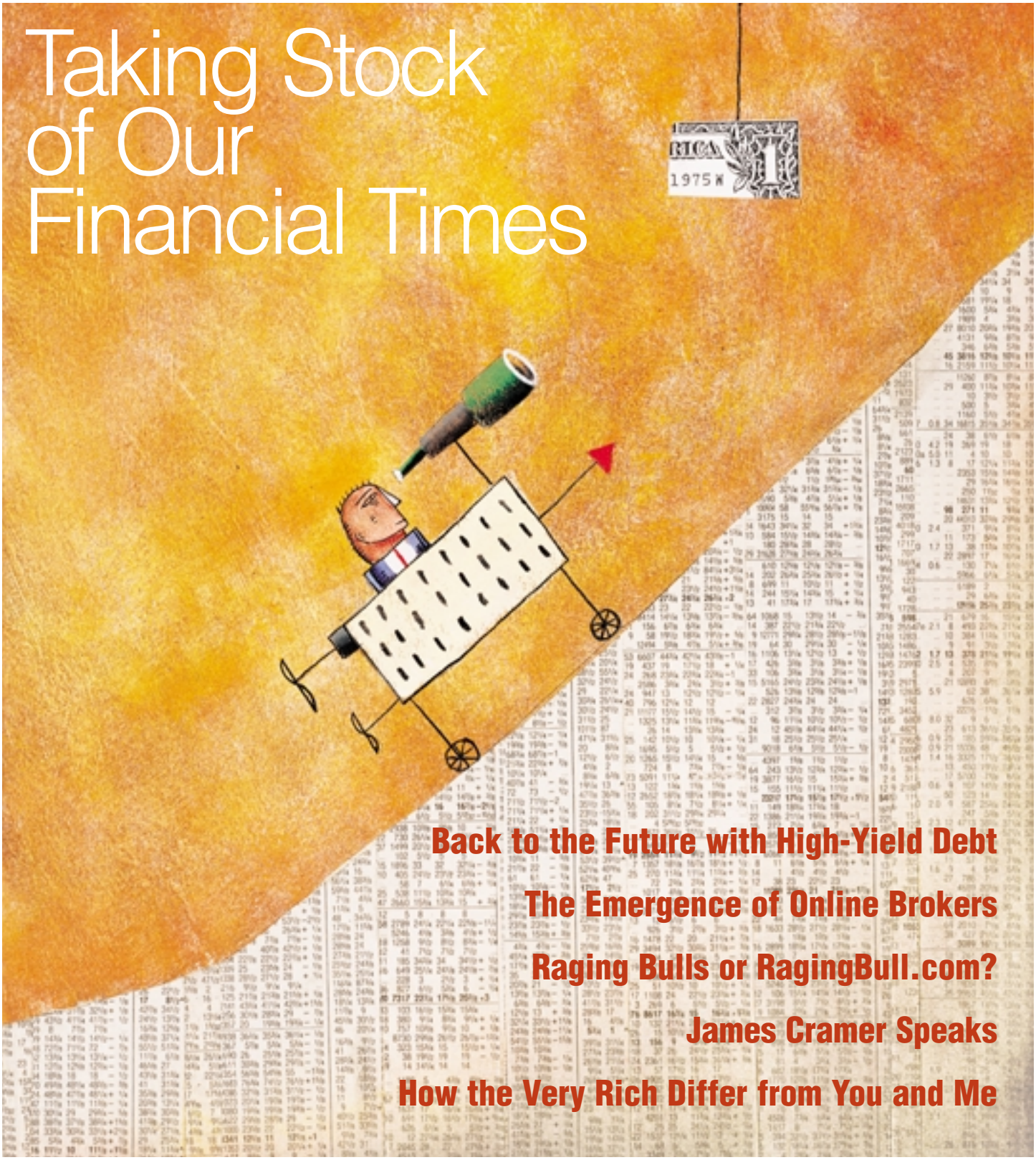
SPRING/SUMMER 2001

STERN business

Taking Stock of Our Financial Times



Back to the Future with High-Yield Debt

The Emergence of Online Brokers

Raging Bulls or RagingBull.com?

James Cramer Speaks

How the Very Rich Differ from You and Me

a letter from the dean

In the world of finance, investors, executives, and analysts frequently use numbers as a convenient form of shorthand. Interest rates, dividend yields, stock prices, weekly sales figures – this data can give professionals an accurate picture of how economies and companies are performing.

In the world of financial education, numbers matter, too, which is why we are particularly gratified by the recent publication of two rankings. This winter, the *Financial Times* adjudged Stern to be the eighth-rated full-time MBA program in the United States, and the tenth-rated program in the world. And last December, a broad study of faculty research productivity was published in the *Academy of Management Journal*. Stern ranked fourth out of more than 400 universities for faculty research productivity in top-tier journals; five of our eight individual disciplines scored in the top ten.

As seen by recent activity in the equity markets, however, numbers can be deceiving. Many $100 stocks now trade for $2. And just as many sure-fire business models have been abandoned as unworkable.

By contrast, our improved quantitative rankings are based not on overly optimistic projections or flawed assumptions, but on hard facts. Outsiders may note that Stern is improving on a quantitative basis. But those who spend time on our campus also know that all of our constituencies – administrators, faculty, and students – are improving on a *qualitative* basis as well.

For example, we are aggressively leveraging our position as a center of academic excellence located in the heart of the world's financial capital. Last fall, we broke new ground in the field of business education by becoming a part of the new TRIUM Executive MBA Program. This exciting partnership allies Stern with two of the world's other premier institutions: the London School of Economics and HEC Paris, Graduate Business School. And this spring, Stern sent the entire junior undergraduate class on a business trip with destinations in Italy, Hong Kong and Mexico.

The contents of this magazine highlight the fact that an understanding of finance goes far beyond numbers. You may find yourself drawn in by the charts and figures. But you will be most impressed with the sophistication of the analysis, the breadth of topics covered, and the wide-ranging interests of our contributors.

The same holds for the entire Stern School. Sure, the numbers are exciting, and a justifiable source of pride. But the figures are merely the tip of the iceberg. I invite you to discover – and rediscover – our rich array of offerings.

George Daly
Dean

STERN*business*

A publication of the Stern School of Business, New York University

President, New York University ■ L. Jay Oliva
Dean, Stern School of Business ■ George Daly
Chairman, Board of Overseers ■ William R. Berkley
Chairman Emeritus, Board of Overseers ■ Henry Kaufman
Assistant Dean, Marketing and External Relations ■ Joanne Hvala
Editor, STERN*business* ■ Daniel Gross
Project Manager ■ Caren L. Piela
Design ■ Esposite Graphics, New Orleans

Letters to the Editor may be sent to:
NYU Stern School of Business
Office of Public Affairs
44 West Fourth Street, Suite 10-83
New York, NY 10012
http://www.stern.nyu.edu

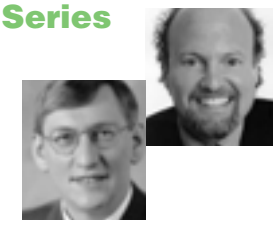
contents

SPRING/SUMMER 2001

TAKING STOCK OF OUR FINANCIAL TIMES

Cover and related articles illustrations © ARTIST(S)/SIS

Stern Chief**Executive Series**



Interviews with
James Cramer, page 2
Hendrick Verfaillie, page 4

8 **These Financial Times** *by Daniel Gross*

10 **Déjà Vu All Over Again with High-Yield Debt**
by Edward I. Altman

18 **The Rise of Online Brokers**
by Chris Stefanadis

24 **Recounting the Florida Recount**
by Aaron Tenenbein

26 **Business Styles of the Rich and Famous**
by Roy C. Smith

32 **In Sync: Why Stocks in Some Markets Move Together**
by Randall Morck and Bernard Yeung

38 **The Remonopolization of Telecommunications**
by Nicholas Economides

42 **Internet Message Boards: Raging Bulls or Raging Bull?**
by Robert Tumarkin

48 **Endpaper: Golden Oldies**
by Daniel Gross

Illustrations by James Yang (© artist(s)/SIS) and Dave Black

Information graphics by Robert O'Hair

James Cramer
TheStreet.com

James Cramer is the co-founder, contributing editor, and director of the TheStreet.com, an online financial publication that provides financial news commentary and information. In addition to his many roles at TheStreet.com, Mr. Cramer was a partner for 13 years in Cramer Berkowitz and Company, a Manhattan-based hedge fund. A graduate of Harvard College, where he was president of the *Harvard Crimson*, and Harvard Law School, Cramer worked as a journalist and stockbroker at Goldman Sachs before forming his own hedge fund. He is a co-founder and former columnist of *Smart Money* magazine and a columnist for *New York*. He is also the Markets Commentator for CNBC, and appears frequently on *Squawk Box* and *Business Center*.

co-founder, contributing editor and director,

(Interview conducted on October 4, 2000)

ML: Jim, we'll start with an easy one. What's the stock market going to do in the next year?
JC: The market is at a curious juncture. Up until oil spiked and the Euro declined I thought that we were very much on target for a 1994-style soft landing. Now it looks more like a 1990 scenario, when oil went to unsustainably high levels and we also had rates going higher. That led to a very bad Christmas season and it led to a very tough period for banks, as loan loss reserves went up dramatically. So we're straddling between '94 and '90 right now. I think that one-third of the stocks have bottomed already.

ML: Only one-third?
JC: Only one-third. I'm talking about Alcoa, International Paper, Dow Chemical. Those stocks have bottomed. I am trying to accumulate them. AT&T is now my largest position. Another third, which includes some technology that I regard as classic tech like IBM, are groping for a bottom right now. And then there's another third that I think frankly are sales, if not shorts. They tend to be the stocks that are selling at a 100 to 200 times earnings without a sustainable business plan that may not be able to give us any visibility after this quarter to next year.

ML: What impact will the election results have on the stock market, if any?
JC: First, I have to disclose I'm a card carrying member of the Democratic party and a large giver. Gore is closely aligned with the Rubin faction, which stands for a hard dollar, lower interest rates, and a less aggressive tax posture. There is a sizeable camp of people who are going to begin to rue the notion that there could be a tax cut. So a tax cut, which we normally would think would be bullish for the markets, is against the Greenspan compact with Congress, which is to reduce the deficits and keep interest-rates low. So while I don't think Bush would be so fabulous for the stock market, I don't think he would be so bad.

ML: Jim, what's your own record as a stock picker this year?
JC: We're up 32 percent. It's a very good year for us. We've compounded 24 percent net of all fees.

ML: When you pick a stock what do you really look for? What are some of the characteristics that either attract you to an investment or repel you?
JC: Let's use the example of AT&T. AT&T traded in the 60s, now it's at 28. It's 40 off its high. I like this. I'm buying at

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.

the level where there's been a lot of disappointment built into the stock. I check all the First Call notes and I see one lukewarm buy and probably 12 holds and even some sells. That means I've got people who are willing to convert. Most importantly AT&T is a company that when cable stocks have rallied 25 percent has said it is willing to sacrifice its safer long distance business because it really is a cable company. In the parlance of what we say in the investment meetings, I think AT&T's two down, 30 up. This is the kind of stock that we think works in this environment.

ML: Does this mean that that when I see a stock where 12 analysts are following it and 11 have a strong buy and one has a buy I should be suspicious of that stock?
JC: I would tell you that I think the stock in that scenario is a dangerous stock. When everybody loves a stock there isn't anybody who can go from a buy to a strong buy, because they're all clustered at strong buy. We're very oriented toward finding situations where we think a substantial amount of the risk has been removed. We're most interested in Alcoa at 27 with the possibility of taking out a lot of capacity than we would be for a situation like VerticalNet, which everybody loves.

ML: How's TheStreet.com coming?
JC: You know, TheStreet.com is in many ways a great disappointment for me because I'm a hedge fund manager. And in hedge funds we value stocks for what they sell at. When someone asks me what's TheStreet.com worth, I don't say, "Well, the brand is worth a $100 million." I get no satisfaction out of what we've accomplished because of a stock price [about $4 at the time]. That's the downside. The upside is that we created this unique product. We give you real-time information with an opinion that I think is worth a substantial amount to those who read it. I accept the market's judgment. I think that the market says that there will not be a jump up on advertising on the web; that the web has peaked. I've accomplished a lot in my life, but in the end I'm a $4 stock.

ML: Why did the stock go down so sharply?
JC: Last year our company was run very poorly. That is something nobody is ever supposed to say, but I said it vocally at board of directors meetings. We had a resulting change in management which I think is not at all reflected in the stock price. But we started too high. We went public at 20, and opened at 70. There was just incredible investor enthusiasm that I thought was way overdone. We proceeded to go down for three reasons. The stock market which was loved, loved, loved last year at this time is now disliked by many people, because they're losing money. Reason two is the cohort. Regardless of what we did, we are still a dot-com and that is the suicidal suffix.

Finally, we had to switch gears, from growing like wildfire to becoming profitable. I would say that we're in the midst of a very difficult downsizing that is meant to be able to produce profitability next year at this time.

ML: Turn it around. What is going to cause it to come back?
JC: We need to be able to cut costs more aggressively than we have. This is a company that had seven million in revenues in the second quarter. We're doing $28-30 million in revenues a year. Now, I'm from the old school which says if you can't make money doing $30 million in revenues let someone else try it. And I think the mandate that our board has given to management is to find a way to make it profitable at $30 million.

ML: Give me a model that would work for a dot-com information company.
JC: Let's look at it from the point of the view of the customer first. The customer has expressed a tremendous unwillingness, as we know, to pay for anything on the web. That said, TheStreet.com will get $3.25 million from subscription revenues and should be able to generate twice that. And you should have twice the subscription revenues for advertising. I think you can build a really terrific niche business that way. I think you can make five million on $30 million in revenues. But I can't come up with a scale business apart from Yahoo! and America Online that works. And I don't regard Amazon as working because they're losing billions and they owe a lot of money.

The advertisers expect too much from the web and they want our rates to come down.

The problem is the advertisers just do not want to advertise on the web. Last week I spent a week with our top five advertisers. In each case they said, "We loved advertising where you were in *Smart Money*, and we love advertising against your column in *New York*, but we don't feel comfortable doing the web."

The people who advertise on the web don't want to brand on the web, they want what's known as direct response. They want to be able to say "Look, we had this many people click on our ad." So we're held to a higher hurdle. The advertisers expect too much from the web and they want our rates to come down.

cont'd. page 6

Hendrick Verfaillie

president and chief operating officer

Monsanto

A graduate of the University of Louvain in Belgium, Hendrick Verfaillie joined Monsanto in 1976 in Brussels. A chemical engineer by training, he managed a number of product lines in the European market before transferring to the corporate headquarters in St. Louis. There he took on posts of increasing responsibility. As president and chief operating officer of Monsanto, he was responsible for developing and executing an integrated strategy across the life science spectrum, with special emphasis on agricultural food and nutrition. In 2000, Monsanto agreed to merge with Pharmacia & Upjohn. Several months later, the merged company spun off its agricultural business in an initial public offering. The newly independent company – known again as Monsanto – specializes in developing and manufacturing herbicides, seeds, and biotechnology traits. With 2000 sales of more than $5 billion, Monsanto is based in St. Louis and has 14,000 employees worldwide. Mr. Verfaillie is now president and chief executive officer of Monsanto.

ML: Tell me about the new Monsanto.

HV: Basically, we are quite a unique company. We have fully focused on biotechnology and genomics. We believe that high technology and genomics have the potential to revolutionize the way crops are produced through the use of chemical processes which are now becoming biological processes. We believe that is a lot more sustainable and more productive. We have made very big investments in establishing the technological capabilities, and also in acquiring biotech and genomics companies. We map the genes of plants. We are developing information that we put back into seeds that makes the plant resistant to disease and that makes the plant resistant to insects. So, instead of utilizing pesticides, we simply put information in this combination of information technology and biology.

ML: Our regulatory environment is different from the regulatory environment in Europe and in Canada. Does that have any consequence for the development of biotechnological products that help humankind?

HV: Yes. In the United States, we have very high demands on the data that you have to develop before you get to registration. The Food and Drug Administration, the Environmental Protection Agency, and the U.S. Department of Agriculture are very good agencies with very strong reputations. If they say that something is safe, people will believe it because they have a tradition of being right. In Europe, on the other hand, they have regulations where people do not really know what it is that they have to deliver. As a result, it takes much longer before it gets through the regulatory process. So, for a company that is making very significant investments in research and discovery, the U.S. is a much better place to place your bets than Europe. That is why most of the medical, biotech and genomic research is being done here in the United States.

ML: With populations exploding, are we going to have enough food to feed all the people in the world?

HV: We think we need new technology to be able to feed the world. There are basically three elements that drive the food demand. Number one is obviously the number of people. That number is projected to go up from six billion today to eight billion by the year 2020. Number two is a changing diet. As economies develop, people increase the calories they consume, and they go from a purely vegetarian to more of a meat diet, which, again, will impact the number of crops that are produced. Finally, as the economy around the world improves, people tend to spend more. So we can make all kinds of assumptions on those three factors. Our estimate is that by the year 2020, we will have to produce 75 percent more food than we are producing today.

ML: How? By increasing the amount of calories produced?
HV: Yes. If you look at what has happened in the 50s and 60s, we have had what they call the Green Revolution. The Green Revolution was the arrival of new varieties of hybrids, fertilizers, and pesticides. People were predicting in the 50s that we never would be able to produce enough food for the growing population. Thanks to the Green Revolution the food production accelerated as fast as the population did. But now we need new technology or otherwise, we won't be able to deliver this continuous growth.

Q: What is Golden Rice?
HV: It is basically biotechnology. In the world today, 200 to 300 million people suffer from vitamin A deficiency. Vitamin A deficiency can lead to night blindness, and then, eventually, to irreversible blindness. Through biotechnology, we have been able to develop rice that will produce very high levels of vitamin A. So, by simply eating the normal foods you eat every day, you get sufficient vitamin A to avoid this deficiency and this illness. That is Golden Rice.

ML: Where is it in use now?
HV: It is being developed for Asia. But this is only the first in a long series of possibilities that are being created through this new technology. We are working on, for example, high iron rice and high iron corn. There are two billion people in the world who suffer from iron deficiency. We can develop crops that basically have healthier aspects to them to the point where you can do preventative health care.

ML: Why then, has there been such an emotional, sometimes violent, outcry against genetically engineered crops?
HV: Most of the opposition started in Europe. They have had a number of food safety problems. You may have heard about mad cow disease. But they also have problems with the safety of their blood bank and with the growth hormones that they give children. They have had one problem after another because they do not have a good regulatory system as we do have here in the United States.

For a company that is making very significant investments in research and discovery, the U.S. is a much better place to place your bets than Europe.

