Lee – conducting financial analysis demands a high degree of dedication and attention to detail, together with a well-thought-out game plan.

The model consists of four steps: (1) identifying industry economic characteristics; (2) identifying a company's strategy; (3) analyzing company-specific financial statement data; and (4) assessing profitability and risk.

Industry Economic Characteristics

Any effective analysis must start with the identification of a company's particular industry. After all, the economic characteristics of an industry play a key role in dictating the types of financial relationships the analyst might anticipate observing in a set of financial statements and summary statistics.

Many models exist for assessing industry and firm economic characteristics. In most of them, five dimensions dominate: demand, supply, manufacturing, marketing, and financing. The economic attributes of an industry, particularly as revealed in financial statements, are important bases for analysis.

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* The model is discussed extensively in *Financial Reporting and Statement Analysis: A Strategic Perspective*, Paul R. Brown and Clyde P. Stickney (Harcourt Brace & Co), 1999.

❶ identifying industry economic characteristics
❷ identifying a company's strategy

But there are other factors to be considered. For example, does technological change play an important role in a firm's ability to maintain a competitive advantage, as is obvious, for example, with the software development industry? Or does the industry include a small number of competitors selling specialized products, as in the case of large pharmaceuticals companies?

Corporate Strategy

The second step – identifying firm strategy – closely follows from analyzing an industry's economic characteristics. Companies establish strategies to compete within their industries. They establish strategies in an attempt to differentiate themselves from competitors. And often companies attempt to create sustainable competitive advantages by employing a strategy that is hard to copy.

To understand a firm's strategy, the analyst must scrutinize both what firms say about their strategic plans and the actions they take to implement plans. In my opinion, nothing is more revealing than examining a company's current strategy, examining how a company is financed and how it reports, and then comparing this data to relevant past statements made by managers.

Simply put, these first two steps stress that analysts must know the industry under analysis "cold," understand the strategies employed by the firm or firms they are analyzing in the industry, and benchmark them with past financial and non-financial statements by the firm or firm's management.

An investor can practice implementing these two steps by predicting which firms in the e-commerce retail industry will shake out this year – something many experts in the industry, including Jeff Bezos of Amazon.com, have predicted.

Firm-Specific Financial Statement Data

After understanding the firm's industry and the strategy it employs to achieve profits, an analyst must next closely scrutinize firm-specific financial statement data. Since earnings play a central role in most (but clearly not all) analyses, the analyst must be alert to the possibility that reported earnings for a particular quarter or year may be poor predictors of ongoing profitability. This could be a result of biases caused by management's efforts to "manage earnings" – a concept much in the news for almost two years now.

Given this environment, it is important to assess the sustainability of earnings. And there are a wide number of variables that enter the calculus. They include:

Discontinued operations – Let's say a firm decides to exit a particular segment of its business, as when Venator shut down its Woolworth stores. There is a wide degree of subjectivity to the timing and size of the gain or loss the reporting company takes on the sale.

Impairment losses on assets – Firms must disclose and write down when they anticipate that assets previously acquired will no longer provide future benefits. (By the way, this is a valuable disclosure for analyzing past strategic decisions.) When and how much is reported as part of this so-called "impairment" is a subjective process.

Restructuring charges – Firms frequently stay in a particular area of business, but decide to make major changes in their strategic direction or level of operations. Frequently, firms estimate the cost of implementing the decision and record the loss. The timing, measurement, and actual reporting of this charge is extremely subjective. (I recently completed a training program for an investment house that spanned a three-week period, and the participants and I had a bet as to how many "restructuring charges" would be reported in the *Wall Street Journal* during this time period. The total: three dozen.)

Changes in estimates – There is a great deal of subjectivity inherent in the process of estimating a number of items including depreciation, bad debt reserves, and warranties. Consider this example. Several years ago policymakers forced SunTrust Bank to lower its loan-loss

model consists of four stages

❸ analyzing company-specific financial statement data
❹ assessing profitability and risk

reserves by over $100 million. The action forced the bank to restate prior earnings, which resulted in a substantial increase. Policymakers accused SunTrust of having estimated bigger reserves than needed in order to use these reserves during future weak earnings periods.

Because executives today have at their disposal a range of subtle and not so subtle means to manage earnings, investors or analysts must cleanse the data to ensure the figures they examine bear as close a representation as possible to economic reality. This is necessary for conducting effective profitability and risk analysis, the crux of step four of the model.

Assessing Profitability and Risk

Even after investors complete the first three steps successfully, they still face obstacles to obtaining a clear valuation. Assessing profitability – and hence the risk of a particular investment – is very challenging, precisely because the reporting of profits is dependent on a variety of variables.

Let's consider just one. Since 1974, companies have been directed to immediately record Research & Development expenditures in their financial statements. As a result, companies with large R&D expenditures – typically seen in areas such as computers, telecommunications, biotechnology, and pharmaceuticals – severely understate their earnings each year because some of the expenditures they charge against earnings today will produce benefits tomorrow. (By rights, the argument goes, they should not be reported as expenses in the current year.)

In order to assess profitability and risk effectively, analysts must adjust earnings to eliminate that portion of the R&D expenditures that may have a future benefit. Interestingly, an arcane reporting rule that has been employed in recent years, which requires companies to value R&D expenditures when they are bought and sold, assists in the effort to place a value on R&D spending.

