

Imagery and Financial Judgment

Donald G. MacGregor

Donald MacGregor: I am going to talk today about imagery and imagination, which is really what I used to put this talk together, along with a little bit of data. Unlike David's presentation, which had a lot of data and a little speculation, mine is a little bit of data and a lot of speculation.

Images of financial markets are all around us, and particularly in the media. Sometimes these are part of quarterly reports, annual reports, magazine articles and the like. You've all seen these images: Somebody looking upward and climbing up high on a tower, the quintessential arrow moving upward (we always have to have that), and perhaps a piece of currency on a flagpole. Though such images seem commonplace in the financial world, you probably have at least some reaction to them, a feeling to which they give rise. Perhaps it's a comforting feeling based not so much on the individual elements of an image, but rather on the image as a whole. The gestalt psychologists called this sense of wholeness or completeness "pragnanz," which means that the image has good form to it. The principle of pragnanz proscribes that images will be interpreted in the simplest possible way. In the vernacular of my generation, we would say the image "hangs together." We have different terms in our language for describing such cohesion, which is at least partly reflective of the psychological importance we attach to wholeness or unity in perception. With regard to markets, visual images often don't say very much specific about market conditions (unless, of course, they are used to communicate data), but the feeling one gets is generally positive and optimistic.

Another thing to notice about these kinds of images is the enormously powerful use of language that conveys the concepts. There is, if you will, a language that is used to talk about financial markets, and much of what we react to in market images is a sort of "stock-speak." That language carries with it a tremendous amount of emotionality. I find David [Dreman]'s comment about people abandoning their training very, very interesting because pretty much all of the studies that we

have done about financial judgment involve people who have relatively little training. As a consequence, in difficult judgment and decision-making situations, they have little to fall back on except their imagery.

This table [Table 1] is an example of the effect of that tendency on people's expectations of the stock market. This is a study that was conducted in 2000. We interviewed people who were between the ages of 45 to 55 years. People in this age range are often starting to think about retiring anywhere from 10 to 20 years away. Some of the questions we asked them had to do with what their expected rate of return was on their financial portfolios. Approximately two-thirds of a sample of 398 people had such portfolios.

You see here an effect that we've seen in other studies. I use it here to illustrate the point that when we asked expected rate of return for next year versus annualized rate of return for the next 10 years, people were expecting that they were going to be returning about 16 percent annually, but a little more conservative for the next year than farther out.

When we ask the net rate of return taking inflation into account it drops a little bit to about 14½ to 15½ percent. Notice that 10 years is always a little more optimistic than the next year. Those respondents who had a financial advisor were even more optimistic, which is somewhat difficult to explain, except that perhaps these people are getting involved in the markets in a different way or they feel more confident because they have an expert in their corner. The group that had no advisors tended to have quite flat expectations, but still fairly optimistic. Basically, what we're seeing is that these investors had very optimistic and positive views about what they're going to make in the

Table 1. Retirement Plans and Financial Expectations:
Financial Judgment of Pre-Retirees Ages 45–55

Expected Rate of Return	All	Advisor	No Advisor
"Next Year"	15.8%	16.7%	14.7%
"10 Years"	16.6%	18.1%	14.7%
Net Rate of Return			
"Next Year"	14.4%	14.3%	14.4%
"10 Years"	15.5%	16.3%	14.2%

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way of returns on the stock market, and investors who have advisors are even more optimistic.

This table [Table 2] contains results from a group of 260 financial advisors who were surveyed in 1998. They were selected from a large database of advisors who were associated with or were customers of a mutual fund company. We asked them to make a number of judgments relating to financial markets. One of the things we asked them to do was to give us their images of the stock market. I'm not going to go too much into the methodology of how we did this, but basically they were asked to associate to the stock market and to write down their images. Here you see some of the linguistic images they gave us.