Here in the United States, we love science because we know that science has traditionally brought progress and prosperity. In Europe, they are much more concerned about new technology. So usually what you see is that in Europe new technologies, whether in medical technology or in food, or even in marketing and business, are five to ten years behind the rest to adopt technologies. The third element is that in Europe food is something which is part of that culture. So, when you touch their food, they are very concerned.

ML: What is your response to the protesters?
HV: We made a mistake. Biotechnology is really very beneficial to the farm and the farmer loves it. But what we forgot is that the consumer plays a big part. In the past, when we were developing chemicals, as long as we would discover a very good product that would bring a lot of benefits, and we did a good marketing job, we would be successful. Now, the consumer is concerned about the changes that we are making. We did not pay enough attention to the consumer, especially in Europe. So we have started to inform and educate the consumer about the benefits that biotechnology can bring, such as lower use of pesticides, examples like Golden Rice, and sustainability – using less resources to produce the same amount of crops. We are now much more aggressively explaining why biotechnology is good for the world.

ML: But still, there are quite a few educated, knowledgeable protesters in Britain, France, and Germany. What further arguments would you give them to bring them along?
HV: Well, now we are seeing great support from African countries and Asian countries, because they see the benefits. Just imagine, for a minute, that you can develop a crop that is totally tolerant to disease, that is totally tolerant to insects, that is tolerant to drought and that you can plant anywhere in the world. Now that seed in Africa, or in Asia, can be planted and can really increase productivity significantly, and thereby help to feed populations. If you go a step beyond that and have healthier nutrition, then it becomes a real Godsend for those countries. So now they are standing up and saying

cont'd. page 6

James Cramer, cont'd.

ML: Tell me more about the relationship between advertising and subscriptions on the net?
JC: The advertising revenue can't please Wall Street. We went from an all-subscription model to a free site and a premium site model. We did it because we believed that if we went free for part of our site we would draw a huge number of new users and then be able to go to a whole new set of advertisers and say, "Look at this growth that we have."

When we go to an advertiser they say, "Well, three million people might go to your front page every day, but only 10,000 saw our ad." And I said, "No, only 10,000 people click through it. They see it If you have the right ad they'll get the brand message."

ML: You seem to say that there's going to be a pretty big shakedown in the business news and stock information sites, a handful of survivors, and then this industry will presumably grow and prosper. What do you think?
JC: I think that's very right. When you go to see a media director, they're advertising in six places, because they can't figure out which is the best. The moment the top two sites combine, it's game over. There's no critical mass in our business right now. Once there is critical mass, one will be the winner. And that one will make a lot of money. But everybody has had too much ego, and everybody thinks their stock is going to come back again.

Q & A with Students

Q: When a company like Conseco or Bank One brings in a superstar CEO how much do you think that really helps the company?
JC: It's very hard to put a valuation on an individual. Gary Wendt, who is a man I got to know when he was at General Electric, moved to Conseco. He was a good hire in a really bad balance sheet situation that I still think is unsavable because I just don't think that it's as easy to turn insurance companies around as people think. Jamie Dimon, another man I respected a great deal when he was at Citigroup, came in to Bank One in a much easier situation. That's a really good franchise, and the brand was not destroyed. So I think there's a lot to Bank One, although we don't own it right now.

Q: For the last three years, it's been a growth-driven market. Do you see the cycle turning more toward value stocks? And if so, will value investing be profitable?
JC: I have always been loathe to talk about value investing versus growth investing because those are both disciplines. But the buying that I see in the momentum stock has no discipline whatsoever. Broadcom yesterday traded down from being 230 times earnings to 212 times earnings, which was a terrific opportunity for four or five investment banks to reiterate buy ratings. Well, there's no discipline to owning a stock at 212 times next year's earnings.

It has been tough to be a value investor and maintain discipline, because as they struggled the most undisciplined investors were up 400 percent. In late 1998 I wrote my investors and said listen, we're having a mediocre year. I'm going to get rid of all my value stuff and I am going to play the game. My assets under management were about $300 million. And when I sent that letter out, $103 million came out with it. But my old style would have led to a down year in 1999. Instead, we were up 63 percent. So I know what we did was right.

I just don't see the value camp as being able to pull off the kinds of numbers that the public really wants. The value camp is the camp that is academic in nature and the momentum growth camp is more frenetic in nature and is almost anti-academic. It says there really is nothing else cooking other than the stock. And if the stock goes up I want to be a part of that.

Q: If you had to put the lesson from this under one headline what would it be?
JC: In the long run America is a nation that is willing to pay a super premium for growth versus no growth. And that's now ingrained in the American people so that if you cannot produce that growth it's questionable whether you want to be public.

Q: I wanted to ask about one of your favorites, Cisco. Cisco CEO John Chambers came out many times over the past few months and said everything's great. But the stock is just languishing in the 50s. What do you think?
JC: It's true, Cisco is my favorite. I spent three days there in June, which I regarded as vacation days. Cisco is in a period of multiple contraction, where everybody's a little tired of paying a 100 times earnings and there are a lot of people who are saying that Cisco is an over-owned stock. Cisco's in good shape, but I will not kid you. Cisco is a ridiculously expensive stock. And for me to be in it requires every ounce of conviction. There are some positions that I own because I love management. I will own that stock until CEO John Chambers either tells me that business is bad or steps down. ■

Hendrick Verfaillie, cont'd.

"Europe, you are well fed, you have plenty of food. You decide what you want to eat, but you are not going to dictate what we can eat, or what technology we can use."

ML: In its issue of April 10th, the *New Yorker* reported that "Monsanto has a greater commitment to producing genetically modified crops than any other organization in the world." Is your strategy to continue that commitment?
HV: Yes. We no longer do any chemical research because we believe that the future is in biol-

ogy. We believe that we can do anything through biology that can be done through chemistry. Biology is a technology that is more sustainable. It is environmentally more friendly. It has much greater promise because it is based on an understanding of the human genome, the animal genome, the plant genome. We have made a bet and we have burned the ships, if you will, because we believe that there is great opportunity.

ML: What biotech products and other agriculture products do you intend to invest the most in?

HV: There are three waves of technology. The first one is the one on the market today, which is basically delivering agricultural productivity gains. We can make plants resistant to disease and to insects, make them higher yielding and resistant to herbicides. The second wave is what we call output traits or quality traits. That is where you change the quality of what the output is. That is where the Golden Rice and high iron comes in. We can put steroids in the crops that help people control cholesterol or that help people control blood pressure, simply by eating the food that you eat every day. The first products will be on the market within a couple of years. The third wave and probably, eventually, the most interesting, is that you can learn to produce any kind of chemicals through biotechnology. We are already doing it with pharmaceuticals. We now produce therapeutic proteins in proteins with monoclonal antibodies that before you had to produce through animal models. It can be done anywhere in the world and it offers very significant opportunities for more sustainable products. You know that whenever you produce a chemical utilizing a petroleum based product that you slowly but surely are using up the resources in the world. On the other hand, if you do it through a biological process you have renewable resources as long as you have sun and water.

ML: Why should a Stern graduate seek her or his future in the agriculture business and the biotechnology business just when it's coming under so much popular attack?

HV: Because where there is challenge, there is opportunity. We are in the process of revolutionizing the way agriculture is done. The agriculture chemical business was a $30 billion dollar business. That's high, but really nothing truly exciting. With biotechnology, we now get not only the input side, but we also get the output side. For example, we have just set up a joint venture with Cargill to produce new feed. Just like you can produce healthier food for humans, you can produce healthier feed for animals. And suddenly, we have an entirely new opportunity driven by biotechnology and genomics in the hundreds of billions.

Q & A with Students

Q: What are your feelings are about labeling?

HV: We are supportive of the FDA position, which is that you only put something on the label when the nutritional quality changes. For example, if there was a peanut gene brought into corn, that would have to be labeled, because peanuts cause allergies. If there is a health risk, you would have to put it on the label. But if there is no change in the nutritional quality of the food that's being produced, then there is no reason to put that on the label.

Q: I think there is a growing trend in the U.S. to consume organic foods. How is this affecting your strategy in the U.S. compared to other areas of the world?

HV: Less than two percent of the food that is being consumed is organic in the U.S. I really like that there is organic food, that there is food produced using chemicals, and that there is food produced through biotechnology. And so the consumer has a choice of what he wants to have. And if you believe that organic food is better for you and you are willing to pay two or three times what regular food will cost you, then please go ahead and do so.

Q: Your company has a strong focus on the sustainability of our planet's limited resources. Is the company investing in research as to possible risk in the equilibrium of our ecosystem?

HV: Yes, we certainly are. If we did not increase productivity, and the population increases by two billion by the year 2020, and on top of that, industry expands and housing expands, suddenly we are going to lose a lot of the forests and wild lands. And so what we are doing is trying to increase productivity, so that we can produce more on fewer acres. Also, through genomics and biotechnology, you use a lot less herbicides, pesticides, insecticides, and so on. And so we see that biodiversity actually increases.

Q: You also talk a lot about your strategies and the way that they can help the Third World and developing countries. How do you propose to ensure that these technological developments find their way there and make an impact where they're most needed, and where the profits may not be the highest?

HV: Let me just give you a few examples. In Africa, we are developing virus-resistant cassava and virus-resistant sweet potato, which are the key indigenous staples in West and East Africa, respectively. We have brought over scientists to learn the technology and we have given them for free the gene to put into their crops. So, we aren't going to make any money. But if it helps demonstrate the benefits of biotechnology very clearly, then we can introduce virus-resistant content. So when we can introduce cash crops that are exported, we can make money from that. ■

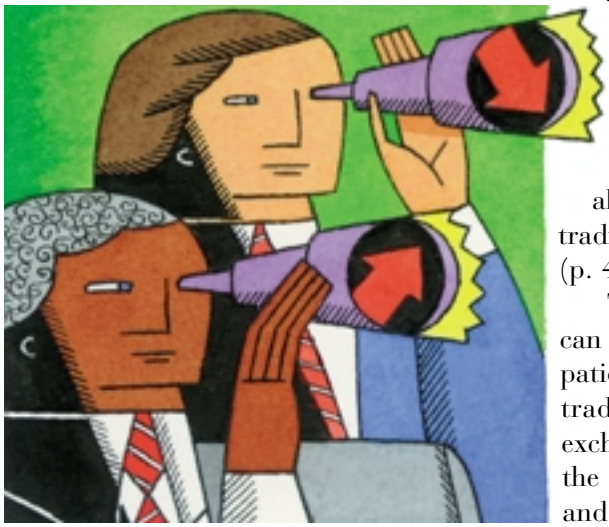
Financial

By **Daniel Gross**

In the United States, finance has become something of a national obsession. *The Wall Street Journal* sells more copies than *The New York Times*. And when the markets are open, CNBC routinely draws more viewers than CNN. As investors have flooded into the markets – some 83 million Americans are believed to own stock today – the level of popular attention devoted to corporate finance and personal finance has intensified. With every passing day, more and more of our citizens are attuned to the latest change in the Federal Funds rate, the fate of the 30-year bond, and the debate over whether to invest Social Security funds in equities.

To a large degree then, this is an era in which finance really matters – and not just to bankers and traders in lower Manhattan. It has become democratized, relevant, and pervasive. And many of the trends and forces that have roiled the frequently topsy-turvy world of finance are somewhat bewildering.

One of the most distinguishing features of the personal finance revolution has been the growing ability of individuals to trade stocks and buy mutual funds online. Chris Stefanadis traces the emergence of the online discount brokerage industry and describes how they helped improve conditions for consumers (p. 18). The next step in the revolution: "The creation of an online financial supermarket that offers a broad array of services." Of course, that's a tactic many off-line firms have tried over the years; few have succeeded.



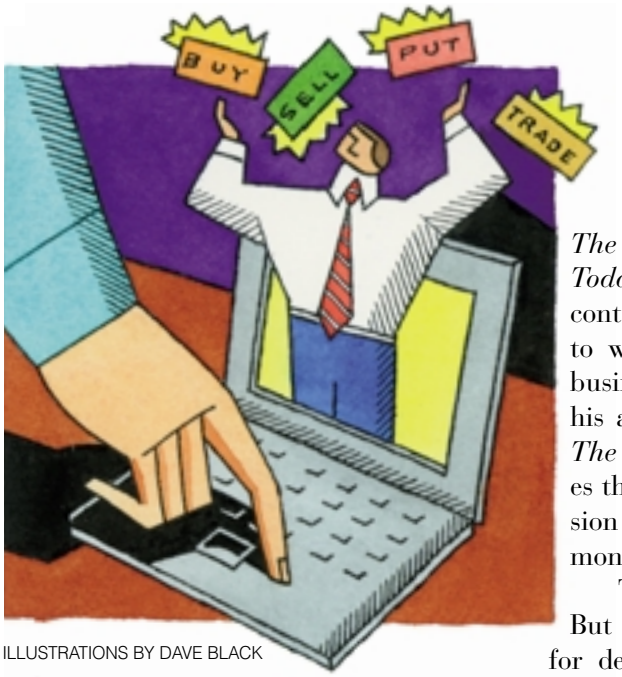
When they trade stocks, online investors frequently rely on the news and analysis they find on websites like TheStreet.com, which was co-founded by former hedge fund manager James Cramer. As part of our chief executive lecture series, the voluble – and occasionally volatile – Cramer engaged students and faculty in a wide-ranging conversation about the business of picking stocks, and about the business of running an online magazine devoted to the business of picking stocks (p. 2).

Aside from logging on to TheStreet.com and its rivals, Internet investors have flocked to bulletin boards and chat rooms, where they can interact and swap ideas with other investors. By focusing on one site – RagingBull.com – and systematically analyzing the action, Robert Tumarkin draws some interesting conclusions about the relationship between the volume and content of online posts about certain stocks and their trading volume and performance (p. 42).

These days, following stocks can be a 24-hour-a-day preoccupation, especially as barriers to trading stocks on foreign exchanges continue to fall. But in the last decade, investors large and small have been stung by a series of crises in emerging markets such as Mexico, Russia, and those in Asia. Stockholders were frequently frustrated to find that the stocks they had carefully chosen were pulled down by the activity in the broader market. In fact, as Professors Randall Morck and Bernard Yeung argue, stocks in emerging markets tend to exhibit greater price synchronicity than those in developed markets – they tend to move in the same direction (p. 32). By deploying some rather sophisticated techniques, the authors

Times

STERN*business* Spring/Summer 2001



ILLUSTRATIONS BY DAVE BLACK

have managed to offer some compelling reasons as to why that may be.

In the 1980s, high-yield bonds – also known as junk bonds – became one of the most exciting and controversial tools in the world of corporate finance. Entrepreneurs relied on high-yield bonds to finance rapid growth, and leveraged buy-out artists and corporate raiders used them to take over companies. But in the early 1990s, as junk-bond default rates soared, returns declined and the bonds fell out of favor. In the late 1990s, high-yield bonds similarly rode the crest of exuberant capital markets and then crashed to earth as excesses entered the system. Professor Edward Altman, a veteran high-yield market analyst, provides some valuable perspective on the rollercoaster ride of the high-yield market. "Although storm clouds hang over today's high-yield market, the current situation differs in a number of important respects from a decade ago," he notes (p. 10). And just as the years after the crisis in the early 1990s were characterized by outsized returns, he suggests that "returns will be substantial after the peak of defaults, and perhaps even before the peak – whenever it occurs."

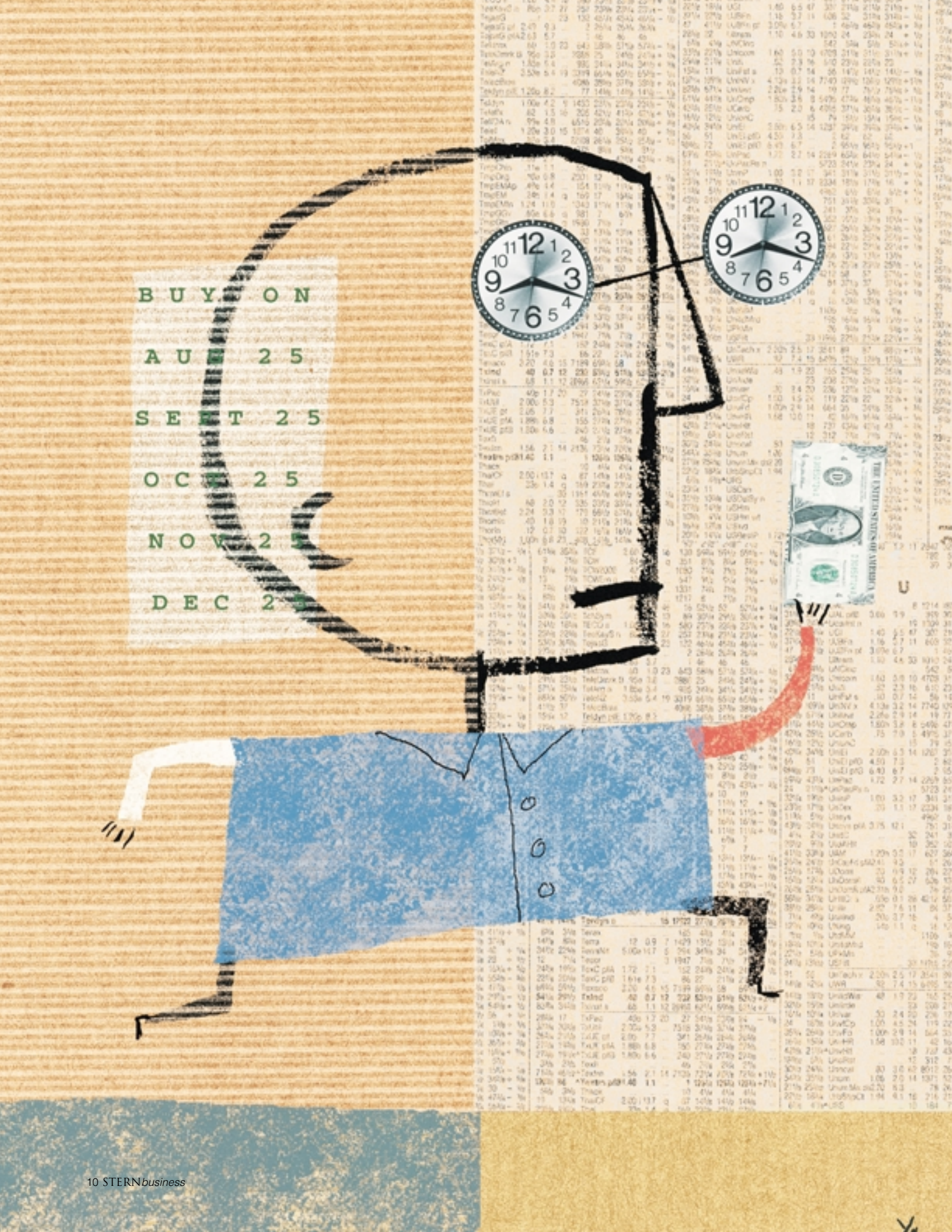
In 2000, several telecommunications companies defaulted on their high-yield debt. Of course, telecommunications is an industry that has long depended on engineering for advances. But in recent years, financial engineering has become an equally important discipline for these companies, which must navigate the shifting shoals of regulation and competition. Professor Nicholas Economides provides an excellent primer on why once-stolid companies such as AT&T have been merging, spinning off units, and breaking up at a dizzying pace (p. 38). The unanticipated outcome? "The remonopolization of telecommunications."

