CATALYST INSTITUTE

R

DAVID W. MULLINS, JR.
VICE CHAIRMAN

Reform of the U.S. Treasury Securities Market

A Speech By:

DAVID W. MULLINS, JR.
Vice Chairman
Board of Governors of the Federal Reserve System

This speech was delivered on May 19, 1993 in Washington, DC at a Catalyst Institute conference on the U.S Treasury securities market.

Catalyst Institute conducts and disseminates objective research that improves public policy and business decisions affecting financial markets and institutions and that improves the performance of government. Catalyst Institute is an independent, U.S. domiciled, nonprofit corporation.

Dean Witter, Discover & Co. provided funding for the printing and dissemination of this speech.

Any opinions expressed are those of the speaker and not necessarily those of Catalyst Institute.

Catalyst Institute 33 North LaSalle Street Suite 1920 Chicago, Illinois 60602
Telephone/ 312 541 5400 Facsimile/ 312 541 5401

I appreciate the opportunity to talk about the process of reform in the Treasury markets. I shall talk primarily about the progress of reform over the last couple of years and the effort that went into the joint report[1]. In some sense this is old news, but the relevance of it might be in discussing the reform process -- to give a sense of the institutional and political context within which these decisions are made; which might be useful input to your discussions and further research on this issue.

In August of 1991, John Gutfreund of Salomon Brothers called the regulators and the press and began the revelations of Salomon Brothers' abuses. To put it bluntly, all hell broke loose in Washington. In a matter of weeks, we began the first of what has been nine testimonies before Congress.

At the first hearing one congressman, denouncing the abuses with characteristic understatement, called them financial treason. This was the sort of attitude in the early days here. It was alleged that Salomon Brothers had rigged the Treasury

---

1 **The Department of the Treasury, the Federal Reserve, and the Securities and Exchange Commission (collectively, the Agencies) undertook a joint review of the government securities market in September 1991. The joint report is the product of that review.**

markets, submitted fraudulent bids, blatantly evaded regulations and cornered the market in several issues, creating a manipulative squeeze. This came against the backdrop of a number of years of insider trading cases, of financial institution fraud -- the Keating's S & L case and BCCI, for example. It was argued that this time, fraud had reached directly into the pockets of every American taxpayer. It didn't matter that, very narrowly speaking, in this incident money was deposited in the pocket of the taxpayer, but the concern was the blatancy with which the regulations had been violated. One concern was that these sorts of episodes and crises tend to result, or at least historically at times have resulted, in bad legislation and bad regulation. There were two fundamentally different approaches to addressing this episode.

The first approach was: "Let's get tough on regulation. Let's layer on every regulatory measure we can think of." For example, there is a rule that no bidder can buy over 35% of an auction. Some suggested lowering that to 25% and also applying it not only to dealers but to the customers of dealers. The effect would be to limit the participation of people who would like to buy a large volume of Treasury securities at a high price. More generally this first approach was: "Let's impose regulation. Let's wire up this market and these participants and monitor every move to snuff out abuses."

When one looks back to the political heat of the late summer, there was considerable danger that a brute force regulatory blanket approach might be adopted. However, during the rush to judgment, the Agencies thought it would be a good rush to judgment, the Agencies thought it would be a good idea to take a time out, to step back and see if we could think out a coordinated approach to the issue. From this coordinated approach, I think a second alternative emerged.

This alternative was derived from the observation that the U.S. Treasury market is the deepest, largest, most liquid market in the world with trading volume ten or twelve times the average of the New York Stock Exchange. Yet the number of trades are only roughly 1/50th of the New York Stock Exchange, so it's a large sophisticated wholesale market. There are relatively few issues. The issues are homogenous and have none of the idiosyncrasies of stocks. The question was, "How was it possible that a couple of people can corner such a market. Why isn't the enormous force of competitive pressure in such a market sufficient to preclude any manipulative behavior?"