I haven't done a content analysis of these images yet. What we notice here first is that when asked to rate these images in terms of their affective or emotional reaction, they tended to rate them as positive. In fact, their positive images tended to rate very high. When we looked at their negative images they tended to be closer to neutral than were their positive images. What we see here is a quite positive emotional response to some of these images of the stock market.

Another group gave us images [Table 3] relating to the performance of mutual funds, in this case over the next 10 years. Again, quite positive views about mutual funds with few negative images. The negative images generally tended to be fairly neutral. What's interesting when you look at these is if you see a word like "meltdown," for example, the concept meltdown should be a fairly strong word, but in this particular context it still draws only a small affective reaction. So in gen-

Table 2. *Financial Advisor Study: Images of "Stock Market"*

Positive Images	Negative Images
"A great tool for retirement savings" (9)	"Hard to manage client expectations" (1)
"Capital growth opportunity" (9)	"High risk" (1)
"Excitement—legalized gambling from home" (9)	"Large caps have been their best gains" (3)
"Fluid" (9)	"Overvalued" (2)

Table 3. *Financial Advisor Study: Images of "Performance of Mutual Funds Over the Next 10 Years"*

Positive Images	Negative Images
"Great growth" (9)	"Expense ratios are becoming prohibitive" (1)
"Ideal flexibility" (9)	"Clients as owners or servants" (1)
"International funds will shine" (9)	"Inhibited by excessive costs" (2)
"Consistency" (9)	"Meltdown" (1)

Table 4. *Financial Advisor Study: Images Valences*

Image Valence	"Stock Market"	MF "10 Years"	MF "Next Year"
Positive	63.4%	55.7%	39.6%
Neutral	7.3%	9.4%	12.4%
Negative	29.3%	34.9%	48.0%

eral, the linguist carriers of emotion, the words that people use to describe the market, the "stock-speak" if you will, tend to be attached to very positive emotionality. Even the negative images are relatively neutral. We can see this in another way in this next figure [Table 4].

If we take all the image valences (positive, neutral, negative), collapse them, and look at the percentage of the stock market images that are positives, neutrals, and negatives, what we see is people's reactions to the market is predominantly positive. When they react to mutual funds, a segment of the market, but over a fairly long time, they're still predominantly positive but slightly less so. When they react to mutual funds next year, the positive imagery tends to decline.

In this figure [Figure 1], we see the effect of eliciting images in succeeding order, that is to say, give me your first image, your second image, your third image; what we see is a consecutive decline in the power of these images. That is, the first image tends to be the most positive; the second image tends to be less positive; the third image; fourth image and so on. These are significant differences, and there are a couple hundred images at each of these points.

We can then ask: With what do these image ratings [Table 5] correlate? Do they correlate with anything that's meaningful in terms of financial judgment? When we asked this group of people to make judgments such as the long-term prospects for the U.S. economy, whether or not they think domestic stocks are overvalued, or whether they would invest in small cap stocks or blue chip

FIGURE 1
Mean Image Rating by Image Order

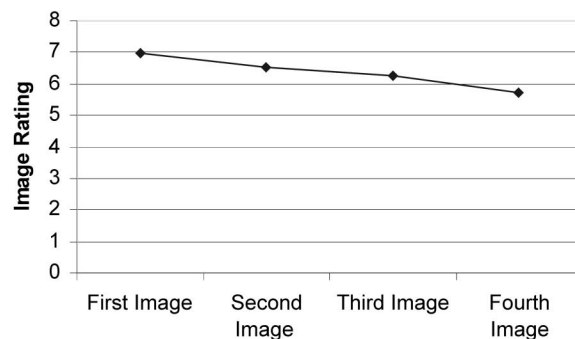
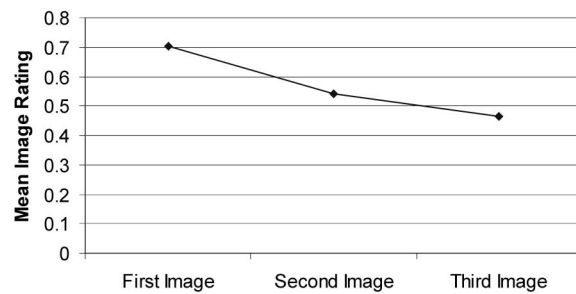