In his years as a partner at Goldman Sachs, Professor Roy Smith ran across his share of financial moguls. And his highly readable new book, *The Wealth Creators: The Rise of Today's New Rich and Super-Rich*, contains some valuable insights as to what separates run-of-the-mill business owners from big shots. In his article, which is adapted from *The Wealth Creators*, Smith reaches the (perhaps) surprising conclusion that it's not just a matter of money and financial expertise.

To be sure, numbers don't lie. But numbers certainly leave room for debate and interpretation. Two analysts can look at the same security, after all, and one can declare it undervalued while the other declares it overvalued. And that makes finance such a rich, complex, and intriguing area of study.

This constant tension, the way that financial questions invite interpretation and foster innovative analysis, provides the animating spirit of this issue. Whether you're a raging bull or a cautious bear, the articles that follow will certainly challenge your preconceptions and influence the way you think about finance.

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


BUY ON
AUG 25
SEPT 25
OCT 25
NOV 25
DEC 25

DÉJÀ VU ALL OVER AGAIN?

In the summer of 1990, the market for high-yield debt – also known as junk bonds – stood at a turning point. In 1989, the amount of defaulting issues had reached a new high of $8 billion, or 4.3% of the $190-billion market. That default rate was almost twice the average of 2.2% posted between 1978 and 1988. Borrowers had defaulted on another $4.8 billion in

debt in the first six months of 1990. Drexel Burnham Lambert, by far the leading underwriter of these bonds, had recently filed for Chapter 11 bankruptcy. And its guru and leading light, Michael Milken, had been indicted. The new issue market had all but dried up.

THE ACTION IN HIGH-YIELD BOND MARKETS IN TWO TUMULTUOUS YEARS A DECADE APART – 1990 AND 2000 – SHOWED SOME STRIKING SIMILARITIES, AND SOME IMPORTANT DIFFERENCES.

By **Edward I. Altman**

At that time, many market observers were pronouncing the junk bond market "finished." The conventional wisdom on the Streets – Wall Street and Main Street – was that high-yield bonds had run their course and neither new investors nor issuers would "play in the junkyard" again. To compound matters, the U.S. government in August 1989 enacted a law that forbade Savings & Loans from investing in low-grade bonds and mandated they sell their holdings by the end of 1993.

The popular stigma attaching to junk bonds was also reinforced by a widely circulated academic study. In the *Journal of Finance*, Paul Asquith and David Mullins, both then at Harvard, contended that past research, by systematically underestimating the true default risk of high-yield bonds, had painted an unduly rosy picture of the market.

At the time, I was convinced that the market's problems were temporary. In a 1990 article, I wrote: "The system needs to be "cleansed" of the excesses of the past few years. The next wave of junk bond issues – and there will almost certainly be one (although whether the issuers will be publicly or privately placed is not at all clear) – will reflect more conservative capital structures and financing strategies. Prices of leveraged transactions will come down and the proportion of equity underlying such levels will rise.)"

In the 10 years since, many of those predictions have become reality. The default rates noted by Asquith and Mullins did not presage a permanent increase. Instead, default rates averaged less than 2% per year from 1992-1998. Perhaps most important, during the 1990s – and, indeed, over the entire 25-year life of the modern high-yield market – investors have essentially gotten what they bargained for. They have earned a rate of return that, at roughly 200 basis points over the return on 10-year Treasuries, is commensurate with junk bonds' intermediate level of risk – higher than that of investment grade bonds, but lower than that of common stocks.

Some of the same phenomena that we observed in 1989-1990 have again surfaced in 1999-2000. Default rates soared to 4.15% in 1999, with a record $23.5 billion in bonds falling into default. And last year, borrowers defaulted on another $30.2 billion (**Figure 1**), a second consecutive record year of defaults. With defaults rising, investors' required yield spread over Treasuries rose to 944 basis points as of December 31, 2000. By one metric – the return on high-yield bonds relative to Treasury note returns – the year 2000 was the worst performing

FIGURE 1

HISTORICAL DEFAULT RATES - STRAIGHT BONDS ONLY

EXCLUDING DEFAULTED ISSUES FROM PAR VALUE OUTSTANDING

1971-2000 ($ MILLIONS)

YEAR	PAR VALUE OUTSTANDING (a)	PAR VALUE DEFAULTS	DEFAULT RATES	
2000	$597,200	$30,248	5.065%	
1999	$567,400	$23,532	4.147%	
1998	$465,500	$7,464	1.603%	
1997	$335,400	$4,200	1.252%	
1996	$271,000	$3,336	1.231%	
1995	$240,000	$4,551	1.896%	
1994	$235,000	$3,418	1.454%	
1993	$206,907	$2,287	1.105%	
1992	$163,000	$5,545	3.402%	
1991	$183,600	$18,862	10.273%	
1990	$181,000	$18,354	10.140%	
1989	$189,258	$8,110	4.285%	
1988	$148,187	$3,944	2.662%	
1987	$129,557	$7,486	5.778%	
1986	$90,243	$3,156	3.497%	
1985	$58,088	$992	1.708%	
1984	$40,939	$344	0.840%	
1983	$27,492	$301	1.095%	
1982	$18,109	$577	3.186%	
1981	$17,115	$27	0.158%	
1980	$14,935	$224	1.500%	
1979	$10,356	$20	0.193%	
1978	$8,946	$119	1.330%	
1977	$8,157	$381	4.671%	
1976	$7,735	$30	0.388%	
1975	$7,471	$204	2.731%	
1974	$10,894	$123	1.129%	
1973	$7,824	$49	0.626%	
1972	$6,928	$193	2.786%	
1971	$6,602	$82	1.242%	Standard Deviation
ARITHMETIC AVERAGE DEFAULT RATE		1971 TO 2000	2.713%	2.484%
		1978 TO 2000	2.948%	2.683%
		1985 TO 2000	3.719%	2.829%
WEIGHTED AVERAGE DEFAULT RATE (b)		1971 TO 2000	3.482%	2.558%
		1978 TO 2000	3.503%	2.563%
		1985 TO 2000	3.582%	2.565%
MEDIAN ANNUAL DEFAULT RATE		1971 TO 2000	1.656%	

Notes

(a) As of mid-year.

(b) Weighted by par value of amount outstanding for each year

Source: Authors' Compilation and Salomon Smith Barney Estimates

FIGURE 2

ANNUAL RETURNS, YIELDS AND SPREADS ON TEN-YEAR TREASURY (TREAS) AND HIGH YIELD (HY) BONDS (1978 - 2000)

YEAR	RETURN (%) HY	RETURN (%) TREAS	RETURN (%) SPREAD	PROMISED YIELD (%) HY	PROMISED YIELD (%) TREAS	PROMISED YIELD (%) SPREAD
2000	(5.68)	14.45	(20.13)	14.56	5.12	9.44
1999	1.73	(8.41)	10.14	11.41	6.44	4.97
1998	4.04	12.77	(8.73)	10.04	4.65	5.39
1997	14.27	11.16	3.11	9.20	5.75	3.45
1996	11.24	0.04	11.20	9.58	6.42	3.16
1995	22.40	23.58	(1.18)	9.76	5.58	4.18
1994	(2.55)	(8.29)	5.74	11.50	7.83	3.67
1993	18.33	12.08	6.25	9.08	5.80	3.28
1992	18.29	6.50	11.79	10.44	6.69	3.75
1991	43.23	17.18	26.05	12.56	6.70	5.86
1990	(8.46)	6.88	(15.34)	18.57	8.07	10.50
1989	1.98	16.72	(14.74)	15.17	7.93	7.24
1988	15.25	6.34	8.91	13.70	9.15	4.55
1987	4.57	(2.67)	7.24	13.89	8.83	5.06
1986	16.50	24.08	(7.58)	12.67	7.21	5.46
1985	26.08	31.54	(5.46)	13.50	8.99	4.51
1984	8.50	14.82	(6.32)	14.97	11.87	3.10
1983	21.80	2.23	19.57	15.74	10.70	5.04
1982	32.45	42.08	(9.63)	17.84	13.86	3.98
1981	7.56	0.48	7.08	15.97	12.08	3.89
1980	(1.00)	(2.96)	1.96	13.46	10.23	3.23
1979	3.69	(0.86)	4.55	12.07	9.13	2.94
1978	7.57	(1.11)	8.68	10.92	8.11	2.81
ARITHMETIC ANNUAL AVERAGE:						
1978-2000	11.38	9.51	1.88	12.90	8.14	4.76
COMPOUND ANNUAL AVERAGE:						
1978-2000	10.73	8.83	1.90			

*End of year yields

Source: Salomon Smith Barney Inc.'s High Yield Composite Index

year in the history of the market. The benign credit cycle of 1993-1998, when the default rate was below 2.0% each year, has clearly given way to a more turbulent and stormy environment.

So, will the next 18 months turn out to be as difficult and tumultuous as 1990-1991? Will default rates rise to approximately 10% as they did in both 1990 and 1991? And, will the market almost cease to function? Or, will returns rebound to almost the unbelievable annual level of over 40%, as they did in 1991?

After the Fall

In the early 1990s, the high-yield bond market fell dramatically, and then rose even more dramatically. In both 1990 and 1991, default rates exceeded 10.0% of the market – much larger than the previous high of 5.8% in 1987. The total amount of debt defaulting in each of these two years was over $18 billion. The pundits who predicted the demise of the market looked like sages when total returns to high-yield investors turned out to be -8.5% in 1990 – only the second year since 1978 that total returns were negative. And since Treasuries earned a positive 6.9% return that year, the return spread of junk bonds was a shocking –15.4%. At the end of 1990, the average historical annual return (starting from 1978, when the data were first compiled) to high-yield investors fell to 9.96% per year, and the return spread was a mere 0.19% per year. Clearly, this was inadequate compensation for the added risk of high-yield bonds.

Then came the turning point in 1991. Despite a second consecutive year of a default rate over 10%, high-yield investors earned a total return of 43.2%, the highest ever recorded in the history of the market (**Figure 2**). Investors realized that the worst was over and that the excesses of the 1980s had been purged. What remained were, for the most part, viable companies whose bonds were not going to default. As the operating performance of these companies continued to improve, the prices of their bonds made a spectacular recovery. The relationship between default rates and total returns is shown in **Figure 3**.

There is a striking parallel

between the increasing default rates in 1989-1990 and 1999-2000; note the dip in returns in 1990 and 2000 and finally the resurgence in 1991. The question remains whether there will be a comparable resurgence in 2001.

Despite the high returns in 1991, however, the high-yield market shrunk rapidly, from a high of $189 billion in 1989 to $163 billion in the middle of 1992. Between 1987 and 1989, an average of $30 billion in high-yield bonds were sold each year. But in 1990 and 1991, the volume of new issues was $1.4 billion, and $10 billion, respectively.

Since 1991, however, the growth in new issues has been nothing short of spectacular, with over $100 billion of new issues in each of the last three years of the decade, and $45 billion in 2000. Between 1997 and 1999, new issuance of high-yield bonds accounted for over half of the bonds issued by industrial companies. At the end of the decade, about $600 billion of high-yield bonds were outstanding, as compared to under $200 billion at the start of the decade. This $600 billion represents roughly a third of the entire corporate bond market in the U.S.

During the 1990s, the annual return spreads between junk bonds and Treasuries rose from near zero at the end of 1990 to almost 2% per year last year. As reported in **Figure 2**, total compound annual returns on high-yield bonds for the 23-year period from 1978 through 2000 averaged 1.9% per year over the returns of 10-year U.S. Treasuries. This means that a $1,000 investment in high-yield bonds in 1978 would have been worth over $10,400 at the end of 2000, as compared to just $7,000 for 10-year Treasuries. And if one subtracts the average annual losses from defaults of about 2.45% per year over the period 1978-2000 from the average promised yield spread (4.76%) over that same period, the result (2.31%) is quite close to the realized annual return spread. Thus, one can attempt to predict future relative returns in the high-yield market by comparing current yield spreads to actual losses from the primary risk component – defaults.

Deteriorating Credit Quality

But even as issuance of high-yield debt continued to soar in recent years, there were signs of trouble. The default rate in 1999 spiked sharply to 4.15% from 1.6% in 1998 – the first time the rate topped 4% since 1991. One of several apparent reasons for the increase in defaults in 1999 was the seeming deterioration in credit quality of newly issued bonds. Over one fourth of the 125 issues that defaulted in 1999 had been outstanding less than 12 months before they defaulted – and 55% had been outstanding less than 24 months. These percentages compare with just 4% and 20% from the period 1991-1998, and 7.7% and 24.3% for 1971-1999. In 2000, that proportion of defaulted debt that had defaulted within two years of issuance dropped to 38%. Still, as much as 69% of the non-performing high-yield bonds had been issued within the previous 36 months.

To better understand these mortality statistics, however, it is important to analyze the purpose of the financing. Whether companies are using junk bonds to fund LBOs (as they did in great numbers in the late 1980s, but not in the late 1990s), growth opportunities, or just to refinance debt (as they have done in most years), can tell us a good deal about whether these one- or two-year mortality results are truly symptomatic of a decline in credit quality or can be explained by other factors.

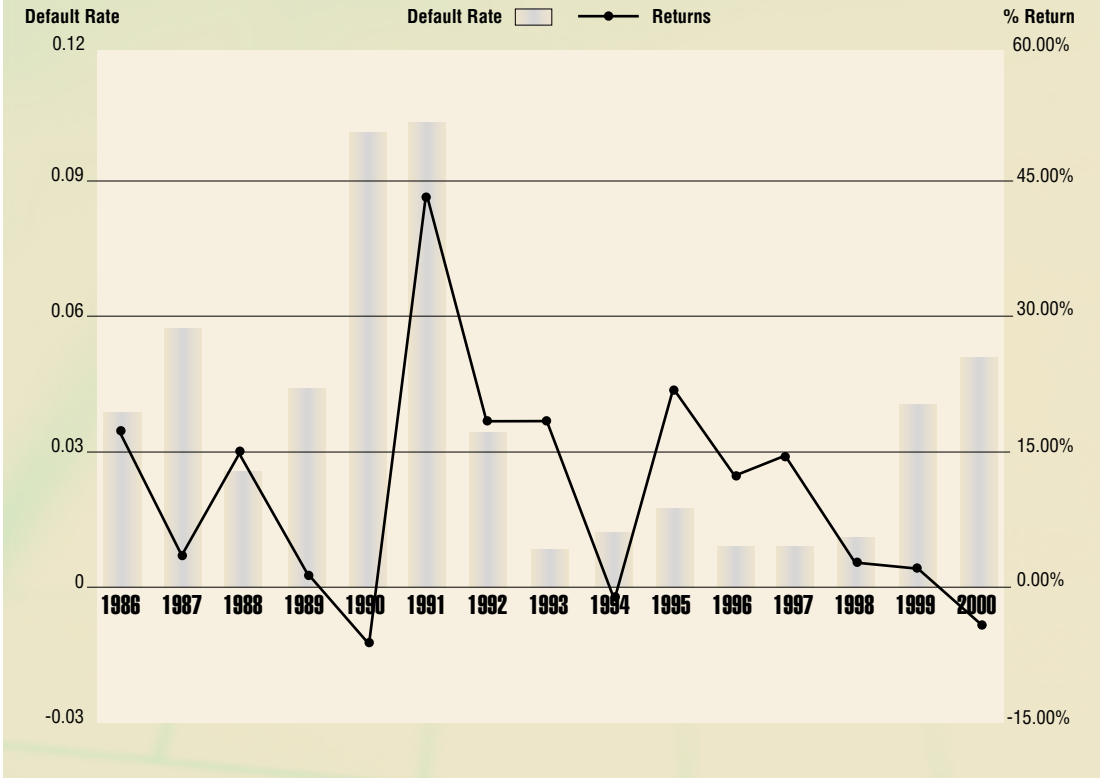
There was, in fact, a decline in credit quality between 1997 and 1999. As mentioned earlier, high-yield new issu-ance as a percentage of all corporate bond issuance increased dramatically over the same three-year period. And within the high-yield sector, the percentage of new issues rated B and CCC also increased. Indeed, in 1999, B rated bonds comprised 66% of high-yield issuance and 31% of all new corporate bond issuance! CCC-rated bonds were particularly evident in

the 1998 cohort, with $9.3 billion representing 10% of all high yield issuance – a jump from previous years.

At the start of 2000, I said that investors would likely require additional promised yields to compensate them for the uncertainty about possible higher default rates in the next few years. The large spike in yield spreads in 2000 – 447 basis points – seemed to bear out my predictions. (Actually, the default risk spike was only 315 basis points, since Treasuries declined by 132 basis points in 2000.)

FIGURE 3

DEFAULT RATES AND TOTAL RETURNS (1986 - 2000)



Other Reasons for the Increase in Defaults

In addition to the deterioration in credit quality and the earlier occurrence of defaults, four other factors contributed to the sizeable increase in 1999 and 2000: (1) the recent increase in new issuance; (2) the Russian default in 1998; (3) a number of "sick" industries despite the economy's overall strength; and (4) banks' reluctance to refinance or give additional waivers to the marginal firm.

Because of the huge new issuance during 1997-1999, some increase in default rates is expected as these new issues age. In the absence of any other developments, two simple principles known as "regression to the mean" and the mortality or "aging" effect would have led us to expect both the default amounts and the default rate in the last two years to increase vis-à-vis prior years.