Under the so-called purchase method of accounting for mergers, the purchase price is allocated to all identifiable assets and liabilities regardless of whether they are recognized in the financial statements of the acquired company. As a result, the buyer often records what is known as goodwill – the portion of the purchase price greater than the acquired firm's book value. Over time, this goodwill is amortized and reduces earnings.

Recently, companies in industries, such as e-commerce, biotechnology, and pharmaceuticals, that seek to protect future earnings have not recorded and amortized goodwill when making acquisitions. Instead they have been writing off a significant portion of their costs of acquisitions as "purchased in-process R&D." By recording this as an immediate expense – rather than amortizing goodwill over a longer period – companies eliminate the long-term drain on earnings that usually results from a purchase acquisition.

Under the purchase method, the company being acquired must disclose the "fair value" of its R&D expenditures. And that can be highly valuable information. Disclosures pertaining to how the valuation was arrived at, or how the technology is going to be developed, can be very useful. By comprehensively reading these disclosures – and pushing for more – the user can gain relevant complementary information to the corporate reports.

There are many other examples of disclosures that, when used in concert with traditional accounting information, can be powerful tools for assessing profitability and risk of a company. Investors – whether they're individuals or large institutions – shouldn't be fooled into thinking that "new wave," "new economy" companies are exempt from the traditional analysis techniques that have been employed for decades. On the other hand, they should not simply apply traditional analysis without first purging the accounting numbers of past relics and adding more relevant information. The days of accepting corporate financials at face value – and using them as a sole source – are long gone.

PAUL R. BROWN *is chairman of the department of accounting, taxation, and business law at Stern.*

ILLUSTRATIONS BY ELIZABETH LADA

COMMUNICATING VALUE IN THE NEW ECONOMY

Irv Schenkler Interviews **Jonathan Fassberg**

Can companies – especially start-up biotechnology and high-technology companies – create value through effective communication with investors?

Yes, says Jonathan Fassberg (Stern MBA '96). As founder and president of The Trout Group (named in homage to the eponymous Schubert Quintet), Fassberg oversees investor relations for 20 public and private biotechnology and hightechnology companies.

Fassberg majored in biology and chemistry at the University of North Carolina, has held sales and marketing positions at DuPont Pharma, and worked as a biotechnology industry equity research analyst at Josephthal, Lyons & Ross. He founded The Trout Group in August 1996, after completing his MBA in finance at Stern.

In this interview with Irv Schenkler, clinical associate professor of management communication, Fassberg describes how investor and public relations are assuming an increasingly prominent role in management. In a crowded and volatile gold rush environment, he argues, communicating the right vision to investors can mean the difference between prosperity and merely surviving.

Where does investor relations fit into the so-called "New Economy" of Internet start-ups?

Investor relations has taken on an important role in the development of Internet companies. Because few Internet companies have earnings, their stock becomes their essential currency. And due to the speed at which these companies are going public, they need to take advantage as rapidly as they can of the boom in the stock market. As people are taking this leap of faith with you, and funding your idea, you have to make sure that all the elements of communications are being handled and that you are reaching all the right constituents. It becomes an incredible challenge to manage perception in the gold rush era. This is similar to what we have seen for years in the biotech sector. Building relationships and obtaining sponsorship from key players in the investment community can play a huge role in establishing the valuation of a company. One of the major goals of investor relations is to establish contact with those key players.

Why do some of these start-ups tend to flounder when trying to communicate their message to appropriate audiences?

To be fair, communicating vision and specific direction is very difficult when companies don't really know where they are going. The founders of these companies are entrepreneurs, and are pulled in different directions, and often don't appreciate how important it is to communicate clearly with their constituents – and in particular with members of the finan-

cial community. They are focused on making their "product" a success and don't realize that their company is actually the "product."

Often companies just can't gain credibility because of signals that their CEOs are sending to the financial community. It's absolutely incredible. Imagine, for example, two Internet companies basically pursuing the same idea. The first company has a CEO who can only speak about the technology of his company and is only comfortable with people who can relate to it. Since he cannot relate to the financial community, when he goes to the Street, the financial community's perception is that "he just doesn't get it," and this CEO in turn will not get what he wants.

The second CEO is technology savvy but also knows what Wall Street needs to hear – and how to communicate his message in a way that the Street really understands and deems credible.

The second CEO knows the audience and adapts to their expectations?

Right. In the financial community, you have to communicate your ideas in the language the listener will identify with and understand. So, you may need to speak the venture capitalist's language, which is different from the analyst's language, which is different from the banker's language, which is extremely different from the individual investor's language.

But the message is the same – this is a great investment opportunity – buy the stock!

What are analysts looking for in Internet stocks or Internet IPOs, besides a deal they can bring to the bankers?

In the past, everyone was focused on earnings visibility and growth. Now, what everyone seems to wants is a hot story. The flood of newly public Internet stocks makes it a huge challenge to get the ear of an investment banker and analyst. Before, a typical analyst was someone who had been in the industry for twenty years. Now analysts are usually in their twenties.

"In the financial community, you have to communicate your ideas in the language the listener will identify with and understand."

Has the fact that analysts are younger and perhaps more in touch with these kinds of businesses helped in terms of Internet IPOs and start-ups? Or, does this make them more cynical and more skeptical?