It seemed to us that the reason was that even though there was a broad competitive force in the secondary market, bottlenecks existed which impeded the flow of this competitive force into the primary market. What were these bottlenecks? They included impediments to bidding at auctions by those other than primary dealers; the manual nature of the auction as opposed to an automated auction; and the five percent deposit requirement for non-banks or non-primary dealers. There also was a lack of market information in that only primary dealers, at that time, had access to interdealer broker screens. All of this tended to narrow direct participation. Moreover, the multiple-price sealed-bid auction discouraged bidding because of the winner's curse, and the primary dealership system had membership requirements which limited the number of primary dealers to a very small number. The effect of all of this was to take the powerful force of competition in the secondary market and funnel it through the narrow, artificial aperture of the primary market, through a few dozen primary dealers. As a result, a competitive secondary market was transformed into an oligopsony in the primary market.

The solution was to try to dismantle systematically these impediments and open up the primary market. In some sense, this competitive alternative was diametrically opposed to the regulatory approach. The regulatory approach would encumber the market by imposing tighter constraints. The competitive approach did not involve imposing artificial constraints on the market but rather tried to enhance competition in this market. These were the two alternatives we faced: smother this market with heavy-handed regulation or open it up to the healing sunshine of competition. Of course, it was not quite so clear-cut. There was also a legitimate need to strengthen surveillance and enforcement efforts.

It's interesting to ask the question, "Who was on the side of competition and efficiency, and who favored regulatory suffocation?" The answer is even more interesting. In the end, there was no one who argued forcefully for encumbering this market and trying to overregulate it. Indeed, in all the Agencies there was remarkable unanimity on the philosophy of the approach we adopted, even in Congress. Very early on, a few people in each of the Agencies suggested proposals such as lowering the bidding rule and the like. But, even in Congress, there was a lot of force for improving the market, from people like Congressmen Pickle, Neal and Markey, as well as Senators Riegle and Dodd, and other members of the Senate banking committee. There was interest in seizing this opportunity to make some progress.

One of the interesting aspects of this report is that this effort could have dissolved into a fundamental fight among Agencies based upon different philosophies. Nonetheless, there is a remarkable unanimity in the basic philosophy of the joint report. With dozens and dozens of major and minor issues in the report, the Agencies agreed on all but a handful. One can count on one hand the issues on which we disagreed. This is a remarkable result, and it differs from some other areas in which the Agencies are set off against each other. What explains this result is that we've been through a number of crises in recent years, and the Agencies have developed a level of professional expertise which is impressive in this area. As a result, we did try to follow this competitive approach in the report.

The basic premise of the recommendations is that the most powerful and effective force in enhancing market efficiency and in reducing the potential for abuse is the force of competition. The report sets out a coordinated set of recommendations which seek to open up the primary market to broader participation and to dismantle systematically the barriers which prevent the competitive force in the secondary market from impacting the primary market.

I'll run through the basic recommendations. The first recommendation was to open up bidding to non-primary dealers and to automate the bidding process. The secondary market is highly automated. It is fair to say that the primary market was not highly automated. It is clear that automation facilitates surveillance. If Salomon Brothers submitted false customer bids, under an electronic system it would be easy to check. The automated process is underway. It is true that, so far, this has only cut a few minutes (about fifteen minutes) off the delay from the time the bids are submitted to the time the results are announced. Ultimately, as everyone gets wired up and the software gets completed to compile all the bids, the delay will be shortened. Treasury intends not to require everyone to submit bids electronically. But as we move forward, we might consider whether once the automated process gets going we should require people who want to submit bids manually to do it a bit early. Then the potential exists to reduce this auction time lag very dramatically.

Another major component of the report was to open up the primary dealer system. Although this system has worked well for over 30 years, it was designed for a period of a developing market. The market has changed. It has developed. Some people suggested abolishing this system. We thought that would be a bit drastic. The primary dealer system is enmeshed and imbedded in a whole set of institutional arrangements. For example, many state and local treasurers can only deal with primary dealers. Treasury-only mutual funds can invest in Treasuries and repurchase agreements (repos) only through primary dealers. So, abolishing the system might have caused institutional disruptions. Moreover, we noticed that when one looks around the world virtually every issuer of securities has some dedicated group which commits capital and expertise to distributing and making markets in that issuer's securities -- whether it's called an underwriting group, a selling group, or a syndicate. So, perhaps it's a natural phenomenon.