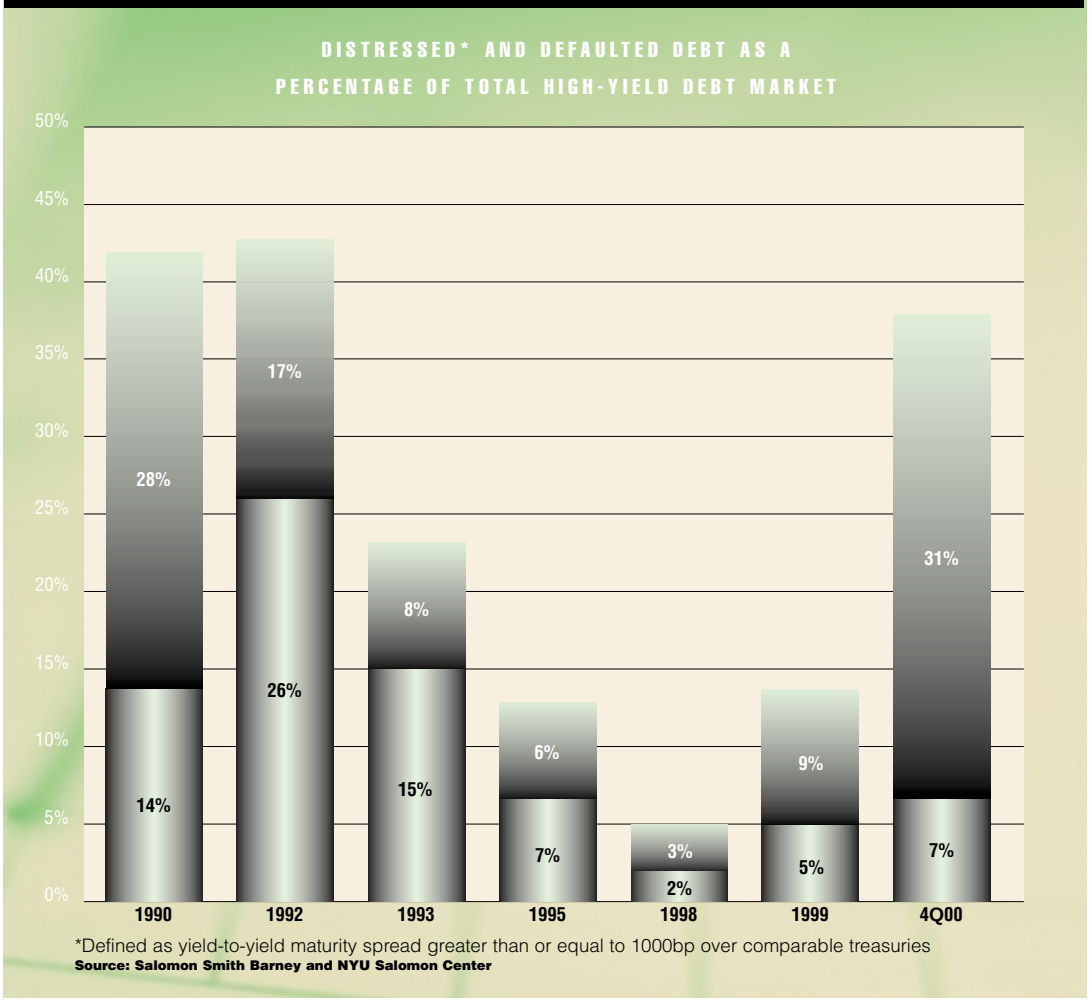
But the surge in the default rate to over 4% in 1999, and over 5% in 2000, was caused by additional factors. One important consideration, though difficult to document with statistics, is the ability of distressed firms to refinance their indebtedness. Borrowers found it increasingly difficult to refinance in the aftermath of Russia's 1998 default and the flight-to-quality that ensued. Without the Russian contagion, the default rate would surely have been lower.

In recent years, there were notable concentrations of defaults in a number of chronically or newly ailing industrial sectors. Such sectors as energy, retailing, communications, healthcare, leisure/entertainment, and shipping were hit hardest. In 2000, newly hard-hit sectors have been telecommunications, steel, and movie theatre complex companies, as well as some large asbestos-related companies.

The energy sector's difficulties reached their peak fairly early in 1999, while retailing and textiles have long experienced chronic problems. Industries such as communications and healthcare became new "leaders" in defaults, reflecting the frenetic new issuance in the former and the overcapacity and governmental regulation of fees in the latter. In sum, despite a vigorous economy driven by technology and productivity growth, a number of sectors have been ailing, and going forward some will continue to flounder.

Finally, there is anecdotal evidence of an increasing trend of banks and other lenders who are no longer willing to waive violations of covenants after just a few prior violations. There appears to be pressure

FIGURE 4



*Defined as yield-to-yield maturity spread greater than or equal to 1000bp over comparable treasuries
Source: Salomon Smith Barney and NYU Salomon Center

from the Federal Reserve Board in the last two years for banks to record higher loss reserves and actual charge offs when bank profits are at high levels. Coupled with some indications of a slowing of the United States economy and higher interest rates, on lower quality issues, these factors are acting to increase the likelihood of defaults on bank loans and publicly held bonds. The Fed, however, seems to have finally let up on this pressure by lowering interests rates by 50 basis point in January 2001 and again by 50 in mid-March.

The Difference Between Then and Now

Although storm clouds hang over today's high-yield market, the current situation differs in a number of important respects from a decade ago. Viewed from a purely statistical standpoint, 10% default rates in the near future are certainly possible, but not likely. Statistical analysis would suggest there is something like a 2.5% probability of default rates returning to their 1990 and 1991 highs.

The market, however, is not anticipating such a dire scenario, since yield spreads were 9.44% as of December 31, 2000, as compared to over 10.5% at the end of 1990. It is also important to recognize that a high percentage of those distressed issues in 1990 were the result of LBOs and other highly leveraged transactions (HLTs). Although HLTs made a strong comeback in the '90s, they are far more conservatively financed today than their '80s counterparts. Defaults from highly leverage restructurings in 1999-2000 did not account for any material amount of defaults. And the outlook is for this source to continue to be less important. I examined the proportion of total new high-yield bonds issued for a number of stated reasons, including acquisitions, leverage restructurings (e.g., LBOs), capital expenditures and other general corporate investments, and the refinancing of existing debt, between 1986 and 1999. And while the latter category has been the most important use of new debt financing every year since 1986, the levels of refinancing in 1997-1999 are not exceptionally high – about 44%. That's below the average over this 14-year period. One reason for this is that, although Treasury rates did fall in these years from 1996 levels, the yields on high-yield debt actually increased, making refinancing more expensive.

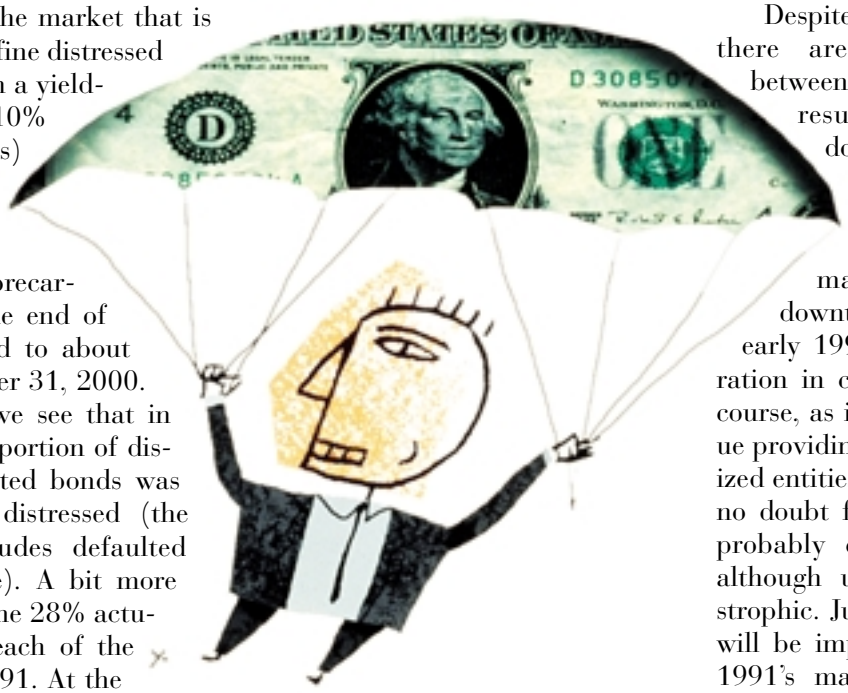
Overall, in recent years about 20% of high-yield bond new issuance was used for acquisitions and only 4-5% for leveraged restructurings. This compares to 10-15% for acquisitions and well over 30% for LBOs and recapitalizations in the years leading up to the market's

problems a decade ago. Since leveraged restructurings can lead to unsustainable levels of debt and possible financial distress, the new issue market was decidedly more risky in the earlier period.

One of the important similarities between 1990 and 2000, however, is the proportion of the market that is distressed. If we define distressed bonds as those with a yield-to-worst at least 10% (1000 basis points) above the risk free rate, 28% of high-yield bond issues were in this precarious position at the end of 1990, as compared to about 30% as of December 31, 2000.

In **Figure 4**, we see that in early 1990 the proportion of distressed and defaulted bonds was 41%, with 28% distressed (the total market includes defaulted bonds in this case). A bit more than one-third of the 28% actually defaulted in each of the years 1990 and 1991. At the end of 1999 the distressed proportion was 9% of the market, and it grew to 17% in mid- 2000, and to 31% by the end of 2000, admittedly a dramatic increase. A good deal of this increase, however, is due to the big decrease in treasury yields (**Figure 2**). If one-third of the distressed proportion again defaults in the next 12 months, we will have a 10% default rate. Incidentally, 10% of a market that is over $600 billion works out to a default total of over $60 billion for the next 12 months. I do not believe this will occur, however, even with the sudden crisis in California utilities and a renewed scare of asbestos-related bankruptcies.

I believe that the default rate will be in the 6.5-7.5% range over the next 12 months and will not reach the higher levels that Moody's and some other analysts are forecasting. And, I am persuaded by the past and by the market's dynamics, that returns will be substantial after the peak of defaults, and perhaps even before the peak – whenever it occurs. Indeed, in the first two months of 2001, returns have been over 8.0% on high-yield bonds.



A Word on the Economy

The relationship between overall economic activity and default rates has always been tricky. Clearly, depressed economic growth and declining corporate profits and cash flows are related, in a negative sense, to default rates. But, the lead-lag relationship is not very stable over time. Still, the economic recession at the start of the 1990s clearly was an additional factor that helped push default rates to double-digit levels. Despite a slowdown in economic growth, few economists are forecasting a recession in the next year or two. And, with the recent Fed interest rate cuts, we do not foresee the same economic pressures on default rates in 2000 and 2001 as occurred a decade ago. Admittedly, there is great uncertainty today.

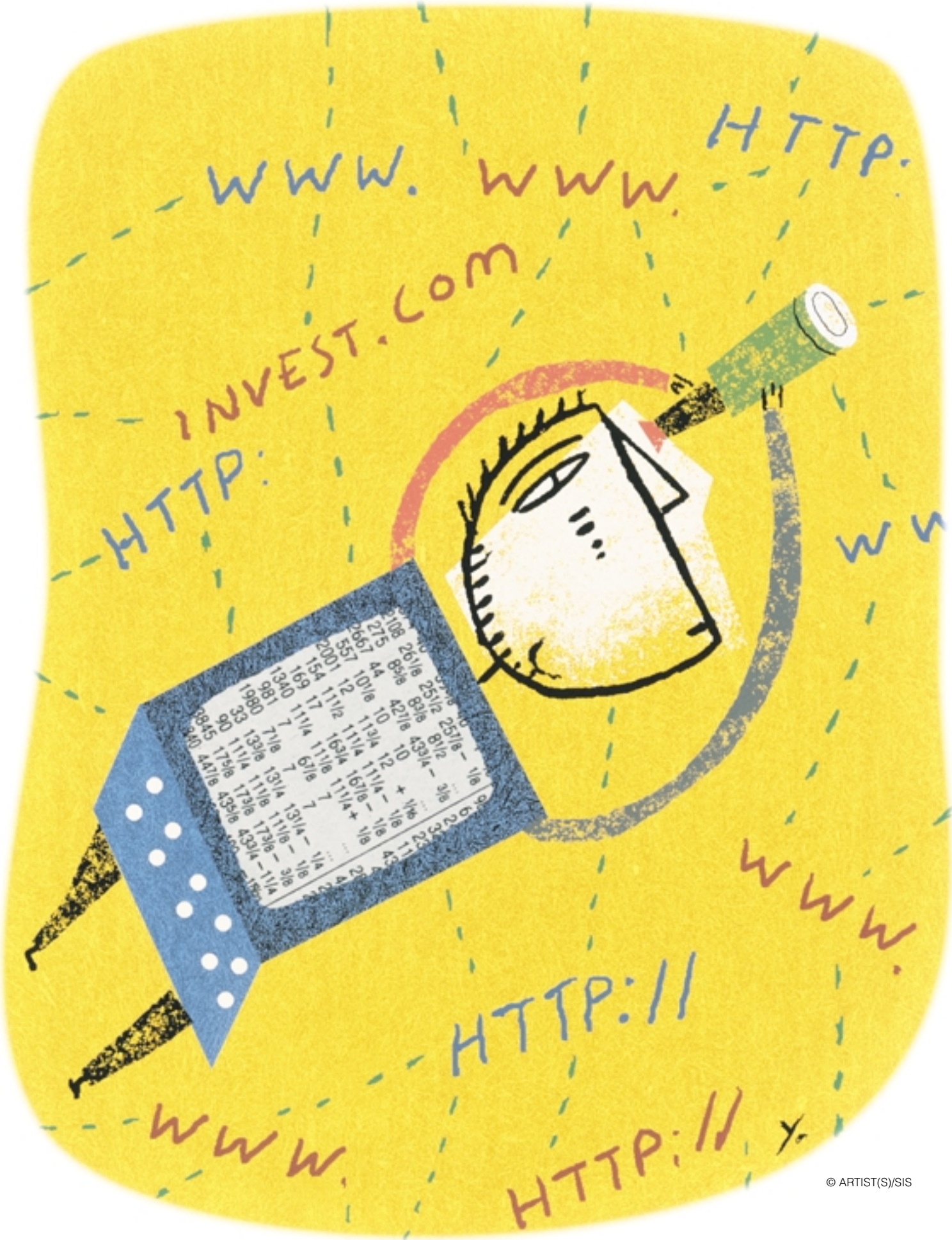
Déjà vu All Over Again?

So is it déjà vu all over again? Yes and no.

Despite the apparent similarities, there are sufficient differences between 1990 and 2000. As a result, the current market downturn will be less severe and less dramatic than its 1989-1990 predecessor. The high-yield bond market will weather this downturn, just as it did in the early 1990s. The present deterioration in credit quality will run its course, as investors refuse to continue providing capital to undercapitalized entities. New issue activities will no doubt fall off, and defaults will probably continue at levels that, although unsettling, are not catastrophic. Just so, subsequent returns will be impressive, although not of 1991's magnitude. Indeed, in the early weeks of 2001, new issues of high-yield bonds surged as interest rates were lowered. A key question will be if this increase can be sustained. No doubt, the market will be hit by periodic setbacks, and more bad news in the coming months.

But, as long as the vast majority of issuing entities in the high-yield market remain viable enterprises, the market for high-yield bonds will retain its position as an important major source of finance for companies worldwide and a legitimate and profitable asset class for investors.

EDWARD I. ALTMAN *is the Max L. Heine professor of finance at NYU Stern and a consultant to Salomon Smith Barney in the high-yield and distressed debt areas.*



ONLINE DISCOUNT BROKERS HAVE MADE LIFE EASIER FOR THE GROWING ARMIES OF DO-IT-YOURSELF INVESTORS – AND HARDER FOR THE ESTABLISHED FIRMS WHOSE DOMINANCE THEY HAVE CHALLENGED.

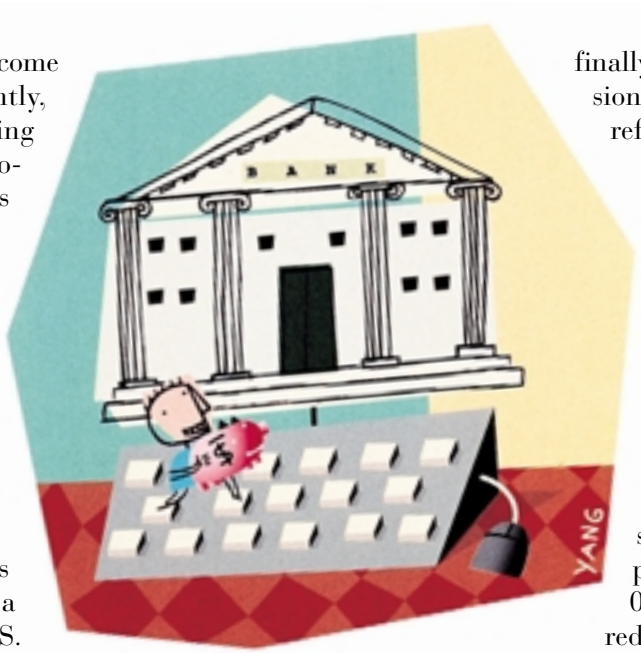
TRADING PLACES

With the NASDAQ notching one of its worst performances ever, 2000 may not have been a stellar year for technology investors. Nonetheless, investors continued to embrace technology and the Internet – especially when trading stocks. Today, there are an estimated 18 million online trading accounts in the U.S. And online equity trades constitute about 25% of industry-wide trades.

First offered in the 1980s, mainly through proprietary networks, online trading caught fire in the 1990s. By allowing consumers to bypass their personal brokers and place orders online, thus saving on trading costs, online discount brokers attracted millions of customers in the past several years. The spectacular growth of the Internet in the mid-1990s encouraged brokers of all sizes to focus on the provision of Internet trading. And as investors became increasingly comfortable with Internet trading, firms ranging from AmeriTrade to Web Street Securities hastened to offer their clients the ability to trade stocks online.

By **Chris Stefanadis**

Where did online brokers come from? And, more importantly, where are they going? Having emerged from a period of explosive growth, online trading is reaching a stage of more mature development. And just as furiously as they built scale, online brokerage firms are now pondering and executing strategic initiatives intended to ensure their survival.



The Evolution of Online Brokers

The first discount brokers emerged in the late 1970s as a result of deregulation in the U.S. securities industry. From 1792, the year in which the New York Stock Exchange (NYSE) was established, to 1975, NYSE members charged for their services on the basis of a minimum commission schedule. The NYSE had the authority, subject to permission from the Securities & Exchange Commission (SEC), to set minimum commission rates on stock transactions. This fixed commission regime limited price competition among brokers. Consequently, fixed commissions led to high rates, market fragmentation, and an oversupply of ancillary services.

Robert Schwartz, a finance professor at the Zicklin School of Business, points out that in large orders, the broker's profit could be as high as 90% of the commission. To circumvent the fixed commission structure, large traders were sometimes induced to turn to regional exchanges, or to the third and fourth market, thus fragmenting the market system. Furthermore, the absence of price competition led to fierce non-price competition and an oversupply of potentially redundant ancillary services. Commissions alone often paid for an entire package of products, including order handling, advisory services, and research reports. Therefore, brokers effectively offered indirect rebates to customers in the form of services, rather than a direct rebate in the form of dollars.

In 1968, the NYSE appealed to the Securities & Exchange Commission for what it thought would be a routine rate increase. But the U.S. Justice Department unexpectedly intervened, questioning not only the need for an increase, but also the very existence of a fixed commission structure. After an investigation, the SEC finally eliminated fixed commissions on May 1, 1975 – now referred to simply as "May Day."