Well, the fact that they are younger usually means that they have a better connection and experience with the Internet. In my office the interns from NYU have incredible knowledge of the Net. However, since the analysts don't have much Wall Street experience it makes things a bit scary. Most have never experienced a bear market and we don't know how much pain they will endure when the markets go south for any period of time. My experience in biotech taught me that most people don't hang around for a long time in bear markets and sometimes it takes a new class of MBAs or PhDs to revitalize enthusiasm in a market once everyone has been disappointed with the old stories. This overreaction can create great opportunity, and the time when investors flee a sector may be an incredible time to jump in. These factors also make for a more volatile market place.

How does the financial media play a role in the communication process?

Well, there are two elements to that. One is that Wall Street itself has become a huge topic in the media, and in the locker room for that matter. People talk about their stocks like they used to talk about their favorite sports teams. The media drives this, and stock performance is often the defining feature of a company. Stock performance "talk" communicated to the public through the general media has become an interesting and fascinating topic that everyone wants to hear and know about. As a result, media is very connected to Wall Street.

The second element, and this a part of what we do and what the companies really try to do, is to use the media to drive the company's stock and to get a kind of free advertising by having smart, well-placed public relations campaigns. This is even more pronounced with start-ups. A large number of these companies are really defined by their PR and their marketing. These companies do not have earnings so they are basically stories, and the better you can use the media to get your story out, the more momentum and exposure you can build for your company, its products, and its stock.

Is there a dark side to this? Where financial journalists may be used, essentially, to promote a start-up with nothing more than a good story?

Yes. There is certainly the potential. This kind of hype can result in leaving investors hurt by companies that aren't as strong as initially perceived, or by others that really don't have the business basics down but just have a good hot story. Unfortunately, most CEOs have to create milestones they can't reach because they need to try to get a deal done and to differentiate themselves in a crowded marketplace. Companies have to be very skillful at

resetting those expectations without losing total credibility.

If a company has credibility in the market place, it can set milestones and meet them. This is critical for the company's long-term success, and the company will be able to keep going back to the market for as much capital as it wants. We have learned hard lessons in the biotech sector about disappointing investors, and in some cases it can really sour the entire investment community. Hype drives even rational people to set unrealistic expectations that can never be met. This causes extreme volatility and when the bubble bursts many investors get decimated. Certainly some believe this is the case with many of the Internet valuations.

Nevertheless, it is also one of our goals to counsel and work with clients to make sure they are pushing their stories and the vision of the company. It is critical that companies fight for a leadership position in the perception and valuation games. Successful ones have morphed themselves into much greater things than they started out as by understanding the market perception of value.

How do changes in technology factor into your ability to communicate a company's value proposition?

We see the Internet as an incredible tool to reach investors. We've been pro-active in working to develop virtual road shows, and we've developed a product called "InvestConnect." InvestConnect allows us to put a company's slide presentation on the Internet, using the voice-over of the CEO. The goal of this is to try to integrate technology with personal relationships. Because of the number of companies that are trying to reach big institutions, analysts, and bankers, it is really essential to have some kind of inexpensive way to get your message and your story in front of these people.

We don't think the Internet is a substitute for personal contact, but it's a tool that helps to drive it. We also think it is a way to cost-effectively reach investors around the world at the click of a mouse.

"It is critical that companies fight for leadership position in the perception and valuation games. Successful ones have morphed themselves into much greater things than they started out as by understanding the market perception of value."

The downside of people looking for all the information on the Internet is that there is just so much information out there, and not all of it is quality. These chat rooms, for example, can be huge hindrances to companies. A person who may have a short position in the stock bashes the company without any regard for the truth. Investors have to be very careful and selective when picking up random information, and that's a challenge. We work very hard to insure that all the information we provide to investors is credible.

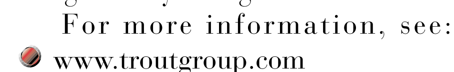
Is the situation in Western Europe similar?

While each country has its own flavor, Europe traditionally has not had very active equity markets. Start-ups were few and far between. And those that failed once seldom had a second chance. For example, in Germany five years ago probably 3% or less of the population owned stocks and almost no one heard of stock options. It was very difficult to buy stock as an individual investor, and tax structures also hindered stock trading. However, recently, the success of investors and companies in the United States has resulted in a boom in Europe. Venture capital firms are popping up everywhere in Germany, and local markets have made it easier to go public. However, European companies are largely inexperienced in dealing with investor relations – that includes such basic tasks as conducting road shows, networking meetings, and conference calls. Right now is an exciting time, and there is a tremendous amount of capital chasing equities in Europe.

Managerial communication styles in Northern Europe tend to be described as "closed," where information is parceled out on a need-to-know basis only. Have you found that kind of syndrome, and if so has it interfered with the notion of transparency as it's required in the United States?

I think that this is true for the older generation. On the other hand, more recently, management in Europe has realized the value of the efficient information flow to the investor in the U.S. As a result, they are trying to open up. They are also thinking increasingly more globally, and therefore have to adapt to what, among others, U.S. investors expect and need. In the U.S., most people understand that top management are really marketing their company and their vision. To a great extent European companies would say "Well, the Street will realize the value of my product, it's not up to me to market it." This will gradually change.

