General Discussion:
Technology, Information Production, and Market Efficiency

Chair: Arminio Fraga

Mr. Fraga: Thank you, Philipp. A lot of interesting questions are being raised. I don't know if you want to say a few words before I open up or save it for last. In listening to this and thinking about a lot of the issues that we have to deal with as regulators in one way or another, I can't help but think about all the procyclical elements that we see in the world these days that go from regulation itself, risk management techniques, and the usual added psychological elements that are so hard to manage.

Andrei, if you will allow me the first question: You worry about the marginal recipient of information, but he or she may not be the marginal trader in the marketplace in any case. I don't know how much weight we should put into that. I share the need to have some quality control over the information that is provided. To me, that is the key point. I'm not sure beyond that, as we try to blend this analysis into the new world of home trading and so on, that that matters much in the end for the efficiency of the market itself. Am I missing something?

Mr. Shleifer: Let me just try to answer that. It seems to me that the crucial ingredient of the story is not even so much that marginal investor is getting less sophisticated. The sophistication of the marginal investor can stay constant. What is central to the story is that the traded firms have no money, no cash. As a consequence, the stock price becomes the crucial means of payment for capital and for labor for these firms. Even if the sophistication of investors does not deteriorate, you would still have a lot of the phenomena we have been talking about. That is the first point.

The second point is that we have some data in the paper, which I have not emphasized, but which suggest, in fact, that the firms that exhibit problems with their accounting reports are also the firms with the highest individual share holdings and are also the firms with the highest turnover. These facts provide some indirect evidence that the people who receive this distorted information, these marginal recipients of information, actually traded on it.

Mr. Fraga: We have four or five questions. Let me go in the order that I saw them. It may not be in the order in which they were actually communicated. I see Alan Blinder back there.

Mr. Blinder: I have two quick observations on what is really a very fascinating, valuable, and, in many ways, troublesome paper. The first is a question for Andrei. I am thinking about whether you should have written this paper eighteen months ago. Isn't it a reasonable inference to suppose that if the stock market over the next five years doesn't do what it did over the last five (actually I should have broken it at March 2000, so count five back and five forward from that date), won't there be a lot less of these cash-free firms? Won't there be a lot less firms that are selling stock instead of selling products? Won't there also be less weight on stock options in compensation, more investors caring about old-fashioned profits and dividends, and so on? None of this minimizes in any way the phenomena you called attention to. I think we need to maximize attention to that.

Secondly, I'd like to raise a broader issue. This is an example—I want to see if you agree—of something that really didn't come up in the earlier discussion, though I thought it should have (Philipp just touched on it). I refer to the pervasive problem of information overload, which goes along with the Information Age—in this case, the inability of people to distinguish good from bad information, or more generally, to work their way through the flood of information that bombards all of us all the time. Malthus talked about land as being the ultimately fixed factor. In the Information Age, it may be the human brain. Speaking for myself, my information processing capacity has not increased by 56 percent per annum; I suspect negative 1 percent is probably a better estimate. A reasonable deduction from that is that what we need in many, many dimensions is better filtering technology.

This brings me right to the punch line of Andrei's paper. In this application of the problem, if you agree that this is an application of that problem, a relevant filtering technology is things like GAAP accounting standards, regulations so people can't just say anything they want at anytime they want to, and so on. It really does come down right to where you finished the paper.

Mr. Shleifer: On the first question about writing this paper eighteen months ago: I have actually been trying to write papers about securities regulation for about five or six years. Most of them have been about developing countries rather than the United States, where the issues, of course, are a great deal more serious. I am not sure that if the paper was written eighteen months ago it would have been that different. It is not that the high-technology firms aren't making any money because of a recession; they weren't making any money when they started; they weren't making any money when they went public; and they are not making money at the moment. So, it seems to me that it is both an extraordinary achievement of the U.S. securities markets that firms that don't make any money can list and can raise capital to pursue their ideas and to pursue their investments. But, it is also a situation that creates the kinds of distortions I am talking about. It is not a cyclical phenomenon. I think it is permanent phenomenon. It is a phenomenon that is probably going to be increasingly important in the future.

On the second question, you are exactly right. The issues you are raising of psychology of information processing and attention are very, very hard. The reason they are not touched in the paper is because I know even less about them than about the other issues that I discussed in the paper. At some point, we will have a lot more to say about them, but not at the moment.

Mr. Fraga: There are two here—Andrew.