The effect of deregulation on prices was dramatic. As brokers started to compete on price, rates fell sharply. At first, however, the new structure benefited mostly major institutional investors. For example, Schwartz notes that the commission rate for large institutional orders (orders larger than 10,000 shares) fell to 0.31% of principal in December 1978, from 0.57% in April 1975 – a 45% reduction.

Individual investors didn't get such breaks until discount brokers emerged. In the mid-1970s, firms such as Charles Schwab and TD Waterhouse sprung up, operating with a fundamentally different business model than established brokers. These discount brokers sought to lure customers by providing inexpensive trading commissions, not by providing a range of ancillary services. Since they eschewed the creation of large research departments, discount brokers were able to offer more affordable, no-frills service. Aggressive marketing and attractive pricing allowed them to create a new market niche and drove the sector's growth through the early 1990s.

Technological Factors

The tremendous spread of the Internet in recent years transformed discount brokers into online brokers and encouraged a host of new entrants into the field.

Online brokerage services were first introduced in the early 1980s. But they were initially offered through proprietary networks, like CompuServe and the General Electric Network for Information Exchange (Genie). In the mid-1990s, the growing use of the Internet induced online brokers to launch Internet trading. In the years since, several discount brokers, as well as pure electronic brokers, entered the new business segment and fought aggressively for market share.

The Internet offered such firms essentially two technological advantages.

First, online brokers can provide less expensive trade execution than their offline counterparts. Placing orders

online allows investors to circumvent personal brokers, reducing transaction costs. As a large number of investors established Internet connections, the web became a ubiquitous network that can be used as a communication channel between a brokerage firm and its customers. Online trading also lets brokerage firms automate their order placement process, thereby economizing on personnel time and effort.

Secondly, the Internet contributed to the emergence of online trading by becoming a medium for the transmission of information. Large groups of consumers became increasingly sophisticated and more able to direct their own financial affairs without the help of a personal broker. The Internet facilitates the diffusion of information, eroding one of the main advantages of professional brokers: their access to superior information.

There's reason to believe financial supermarkets may not be viable in the long run. Customers, for example, may be reluctant to aggregate their accounts because of security and privacy concerns.

The use of the Internet has led to a sharp drop in trading costs. Bill Bernham and Jamie Earle of CS First Boston point out that the average commission charged by the top-10 online trading firms fell from $52.89 at the beginning of 1996 to $15.75 in 1999 – a 70% reduction. The attractive pricing has stimulated great growth. According to the ABA Banking Journal, the number of online accounts rose from 0.3 million in 1995 to 9.3 million in 1999. Greg Smith and Adam Townsend of Chase H&Q noted that at the end of 2000 there were approximately 18 million online trading accounts in the U.S. Furthermore, the *ABA Banking Journal* pointed out that daily online trades as a percentage of all equity trading soared from 8.5% in 1997 to 15.9% in 1999. And Smith and Townsend note that today online equity trades account for approximately 25% of industry-wide trades.

Levelling Off

There is reason to think that this explosive growth trend may not continue. To begin with, many of the most active investors have already embraced Internet trading. According to Henry McVey of Morgan Stanley Dean Witter, less than 5% of all online accounts account for more than 50% of all online trades.

Economic theory points out that in building a network, firms often tend to establish the most valuable connections first. In this respect, online firms initially focused on attracting the busiest traders. However, as new accounts start contributing less trading activity than existing ones, online brokers may find expansion an increasingly costly task. It is easier to attract a small number of large customers than a large number of small customers.

A McKinsey & Co. report found that 63% of all investors that opened online accounts earlier than a year ago now execute at least 13 trades a year. However, only 41% of investors that went online recently are likely to execute 13 or more trades a year. In this respect, practitioners point out that the acquisition cost per customer has increased considerably in the online brokerage industry.

Furthermore, the explosive growth of online trading has attracted many entrants to the industry, leading to intense competition. In addition to discounters and pure electronic firms, traditional full-service brokers like Merrill Lynch and USB Paine Webber offer online services. The proliferation of online firms may thus lead to even deeper price discounts and tighter profit margins.

Exploiting Assets

The rapid development period for electronic trading may be ending. However, several online brokers have already invested in important assets, such as strong brand names and large installed customer bases. Online brokerages believe that these assets may allow them to maintain their growth by leveraging their power to other online financial sectors.

In particular, electronic commerce sectors, like the online brokerage industry, offer large economies of scale. When the consumer network is large, a firm can enjoy scale advantages and supply a greater number of ancillary and complementary products to customers at a lower price.

Furthermore, customers of e-commerce firms often

face "lock-in" as the costs of switching from one company to another may be substantial. Changing to another brokerage firm requires transferring one's assets and familiarizing oneself with the web site of the new firm. As customers complain, switching brokers can sometimes take months. Even when switching costs appear to be low, in comparison with the commissions for stock transactions, they may be significant.

The existence of scale economies and customer lock-in thus induces e-commerce firms to sacrifice early profits to aggressively seek new customers. For e-commerce firms, building a large customer base quickly is of utmost importance, since the market is one of scale. In the early stages, firms invest heavily in price discounting, advertising and marketing to attract more customers. Once a web site becomes successful in selling one product, it can often branch into others.

It follows that online brokers with a strong brand name and a large customer base possess valuable assets. The importance of the online brokers' installed customer base is highlighted by the fact that stockholdings currently make up a larger share of overall household wealth than ever before. In the first quarter of 2000, stockholdings accounted for 40% of household wealth, up from 35% in the first quarter of 1998. The control of such assets can potentially be the powerhouse that drives electronic brokerages' future development, allowing them to expand to other activities and maintain a high growth rate.

Branching Out – Figuratively

Thus far, online brokers have focused mainly on their core product – trading over the Internet. However, the provision of more integrated financial services is a natural evolution from their core activity of providing electronic trading. A number of online brokers have therefore launched ambitious expansion initiatives, some of which are aimed at providing one-stop financial services: online checking accounts with ATM cards and printed checks, savings accounts, certificates of deposit, credit cards, loans, bill payment services, insurance plans, portfolio management, financial planning, and securities underwriting. The companies that manage to pull together electronically all these services on a single web site will likely gain a significant competitive advantage.

Integration of financial services may take three forms. First, a brokerage firm may expand its own operations by supplying a broader gamut of products itself. The broker, for example, may open a banking or an insurance division, as E*Trade has done with its E*Trade Bank. Alternatively, a brokerage firm may form an alliance with a range of outside suppliers, offering their products on its web site, as Charles Schwab Corp. has done with its mutual fund supermarket. Then, the site serves as an integrator, pulling together a group of different financial companies under one roof. Or, thirdly, the broker may act as a "screen scraper," gathering information and completing transactions on behalf of its customers at all rival institutions. With the customer's consent, a screen scraper can pose as the customer herself, gaining access to a customer's accounts at all financial companies. The screen scraper organizes and displays this information on a single web site, through which customers can handle all their financial affairs. AmeriTrade, for example, has launched a subsidiary, OnMoney, for the sole purpose of providing screen scraping services.

The objective of several brokers is, thus, the creation of online financial supermarkets that offer a broad array of services. Once a customer visits a supermarket, she can handle all her personal financial needs. Competition for the provision of integrated services is one of the main driving forces in the current wave of mergers and strategic alliances in the online industry.

Branching Out – Literally

Aside from possessing cutting-edge online capabilities, some electronic brokerage firms also intend to establish a limited physical presence. Customers may want to have access to their supermarket through various channels, like, for example, at a physical branch, by phone, or over the Internet. Integrated shopping can be the key to attracting mainstream customers. For instance, since customers still rely on cash for several daily activities, online financial firms will probably need to develop the ability to deliver cash or accept cash deposits. Several online brokers, thus, aim at supplementing their potential expansion to one-stop Internet services with the creation of a modest physical distribution channel. Charles Schwab's "clicks and mortar" strategy is a good example of how the physical and online distribution channels can be linked.

Benefits of One-stop Financial Services

Financial supermarkets can afford their customers greater convenience and superior product quality. In a recent *American Banker*/Gallup consumer survey, for instance, about 50% of consumers expressed interest in aggregating their financial accounts and having online access to this information.

One-stop services can become more user-friendly than separate products by putting every type of transaction just a "click" away from the customer. A customer, for example, can easily transfer money between her checking and stock trading accounts or use money from her checking account to buy an insurance product.

More important, online financial supermarkets will likely enjoy the advantages of superior information. When a customer uses a single web site for most of her financial transactions, the site will be able to map the financial profile of the customer and offer appropriate, or even tailor-made, products. For

example, a financial supermarket will be in a better position to help customers set financial goals consistent with their risk preferences, choose a suitable portfolio of assets, or seek the most appropriate loan arrangements. Combining their superior access to information with their online technological capabilities, financial supermarkets will have the opportunity to offer "integrated personal financial management," managing online their customers' assets and liabilities on a continuous basis. Each customer could eventually have a personalized web page.

Competition from Other Sectors

Online discount brokers believe they are in a good position to thrive in the market for integrated financial services. Several brokers have already built a strong brand name and a large customer base through their core trading products and aggressive marketing campaigns. They now expect to leverage this asset to other online segments, providing one-stop services.

However, in the new technological environment, firms from other sectors are also investing in the provision of integrated financial services. Aside from online brokers, the companies that actively contend for market share in this segment include online banks, traditional banks and brokerages, and general e-commerce portals. In the presence of such intense competition, it is not clear that online brokers will actually reap the benefits of integration.

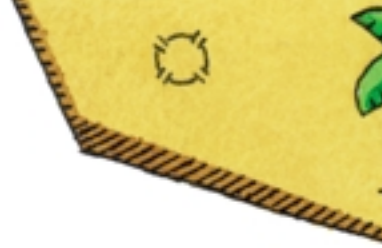
Furthermore, there are concerns that financial supermarkets may not be viable in the long run. Customers, for example, may be reluctant to aggregate their accounts because of security and privacy concerns. Or, consumers may prefer to buy financial products from "specialists," rather than from supermarkets, because they are willing to deal with "experts," rather than with generalists.

Despite these implications, several online brokers feel comfortable coexisting with firms from other sectors in the provision of one-stop services. Electronic brokers expect that their nimble structure and state-of-the-art efficiencies, as well as their brand name and customer base will enable them to prosper even in the face of intense competition from other sectors.

It is too early to predict how the new technological environment will reshape the online brokerage industry. And it is equally difficult to divine which of today's players will emerge as long-term survivors. One thing is certain, however. The real long-term winners of the technological, regulatory, and attitudinal changes that helped create online brokerages will be investors, who will reap the rewards of better and more inexpensive products and services.

CHRIS STEFANADIS *has a Ph.D. in economics and finance from NYU Stern and is a research economist at the Federal Reserve Bank of New York.*

The views expressed in this paper are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.



TO COUNT OR NOT TO COUNT: THAT WAS THE QUESTION

The role of statistics in Florida's Bush-Gore recount drama

By **Aaron Tenenbein**

The never-ending presidential campaign of 2000, which stretched for 36 days beyond the traditional November end point, was one for the history books. And as such, it attracted the attention of a range of academics: law professors, historians, political scientists, and communications experts.

But another group of academics also found themselves riveted to the drama in Florida: statisticians. It led to a bonanza of interest among professional statisticians. In particular it led to discussions in many statistics classes, including my own, on the applications of sampling and other issues. A rash of articles and even web sites discussing the issues, appeared in the days following the election. Contrary to how the public felt, we statisticians found the debate and the delay incredibly interesting. As a matter of fact, many of us were sorry that it ended.

To recap briefly: On election night, the television networks, acting on estimates by the Voters News Service (VNS) prematurely said Democratic candidate Al Gore was the winner of Florida and its 25 electoral votes. That was at roughly 7:50 p.m. election night. Two hours later, they retracted this projection, stating that Florida was too close to call. Early the next morning, Republican candidate George W. Bush was named the winner of the Sunshine State and its crucial electors, which were enough to give him 271 electoral votes and the Presidency. About one hour and 40 minutes later this projection was retracted and once again Florida was too close to call. This led to the unprecedented and bizarre situation where the Democratic candidate, Gore, retracted his concession, made privately to Bush.

According to Warren Mitofsky, who was the founder and the former director of VNS, the reasons for these occurrences were as follows: the first projection, that Gore won Florida, was caused by statistical error. We have to remember that projections, based on exit polls, are subject to error with a low probability of being incorrect. Projection mistakes do occur and this was such a case. However, the second projection, that Bush won Florida, was caused by a data error in Daytona Beach, which is in Volusia county. Twenty thousand extra votes were mistakenly credited to Bush by VNS shortly after 2 a.m. on November 8, 2000. The county noted the correction before 3 a.m. that morning, decreasing Bush's lead by a total of 25,000 votes.

The next day, it was revealed that the actual margin was remarkably close, about 1,700 votes out of six million cast (or less than 0.03% of the total votes cast). Indeed, Florida's election law required that if the margin of victory for any candidate was less than one half of one percent of the total votes cast, a recount would be mandatory. As the margin was much less than 1%, a machine recount had to be carried out. The recount was carried out, resulting in an even narrower gap of roughly 350 votes, with Bush still in the lead (without a count of an expected two to three thousand overseas absentee ballots).

The recount process was further complicated by several concurrent lawsuits, charges and countercharges of election-day shenanigans, ballot irregularities, and political bias. One of the issues was the confusing use of the butterfly ballots in Palm Beach County, which may have resulted in a large number of Gore voters mistakenly voting for Reform Party Candidate Patrick Buchanan. Buchanan received a much larger than expected number of votes in this county (approximately 2,500 more). As a result of these lawsuits, the public has been exposed to statisticians who have testified as expert witnesses in various court cases.

One of the key issues to be resolved was how to count the so-called undervote. The undervote represented the ballots which were cast but for which the machines, for one reason

ILLUSTRATION BY DAVE BLACK

or another, did not record a vote for President. And here's where the statisticians came in. One of the main questions was the use of probability and statistics to determine whether or not to carry out a hand count of the Florida undervote.

Apart from the complicated legal propositions, there were three statistical questions necessary to answer in order to establish whether a statewide recount in Florida should be undertaken. First, was there a substantial number of ballots cast for the presidency for which no vote was recorded by machine? Second, could a substantial percentage of these ballots be recovered, so as to classify ballots for which a vote for President was recorded? Third, was there a probability, however remote, that the election result in Florida could be affected by a full count of the votes?

In testifying for the Gore-Lieberman campaign in one of its Florida state lawsuits, Yale statistics professor Nicolas Hengartner weighed in on the subject. He demonstrated that the first two conditions were met. Arguing for a hand count of the ballots which were not counted by the machine in three Florida counties, Hengartner showed that there was an undercount, which ranged from an average of 1.5% in counties using old-style punch cards to an average of 0.3% in counties using more sophisticated optical scanning devices. Furthermore, he reported that varying percentages of these ballots (in the neighborhood of 25%) could be identified as votes for President by using hand counts, based on data obtained in the counties, which had already carried out hand counts. He did not testify on the third issue. However, the vote was so close that the probability of overturning the election of Florida, although difficult to determine, was not negligible. Cross-examination of Hengartner involved the issue of whether the undercount was machine related. In other words, did the punch card machine cause this undercount? This is a much more difficult question to answer. This issue is important to resolve in order to determine the future use of punch card ballots in elections. However, in this present situation, it is not relevant because the important issue is whether or not an undercount did occur and not the reasons for this occurrence. And the evidence did establish that there was an undercount.

Ultimately, the testimony of this statistician failed to carry the day. The Florida Supreme Court did rule that a statewide manual recount of all ballots should be undertaken. But the U.S. Supreme Court in December brought the counting to a stop, paving the way for Florida's state government to bring the matter to a close and award the state's electors to Bush.

To this statistician's mind, a full statewide recount would have been the optimal solution. Any partial recount – i.e. recounting the votes in selected counties – could have been biased. And while a partial recount may have favored one candidate over the other, it would not have satisfactorily answered the vexing question as to who really won the popular vote in Florida. A hand recount may not have been a perfect solution. Uniform procedures as to how to classify the undervote as a vote may have been difficult to establish, but it was not impossible. And it is certainly preferable to ignoring the undercount.

A courtroom setting is not the ideal place to demonstrate the application of probability and statistics. Part of the problem is the fact that the concepts of statistics are difficult for the layperson to understand. The issues became even murkier in a courtroom where dueling attorneys raised questions on issues that are already confusing. The confusion, which the public must certainly have felt, is echoed by a famous quote by Benjamin Disraeli, a nineteenth century Prime Minister of England, who said: "There are three kinds of lies: lies, damned lies, and statistics."

I will make two predictions. First, this issue will not go away. Currently, there are several groups counting the undervote under various criteria. Second, in future elections, the use of punch card balloting will disappear.

AARON TENENBEIN *is professor of statistics and actuarial science at NYU Stern.*

THE RIGHT STUFF

What will turn today's entrepreneurs into tomorrow's big-time business people? After tracking the careers of dozens of contemporary moguls, one author concludes that it has as much to do with the content of their character as with the make-up of their balance sheets.

By **Roy C. Smith**

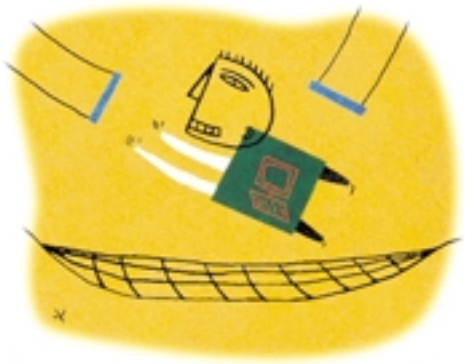
The 1999 Forbes 400 list included 251 individuals whose source of wealth was described as "self-made." These self-made entrepreneurs are among the greatest creators of new wealth in the country. They include billionaires whose money comes from medical devices, computer software, railroads, testing laboratories, real estate, home building, stock market investments, trading stamps, oil and gas, computer assembly, direct sales organizations, retailing, heath care, mobile phones, music and records, newspapers and media, insurance, cable TV, public storage, plastics, and a dozen other businesses.

These days, of course, entrepreneurs are regarded as something far greater than just ordinary businessmen – hired hands and administrators. Indeed, today's entrepreneurs may have become the cultural replacement for the famous American "rugged individualists" of the last century, the ones who tamed the West and built great industries from nothing. They can be extreme risk-takers, and colorful, self-confident persons of strong character and personality. Think of Bill Gates, Steve Jobs, Michael Dell, Richard Branson, Ted Turner, and Donald Trump.

Stripped of all the hype and filler, however, "entrepreneurs" are simply people who, as individuals or in small groups, have started or acquired businesses and attempted to grow and/or alter them to a point where they could cash in successfully on the rewards. But achieving entrepreneurial success may be the greatest challenge available to anyone in business. According to the Small Business Administration, there were about 6.6 million corporations in the United States in 1996, the vast majority of which were small businesses. Only the tiniest sliver of them will grow into big businesses.