For more information, see: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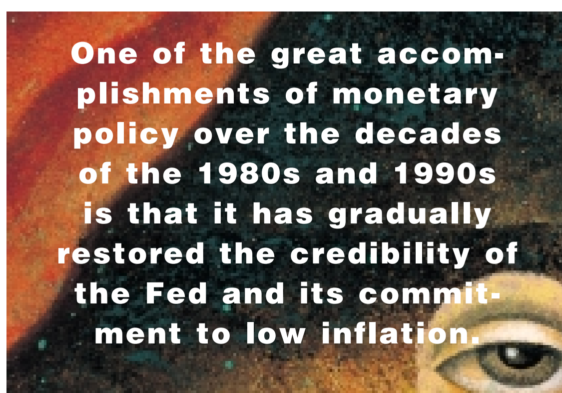
INFLATION
DEFLATING

ILLUSTRATIONS BY ELIZABETH LADA

Eight years into the economic expansion, inflation is surprisingly tame. But not for the reasons many people think. As the current economic expansion sets a new mark for the longest on record, one of the interesting side-effects is the disappearance of a favorite old cliché of the business press: We no longer read about the fear of the economy "overheating." The U.S. economy has been "white hot," "boiling," or whatever temperature metaphor you prefer, for several years now, without evidence that is too hot. The old myth was that if the economy grew too fast, it would rekindle inflation. Thus, signs of economic growth that was very robust were greeted as bad news because of the fear that inflation would result and the Federal Reserve would react by tightening the money supply. Why do we say this was a myth? Because, there is no compelling empirical evidence that stronger growth and higher inflation go together. Whether you look across countries or over time, there is little empirical support for the idea that higher growth rates lead to higher inflation. And the experience of the last decade puts an exclamation point on that fact.

By **Thomas Cooley**

Another unfortunate term that has been largely banished from the business press by recent experience is the notion of the NAIRU, an ugly acronym that stands for Non-Accelerating Inflation Rate of Unemployment. That is, the rate of unemployment that is consistent with stable inflation. The idea is that if the unemployment rate were to fall below the NAIRU rate, inflation would accelerate. The NAIRU was a crude empirical counterpart to a very elegant theoretical notion in economics known as the "natural rate" of unemployment. The problem is that trying to reduce that theoretical argument to a simple empirical counterpart missed some important elements of the idea, with the result that economists really have no idea what the "NAIRU" is in a dynamic economy. Not long ago many argued that an unemployment rate of seven percent represented the NAIRU. Then it was six percent, then five. One hopes that advocates of the NAIRU view of the world have acquired some caution in light of the recent experience.



It is easy with hindsight to dismiss notions that seemed useful to some a decade ago. But is it reasonable to ask what the factors are that are responsible for the continuing low levels of inflation in the U.S.? The answer to that seems largely straightforward, but before getting to that I would like to dispel two new myths that seem to have gained some currency in the popular press.

The first myth is that the ability to shop on the Internet is keeping prices low for consumers because of their ability to compare prices and search for the best deals, and that this is contributing to keeping inflation low. There is no doubt that Internet shopping is growing in importance and that much information about relative prices is available on the Internet. But let's be realistic. Retail sales on the Internet in 1999 were optimistically between $20 and $30 billion. Total retail sales in 1999 were about 8.8 percent of GDP, or about $834 billion. This implies that Internet retail sales were somewhere around 3 percent of total retail sales and less than .3 percent of GDP. How could such an insignificant fraction of GDP be the driving force keeping prices low? It simply doesn't add up.

The second myth, one that has some more plausibility, is that the economic turmoil in Asia and elsewhere has made imported goods less expensive and has stimulated imports, which has helped to keep the prices of both imported and domestic goods down. It seems like it could be right, but again, we should look at the numbers to assess how important this could be. Imports accounted for about 14 percent of GDP in 1999, and less than 15 percent of those imports are from the crisis countries that have experienced substantial devaluation. Competition from abroad is surely important for keeping U.S. producers on their toes. But quantitatively it simply isn't big enough to be a major explanation of low inflation. Again, we are talking about less than 3 percent of GDP.

While both Internet sales and low-priced imports may have some small impact on prices, it simply isn't plausible that they are a major force in keeping inflation low in recent years. Now let's consider what the realities are.

Certainly, much of the credit for continuing low inflation must go to the Federal Reserve and the leadership of first Paul Volcker and then Alan Greenspan. One of the great accomplishments of monetary policy over the decades of the 1980s and 1990s is that it has gradually restored the credibility of the Fed and its commitment to low inflation. That credibility was lost in the 1970s with the result that the public came to factor expectations of inflation into their decision making. Expectations of inflation have a tendency to become self-fulfilling, making it difficult to bring inflation down once it is in place and credibility has been lost.

Although Greenspan is endowed with near mystical powers in the minds of many people and the business press, his real talent is more mundane. He is famous for his attention to detail and his insatiable appetite for data. For that reason, under his leadership, the Fed has been quick to react to signs of inflation in the economy, and equally willing to provide liquidity to the economy when signs of credit bottlenecks seemed to threaten economic growth. It demonstrated this in the autumn of 1998, by lowering interest rates three times following

the Russian default and the Long Term Capital Management fiasco.

Under Greenspan the Fed has done something else that is important. It has increased the transparency of its actions. Most economists hold the view that the objectives and methods of monetary policy should be publicly stated and easily observed. There are many examples throughout the world of Central Banks that have adopted this way of operating. In the U.S., monetary policy has become somewhat more transparent, but not completely so, and the objectives are more complicated. Indeed, one of the unfortunate things about the Greenspan era at the Fed is that he has encouraged the cult of personality that surrounds him, and has foregone the opportunity to make monetary policy more clearly targeted and transparent. It would have done much for future generations of policy makers if Greenspan had acknowledged that his greatest accomplishment was to do little or nothing to alter monetary policy during much of the past 10 years.