Table 5. *Financial Advisor Study: Correlations of Image Ratings With Selected Judgmental Variables ($p < .01$)*

Judgmental Variable	Image Ratings: "Stock Market"	Image Ratings: "Mutual Funds"
Mutual fund rate of return: 12 months		0.34
Mutual fund rate of return: 10 years		0.48
Long-term prospects for US economy	0.35	0.43
Domestic stocks overhauled	-0.31	-0.33
Likelihood of investing: Small Cap Stocks	0.44	
Likelihood of investing: Blue chip stocks	0.38	

stocks, we see the effect of imagery on attitudes and judgments about financial markets. The more positive that respondents saw the stock market in terms of image ratings, the more likely they were to see the long-term prospects for the U.S. economy as positive, the less likely they were to see domestic stocks as overvalued, and the more likely they would be to invest in small caps.

We've extended this basic paradigm to studying other groups as well. These results are from a study we did in May of 1995 of a group of upper division business students at James Madison University. All were students in an investment course and we were looking at a number of different issues around financial judgment, including how their images relate to their judgments of performance of markets and also how likely they would be to buy an IPO in a given market sector. We divided the stock market up into the FactSet industry groups and selected the 20 that had done the best and the 20 that had done the worst in 1994. We then used these 40 groups giving each subject 20 groups to evaluate. They accomplished this task in a small booklet that was split in half. On one side was an industry group (such as Marine Transport), and below it was a place to write images of the industry group. On the other side was a coded page where they indicated for each of the images whether the affect associated with the image was generally negative, generally positive, or neutral. This was followed by a number of judgment scales relating to the various industry groups. This paper was published in the second issue of the Journal, so you can access it there.¹ There were three judgments that were of most interest to us. The first was: Compared to the market average for all stocks traded on the New York Exchange, how well did stocks in this industry group do in 1994? A second scale was basically the same except the question asked how well would stocks do in the

FIGURE 2
Mean Rating of Images by Order

coming year. A third question asked: If you were considering buying stocks in new companies, how likely would you be to buy shares of a new company that belonged to this industry group?

Just as a background, the Dow closed 1994 at about 3800. At the time that we did the study, the Dow was at about 4300 to 4400 so we had a pretty good run-up at the beginning of the year, but it was holding in the mid-4000 range during the April/May period. And there was a run on Monday, May 9th. So we had an opportunity to look at how well their imagery related to their judgments about 1994, 1995 and willingness to buy IPO's.

When we look at the rating [Figure 2] of their images by order, we see that the first image is generally positive. The second image is still positive, but less so. The third image is less positive than the second. Here again we see a decline in the image ratings with order of elicitation. It appears that as people reflect on images, the first ones to come out are the more positive ones.

In this table [Table 6] we see the correlations between image ratings, judgments of market performance, and actual market performance. The correlation of judged market performance for 1994 with actual returns in that year for the industry groups that they judged was modest. But judgment market performance correlated very, very highly with willingness to buy an IPO. The same was true for the judged performance of the market in 1995, which correlated almost not at all with actual 1995 performance. Essentially, by May of 1995 respon-

Table 6. *Imagery, Affect and Financial Judgment*

	Market Performance 1994	Market Performance 1995	Buy IPO
Judged performance (1994)	0.39		0.79
Judged performance (1995)		-0.01	0.90
Buy IPO	0.23		
Buy IPO		-0.04	

dents had picked up on what the market had done in 1994 and this correlation generally reflects their knowledge of the past year, but by May of 1995 their knowledge of the market and awareness of it was not sufficient to predict very well what the performance would be for the rest of the year. However, their judgments of 1994 and 1995 market performance both correlated very, very highly with their willingness to buy an IPO.