Mr. Crockett: My question relates to the use of GAAP accounting. There is an implication in Andrei Schleifer's paper that somehow GAAP accounting provides the most accurate picture of the income and balance sheet position of a company. Thus, any adjustments (such as the use of pro forma accounts) represent distortions that will mislead investors. I don't doubt there is a great deal of truth to that. But, of course, what we have learned from information technology and the New Economy, is that conventional accounting practices are not such a good guide to the real underlying situation.

It was mentioned this morning that national income accounts are no longer as satisfactory as they were. I suspect—and this is the point of my question—that GAAP accounting also becomes less satisfactory when we are dealing with completely different types of enterprise. Adjustments to GAAP conventions could—if they were used appropriately and not biased—improve the information content rather than obscure it. What we may be dealing with, I suspect, is not always deliberate and fraudulent falsification of information but a kind of optimistic gloss that is placed on it by the company and its accountants. The biases are obviously on the side of optimism. But, how are we going to develop filtering mechanisms that accurately portray the accounting position of a company in situations where conventional accounting, as we have heard this morning, is not going to be as helpful as it used to be?

Mr. Shleifer: This is a very important question and thank you for raising it. Let me make a couple of points in response. You are absolutely right that GAAP have many problems and, in many respects, they do not reflect the true economic position of high-technology or other firms. The justification that the managers of these companies give for the pro forma earnings and other numbers that they present is precisely the fact that GAAP do not reflect their true economic position. It seems to me that that in some ways misses the point because the purpose of regulation is standardization—an attempt to make sure that unsophisticated investors or unsophisticated consumers are protected from abuse. In any kind of regulation—banking regulation, railroad regulation, security regulation—there is a consequence because standardization is always, by definition, going to be inefficient and distortionary in some instances. But that is not the point. The point is to provide people with some information that they know that they can trust. Having said that, improvements in standardized earnings reporting can clearly be made. I don't think these challenges are insurmountable, by the way. We seem to be perfectly able to account for capital stock of the companies in their accounting reports. It is not that we have particularly attractive economic models for depreciation that exactly capture the economics of the situation.

Similarly, accounts of human capital and certainly for options, even if they are not going to be perfect, are possible to implement in a standardized fashion. So, I don't think this is the case where the lack of good possibilities deters revisions. It is rather the fact that certain influential parties interested in being able to continue reporting pro forma earnings are preventing reform. It is not the lack of knowledge.

Mr. Fraga: I see a lot of hands. Let me see if I can manage this without leaving too many people out. Morris has one here in the middle and Erik all the way in the back. We'll take those two and then I'll take another round of two or three.

Mr. Goldstein: I had a question for Andrei about the market solution. Suppose it is so that the existing quality of information to investors is poor, that earnings statements are being manipulated, and that financial intermediaries are not the needed countervailing force because they have a conflict of interest (underwriting, etc.). You still might think, "Well, perhaps some specialized firms would develop who see through some of these distortions and sell high-quality information." After all, Andrei himself in this paper sees through many of the distortions. Why isn't it possible for firms to specialize in this distortion-removing process, spend a lot of time at it, and provide investors with what they need? Is it that that the right information is too difficult to acquire? It can't be that everybody is part of the conspiracy. What is it that prevents more accurate information from coming out? This doesn't contradict the argument that greater regulation would also be helpful. But why is there nobody who can provide a more accurate picture?

Mr. Fraga: Thank you, Morris. Erik?

Mr. Brynjolfsson: First, a quick parenthetical. When people report pro forma earnings, of course they still have to report the GAAP earnings and go to Yahoo or whatever. Those are the ones that will show up. So, I just think that point shouldn't be lost. They can also say that their clothes are "brighter" than "bright" and they can make a lot of other claims, but that doesn't necessarily eliminate the regulatory requirements they already have.

So, following on that previous question, it would be good to get your views to help understand a little better where exactly the markets aren't working, why consumer wouldn't punish firms that were lying. I was talking about the book market earlier. If you go to DealTime, you can see what the prices of the books are and when the companies say they are going to deliver them. We found that people who sort by delivery time—presumably people who needed a book in time for an important birthday or for an important conference—didn't trust all of the numbers equally. Those consumers tended to put much more weight on the numbers from certain well-know retailers that have a reputation for delivering reliably. Even if someone else said they were going to deliver it more quickly, they wouldn't necessarily buy the book from that location. One would imagine that the same thing goes on in used car markets and lots of other places where people hear distorting information. But the other side of the equilibrium is that the buyers have to beware and think about whether they want to trust that information. It is good to flesh that out.

A related point to that is also following the other question: There are different markets that people can trade things on and, to some extent, there is competition between Nasdaq and the New York Stock Exchange and other markets that have different rules. It would be interesting to learn your perspective on whether competition among different markets wouldn't lead transactions to go to those markets that had a set of rules that was most efficient and that was most likely to attract both buyers and sellers.