While sound, cautious, monetary policy has been an important factor, the most important force keeping inflation low over the past decade has been the extraordinary increase in productivity of the U.S. economy. Indeed, it is the "new economy" that is at the heart of low inflation because of the greatly increased productivity of U.S. workers. Productivity is the most important engine of growth in personal incomes and economic well being. Because of the tremendous increase in productivity, much of it driven by investments in information technology, wages have increased without increased inflation.

Economists are still struggling to measure and assess the increased productivity resulting from the Information Technology Revolution that is driving our current strong economic growth. Spending on computers and high-tech equipment is now the most important component of investment. The National Income and Product Accounts have recently been revised to treat spending on computer software as an investment rather than as an business expense. These changes recognize that computer software, like other capital equipment, yields a flow of services that lasts more than one year. The net result of these changes has been to raise the estimates of the average annual growth rate of real GDP during the current expansion from 3.1 percent to 3.5 percent.

This robust economic growth has so far been raising real incomes without leading to inflation. One of the surprising features of the current economy is that it has been able to absorb a doubling of oil prices over the past year without a serious resurgence of inflation. In large part this is because the economy has become much less sensitive to oil shocks since the 1970s. Since that time there has been an important shift in the composition of the manufacturing sector and a major shift from manufacturing to services. The current high-tech economy is clearly less sensitive to energy shocks.

This robust economic growth has so far been raising real incomes without leading to inflation.

So, what can we expect for the near future? Consumers' expectations of future inflation remain low. According to the Michigan Survey of Consumers, the expectation is for inflation to continue to be under 3 percent for the next few years. The Federal Reserve Bank of Philadelphia, which surveys professional forecasters, has found that the pros similarly continue to expect low and stable inflation for the near future. Still, there are some danger signs. One is that labor markets continue to be very tight. That raises the fear that wages will rise faster than productivity. The other ominous sign is the continuing rise in oil prices and impending shortages of supplies. Although the economy has shown itself to be resilient in the face of price increases so far, these will eventually begin to ripple through the economy. If these forces result in a breakout of inflation, we can be assured that the Fed will react.

A frequently used analogy holds that the Fed's job is to take away the punch bowl just when the party is getting interesting. This party has been rocking for several years now, but it seems as if Alan Greenspan is keeping one hand firmly on the bowl.

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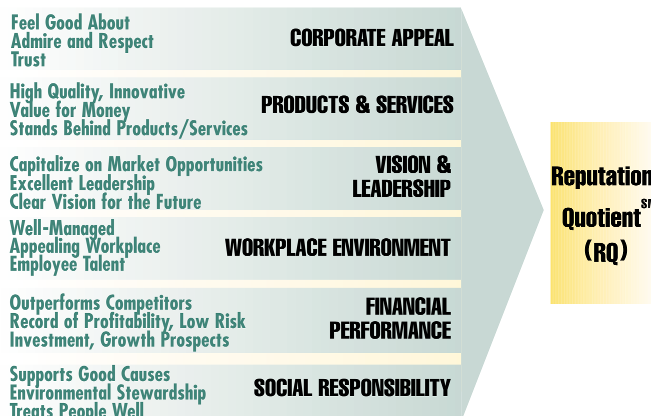
WHO'S TOPS IN CORPORATE REPUTATION?

Ask people to nominate the companies they hold in highest regard and they'll all volunteer a name and an opinion. Some will nominate a company because of a direct experience they had with its products and services. Others will base their opinion on the returns they earned from investing in the company's shares. Sum up these opinions from a representative segment of the general public, and you have a snapshot of the company's reputation.

By **Charles J. Fombrun**

I did just that in two recent nationwide polls to find out which companies the American consumer thinks are the country's top companies, and which ones they think are tops in the Digital Economy. The results are interesting. They tell us that people rate companies on the six key dimensions described in the chart below:



Some dimensions turn out to be more important to some respondents, but less so to others. As expected, investors pay more attention to a company's financial performance than do consumers. Social activists are more influenced by their perceptions of a company's social responsibility than they are by its financials.

By "reputation" I mean the net perceptions of a company's ability to meet the expectations of all its stakeholders. A company's reputation is therefore built on the shared foundation created by all six dimensions – the six pillars of reputation. They are the basis of a tool I developed with the market research firm Harris Interactive to measure corporate reputations systematically. We call it the Reputation Quotient™ or RQ.

The Reputation Quotient™ (RQ)

Most of us are familiar with the polls regularly taken during presidential campaigns. Remarkably accurate popularity ratings of candidates can be calculated with samples of 500 to 1000 people and are routinely used by political pollsters to predict election results.

ILLUSTRATION BY ROBERT GUTHRIE

RQ

Our efforts to measure corporate reputations borrow from the basic methodology of political polling, but add many layers of complexity. For in addition to gauging a company's popularity rating, we want to discover why it is popular. And that mandate prods us to dig deeper into the underlying reasons that explain a company's relative appeal – something that's almost always missing from the simple results reported by political polls.