So what have we observed about financial images so far? First, we've observed that long-term images tend to be more positive than near-term images. When we asked people to reflect on the market, we get more positive images. When we ask them to reflect on some subset of financial markets such as mutual funds, it appears that first images are stronger than later images. And, image evaluations correlate with financial judgments. The relationship between market-related image ratings and other ratings of market performance are linked together in terms of a consistent affective system. That is to say, the affect associated with images influences judgments of performance that people make about financial offerings, such as their willingness or intention to buy an IPO. And indeed, that's what we did see in this particular study. Imagery and affect [Figure 3] is fairly predictive of how people judge the performance of the market, but there is very low correlation between these factors and actual market performance.

There are a number of ways that we could explain this, and I'm not going to go into all of them today. I'm just going to touch upon a couple of them and move forward to conjecture about what other kinds of studies we might do and approaches we might take in analyzing this data. There is an old theory within psychology: Miller's approach-avoidance gradient. Those of you who are psychologists or remember your psychology courses, might remember that Miller had this idea based on studies of rats. Essentially, when a goal object has both approach and avoidance characteristics (that

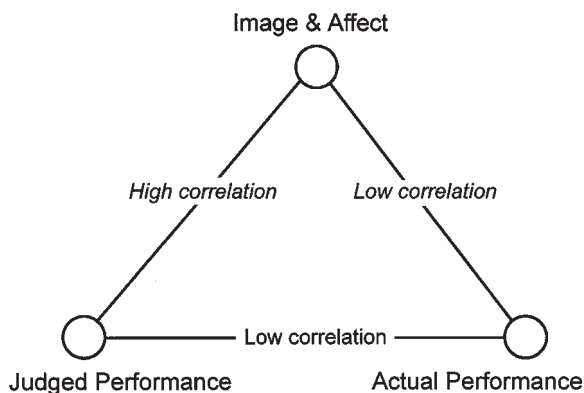
is "goods" and "bads"), people resolve the conflict according to the psychological distance between themselves and the object. According to Miller's theory, the farther away people are from a goal object, the more likely they are to see it in terms of its approach characteristics, which are the good things. From this distance, the avoidance characteristics seem to be much less salient. As one comes closer to the object, its avoidance characteristics dominate. Somewhere in the middle is a conflict point. Though Miller used physical distance to test his theory, temporal distance might operate similarly. For example, this may be one of the reasons why we are more likely to agree to give talks that are scheduled two years down the road rather than agree to them two weeks in advance. It is because two years down the road all we can think about is how laudatory a reception we're going to receive, so you really want to schedule your speakers out way in advance because Miller's theory says they tend to focus mostly on the approach characteristics.

Voice: Is this also a statement that the grass is greener on the other side of the fence?

Donald MacGregor: It can be, but I think it's more a statement that the farther you are away from something, the better it looks if it has both characteristics. We can also ask questions about optimism in this context. Certainly we can interpret the kind of data that we see with regard to financial judgments in terms of an optimism bias. For example, if you ask people, "Are you better or worse than the average driver?" three-quarters of the people would say they're probably better. You could ask that question about stock investors. Optimism bias would predict that people will tend to say that they are better than the average investor. How can everybody be better than average? We could also ask what is optimism? Maybe optimism is something that varies with time horizon. We haven't studied this aspect of optimism very much. Nor have we given a great deal of study to the effect of time horizon on judgment. There are some aspects about the future where people's use of imagery tends to be highly abstract. And, like all abstractions, it's relatively easy for people to impress upon them their own ideals. In fact, the less that's there, the more you have the opportunity to make it something other than what it may really be. Another part I think is important to consider is that sometimes the future is more cognitively congruent. It's easier to perceive the future in simple terms, and therefore it's easier to grasp. That allows us to be more optimistic or if it's the reverse, people may be very, very pessimistic.

We can also ask: from a psychological perspective, what is the function of imagery? I would put

FIGURE 3



it to you that maybe as much as lay investors use imagery, I think even technical analysts use imagery. It is just imagery based on something different than what the lay investor uses. So maybe if we ask questions more about the function of imagery and how it works in judgment, we would get a little bit farther with this.