Academics have been studying self-made businessmen, hoping to find a methodology to teach to young entrepreneurs. We have not yet found, of course, a simple, repeatable formula for turning small or substantially restructured businesses into gold mines. And many academics believe that great entrepreneurial success is as much influenced by luck as by skill, or by fortuitous (if unwise) risk taking as by any other quality.

Nonetheless, I believed there is something to be learned from studying what the successful entrepreneurs actually did to become successful. And while conducting research for my recently published book, *The Wealth Creators: The Rise of Today's New Rich and Super-Rich*, I learned a good deal about factors that seem to increase the probabilities of success. And there are in fact several sine qua nons – fac-



The first characteristic of a successful entrepreneur is perhaps the most obvious one: a wilingness to take risk. Regardless of other attributes, this first, primordial requirement must be present.

tors without which entrepreneurial success probably cannot happen.

The Vision to Take Risks

The first characteristic of a successful entrepreneur is perhaps the most obvious one: a willingness to take risk. Regardless of other attributes, this first, primordial requirement must be present – the willingness to step off into the void, risking most of what other people think of security and well being. An entrepreneur must first quit his or her "day job."

A second requirement is the ability to identify and develop viable plans for capturing an attractive business opportunity – possessing the vision. After all, when an entrepreneur decides to enter a business, an equilibrium already exists between those products and services that are in circulation, and those that could be, but aren't. Unless a new product or service can overcome the existing barriers to entry into the market, it has no chance.

Starting a business with an idea that is not new at all, something that just presents another choice for the consumer, can be a very tough grind for the entrepreneur... Something somewhat new, however, can capture the market's attention without having to completely reeducate it.

The entrepreneur seeks a way around this equilibrium by finding something new or different that will reset the equilibrium more advantageously. It doesn't have to be an entirely new product or idea (like Edison's electric light, which took a long time to introduce and required expensive power plants and transmissions lines). But it has to be sufficiently new to change the original configurations of the market.

John D. Rockefeller did not invent the oil lamp. But after the discovery of crude oil in Titusville, Pennsylvania, in 1859, the dry goods merchant foresaw the opportunity of producing large quantities of kerosene from petroleum to be sold as a cheap, efficient fuel for illumination. At the time, whale oil was the principal source of lamp illumination, but it was expensive and not available in large quantities.

The market was totally new at the time, and there were no barriers to entry, so a large number of small refiners and oil producers sprung up. The fledgling firms cut prices, and conspired with or against each other to try to make progress. Since business conditions in the industry became chaotic, Rockefeller changed his central idea – instead of just refining crude oil, he would focus on consolidating the refining, transportation and marketing components into a new industry. This decision, a vision of opportunity and a wholly different way to develop it, played to all of Rockefeller's organizational and administrative strengths – his comparative advantages – that enabled him to become a success.

Starting a business with an idea that is not new at all, something that just presents another choice for the consumer, can be a very tough grind for the entrepreneur. Another bank branch on the corner, or a new videotape recorder, may take forever to gain any kind of market share and could divide the total profits available in the market into increasingly smaller pieces. Something somewhat new, however, can capture the market's attention without having to completely reeducate it. It can quickly change market dynamics, increasing total demand for, say, tennis shoes because they are no longer perceived as tennis shoes but as performance enhancing footwear favored by professional athletes with a different shoe for every sport. Of course, the idea, or vision, has to be strong enough to alter the dynamics. But it is clear that many of the most powerful new business ideas have not been all that new.

Making It Big – Thinking Big

Any new (or somewhat new) business vision ought to lead to a business with a large potential market. The national market for kerosene must have seemed enormous to the young Mr. Rockefeller, who became a billionaire long before the automobile assured the future of the oil business. Ray Kroc, a traveling milkshake-machine salesman, became a billionaire because he realized that a small hamburger stand could be cloned into thousands of McDonald's stores nationwide

through a franchising process. Only the concepts that can be applied nationally, or even better, globally, have the potential to be truly big.

Ted Turner, the founder of CNN, saw that the value of cable television ultimately depended on what went through the cables. He knew that many new channels would be made available through the cable hookups, and that these channels would be offered to subscribers who would pay to get certain kinds of programming. Turner already owned some sports teams and WTBS, an Atlanta-based UHF broadcasting station. In 1976, he pioneered the "superstation" concept by arranging to transmit his UHF signal by satellite to content-starved cable system operators all over the country. The idea caught on. And in 1980, Turner introduced the all-news channel for his system – CNN. Critics thought Turner's idea was a bit crazy, because most people could not imagine tuning in just to news all day long. But the cable operators, who were selling a package of several channels for a fixed cost, were eager to add it to their range of offerings. The rest is history. By 1985, Turner's cable offerings reached 80% of the American homes equipped with cable and CNN was frequently the item that was most in demand. Before long Turner had tens of millions of subscribers essentially paying to have CNN in their house for a few minutes each day – especially after the 1991 Gulf War.

Making It Happen – Execution

Distributing a product to the national or global market quickly is a very complex and difficult undertaking. At all times, an entrepreneur must be able to make the critical sale at the right time, or deliver on promises made. Some "breaks" may appear to be just luck, and luck is an important factor in all equations for success. But the good field operator helps good luck along by constantly finding other ways to accomplish things, and by marshalling talent and resources just where they are needed at just the right time. In other words, successful entrepreneurs must execute.

In 1995, Marc Josephson, who trained as an engineer, formed a new company to connect New York City's new Information Technology Center (ITC) at 55 Broad Street to the Internet "backbone" network. The ITC was to become the focal point of New York's effort to create a new media and technology industry, and it needed efficient, reliable, and, above all, fast access to the Internet.

Years before, New York City had been encircled in fiber-optic cable. Several of these cable circuits were essentially idle, but contained bandwidth ample for any known purpose. Josephson figured out how to connect 55 Broad to the cable circuit directly, and was able to pass the bandwidth advantages on to the building's occupants at low cost. To capitalize on his discoveries, he set up a small company to lay the necessary wiring and lease Internet access to the tenants directly, which he could do at much less cost than the regular access providers. Josephson offered to wire Manhattan's Jacob Javits Convention Center and then persuaded Rockefeller Center to let him wire up the whole complex, which he then had to lease to the tenants, one office at a time.

The good field operator helps good luck along by constantly finding other ways to accomplish things, and by marshalling talent and resources just where they are needed at just the right time. In other words, successful entrepreneurs must execute.

With such high-profile assignments, Josephson was a happy entrepreneur. But he was faced with the challenge of building out his business as quickly as possible so another Internet access provider didn't figure out what he had done and offer the same service. To launch his business nationally, he needed a team of competent engineers and capital. Through a lawyer friend he met an "angel" investor, who invested a few million dollars of seed capital. By the end of 1998, two years after finishing 55 Broad, Josephson's company, now called IntelliSpace, had wired 50 buildings for online services in New York City; there would be 140 a year later. The building space wired by the company was growing at 400% per year, and Josephson was shaping up plans to replicate its business in Philadelphia, Boston and

Washington, DC. In 1999 IntelliSpace completed a $35 million second round of financing. Josephson was able to attract the investment largely because his investors had confidence in his engineering skills and executive ability to carefully plan out a step-by-step program for building out the business.

Margins Matter

The biggest ideas, no matter how well they are executed, will certainly fail if adequate margins cannot be earned. Henry Ford's mass manufacturing of Model T's was an operation designed to exploit economies of scale so his cars could be sold at prices low enough to turn the automobile into a mass consumer product. Although the cars were sold cheaply, the volume was large enough for him to capture healthy operating margins. These permitted Ford to pay generous wages to increasingly skilled assembly line workers and to invest in facilities to make almost everything that went into the car at Ford's huge central factory at River Rouge. The investments increased his margins further, permitting even more investments to improve and expand the business.

One small business I know called MaxFlight, founded in 1994, makes aircraft flight simulators for amusement parks. The founder, Frank McClintic, a former helicopter pilot and a natural, tinkering mechanic, was familiar with aviation training simulators and thought he could improve on their motion characteristics. However, he believed that selling the product to the military or the airlines would mean having to lower margins to unworkable levels. So he decided to change his product to make it into a cheaper, glitzier model for the amusement business, where it could be sold by the ride. The product became an enclosed audio-visual enhanced, aircraft cockpit that rotated on all axes. The rider would be treated to dramatic virtual carrier takeoffs and landings, or realistic dogfights. Big park operators thought they could sell a lot of rides, and the public liked it enough to pay up to $10 for a five minute ride.

McClintic knew he had to keep his costs lower than his competitors, so that he could create a barrier to potential market entrants. Mostly, his costs were in the sophisticated parts that the machine required. So McClintic focused on lowering these costs, scouring technical publications for lower-cost replacement parts. He found several, including surplus government equipment that he could buy at a distressed price. These efforts substantially lowered his costs and maintained his margins well into double digits. Like Henry Ford, McClintic knows he must continually re-engineer his machines and improve their performance capability to keep ahead of his larger competitors.

Timing

Michael Bloomberg stepped into the financial data market with his Bloomberg machine just at the right moment. He understood the business well enough to know of the machine's coming importance and that his competitors might be slow to develop a similar product – but only for a while. He moved within his two to three year window and successfully launched his product. Just so, Charles Schwab was an early exploiter of the opportunities in discount stock brokerage, and gained a significant market share and $1.8 billion of net worth in the process.

In early 1998, Greg and Glenn Morello, two brothers in New Jersey, decided to expand their Bridgewater Autobody repair business from two shops into a dozen or more. Their idea was to gain some economies of scale by operating at a larger size, and then to contract with auto insurance companies for bulk-purchases of repairs. The insurance companies wanted to be sure that the repair shops they used were reliable and

honest, but they particularly wanted to be able to contract for repairs at a lower cost. The two brothers believe they have a year or two to be able to pull their new company together, before an aggressive or better financed auto-body repair chain comes into their market and forces them out. Time is critically important for them.

In the fragile world of the entrepreneur, a good idea performed too early or too late is not worth nearly as much as one performed at the just right time. Indeed, a good idea may be worth very little if badly timed. For most hard-pressed entrepreneurs who take one busy year at a time, good timing, however, can mean the difference between being quickly established in a marketplace, or not at all. But that early market position has to be reinforced and defended against strong competitive efforts, better products, and, of course, trend changes.

The Right Stuff

Tom Wolfe's best-selling book about American astronauts, *The Right Stuff*, describes the skills and the characters of the first Project Mercury team, men like Alan Sheppard, John Glenn, Scott Carpenter, Gordon Cooper, Wally Shirra, Deke Slayton, and Gus Grissom. Wolfe sensed that as different as they all were from one another, they all had something that seasoned aviators knew to be "the right stuff." They behaved like people think fighter pilots should – they were fearless, of course, and somewhat reckless, though always confidently so. They had extremely quick reflexes, remained cool under pressure, and never showed any concern that they might end up among the gruesome statistics of their profession. Not everyone had the right stuff, but you had to have it to make it to the top in combat aviation or the test pilot business. It was hard to define, but everyone knew it when they saw it.

Entrepreneurs, too, must have the right stuff if they are going to make it big. For people in business, the right stuff is the special software inside the product that makes amazing things happen, that allows them to have vision, to think big, to execute, and to have good timing. Indeed, the quintessential American big time entrepreneur is a composite of experiences, skills, toughness of character and self-control that are, like our astronauts, unique to their profession.

They have to have a certain mindset that most business people do not have. They want to bet on themselves and their abilities, even if the odds look pretty long. They are not especially concerned with security, or appearances, or creature comforts. They perform well under pressure, and adapt optimistically to even harsh disappointments. They believe totally in what they are doing, but are prepared to change things often, so that what they end up doing may not have been what they started out believing. They often demonstrate a disdain for large, bureaucratic working environments, and the lines of authority that go with it. They can be hard and ruthless competitors, but, when successful, much more generous with their time and money than those who inherit wealth and slowly feed the old money charities. In short, they are highly driven to succeed, and to do things "their way." They have a lot of attitude.

In the fragile world of the entrepreneur, a good idea performed too early or too late is not worth nearly as much as one performed at the just right time. Indeed, a good idea may be worth very little if badly timed.

Most real estate investors will tell you that the three most important factors in determining the success of a real estate investment are "location, location, and location." Most investors in small businesses will tell you that for them the three most important factors are "the CEO and the management team," in first, second and third place. Regardless of the brilliance of its product idea, or the potential size of its market, an entrepreneurial company's survival frequently depends on whether or not its leader has the right stuff.

ROY C. SMITH *is the Kenneth G. Langone professor of entrepreneurship and finance at NYU Stern. This article is adapted from his new book,* The Wealth Creators: The Rise of Today's New Rich and Super-Rich *(St. Martins Press).*

Stocks in emerging markets tend to move in the same direction while those in developed markets tend to follow divergent paths. Why?

IN SYNC

By **Randall Morck** and **Bernard Yeung**

When asked to predict activity in the stock market, J.P. Morgan replied that stock prices would fluctuate. Modern finance theory ascribes meaning to these fluctuations. The stocks of successful, well-run, or lucky companies rise. Those of unsuccessful, misgoverned, or unlucky companies fall. While portfolio managers view the volatility of individual stocks as a problem to be overcome through diversification, corporate executives watch their stocks rise or fall with euphoria or dismay. A soaring stock price helps a company grow, by raising bond ratings and bringing in more money from additional share offerings. A plummeting stock price unsettles creditors and raises the dilution cost of each dollar of new equity.

This realignment of stock prices and, more importantly, the redirection of capital flows that it causes, are thought to underlie the growth and prosperity of modern free market economies. An economy that invests capital in poorly run or ill-conceived enterprises cannot provide as high a standard of living as an economy that puts capital where it is most useful. That this mechanism works well is a prime argument by those who oppose government intervention in the economy. That stock fluctuations are a meaningless throw of dice is a prime argument made by those who mistrust capitalism and all it stands for.

In a recent study, we uncovered a puzzling regularity in the fluctuations of stock prices across the markets of different countries. In the United States, and most other developed countries, stocks tend to move in a relatively unsynchronized manner. Ford rises, while GM simultaneously falls, for example. But stocks in emerging markets, like those of Latin America, Asia, and Eastern Europe, exhibit a uniformly different sort of volatility. In contrast to the action in developed countries, stocks in emerging markets tend to move up or down together – en masse.

We began by analyzing stock returns data from the first 26 weeks in 1995 to measure the degree of price synchronicity in some representative stock markets. We calculated the fraction of stocks that moved in the same direction in a given country, filtered out those whose prices didn't move, and charted the number that rose and fell. As seen in **Table 1**, in emerging markets like China and Poland, over 80% of stocks often moved in the same direction in a given week. For example, in China over 70% of stocks moved in the same direction in 18 weeks. In Poland, 100% of traded stocks moved in the same direction during four of the 26 weeks, and 70% moved in the same direction in 20 weeks. By

contrast, Denmark, Ireland, and the United States lacked any instances in which more than 57% of the stocks moved in the same direction during any week.

We then correlated the full 1995 year price movements with the size of a country's per capita Gross Domestic Product between 1992 and 1994. Per capita GDP, of course, is a general measure of economic development. But it can also serve as a proxy for the economic structures and attributes that make up developed economies. And we found that, in general, high-income countries have asynchronous stock prices, with the U.S. having the lowest fraction of stocks moving together. In contrast, low-income economies have higher degrees of price synchronicity, with Poland, China, Taiwan, Malaysia, and Turkey leading the pack. A closer look at the data reveals that the nations we investigated grouped themselves into two data clusters: high-income countries with low synchronicity and low-income countries with high synchronicity.

Why should there be such a difference between the fluctuations we see in the stock markets of high and low income countries? We considered several possible explanations. First, firms in low-income countries might have more correlated fundamentals. After all, low-income economies tend to be small, undiversified, subject to unstable macroeconomic policy, and characterized by intercorporate equity cross-holdings. All these factors can turn events that affect one industry into market-wide events. Second, low-income economies usually provide poor and uncertain protection of private property rights. If this reduces the transparency of companies in these countries to investors, the fine tuning of individual companies' stock prices that we see in developed economy markets might not happen. If so, the stock markets of these countries might be failing in their primary social task,

the allocation of capital.

We concluded that measures of fundamentals correlation do not explain our finding, but that measures of private property rights protection do. Indeed, variables like market size, country size, economic diversification, macroeconomic policy stability, and intercorporate earnings correlation are, at best, only vaguely related to stock price asynchronicity. The measures of development that are most closely related to stock price asynchronicity are measures of the integrity of government, the efficiency of the judicial system, and the rule of law.

Economic Explanations

To determine what explains the highly significant negative correlation between stock price synchronicity and per capita GDP, we investigated which particular development measures are most correlated with stock price synchronicity.

First, we considered several possible economic explanations. The negative correlation between stock price co-movement and per capita income could be due to the fact that the companies in low-income economies tend to have more correlated economic fundamentals. Or, it could be that unstable market fundamentals are caused by macro-economic instability – erratic or unpredictable growth. In such economies, volatile market fundamentals may overwhelm variations due to firm-specific factors, so that stock prices tend to move together.

Another factor could be country size. Since economic activity in small countries is geographically localized, nearby geopolitical instability or environmental catastrophes like earthquakes might have market-wide effects that would not be as evident in a larger country. For example, Finland's economy shrank by 15% in the early 1990s as the neighboring Soviet Union disintegrated and Finland's role as a gateway to Russia temporarily lost value. In addition, stocks in large countries might move more independently than those in small countries because of industrial and economic diversity. For example, if oil prices fall, the prospects of Ohio manufacturing firms brighten, while those of Texas oil companies dim. In contrast, stocks in a smaller oil-producing country, like Venezuela, might move more synchronously as oil prices change. In some economies, listed firms could be concentrated in just a few industries, which tend to move in sync. And since the stock markets in some economies may be dominated by a few very large companies, a high degree of stock price synchronicity may result if most other listed firms are suppliers or customers of these dominant firms.

We tested these factors by constructing indexes to stand as proxies for the variables and by using regression analysis on our data. And we found some intriguing results. For example, price synchronicity is negatively correlated with a country's geographical size – the bigger the country is, the less likely it is that its stocks move together. We also found that price synchronicity is positively correlated with both GDP growth variance and earnings co-movement. However, these correlations are all statistically insignificant. And we found that greater economic and industrial diversity is not consistently correlated with less stock price synchronicity. So clearly, our basic result cannot be due simply to the fact that low-income countries tend to be small and undiversified. Overall, in fact, these correlations suggest that no one structural variable, on its own, satisfactorily explains the link between per capita GDP and stock price synchronicity. We checked to see if these structural variables, acting in concert, might explain the link. But these results were similarly inconclusive.