The instrument I developed with Harris Interactive – the RQ – does just that. It measures a company's reputation by examining how a representative group of stakeholders perceives companies on 20 underlying attributes that constitute the six pillars of reputation.

The second key issue of concern in polling consumers involves identifying a representative sample. In typical polling, phone calls are made to a random sample of possible respondents drawn from the general population. Unfortunately that's a prohibitively expensive process. Getting a valid rating of a single company requires a sample of 300 or so respondents. In order to rate all Fortune 500 companies, we'd need to speak with 150,000 people!

To get around the problem, the RQ studies draw respondents from an online panel developed by Harris Interactive, which has a proprietary global database of about five million cooperative respondents. These are individuals who have volunteered to participate in online research and are eligible for incentive prizes.

To do an RQ, we approached random samples from Harris' database. Respondents were directed to access a password-protected Web site where they answer specific questions we pose to them. Typically, in the first phase of a study, we invite people to nominate companies they hold in high regard. We then pick the top nominees on the list and, in a second phase, invite a new group of people to rate one or two familiar companies from the list. We calculate actual numerical RQ scores from respondent ratings on seven-point scales that describe how they perceive the company on each of the 20 attributes we associate with corporate reputation.

The RQ Studies

So far we've conducted two major quantitative studies of corporate reputation using the RQ. The studies were commissioned by the Reputation Institute, a research organization that I created with sponsorship financing from PricewaterhouseCoopers and Shandwick International. The Institute's purpose is to deepen our understanding of corporate reputations as intangible assets. Topline results were described in feature stories published by the *Wall Street Journal* in September and November 1999.

Study #1

The RQ Gold: Who's Tops in Corporate America?

The purpose of the first RQ study, the RQ Gold, was to identify the companies that Americans hold in highest regard, and to rate those companies on the six pillars of reputation.

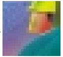
The study was carried out in two phases between August 25 and August 31, 1999. In phase I, Harris Interactive conducted over 3000 online and telephone interviews with U.S. respondents. People were asked to nominate the companies they believe to have the best and worst reputations. In phase II, another 10,830 respondents provided detailed ratings of the 30 best-regarded companies. All ratings were weighted to be representative of the U.S. population.

THE TOP COMPANIES IN AMERICA

1. Johnson & Johnson
2. Coca-Cola
3. Hewlett-Packard
4. Intel
5. Ben & Jerry's
6. Wal-Mart
7. Xerox
8. Home Depot
9. Gateway
10. Walt Disney

Figure 1 shows the top 10 companies from the survey results. The health-care products company Johnson & Johnson was the surprising winner. As Ron Alsop put it in the *Wall Street Journal*, "benefiting from its heritage as the premier maker of baby powder and shampoo, the health-care company is the surprising champion."

Others counted among the top 10 include stalwarts Coca-Cola, Wal-Mart, and Walt Disney. Longstanding technology giants Hewlett-Packard, Intel, and Xerox were highly rated, as was relative newcomer PC-maker Gateway. Most surprising among the top 10 were the presence of Ben & Jerry's and Home Depot. These two companies are far smaller in size than the others on the list, but nonetheless enjoy outsized reputations for social responsibility (Ben & Jerry's) and customer service (Home Depot). Interestingly, no financial services company was nominated for inclusion in the top 30 companies, despite their considerable visibility to consumers.



Study #2

The RQ Digital: America's Top Digital Companies

Given the growing interest in new technologies such as the Internet, we chose to focus the next RQ study on the digital sector. Our specific objective was to identify the top 40 companies that a representative sample of the U.S. adult online population believes are playing a significant role in the digital economy, and to assess the reputations of those companies on the six pillars of corporate reputation.

The study was carried out in two phases between September 22, 1999 and October 25, 1999. In phase I, Harris conducted online interviews with respondents throughout the U.S. Respondents were asked to nominate the companies they believe would have the most impact on digital technology in the years ahead. In phase II, another group of respondents provided their overall assessments of the reputations of the 40 most highly nominated companies. All data were weighted to be representative of the U.S. adult online population. Weights were calculated based on age, sex, education, race, ethnicity, household income, region, and stakeholder status. RQ scores were calculated for each company from detailed ratings provided by respondents for each company on 20 attributes.

In the first phase, 5259 people were asked to answer the following question: "We'd like you to think of all of the companies you know or might have heard of that are known for their work in digital technology. These might be Internet companies, PC manufacturers, software companies, or any company that you think of as a key player in the digital economy. Of all these companies, which two do you think will have the greatest impact on the way the digital economy evolves in the next few years? You might wish we had provided a list of companies for you to pick from. We are not doing so intentionally because we don't want to influence your choice in any way."

To minimize confusion, we excluded from the study companies like General Electric that are essentially conglomerates, and companies that are subsidiaries of other companies (such as RCA, Netscape, or Packard Bell). We also excluded media companies like Ziff-Davis, and telecommunications service providers such as AT&T, MCI/Worldcom, and the former Bell companies. In the second phase, 16,887 individuals rated the top 20 nominated digital companies on the 20 attributes of reputation.

Figure 2 shows the results of the survey for the top 20 digital companies. Clearly the results confirm that Microsoft enjoys the strongest reputation in the sector, despite complaints about its predatory practices and its continuing anti-trust problems.