Frederick Bartlett did studies of imagery back in the '30s. He was one of the first psychologists who proposed a dynamic theory of recollection by which we don't actually recall things as a computer might recall things, i.e., by simply going and retrieving them, but instead we construct a memory on the basis of our impressions of the past. And, since one function of imagery is to help us make use of past experience to manage current situations, our views of the future are constructed. A more modern view of this comes out of some of the work by Damasio, which hypothesizes that imagery is a way that we anticipate future situations. Imagining the future allows us to simulate the emotional experience of a coming event. So imagery may serve as a mechanism for anticipating how we might respond in the future.

However, I think there are some real questions about how far we can actually project our emotions into the future. In some ways we're called upon to think of a future that we never actually experience emotionally but that we believe that we can. John Locke saw that imagery reflected a human tendency to view the world in terms of similarities rather than differences. This shows up in research on judgment decision-making. Locke was a very fascinating person to read because he made a distinction between what he called "wit," which was the ability to see similarities, and what he called "judgmental discernment," which he thought was the much more difficult task of seeing differences. Maybe that's what we're seeing today as people respond to financial markets. They're actually taking the easy route by seeing things in terms of similarities. They see how everything is going up or how everything in this particular sector is increasing in value rather than exercising the power of discernment. That isn't something that everybody has and maybe it's something that has to be trained in school.

Imagery also does a wonderful job of extending experience across time and allows us to see ourselves in the future and imagine a future world. It allows us to express our ideals. It is a wonderful organizing principle. Imagery allows us to put things into consistent, coherent pictures, stories, if you will, that allow us to simplify the world. And I think that we really cannot undervalue or should not undervalue the role of imagery to entertain and

impress. Certainly one of the things I think every investor notices is that you don't play in the game very long before it's really fun to talk stocks. And talking stocks carries with it, through language, an enormous emotional component of the imagery, which is perhaps one of the driving forces here.

I have always been impressed by the images of the future created by various "space artists" such as Chesley Bonestell, who was the father of space art. He was one of the first people to use graphic imagery to convey what it might be like for humans to be in space. His drawings portrayed a world 20, 30, 40 or more years in the future. They are very abstract images, highly idealized. Images such as these also tend to be schematic, very minimalist, and quite optimistic. They tend to show what could be.

So the image we have of the future, of 20 years down the line where my portfolio will hopefully someday be, is an abstract idealization. It tends not to have very fine-grained details. In contrast, near-term images are much more concrete. They're psychologically complex, and muddled by a reality I can perceive and feel.

To come back to space art, a lot of the imagery we see, for example, that's developed by the space industry, tends to include people in images because the future that is portrayed is much more emotionally engaging. For investors to be emotionally engaged in our stock future, we have to be able to see ourselves in that future and imagine that that is us and we are the ones making the money, i.e., the 18 percent return is *our* portfolio. The numbers don't do that. The financial analysis is very difficult to use to project forward and feel emotionally engaged in the future, but we feel much more emotionally engaged by imagery. Without a personalized sense of the future, it's much more difficult to feel engaged with it.

So what are some of the problems with imagery? Like all tools that we use, sometimes they serve us well, but sometimes they don't serve us well. First of all, I think we have to look at a general trend in society today toward extreme time frame thinking. It's brought on by a number of different issues in society. First of all, we're much more interested in environmental protection and preservation. So we ask people now to think about their actions today in light of a future 20 or 30 years away or more when the consequences of those actions will be experienced, perhaps by people who have not been born yet. We now ask people to make health-related choices earlier in life than we used to. We ask people to think about how much they smoke or how they're planning to take care of themselves in terms of their health status for the future. We now ask people to think care-

fully about their financial life in retirement as early as their twenties and thirties, and the implications that their financial decisions will have for their long-term health care needs and nursing care needs. Perhaps we are pushing people outward to think about time frames that are farther and farther in the future and this may pose some serious challenges to our psychology. We can comprehend a distant future in terms of abstract images, but images may induce judgmental biases. People may not have the ability to reconcile near-term and long-term images or to recognize the effects of long time frames on judgments they make today. The ability to decompose a future back to its implications for the present is not an easy thing to do and may be an unnatural psychological task though it may be able to be done analytically.