TABLE 1

THE FRACTION OF STOCKS WHOSE PRICES GO UP, GO DOWN, AND REMAIN THE SAME DURING EACH OF THE FIRST 26 WEEKS OF 1995

Week	CHINA %Up	CHINA %Down	CHINA %Same	POLAND %Up	POLAND %Down	POLAND %Same	U.S. %Up	U.S. %Down	U.S. %Same
1	32	61	7	97	3	0	47	29	24
2	4	89	6	5	95	0	47	38	15
3	6	88	7	59	31	10	49	37	13
4	7	88	5	3	92	5	54	32	14
5	84	8	7	3	97	0	33	53	15
6	7	50	42	100	0	0	44	43	14
7	59	31	10	15	77	8	57	30	13
8	18	73	9	10	90	0	48	38	14
9	71	22	7	82	13	5	42	43	15
10	93	4	4	95	5	0	44	42	14
11	9	88	3	3	95	3	33	52	15
12	41	51	7	0	92	8	50	37	13
13	89	7	4	15	67	18	41	44	15
14	84	9	6	100	0	0	50	35	15
15	21	73	5	100	0	0	47	37	15
16	18	75	7	56	38	5	45	40	15
17	29	63	8	90	10	0	41	44	15
18	5	92	3	8	92	0	50	35	15
19	35	56	9	41	49	10	46	40	14
20	29	60	11	87	10	3	49	37	14
21	89	8	3	0	100	0	42	44	14
22	21	76	4	92	5	3	46	39	15
23	16	79	5	74	23	3	47	39	14
24	55	37	8	36	51	13	44	41	15
25	4	84	12	41	49	10	52	34	14
26	73	20	7	82	5	13	47	39	14
sample	308 stocks			38 stocks			6,889 stocks		

Source: Datastream

Another Explanation: Institutional Development

After looking at these economic development measures, we turned to measures of institutional, legal, and political development. In many countries, after all, governments and courts serve as mercantilist devices for diverting wealth to an entrenched elite. Through legislation, licensing requirements, and nationalization, government can inhibit the growth and development of businesses. In these environments, political events, or even rumors about political events, may cause large market-wide stock price swings and generate high levels of stock price synchronicity. Scholar Ray Fisman in 1999 estimated that as much as 25% of the market value of many Indonesian firms was related to political connections. This conclusion was based on an analysis of stock price movements in response to rumors about President Suharto's health.

Indeed, bad government might increase stock price synchronicity through channels that are not directly associated with economic fundamentals, like corporate earnings or GDP. Finance theory holds that professional investors – risk arbitrageurs – expend resources to uncover proprietary information about stocks and earn an acceptable return by using that information to trade against less-informed investors. Such trading by many risk arbitrageurs, each possessing unique proprietary information, is thought to capitalize information into share prices of individual companies.

But risk arbitrage of this sort may be less economically attractive in countries that protect private property rights more poorly. Economic fundamentals can be obscured by political factors in many low-income countries. Political events may be hard to forecast in low-income nations whose governments are often relatively opaque and erratic. And risk arbitrageurs who do make correct predictions may not be allowed to keep their earnings. Because firm-specific risk arbitrage could be relatively unattractive in such countries, informed trading might be correspondingly thin.

If weak property rights discourage informed risk arbitrage, they might also create systematic stock price fluctuations. Scholars believe that an insufficient level of informed trading can "create space" for noise trading – trading that reacts to political events, rumors, and the like. Once the proportion of noise traders in the market rises above a critical level, it might crowd out risk arbitrageurs, who are

TABLE 2

Per capital Gross Domestic Product and stock return synchronicity

Panel A ranks countries by per capita GDP. Panel B ranks countries by stock return synchronicity measured by the fraction of stocks moving together in the average week of 1995.

Panel C ranks countries by stock market synchronicity measured as the average R2 of firm-level regressions of bi-weekly stock returns on local and U.S. market indexes in each country in 1995.

Panel A			Panel B		Panel C	
country	listed stocks	1995 per capita US$ GDP	country	% stocks moving in step (fj)	country	R^2
Japan	2276	33,190	United States	57.9	United States	0.021
Denmark	264	27,174	Canada	58.3	Ireland	0.058
Norway	138	25,336	France	59.2	Canada	0.062
Germany	1232	24,343	Germany	61.1	U.K.	0.062
United States	7241	24,343	Portugal	61.2	Australia	0.064
Austria	139	23,861	Australia	61.4	New Zealand	0.064
Sweden	264	23,861	U.K.	63.1	Portugal	0.068
France	982	23,156	Denmark	63.1	France	0.075
Belgium	283	21,590	New Zealand	64.6	Denmark	0.075
Holland	100	20,952	Brazil	64.7	Austria	0.093
Singapore	381	20,131	Holland	64.7	Holland	0.103
Hong Kong	502	19,930	Belgium	65.0	Germany	0.114
Canada	815	19,149	Ireland	65.7	Norway	0.119
Finland	104	18,770	Pakistan	66.1	Indonesia	0.140
Italy	312	18,770	Sweden	66.1	Sweden	0.142
Australia	654	17,327	Austria	66.2	Finland	0.142
U.K.	1628	17,154	Italy	66.6	Belgium	0.146
Ireland	70	14,186	Norway	66.6	Hong Kong	0.150
New Zealand	137	12,965	Japan	66.6	Brazil	0.161
Spain	144	12,965	Chile	66.9	Philippines	0.164
Taiwan	353	10,698	Spain	67.0	Korea	0.172
Portugal	90	9,045	Indonesia	67.1	Pakistan	0.175
Korea	461	7,555	South Africa	67.2	Italy	0.183
Greece	248	7,332	Thailand	67.4	Czech	0.185
Mexico	187	3,944	Hong Kong	67.8	India	0.189
Chile	190	3,361	Philippines	68.8	Singapore	0.191
Malaysia	362	3,328	Finland	68.9	Greece	0.192
Brazil	398	3,134	Czech	69.1	Spain	0.192
Czech	87	3,072	India	69.5	South Africa	0.197
South Africa	93	2,864	Singapore	69.7	Columbia	0.209
Turkey	188	2,618	Greece	69.7	Chile	0.209
Poland	45	2,322	Korea	70.3	Japan	0.234
Thailand	368	2,186	Peru	70.5	Thailand	0.271
Peru	81	1,920	Mexico	71.2	Peru	0.288
Columbia	48	1,510	Columbia	72.3	Mexico	0.290
Philippines	171	880	Turkey	74.4	Turkey	0.393
Indonesia	218	735	Malaysia	75.4	Taiwan	0.412
China	323	455	Taiwan	76.3	Malaysia	0.429
Pakistan	120	424	China	80.0	China	0.453
India	467	302	Poland	82.9	Poland	0.569

Source: Datastream

more risk-averse. As a result, a stock market without a sufficient amount of informed trading could be characterized by large systematic price swings – in other words, greater price synchronicity.

Measuring Good Government

If including a measure of good government in our regression analysis renders per capita GDP insignificant, that might be evidence that a lack of property rights protection underlies the high degree of stock price synchronicity. To capture the extent to which a country's politicians respect private property rights, we constructed a good government index as the sum of three indexes from the International Country Risk Guide (ICR). The "corruption index" is an assessment of corruption in government. Low scores indicate that "high government officials are likely to demand special payments" and that businesspeople may have to pay bribes in order to get import and export licenses, loans, or tax assessments. The "risk of expropriation index" gauges the risk of outright confiscation or forced nationalization. The "repudiation of contracts by government index" measures the risk of a "modification in a contract taking the form of a repudiation, postponement, or scaling down" due to "budget cutbacks, indigenization pressure, a change in government, or a change in government economic and social priorities."

The good government index, like our synchronicity measures, tends to be quite high for developed countries and quite low for emerging economies. The results show that better protection of private property rights "explains" stock price synchronicity, so much so that its inclusion renders per capita GDP insignificant in explaining synchronicity. In addition, countries with higher per capita incomes have higher good government indices. And the good government index is significantly correlated with market size, a finding that is consistent with more institutionally advanced economies having markets on which more stocks trade. We also found that the good government index remains significantly negatively correlated with stock price synchronicity even after controlling for market size and the structural variables.

Haves and Have-Nots

Our result leads to a conjecture that the presence of a non-corrupt government that honors and respects private property rights makes it attractive to conduct informed risk arbitrage which results in more informed stock prices. Without an institutional environment that honors property rights, informed risk arbitrage recedes and noise trading generates large systematic swing in all stock prices that is not closely related to economic fundamentals.

The "good government" index, however, is a measure of institutional development. It is unlikely to have a fine-grained incremental impact on the matter. Indeed, our data tends to group into two clusters: high-income countries with low stock price synchronicity and low-income countries with high synchronicity. Substituting the good government index for per capita GDP also clearly reveals two clusters. And this clustering suggests the possibility of a threshold effect. If institutional development, as measured by our good government index, is below a critical level, a different regime governs stock prices, and a high degree of synchronicity is observed.

We used the mean of the good government index as the dividing line in creating these subsamples, yielding a developed economy group of 22 countries and an emerging economy subsample of 15 countries. Then, we tested whether our results hold within both subsamples, or mainly describe differences between the two subsamples.

Among emerging economies, stock market synchronicity is not correlated with either the logarithm of per capita GDP or the good government index. So overall, synchronicity in the emerging markets is generally high but not much worsened by marginal decline in the protection accorded private property. Interestingly, as in our conjecture, higher stock price synchronicity in emerging economies is mainly associated with greater systematic variation.

In the developed country subsample, however, the situation is more complex. Synchronicity is marginally higher when the good government index is lower. More importantly, high synchronicity in developed countries is associated both with low levels of firm-specific variation and high levels of market-wide variation. This finding motivates a closer look at the developed countries to clarify the determinants of stock price synchronicity there.

Capitalization of Firm-Specific Information

It is possible that a country's institutions might affect the relative amounts of firm-specific versus market-wide information that are capitalized into stock prices set by rationally informed risk arbitrageurs. In other words, certain attributes might encourage people to place their bets on individual stocks rather than the market as a whole.

Our focus is that, unlike in emerg-

ing economies, lower synchronicity in developed economies is associated with greater firm-specific variation. In China, for example, the whole market tends to move up or down dramatically, and so stocks move together. By contrast, in the U.S., stocks tend to move more independently of one another. Scholars have concluded that most of the variation in U.S. stock prices reflects the capitalization of proprietary firm-specific information – people processing the data they have about individual companies to influence the stock price.

We considered two factors that might make firm-specific risk arbitrage more attractive in economies: (1) better accounting data; and (2) better protection for public investors from corporate insiders. If accounting data are more useful, more firm-specific public information is available to all investors. And that may let risk arbitrageurs make more precise predictions regarding firm-specific stock price movements. A lack of respect for the property rights of public investors by controlling shareholders might discourage risk arbitrage based on firm-level information and hence impedes the capitalization of firm-level information in stock prices in some developed countries.

To test these hypotheses, we ran the numbers again using only data from developed countries in our sample. First, we substituted a direct measure of the sophistication of each country's accounting standards in place of the good government index. The measure was created by scholars based on 1990 data compiled by the Center for International Financial Analysis and Research, Inc. And when we did, it turned out that good accounting standards are negatively correlated with synchronicity. But since the significance levels are in the neighborhood of 20%, the accounting standards index itself is uniformly statistically insignificant.

Next, we employed a direct measure of the extent to which public shareholders' property is protected from appropriation by corporate insiders – the anti-director rights index. This index is a scorecard of shareholders' rights against directors in various countries. For such rights to provide effective protection, a country must have functional political and legal systems. It is therefore plausible that the anti-director rights index might be relevant only in countries where the rule of law prevails. Notice that among countries with strong property rights protections in general there exists quite a bit of variation in protecting the property rights of public investors against corporate insiders.

We therefore ran regressions substituting the anti-director rights index for the good government index. We found that while the anti-director rights index is insignificant in the whole sample and emerging economy subsample, it is negative and highly statistically significant in the developed economy subsample.

Numbing the Invisible Hand?

So what do we conclude from these results? Yes, stock returns are more synchronous in emerging economies than in developed economies. But while some economic characteristics may contribute to stock return synchronicity, they don't entirely explain the outcome. Rather, it seems that the level of institutional development is highly correlated with stock price synchronicity.

In particular, less respect for private property by government is associated with more market-wide stock price variation, and therefore also with more synchronous stock price movements. Since these market-wide price fluctuations are uncorrelated with fundamentals, we conjecture that poor property rights protection might deter informed risk arbitrage and noise traders create arbitrary fluctuations. However, we would welcome other possible explanations.

In developed economies, providing public shareholders with stronger legal protection against corporate insiders is associated with lower synchronicity. We conjecture that economies that protect public investors' property rights might discourage intercorporate income-shifting by controlling shareholders. Better property rights protection thus might render risk-arbitrage based on firm-specific information more attractive, which leads to asynchronous stock price movements.

Overall, our results suggest that stock markets in emerging economies may be less useful as processors of economic information than stock markets in advanced economies. The function of an efficient stock market is to process information, and thereby guide capital towards its best economic use. But stock price movements in emerging economies are mainly due to either politically driven shifts in property rights or noise trading; numb invisible hands in their stock markets may allocate capital poorly, thereby retarding economic growth.

RANDALL MORCK *is Stephen A. Jarislowsky distinguished professor of finance at the University of Alberta.*

BERNARD YEUNG *is Abraham Krasnoff professor of international business and professor of economics at NYU Stern.*

This article is adapted from an article in the Journal of Financial Economics, *October 2000 Volume 58, pp. 215-260.*


COMING APART,
YANG

In the past year, the stock prices of telecommunications companies have fallen sharply. Indeed, the shares of telephone companies, once regarded as boring but dependable, have of late displayed the volatility more common among software companies and Internet retailers. For example, AT&T, once the ultimate widows-and-orphans stock, lost half its value in 2000. Just two years after investing in cable TV assets, CEO C. Michael Armstrong is now planning to break AT&T into several parts.

COMING TOGETHER: THE AT&T BREAKUP (ROUND THREE) AND THE REMONOPOLIZATION OF TELECOMMUNICATIONS

By **Nicholas Economides**

In the meantime, a series of mergers by local telephone companies – the Baby Bells created after the 1980s government-mandated break-up of AT&T – has led to a substantial remonopolization of the telecommunications sector. Add in the cross-media AOL-TimeWarner merger, the rapid growth of the Internet, and the stratospheric bids for European spectrum to be used for wireless telecommunications, and the telecommunications landscape is both confusing and treacherous to investors.

Why are these once-reliable companies seeing their fortunes shift dramatically? And why have so many shrewd investors been caught unaware by the plummeting stock prices?

At the most basic level, the stocks of some telecommunications companies fell sharply in 2000 because the Internet- and technology-related investment bubble was finally pricked. As investors realized that early expectations for Internet growth were much higher than justified, stock valuations were appropriately adjusted.

But the deeper answer to why AT&T is breaking up while its former offspring are acquiring each other lies in an understanding of the new market dynamics created by advances in technology, and of successive government attempts to stimulate competition through the enactment of new regulatory schemes.

First, a bit of history. For the

past four decades, rapid technological change in computers and transmission technology has consistently driven production costs of telecommunications services steeply downwards. At the same time, the regulatory environment, which was established to protect consumers from monopolistic abuses, instead kept most of the benefits of technological change from reaching consumers. For decades, in fact, telecommunications services price decreases have been much slower than cost decreases. In other words, companies did not exactly rush to pass on the full benefits of rapid technological change to their customers in the form of lower prices.

The 1981 government-imposed breakup, which created Seven Baby Bells to provide local service and left parent Ma Bell (AT&T) as a long-distance provider, was intended to remedy this state of affairs. By allowing companies other than AT&T to compete in the then lucrative long-distance market, the breakup did indeed create huge benefits to consumers. The advent and growth of long-distance players like MCI (later WorldCom) and Sprint lowered rates, to the point where residential and business customers now pay long-distance rates that are a small fraction of the 1981 price.

However, the AT&T breakup had another effect that was less beneficial for consumers. It fossilized the monopoly status of the seven local telephone companies that were carved out of AT&T: Ameritech, Bell Atlantic, Bell South, NYNEX, Pacific Bell, Southwestern Bell, and U.S. West. To be sure, prices did fall dramatically for long-distance rates. But they didn't fall quite as much as technological change and competition would imply. That's because the local telephone companies – the so-called Baby Bells – were allowed to charge "access fees" that were as much as ten times greater than cost to let long-distance calls travel the "last mile" along their lines to the consumer. As part of the 1981 AT&T breakup, local telephone monopolies were barred from entering the long-distance market since their huge access fees would have given them the ability to undercut long-distance prices and easily drive the long-distance providers out of business.

For decades, telecommunications services price decreases have been much slower than cost decreases. In other words, companies did not exactly rush to pass on the full benefits of rapid technological change to their customers in the form of lower prices.

Fifteen years after the AT&T break-up, the government again tried to remedy the competitive situation through a sweeping action. The Telecommunications Act of 1996 was supposed to level the playing field by allowing competition in local markets. Once that happened, the local monopolies could compete with their former parent in offering long-distance service.

However, things haven't quite worked out as intended. Five years after the passage of the landmark legislation, less than four percent of the local telecommunications market belongs to new entrants. Instead, each of the eight large local monopoly telephone companies at the AT&T 1981 breakup – the seven Baby Bells plus GTE – continues to control more than 96% of its market. As important, these firms have consolidated with one another, to the point where there are now only four large local telecommunications monopolies: Bell Atlantic, NYNEX, and GTE merged to form Verizon; Southwestern Bell, Ameritech, and Pacific Bell got together to form SBC Communications; U.S. West was acquired by Qwest, and Bell South remains independent.

The Telecommunications Act of 1996 ordered the local telephone companies to lease parts of their network to new entrants, so that competition would take place in local markets. But the local telephone companies have failed to do so. And this has led to the sub-

stantial failure of the Telecommunications Act of 1996, as well as to the demise of the hopes of long-distance companies to become major competitors in local markets. It does appear likely that local telephone companies such as Verizon may eventually be permitted to offer long-distance service – as Verizon already does in New York State – and therefore be able to sell both local and long-distance service to the same customer. But it seems very unlikely that long-distance companies will be able to capture significant market shares in local markets by leasing parts of the local telecommunications companies' networks.

Five years after the passage of the landmark 1996 legislation, less than four percent of the local telecommunications market belongs to the new entrants.

This state of affairs helps explain AT&T's strategic moves of the past few years. Facing great difficulty in entering local markets under the terms of the Telecommunications Act of 1996, AT&T CEO C. Michael Armstrong decided two years ago to get into the local telephone markets through broadband cable television connections. In other words, it would offer local service through the high-capacity coaxial cables that run into millions of American homes. Thus, AT&T spent billions of dollars acquiring cable television companies TCI and MediaOne, as well as a stake in TimeWarner. With a deep-pocketed and aggressive firm on the scene, and with the ability to offer telephone service over cable wires, it appears likely there could now be substantial competition in local telephone service. As an added benefit, the cable TV connection gives AT&T the possibility to sell high capacity Internet service and other broadband services, such as interactive video.