Mr. Fraga: Why don't we take these questions and then we will go one last round.

Mr. Shleifer: These are all very important questions. I think they are also theoretically very difficult questions. So, let me try to address at least a subset of them.

The first point is the adverse selection argument, which is to say that buyers are aware, consumers are aware that companies are tricking them, so why don't they take this into account. Why doesn't that resolve the problems? I think that argument is very commonly made, particularly in developing countries where, in fact, you see arguments being made against securities regulation on these grounds that buyers are aware. The argument that buyers are aware and, therefore, they are very cautious has a great deal of truth to it, and there is a clear consequence that we observe in developing countries—namely, that they don't have securities markets. That is to say, buyers recognize that they are going to get tricked, they stay away, and so there are no securities markets and companies can't raise funds. It is a pure Akerlof equilibrium, and that is presumably not an outcome we want to achieve in the United States or an outcome we would want to sustain in the developing countries.

On the question of GAAP versus pro forma, which is also an important question, it is true that these companies report GAAP as well as pro forma earnings. But, I think that the way in which the market has developed is that companies have been able to convince financial intermediaries whose incentives, as I've indicated, are greatly distorted to use pro forma earnings in their communications with investors and to use pro forma earnings in generating their earnings growth forecasts. Even though GAAP earnings are reported, it's a bit like options in the annual report—they appear in the footnotes, whereas the pro forma information is the one brought to the attention of investors.

Now, the question that was raised on the market solutions is, "Can't people make money on that?" That is a very important and difficult question. There are two ways in which one can think of how people would make money on that. One is by becoming intermediaries in the information market and by saying, "Look, I am going to produce a newsletter or I am going to produce some kind of a report that would say that certain companies are distorting their earnings."

We see some market participants, some entry in that market, and it is very clear what people are trying to do. They do sell their newsletters. They are not making very much money because of the usual problems that, once the newsletter information becomes public, people aren't particularly eager to pay for it. If you look at the economic influence of these newsletter writers and compare it with the economic influence on markets of the Wall Street investment banks, you realize that newsletters play a very small role. The much more obvious and significant way to capitalize on this information is, of course, to trade. That raises the question of why there aren't more people selling short the overpriced stocks with distorted information and taking long positions in stocks that do not distort information. There is a chart in the paper that suggests that a strategy of selling short companies with extremely high accruals earns high returns. The answer to why more people don't trade like this is it has to do with very technical limited arbitrage arguments in financial markets. The strategy of going short without a good hedge is a very risky strategy. Very few institutional investors are willing to participate in it. Very few hedge funds are willing to participate in it because the risks associate—the idiosyncratic, unhedgeable risks associated with this strategy—are very high. With respect to institutional investors, you see some tendencies in that direction; but, again, because of their benchmarking and because of performance relative to the indexing, you see that the tilts are very small. For very clear institutional reasons, we see that the market forces, while they exist in these financial markets, are not really sufficient to undo the economic incentives on the other end, which are the clear economic incentives among both firms and financial intermediaries to have very high valuations for certain firms.

Mr. Fraga: I'd like to get into that argument. I spent most of my life trading, and I'm not so sure in the end that this is an information problem. I have yet to see a crisis—be it macro or micro—where if you were doing the work, you couldn't find it. You find a few stocks here and there that are big frauds. You also have to ask yourself the question, "Why don't the people who are long just sell?" They are not shorting: they just sell some overvalued stock. All of this is not to say we shouldn't be there fighting for better information to protect particularly the little person, but this might take us through lunch.

I see ten hands. I am going to take the three that I saw first. I apologize to the others, and I am going to ask you to be very quick.

Mr. Shleifer: One word in response to Arminio's comments. I want to be clear that we are not talking about fraud here. We are not talking about illegal behavior. We are talking about perfectly legal conduct.

Mr. Makin: First, let me take issue with whether we are dealing with legal or illegal behavior. The process of rent extraction by underwriters masquerading as market professionals is prevalent. I can assure you. The auditors who deal with these situations after the fact ought to be required to send some people to jail. I think that would go a long way toward dealing with some of the problems you are addressing.