A second point is that language is an extremely good carrier of emotion. This may be one of the areas where people are perhaps least aware of the extent to which they are influenced by the linguistic imagery that pervades their information environment. It's difficult to project ourselves emotionally into the future. The temporal frame in which we live our life is limited to the degree that we ask people to make these long-term judgments and may bias people toward unrealistic positivism and toward some distant future that, in fact, never does arrive. It's simply an idealization of what they would like to see.

So what does this mean for bubbles? Well, certainly I think we can say that the expansiveness of markets reflects, at least in part, expansiveness in market psychology. And probably others here are better equipped to speak to that than I am, but it's my sense that there's a diversity of viewpoints in the market these days about what the appropriate way to invest is or how we should view investing. Should one follow a contrarian strategy? Is a value strategy or a growth strategy better? What do all these things actually mean when confronted with specific, near-term financial decisions? We all tend to have some theory about the market and how it works and what's going to go where. I question whether or not we are in an information environment. It's possible that we're more in an affectation environment. "Information" has very little information value in a great deal of what we see in the market news.

For example, I was watching MarketWatch this afternoon and it seemed more like a commentary on a sports event that was never going to end. So we never know who's going to win or lose, but we are always going to have a discussion about what the stats are. In the sports version of the financial world, the moment kept getting smaller and smaller, and we were down to one guy in one company talking about how the price was moving at the moment. I

wondered whether I was getting information or whether I was simply caught in an emotional environment that I couldn't resolve in any way.

In light of this discussion so far, what can be said about how bubbles are made in financial markets? This is an area that is quite open to both conjecture and study. I'll begin with conjecture. First of all, it takes a perception that the greater financial risk is being *out* of the market rather than in it. This perception has to be maintained despite market fluctuations. Another possible requirement is a perception that no other investment alternatives are available or feasible. I question these days whether the vast majority of that 65 percent that David [Dreman] was talking about, the lay investors that participated in the markets, whether they are actually participating as a result of a choice, or whether they feel that they're there because they have to be.

Third, judgmental reliance on linguist imagery, i.e., what is good or what excites me, has to be based on the language that I'm getting either through, for example, the Internet, social networks, from my broker, or from my advisor. So linguist imagery, I think, plays a very big role in what it takes to maintain the bubble. In addition, we may need an exaggerated time horizon of 20 years or more. We have to have people thinking well beyond the present. And we also have to have a generally limited ability to analyze fundamentals and to incorporate fundamentals into decisions and choices about investment alternatives. The prospects for the lay investor in this area appear somewhat dim. If the highly-schooled investors that David [Dreman] was talking about in his presentation can't hold on to the fundamentals in light of what's happening within their own investing culture, then how can the lay investor do that?

Voice: I've done a calculation relating to one of your points on the long-term time horizon based on infinitely many terms in time, an infinite time frame. If you were to take a more realistic approach at what a price of earnings of one hundredth stock should equal if it's earnings were growing at 7.2 percent a year, it would take 40 years for it to match a governmental T-bill. I mean the math works out. So that's a very long time, longer than most people comprehend for that matter.

Voice: It's more than just life spans. Outstanding performance might last a couple years, at most. So they're tabulating stuff that simply disappears.

Donald MacGregor: But it's an extrapolation that people are called upon in some sense to make. There are social forces that push people into making those kinds of judgments and to considering the 20-year time span in terms of things that they are doing now. It isn't as if people are concerned about a

20-year time span on their own. It comes from a lot of places like financial advising. You can sit down with a financial advisor and they begin to ask you questions. “Well, how do you want to spend your retirement years?” I haven’t got a clue, but you do need to think about those things. And people are called upon more often to answer questions such as how much money do they need to even retire. Let’s take 80 percent of your pre-retirement income as a number. Who knows what that means? Then we’ll back it out and get a number and market expectations in order to achieve that.