THE TOP 20 DIGITAL COMPANIES IN AMERICA

1. Microsoft	11. Xerox
2. Intel	12. Symantec
3. Sony	13. Intuit
4. Dell	14. Sun Microsystems
5. Lucent	15. IBM
6. Gateway	16. Motorola
7. Eastman Kodak	17. Red Hat
8. Texas Instruments	18. Yahoo!
9. Cisco Systems	19. 3Com
10. Hewlett-Packard	20. Canon

The top digital companies comprise a mix of hardware and software, older and younger firms. Surprisingly, no service-oriented e-businesses appear at all among the top 20, confirming that they have not yet come of age in the minds of consumers.

So, Why Study Reputations?

The encouraging results of these two initial RQ studies suggest that companies can be profitably rated on a standardized set of attributes that encompasses social, emotional, organizational, and financial features.

Far more interesting than the ratings themselves, however, is the research agenda we are advancing through the Reputation Institute, its sponsors, and members. From an academic perspective, strategists, organization theorists, and economists hypothesize that there are competitive benefits to having strong corporate reputations. A strong reputation is expected to enable companies to command premium pricing, lower marketing costs, help attract the best employee talent, generate word of mouth endorsement, and act as a barrier against imitation.

For lack of valid data, few empirical studies can actually bear this out. Researchers and practitioners badly need credible measures of corporate reputation and good understandings of their effects on financial value. With a validated reputation measure such as the RQ, it becomes possible to empirically test these hypothetical relationships. Armed with reliable audits of reputation and careful research, we hope to help executives focus systematically on the merits of reputation management, a disciplined process for adding economic value by cultivating stakeholder relationships. Stay tuned.

CHARLES J. FOMBRUN *is professor of management at Stern and co-founder and editor-in-chief of* Corporate Reputation Review, *a quarterly journal.*

IN THE VANGUARD

John C. Bogle, the pioneer of index investing and founder of Vanguard Group, is among the most prominent figures in the investment world. Since its founding in 1975, the company's assets have risen to $525 billion. And indexing – buying all the stocks in a given market index rather than picking a few – has emerged as a popular vehicle for investors. Through a series of books, speeches, and 26 years of leadership at the nation's second-largest mutual fund company, Bogle has been a consistent voice of reason. Bogle, 70, stepped down as chief executive officer at Vanguard in 1996, but has continued to be an active and vocal advocate for investors.

Last fall, Bogle was named Henry Kaufman visiting professor of business at Stern, succeeding former Federal Reserve Chairman Paul A. Volcker. As part of the appointment, he will make several appearances on campus. On February 16, Bogle met in an informal setting with members of the Investment Analysis Group, a Stern undergraduate club that creates and manages virtual portfolios of stocks. Speaking without notes, Bogle discussed Vanguard, his investment and management philosophy, and view of the investing landscape. Bogle proved remarkably and refreshingly humble. "If I was brilliant, there would be no Vanguard, because it is such a tribute to simplicity and elementary math." And he ascribed much of his and Vanguard's success to a series of accidents rather than destiny or superior decision-making. Below are some excerpts from his appearance.

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On the original idea for Vanguard: It starts off when I was at Princeton in 1949, during my junior year, and I didn't know anything about investing. I was looking for a topic for my senior thesis. I happened to open the December 1949 copy of *Fortune* magazine, and there was an article about mutual funds, called "Big Money in Boston." As soon as I read the description of this industry as being tiny, contentious, I was interested in it. I had a very idealistic thesis, and there are those who say that in it I laid down the design for Vanguard 2000. Among the conclusions was that the principal function of the investment company is to manage their portfolio, not marketing and all this other stuff. I argued that mutual funds should also reduce sales loads and management fees. Finally, I said that mutual funds should operate in the most efficient, honest, and economical way possible. So stumbling across that article was the first accident.

On his early years in the industry: Walter Morgan, head of the Wellington Funds, asked me to come work for him. That was a second accident. I became his successor at a very young age in 1965, when I was 36. It was a very confusing period, and there was plenty of room in the industry. I made one big mistake. I believed then, which I do not believe now, that there were truly superior investment managers. There was a small firm with a wonderful record, and I decided to merge with them. It was a tremendous success for eight years. But the go-go era went-went, and then we had the crash of 1974. And in January 1974 I got fired.

On Vanguard's unique structure: I had an idea that this industry was going the wrong way, running funds for the managers and not for the investors. I had this idea, but it was not a simple thing: Get the funds

independent of the managers. So next we set up an independent structure for the mutual fund manager to operate the fund for the shareholders. It was unprecedented. In that mutual fund structure, the fund owns the management company and the management company operates at cost. We began operations on May 1, 1975.

On the origins of Vanguard's name: A man came by my office to sell me some prints of naval battles. He gave me a book called *Naval Battles of Great Britain*. I looked at it and turned to the page of the Battle of Nile, where Lord Nelson sunk the entire fleet and took over Egypt. And I read the dispatch, congratulating the crew, from the captain of the HMS Vanguard. That accident gave us our name.

On the first index fund: By September 1975 we had the first index fund. It was unprecedented, and they called it Bogle's folly. But we had another insight: eliminate all sales charges. So we did that, overnight, and all of the sudden, sales volume stopped. But over time we were able to pick up business.