Whether market processes can be found to eliminate some of these arbitrage opportunities—I think Phil Hildebrand alluded to the one that is being used successfully by many hedge funds, which is essentially long-short positions—you become a supplier of liquidity to the markets in cases where price movements appear to be extraordinary based on your priors about what they ought to be. So, it is a highly technical approach to looking for arbitrage opportunities by characterizing the distribution of price movements and, in effect, fading them on a pairwise basis, so that you are not naked long or short. Those processes are going a long way toward bringing prices a little bit back in line. Or, to put it another way, I hope they don't get prices back in line because they are yielding rents at this point. I do think there is a serious issue, and as one who is a trained economist who is now in the trenches, the number of instances where I have seen rent extraction lead to poor information—and the reason people don't arise to say, "I'm going to write a newsletter and tell you that the XYZ Brokerage Firm's recommendation on this stock is crap,"—is expecting a lot from newsletters. As you suggested, Andrei, they are not very successful. But criminal penalties for those who, in effect, underwrite or, after the fact as auditors, verify activity that is bordering on fraudulent is probably a good way to go. Thank you.

Mr. Fraga: May I ask you to be very concise?

Mr. Sinai: The mantra of maximizing shareholder value in the United States is more powerful than in any other place in the world, but it does have some negative byproducts. One of the, perhaps, negative ones that you are making a connection with is between technology and it's incentive to corporate managers to provide misleading information. Your remarks were a little different from the language of the paper, which suggests almost a general indictment of corporate America on this issue as a result of this particular phenomenon. For those of us who sit on boards and watch heads of companies struggle to manage down the expectations of analysts—people who are part of the intermediaries where there are much higher incentives for what you are talking about, as against the companies that are not doing well—have poor profits, trying to give a positive spin—that may be what you mean by misleading. I wonder whether you want in the paper to make a clear distinction between the two types. The pressure on heads of corporations to be transparent is very great. When they do provide "misleading" information—whatever you mean by that—eventually there is disappointment on that for credibility issues. In those cases, the market takes the shareholder values to task. We have lots of examples of that.

Mr. Fraga: Thank you. Henry.

Mr. Kaufman: I just wanted to make a couple of points. We can't put Humpty Dumpty back together again. Years ago, there were more permanent owners of business organizations. Today, we have marketable owners of business organizations. For example, when you had partnerships that dominated the financial markets years ago, there was a desire within those partnerships, or the business world in general, to pursue conservative accounting practices and to be conservative generally.

Today, when you have marketable owners, the desire is to pursue policies that will maximize short-term profits for the purpose of raising the price of the stock, and not necessarily to maximize the long-term performance of the business organization.

Secondly, I want to elaborate on the problems of sell-side analysts. There is no doubt that that is true. They lack objectivity. They are not structured correctly. Sell-side analysts are not directly represented in the senior management of financial institutions. They are adjuncts to the investment banking function. They are adjuncts to the trading or the sales function. Therefore, you get what you see. But that doesn't mean that the role of the buy-side analysts should not increase in importance. So, my question to you is: What happened to the buy-side analysts that represent the buyer of the securities of the large institutions? Where are they today?

The final question I wanted to ask you is: What is your viewpoint about information technology and volatility, or lack of volatility in financial markets? My own view is that information technology actually will contribute to volatility of financial markets rather to increasing stability.

Mr. Fraga: Thank you. For the last word, Andrei. We are running a little late.

Mr. Shleifer: I have a very small point in response to Henry Kaufman's comment. We have cross-country evidence on exactly the question you asked, and we know that the markets with less information available to investors—in fact, they are more volatile. That is to say, the less-developed emerging markets where there is less accounting information released and less information available to investors are much more volatile than the developed markets like the U.S. market and the European markets.

Let me make one broad conclusion. This has been very stimulating, and I was very fortunate to have great discussants. I just want to make one broad comment, which is that the paper is not intended to be a Luddite. What has happened to the U.S. financial markets in the last ten or twenty years, in my opinion, is great. That is to say, we have lots of people who, as one of my discussants said, can raise $100 million but can't afford to buy a suit. I think that is great. I think that is great for America. I think that is great for technological progress. I think that it is great for the world. But, the point of the paper is to say that in the changing world, the regulation is far behind. It might be very important to consolidate the gains in financial development that we have seen in the United States in the last ten years by making sure that regulation, especially in the area of disclosure, is actually brought up to the level. And the analogy that I tried to make very briefly about the progressive era in the United States—this is the era when the Federal Reserve was founded and this may be appropriate for where we are—that just like the last quarter of the 19 century was the great period in U.S. economic development with a great amount of innovation and, with all kinds of new people coming into business, regulation of markets had to catch up to the new economic reality. There were a lot of benefits. We have clean water. We don't get poisoned by our food. We have the Federal Reserve System as a consequence. The same holds here that regulation needs to keep up with what we see in markets.

Mr. Fraga: Thank you, Andrei, for a very stimulating paper. Thank you all.