So as a culture, many people are immersed, if you will, in long-term thinking. We’re asked to think about what the planet will be like in 20 years when we leave it. Okay, we’re going to clean up the environment and it’s going to take 20 years for that to happen. We’re always asking people to envision a future, an idealization of the world ahead. I don’t know if we have any data on that to make the point that it’s more prevalent now than ever before, but certainly it seems it’s more now than ever before that we’re asked to project ourselves that far forward. So if we do that, what psychological resources do we draw upon? Well, visual imagery is certainly one.

David Dreman: You know, in some of the earlier figures you had there seems to be a fair amount of optimism. But when you look at the projections, if it was 18 percent or 16 percent rates of return, I know 18 percent in 10 years comes out to 60,000 for the Dow Jones Average. So people really seem to be very, very optimistic. They may just put down a number—I expect my portfolio to grow 50 percent—but they don’t really realize how much money that is or what sum that will add up to.

Donald MacGregor: We’ve seen this in many studies of judgment. For example, even that study. We’ve asked people to make a number of different judgments such as how much do you expect to spend a month on health care in retirement? You can ask people a lot of questions and certainly you can get some numbers out of them. The question is do those numbers make sense to them? Are they coming from some internal calculus that is coherent? The answer is generally, no—they’re responding to the question as it’s presented. They’re getting through the task that you’ve asked them to do and they’re pulling some number out of a hat from somewhere. Maybe they’re responding to an image that they have. However there will not be internal inconsistencies in their judgments that people would know if I said 18 percent. I don’t think lay investors have the ability to recognize the meaning of one set of numbers in light of some other set of numbers that you generate based on what they gave you.

Voice: Is it reasonable to think that if you know a lot about imagery that you can create an image where you can reverse an image? In other words, I’ll go back to the ad with the image that the analysts presumably know how to predict and they’re trying to teach them how to do better, i.e., we know differently because we’re smarter. So how do you reverse that image? How do you change that? How do you create an image among investors that they are making bad decisions on the basis of their current imagery?

Donald MacGregor: When you say investors, I presume you’re talking about the semi-educated street investor?

Voice: Sure, take the 65 percent, the people who probably need the most help.

Donald MacGregor: I think people may not know what a good image is in the sense that you’re describing a good image. You’re saying a good image is one that comes from good financial analysis. So to the degree that good financial analysis provides that, then certainly. For example, what David [Dreman] represented earlier is an example of good imagery. But if some investors are not good analysts, where would they get that good image that should come from good analysis? That’s not something that people can inherently do for themselves. Many people, including many investors, have a difficult time with numbers. Analysis is a skill. It’s something that people learn and some people fall into a culture of it.

Voice: Well, CFA is creating a very strong image right now that if you have a CFA, you are better at what you do. To what extent that’s going to be categorically proven is questionable, but what they do is they put people like Gary Brennan and Abby Cohen in pictures. Both of them were chairman of the AIMR at one time or another and they are known personalities in the industry. They say getting your CFA is good. It will make you smarter, richer, better. Essentially, that’s what they have in mind. Now that isn’t necessarily true. So how do you fight City Hall?

Donald MacGregor: If one is trained on how to do something, they have learned the skills, often analytical skills. For example, suppose I am trained as a marksman to hit a target out on a firing range with an M-16. So in a sense, I have learned a set of skills, if you will, of how to operate a rifle. However, the real world is always a different world altogether and I may not be able to function in that world, such as the world of actual combat. So when we say we’ve trained a CFA to be better, what we’ve done is trained them to be a good shot, if you will, but what we haven’t really trained them to do is to be a good shot in an environment that is both dangerous and stressful, where their career is at risk and where they

are bombarded by imagery and emotionality. That can take all of the training that you've had and completely wipe it away.