On Vanguard's unique vocabulary: We try to treat each of our investors – we call them investors, not customers – and there are about eight million of them, as individuals. And we do the same thing with our "crew." We have a lexicon of words at Vanguard that we don't use. And there are fines, $1 or $5, for using them. They're words that I don't think convey the right meaning. One of them is the word "employee." That sounds like someone who you control, who keeps their mouth shut, and collects a pay check. And that's not what the business is all about. It's about commitment, trust, some kind of fellowship. We also don't like the word "product." Budweiser beer, Wonder Bread, Colgate toothpaste. Those are all products, and are good words for them. People use products to describe something they sell. We want people to buy what we make, we don't want to make what they will buy.

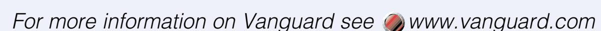
On the importance of low costs: Cost is a funny thing. It doesn't matter whether you pay too much or too little for a Mercedes Benz or a Rolls-Royce, beauty is in the eye of the beholder. In the financial business, beauty is not in the eye of the beholder. Cost can be measured and investment returns can be averaged over the long run. Cost is a zero sum game, and by the time you take all the croupier's tips out, the investor gets a very poor return. In a 10 percent market, you get 7.5 percent a year. Compounded over 15 or 20 years, that's significant.

On the role of luck: It's very important to have luck. I was reading about one of the great guys in American journalism, Harold Ross of *The New Yorker*. He was an irascible, opinionated, cantankerous, not entirely lovable person to whom I sometimes compare myself. Although he's smart. "*The New Yorker* is pure accident from start to finish," he wrote. "I was the luckiest S.O.B. alive when I started it." That applies to me. Within a year the index fund had shown up out of nowhere, and municipal bond funds came along very soon – and the shareholders followed.

There are brokerage firms that offer investors deals and discounts if they make 200 trades a year. Two hundred trades a year? The intelligent strategy is to make no trades a year.

On the market's general direction: I think it's very scary. We're clearly in a new era in the economy. Everything is changing, every day, rapidly. The New Economy stocks are going for 100 times earnings, and the whole market is going for between 25 and 30. They're very impressive numbers, but I don't think they can be sustained. The fundamental return for the last 50 years has been basically the same, about 10 percent to 12 percent. Some investors expect average returns of 20 percent a year, and younger investors expect 24 percent a year. And don't forget, with mutual funds, if you want 24 percent, you're going to have to get 27 percent. Absent continuing speculation, it's hard to see where those returns are going to come from. I don't believe people will be willing to pay high prices for these stocks forever. But I don't know when it will go down. I've learned this the hard way: Never think you know more than the market.

On the enduring value of indexing: There are brokerage firms that offer investors deals and discounts if they make 200 trades a year. Two hundred trades a year? The intelligent strategy is to make no trades a year. Indexing is everywhere. It's buying and holding the market. A metaphor I thought of last fall, is that the chances of buying a winning mutual fund that beats the market are small. It's like looking for a needle in a haystack. So why not just buy the haystack?


For more information on Vanguard see www.vanguard.com

endpaper

Getting Cheaper Every Day.

By **Daniel Gross**

The days of the 25 cent double-feature and the nickel candy bar are long gone. (So, too, are the days of the $5.00 single-feature and the 25-cent Snickers.) And a century after the onset of the "penny press," the *Wall Street Journal* costs 75 pennies.

But not everything has become more expensive over time. Take the personal computer. Today, one can be had from a variety of vendors for $999. Just three years ago, a similarly equipped computer cost about twice that much. And 10 years ago, a much slower, less powerful version, a jalopy compared with today's souped-up hot rods, cost more than $2,000!

In slashing prices year after year, computer makers are following a time-honored tradition in American manufacturing. In the early 1900s, newfangled steam-powered carriages were priced far out of the range of the average working person – about $2,000. Along came inventor Henry Ford, who proclaimed: "I will build a motorcar for the great multitude." By simplifying the automobile and developing processes for assembling it rapidly, he set out to make the car a commodity. In 1908, Ford introduced the Ford Model T. The cost: a relatively cheap $825.

Ford plowed the profits from the popular Model T into perfecting an assembly line, which enabled him to produce the Model T even more cheaply. "When I'm through, everybody will be able to afford one," he said. Ford was right. By 1924, when the 10 millionth Model T rolled off the assembly line, it cost just $290 – 65 percent less than the 1908 price.

As the Model T reached the end of its miraculous run, radio was beginning to catch on. In 1923, a three-tube radio cost about $100. But as the decade wore on, performance improved while prices fell. By 1930, that same three-tube receiver cost just $20.

During the Depression, radio producers believed the only way to stay afloat would be to produce small, simple radios. Soon after the Crash of 1929, Emerson introduced a so-called "pee-wee," a five-pound receiver that sold for $25. Pee-wee and its clones caught on. As a result, the average price of a radio fell precipitously, from $133 in 1929 to $38 in 1940.

In the decades since, similar processes have taken place with everything from television to cellular phones. Who should we thank? Engineers, the unsung heroes of our consumer culture, continually devised ways to mass-produce objects efficiently and without defect. And executives realized that selling millions of cars, or VCRs, or cell phones, rather than thousands, allows a company to operate with thinner margins.

The trend of historic price-chopping on products like computers is great news for consumers. More importantly, it gives the young a great rejoinder when their elders begin to yammer about the good old days. "Yes," they can retort, "I remember back when a microwave cost $300 and a computer without an internal hard drive cost $2,000."

Oh, well, nostalgia isn't what it used to be.

DANIEL GROSS *is editor of* STERN*business.*

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