Given this set of circumstances, it may seem contradictory for AT&T to even consider divesting its cable television and wireless assets. Has the company lost its nerve and vision? I think not. AT&T's divestiture plan was formed in response to pressure from financial markets and large institutional shareholders. Despite its strategic moves and large investments in cable TV assets, financial markets apparently continued to value AT&T stock as if it were only a long-distance telephone company. Moreover, long-distance prices have been under tremendous pressure because a great deal of network transmission capacity was built up by several competitors over the last three years due to rampant Internet growth in the United States.

Thus, management came to believe that the value of AT&T as a sum of the values of its independent parts (cable-broadband, wireless, business services, and residential long distance) is indeed higher than the present value of the unified AT&T.

But if it makes good financial and strategic sense for AT&T to break itself into several parts once again, what is driving the seemingly contradictory mergers of the local telephone companies that emerged from the 1981 AT&T breakup?

At the 1981 AT&T breakup, the local telephone companies were allowed to remain monopolists in the local markets. The 1996 Telecommunications Act attempted to create competition in local markets and failed. Presently the local telephone companies are poised to enter the long-distance market without significant decreases of their market shares in local markets. Looking forward to the time when they will be allowed to sell long-distance services, local telephone companies have merged to expand their customer base footprint and become stronger competitors in the next battle among carriers that sell both local and long-distance services. Twenty years after the government broke up the longstanding MA Bell monopoly, the remonopolization of telecommunications is almost here.

NICHOLAS ECONOMIDES *is professor of economics at NYU Stern.*

For more on these issues, see Professor Economides' Economics of Networks website, http://www.stern.nyu.edu/networks, which has been ranked by The Economist *as one of the top five economics sites on the Internet.*

RAGING BULLS OR RAGING BULL:

INTERNET MESSAGE BOARD ACTIVITY AND MARKET EFFICIENCY

By **Robert Tumarkin**

The Internet is clearly playing an ever-increasing role in financial markets and personal finance. The six largest Internet brokerages cumulatively boasted over 12 million accounts in 1999 and grew significantly in 2000. And investors now benefit from a wide assortment of financial information available online, ranging from Securities and Exchange Commission documents to financial sites like the Motley Fool. • One of the more interesting phenomena on the web has been the growth of stock-related chat rooms and bulletin boards, which facilitate discussion among thousands of investors. Bulletin boards, which are not live forums, allow users to post messages for retrieval by others at a later time. A typical site contains distinct bulletin boards for each market security that users can discuss.

ILLUSTRATIONS BY DAVE BLACK

Recently, the press has sensationalized the activity in these forums, linking it to egregious examples of stock-price manipulation. For example, in February 1999, the stock price of a small Milwaukee-based toy company, Alottafun Inc., soared 382% based on speculation started in Internet chat rooms. Despite such examples, the vast majority of the discussion involves investors honestly expressing their opinions on securities markets.

Over the past several years, analysts and academics have tried to figure out a means to place appropriate values on Internet stocks. And some have focused on whether message-board activity has any bearing on stock prices. So, I thought it would be useful to examine the relationship among the volume, quantity, and quality of the opinions expressed on message boards about individual stocks, and the movement in stock prices. In other words, I sought to determine whether message board activity helps predict stock returns and/or trading volume.

I chose to focus on a single site – RagingBull.com – in part because it is extremely popular. Between April and November 1999, the site's membership tripled in size to 300,000, while averaging six million daily page views. In addition, RagingBull.com has some unique attributes. The site has categories for different ticker symbols. And it includes an "optional disclosure" feature, which lets users clearly indicate their opinion on the short and long-term prospects of the stock by selecting *long*, *short*, or *no position*. Similarly, users can issue *strong buy*, *buy*, *hold*, *sell*, and *strong sell* ratings for both the short-term and the long-term.

TABLE 1 : DESCRIPTIVE STATISTICS FOR INVESTOR OPINION ON EVENT DAYS

	Raw Change in Weighted Opinion			Adjusted Change in Weighted Opinion		
Group	**Strong Positives**	**Strong Positives**	**Negative**	**Strong Positives**	**Strong Positives**	**Negative**
Average Value	27.97	3.11	-2.85	1.57	0.70	-0.76
Maximum	177.60	6.00	-0.33	2.00	1.14	-0.08
Minimum	6.00	0.25	-12.00	1.18	0.08	-1.81

Because much of the discussion on sites like RagingBull.com revolves around high-technology and Internet companies, I chose to examine the postings and activity in a group of 73 Internet service companies drawn from Zacks' Internet Services sector group. This group included well-known, large firms like Yahoo! (market capitalization $114.8 billion at the time) and many obscure companies, like Biznessonline.com (worth $53.1 million at the time). The sample had a medium market capitalization of $1.12 billion.

For this study, I downloaded some 181,633 messages posted between April 17, 1999, the day when the opinion-disclosure feature was added to RagingBull, and February 18, 2000. Of that total, 43,794 (24.1%) contained short-term opinions, 37,810 (20.8%) had long-term opinions, and 52,812 (29.1%) included a general "voluntary disclosure." Most stocks did not have a huge number of postings each day. The mean stock message board had an average of 7.6 posts daily, while the median message board had 2.5 messages per day. The maximum average number of daily postings was 103.6 – for CMGI Inc.

The next task was to calculate the average short-term opinion. Messages with short-term strong-buy recommendations were assigned a value of +2. Similarly, messages with short-term *buy*, *hold*, *sell*, and *strong-sell* recommendations were assigned values of +1, 0, -1, and –2, respectively. These opinion values were averaged on a daily basis to calculate the daily average opinion for each stock. The mean daily average opinion was 1.56, while the median was 1.64 – somewhere between a *buy* and *strong buy*.

I also weighted opinions for each

stock on a daily basis. Each message with a short-term opinion was assigned a value according to the aforementioned scale. These opinions were added to calculate the daily weighted opinion, which was then averaged for each stock. The mean average daily weighted opinion was 6.09, while the median was 3.44. The standard deviation of the average daily weighted opinion value was 9.49. The maximum was 56.64 (CMGI Inc.) while the minimum was 1.14 (TheGlobe.com).

Next, I calculated the arithmetic average and standard deviation of daily returns for each stock during the sample period. The mean arithmetic average of daily return for the stocks was 0.677% and the median was 0.648%. The maximum average daily return was 2.53% (Be Free Inc.) and the minimum was -0.58% (Flashnet Communications). The average standard deviation of daily returns was 7.59% and the median was 7.39%. The maximum standard deviation was 13.37% (Cobalt Group) and the minimum was 4.80% (Cybercash). As might be expected, given the volatility of the Internet sector at the time, the average return and standard deviation of returns are very high compared to average values in the stock market during the sample period. The final piece of data was compiling the average trading volume for each stock.

I then subjected this data to two methodologies: a vector autoregression (VAR) analysis and an event study.

FIGURE 2: ABNORMAL RETURNS AROUND THE EVENT DAY
(Categorized by Raw Weighted Opinion)

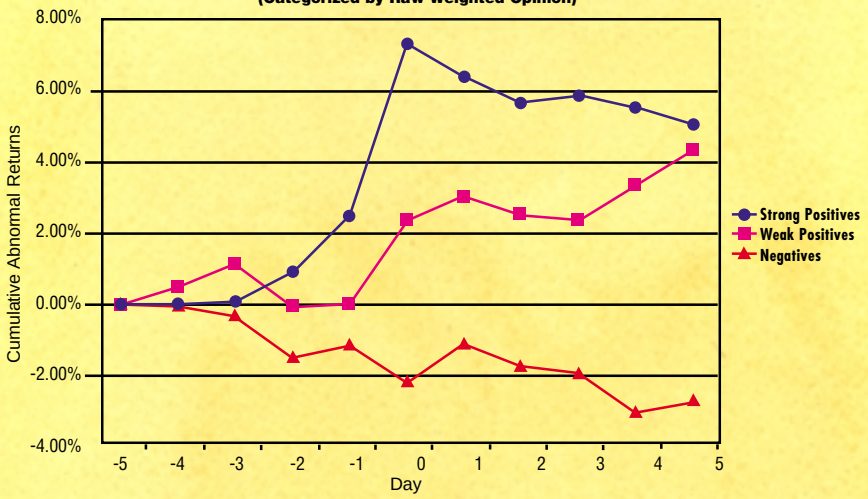


FIGURE 3: ABNORMAL RETURNS AROUND THE EVENT DAY
(Categorized by Adjusted Weighted Opinion)

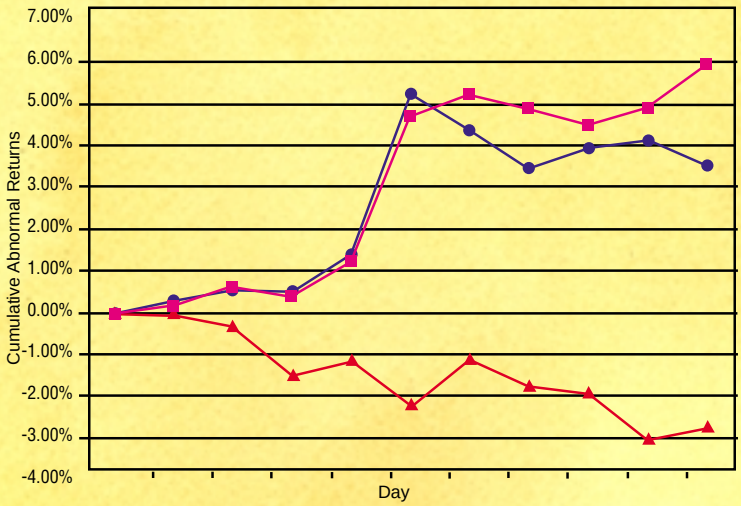
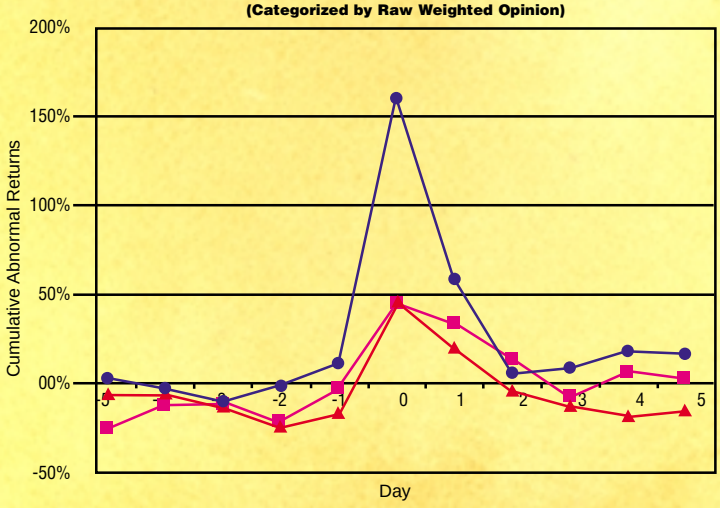


FIGURE 4: ABNORMAL TRADING VOLUME AROUND THE EVENT DAY
(Categorized by Raw Weighted Opinion)



VAR Analysis

I also performed a vector autoregression (VAR) analysis – on a stock-by-stock basis – to examine the general relationship among stock returns, trading volume, message postings, and weighted opinion. This analysis showed that none of these factors was useful in predicting stock returns one day into the future. The analysis did show, however, that high trading volume days tended to precede days of high trading volume – and that low trading volume days tended to precede days of low trading volume. In other words, the opinion represented in bulletin-board messages were not helpful in predicting daily stock returns. This is consistent with market efficiency.

And days with high trading volume and positive weighted opinions are followed by days with greater message activity. Finally, weighted opinion is dependent on the number of messages and opinions posted on the previous day. Positive opinion days tend to follow days with positive opinions. The dependence of weighted opinion on the number of messages posted is consistent with the simple summation method used to calculate weighted opinion and the observation that each message board had positive average daily weighted opinions.

The Event Study

Since it was clear that bulletin-board opinions had no effect on stock prices in general, an event study was conducted. The event study attempted to answer the question: Does an unusual level of bulletin-board discussion measurably impact stock prices? Days with unusual levels of discussion were termed "event days" and were defined as those with message postings that exceeded the previous five-day average by at least two five-day standard deviations. (Event days in which fewer than 10 messages were posted were excluded from the sample.)

Over the past several years, analysts and academics have tried to figure out a means of placing appropriate values on Internet stocks. And some have focused on whether message-board activity has any bearing on stock prices.

I examined two opinion metrics to determine the strength of opinion changes on the event day. The raw change in weighted opinion was calculated as the difference between the event-day weighted opinion and the average weighted opinion over the previous five days. The adjusted change in weighted opinion was calculated as the raw change in weighted opinion divided by the standard deviation of weighted opinion over the previous five days.

The event study found a total of 293 event days. Forty-seven of these days had opinions lower than the previous five-day average, and were classified as "negatives," while 241 of the event day opinions were greater than the previous five-day opinion average, and were dubbed "positives." (Five event days had opinion equal to the previous five-day average). These positives were further split in half. The "strong positives" category contained those with event days with the strongest opinion change. The "weak positives" contained the remaining event days – those with the weakest positive opinion change. **Table 1** presents descriptive statistics for the changes in opinion on the event days.

Adjusted Returns and Abnormal Trading Volume

Because of the high and volatile returns in this sector, it was necessary to adjust the daily returns for industry returns. So, I adjusted the returns on my chosen 73-stock portfolio using the Philadelphia Stock Exchange (PSE) Internet Index. The industry adjusted return was defined as a stock's daily return less the return on the PSE Internet Index.

Abnormal trading volume, which is defined as the percentage change in trading volume on a given day compared to the average trading volume, was computed for each ticker and

each day during the sample period. A 20-trading-day period preceding the day in question was used to calculate the average trading volume.

The Results

So what did I find? **Figures 2, 3, and 4** show the industry-adjusted returns and abnormal volume for a five-day period surrounding the event day. It is apparent that only strong-positive-opinion events classified using the raw change in weighted opinion show a statistically significant positive drift up to the event day (**Figure 2**). Returns for weak-positive-opinion events are statistically flat leading up to the event day. Negative-opinion event days seem to show a downward drift up to the event day, but the phenomenon is not statistically significant. On the event day, both strong and weak positives have statistically significant, positive industry-adjusted returns (**Figures 2 and 3**). Negative-opinion event days have a slightly negative industry-adjusted return, which is not statistically significant. Returns for all the opinion groups are statistically flat after the event day.

Similarly, trading volume is normal leading up to the event day. But on and one day after the event day, there is a sharp increase in trading volume (**Figure 4**). The strongly positive raw change in weighted-opinion group shows the most significant increase in trading volume. For that group, approximately 160% more shares are exchanged on the event day than on the previous 20 days. Trading volume retreats to more normal levels approximately two days past the event day.

The results show that message board activity is definitely linked to stock price movements. However, abnormal message board activity does not help predict future stock price movements over a one-day or five-day window in the future.

The results show that message board activity is definitely linked to stock price movements. However, abnormal message board activity does not help predict future stock price movements over a one-day or five-day window in the future. This observation is consistent with market efficiency. On the event day, strong-positive and weak-positive event days showed statistically significant returns in excess of the industry index. Therefore, abnormal message-board activity is coincident with abnormal stock returns. Using this methodology, however, it is impossible to determine whether activity on the message boards causes or is the result of abnormal returns on the stock.

Conclusions

So, can one predict future stock returns and performance based solely on message board activity? Not really. The event study shows that returns following abnormal Internet message-board activity are statistically insignificant. However, statistically significant positive returns precede the days with strong positive opinions and abnormal message board activity. Furthermore, stock returns and message-board opinions on days of abnormal message-board activity appear to be related.

These results are significant because they counter the conventional wisdom that Internet service stocks are valued irrationally. In general, message-board activity and opinion do not appear to impact stock prices in a significant, industry-adjusted fashion. Furthermore, abnormal message-board activity does not appear to predict significant abnormal returns. In sum, at least in the period I studied, the valuation of Internet service stocks appeared reasonable and consistent with market efficiency.

ROBERT TUMARKIN, *a 2000 NYU Stern graduate, is an analyst at Mezzacappa Management, a New York-based hedge fund.*

The author wishes to acknowledge the assistance of Professor Robert Whitelaw.

The research discussed in this article was completed with a grant from the I. Glucksman Institute for Research in Securities Markets at Stern. The paper in its entirety will be published in a forthcoming issue of the Financial Analysts Journal.

By **Daniel Gross**

GoldenOldies

No issue dealing with finance would be complete without some mention of gold. After all, the metal – chemical symbol AU – holds a special place in the popular imagination.

There's the Golden Gate Bridge in San Francisco and the Golden Rule. The Golden Gloves and Gold's Gym. High-quality services are gold-plated. In the Olympics – as in so many other realms – gold is a symbol of excellence, wealth, and enduring value.

But in the realm of finance, gold doesn't quite have the glow it once had. In his new book, *The Power of Gold: The History of An Obsession*, (John Wiley), economic historian Peter Bernstein describes how the metal has been an object of desire and medium of exchange from time immemorial.

Greek and Roman emperors stamped their visages onto gold coins. And because its beauty, durability, and rarity were universally recognized, gold made an excellent medium of exchange.

The search for gold fueled the discovery of the New World. But the august metal didn't become the basis for a paper currency until the early 1700s, when the Bank of England began printing bank notes that could be redeemed for their face value in gold. Thus was born the gold standard.

ILLUSTRATION BY DAVE BLACK

In the 19th century, the gold standard spread throughout Europe. And once massive gold strikes in California and the Yukon increased the domestic supply, the U.S. officially joined the international gold standard in 1900. (That year, 20 bucks could buy a single ounce of gold.)

Amid the crisis years of the Depression, many nations dropped the gold standard. But the U.S. clung fiercely to the gold standard until 1971. Ironically, gold soared to prominence after it was dumped as a monetary standard. For in the 1970s, the onset of inflation made gold seem a comfortable haven. The price of gold quintupled from $100 per ounce in 1973 to $500 in 1979. And on January 21, 1980, in the dark days of stagflation, gold soared to an unthinkable $850 per ounce!

But as the economy stabilized, gold fell out of fashion as an investment. From its high point in 1980, the price of gold has fallen about 70% in real terms. Back in 1980, that $850 ounce of gold could buy one mythic share of the Dow Jones Industrial Average. Today, that same imaginary share of the Dow, hovering near 10,000, is worth 41 ounces of gold!

Indeed, gold has become, in many ways, just another industrial metal – used for dental fillings and other prosaic uses.

But for all its decline, gold isn't exactly cheap. And some of the old clichés about gold hold true. Any adult worth his or her weight in gold, for example, would still be a multimillionaire.

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

NEW YORK UNIVERSITY
NYU STERN
LEONARD N. STERN
SCHOOL OF BUSINESS

Office of Public Affairs
44 West Fourth Street, Suite 10-83
New York, NY 10012