Voice: There's another issue in addition to all this imagery, which is very interesting. There's the fact that most people are not very quantitatively skilled at understanding what's a valid and invalid quantitative argument and what are the typical flaws. At the same time, you have an industry that really needs to maximize or that wants to maximize its profits like any other industry. And so the question becomes how do we take the public out there. They have a lot of money, and especially this year for a lot of demographic reasons, how do we take a lot of that money into our investments?

You see a lot of these big investment houses and if you look at their average performance of all mutual funds, it's typically about 9 or 10 percent, even during the boom years. You have taken 200 mutual funds in such and such a family, but when you look at their advertisements; they're talking about the funds that scored 23 percent for so many years. It is difficult for the average person to understand that they have 200 mutual funds and just by sheer randomness there are going to be a few that are up 24 percent for so many years and there are probably some of these mutual funds that closed down particular funds that have not been performing well. So when you see the ones that are in existence now and have been in existence for 15 years, it's a very distorted sample. A lot of the underperformers have gone down the drain. So there's an aspect of this where there is a sophisticated industry to milk the relatively unknowledgeable investor and part of it is, as you say, by imagery, and we also know that there are many easy ways for them to trick the investor by very simple statistical quantitative gimmicks. How do you feel about that?

Donald MacGregor: I think you raise a good point. I'm fairly quantitative, but I would say I'm not a good stock picker, but not because I can't understand the methods that are used by technical professionals. What I don't understand is the relationship between the various statistics and analyses that I see. And so I recognize that there's another level of sophistication in this kind of analysis that I am not well schooled in. Now, knowing that, it tells me is that I really need to be cautious. It tells me that there's a lot more to know than even I think. And I think that if there's anything that the street investor doesn't know, it's what they don't know. They don't know that there's a considerable amount to be known about individual companies that you can't glean by reading the stock quotes in their daily city newspaper. But they tend to believe that they can

know, because that's all that they really have without exercising a great deal of effort.

I gave a talk at NAASA [North American Association of Securities Administrators] last year on basically this topic—about the difficulties of the lay investor. In discussion, a person from the SEC [Securities & Exchange Commission] stood up and said there is no problem because all of that information is out there—any investor who wants to go find it can go find it. Okay, try it. How many days would you spend on the Internet pouring through SEC documents to learn all this? Certainly it's there. We might as well say to people, well, if you want to know whether a drug is safe or not, the toxicological databases are loaded with information, so why don't you become a risk analyst? People can't divide their time in their life this way. How are we going to raise the quantitative skills that people have? I don't know if it can be done. You may always need expert intermediaries.

David Dreman: For a while they did take every analyst and try to keep up with the forecast. I don't know what happened to it, I know it lasted for a year or so.

Donald MacGregor: I think, in a sense though, you're right. We can go to any casino in any city to observe this. I'm appalled that people are going to lose money, but there is an entertainment value to people in talking about stocks.

Voice: In a prior life, I worked with retail investors for about 25 years and I've always felt that one of the benefits was that I was a window to the world out of the cubicle. This became an opportunity to dialogue about the world in a larger sense, to place bets on different situations, be connected to the Cisco's etc. that are going on. At the end of the day, really, they would have to have some kind of performance that was there, but it really became an opportunity for them to engage in something other than what they were doing. I thought that was always part of the mix.

Donald MacGregor: Many financial advisors tell me that they will include individual stocks in portfolios just to keep their clients feeling like they're part of that world because the mutual funds don't have any meaning.

Voice: They want that.

Donald MacGregor: Perhaps they want to feel engaged. They'll pay a price to do that. You can actually calculate what that will be. Thank you very much.

Note

1. MacGregor, D. G., Slovic, P., Dreman, D., & Berry, M. (2000). Imagery, affect, and financial judgment. *The Journal of Psychology and Financial Markets*, 1, 104–110.