What we did instead of abolishing *the system* was to eliminate the rigid barriers to membership. We kept some sense of responsibility to make markets and bid in auctions. We eliminated the membership requirements and replaced them with clear-cut objective capital requirements. Anyone who meets the capital standards is allowed in. We also eliminated the one percent market share. One was required to have at least one percent of all customer trades in the secondary market in order to be a primary dealer. This limited the number of dealers to 100 if they were equally distributed. Since they're not, it limited it to effectively a small number. It also produced some strange behavior -- people trading back and forth artificially to meet the one percent barrier. The logic here is, "Let's remove the artificial constraints and let the market determine the appropriate structure of the primary dealer system." It will take a while to evolve. We've seen very little change so far.

The fourth major component of the report was to explore new auction techniques to replace the multiple-price sealed-bid auction. Here, not only did the report suggest experimenting with a uniform single-price auction, but also an ascending price, descending yield, iterative open auction. We were originally going to call that an "open outcry" auction, but we were fearful the agricultural committee might claim jurisdiction. So, we called it an "open iterative real time" auction system. Obviously, the single-price aspect combats winner's curse, which discourages less sophisticated investors from bidding, and also encourages bidders to shave their bids. The open iterative real time auction alternative was only put in to stimulate discussion. But it seemed to many of us, whenever it's physically possible to get all bidders in the same room, the technology of choice seems to be an iterative bidding process, not sealed-bids. One sees it in auctions of art and used cars, specialists opening stocks on the New York Stock Exchange, and in the pits in Chicago. Computerized auction pricing allows the electronic equivalent of having everyone in the same room. This open iterative process would have the advantage of combatting surprises and collusion. It may be even cheaper to collude under a single-price sealed-bid auction than it is under a multiple-price auction. That was the motivation for putting an alternative on the table for discussion. The object of all these auction proposals was to open up the auction process, reduce the cost of the Treasury's financings, and reduce the chances of manipulative abuses.

Conceptually what we were trying to do with the auction process was to design an approach that reduces three sources of uncertainty or dead weight cost. The first source of uncertainty was the time delay between the time when one puts in a bid and finds out the results. This is just pure uncertainty. You don't know how much you own. You don't know how much to hedge. You're vulnerable to whatever information comes in during this time delay. Automation is the key to reducing this uncertainty. When I came to the Treasury, the delay was two hours. Then, we reduced it to roughly one hour, and now it's a little less than an hour. Bidders raise their bids to be compensated for the risk in this

period of uncertainty. The shorter the delay, the more one can reduce this risk.

The second source of uncertainty was the winner's curse which the single-price auction was designed to address.

The third source of uncertainty was the incentive to collude and surprise a market in a sealed-bid auction. The iterative open auction process was designed to deal with this.

In recent years, if one compares the yield Treasury pays in the auction to the yield in the when-issued market for the same issue prevailing at the time of the auction, Treasury has been paying about 3/4 of a basis point higher than the yield in the when-issued market at the time of the auction. That 3/4 of a basis point reflects the cost of the risk of dealing and bidding in the auction.

The biggest payoff should be the simplest to implement -- to automate the auction and reduce the delay from an hour or two hours to a matter of ten or fifteen minutes. By reducing that period of uncertainty, one wonders whether we won't be able to save on the order of 1/4 to 1/2 a basis point. Of course, 1/2 a basis point certainly isn't much unless you auction over two trillion a year, in which case, it ends up saving well over a hundred million dollars. Next, the question is, "Are there incremental benefits in moving on to the single-price auction or the iterative auction?" Conceptually that's the way we viewed it. That extra 3/4 of a basis point really benefits no one. The bidders don't benefit since it just compensates them for their risk. Our objective was to try to squeeze this dead weight cost out of the system.

A final and important component of the report was the set of recommendations, agreed upon by all the Agencies, designed to enhance surveillance and deal swiftly and effectively with abuses. The basic approach was to rely on low-cost market-based mechanisms, rather than some broad-based regulatory mechanism. The specific approach was based on the proposition that episodes of manipulative behavior can be detected through close monitoring of market data; prices, repo rates and the like. These statistics should be sufficient without resorting to a broad-based reporting apparatus, to report all trades or positions. Once anomalies are identified by the New York Fed, the SEC can launch an investigation.

If manipulative squeezes are acute and protracted, Treasury can reopen the issue and engage in supply management. The threat of Treasury reopening should be sufficient to deter abuses. Of course, we fully recognize that the authority to reopen involves a cost which is priced into the market. But this cost should be offset by the benefits from reducing the chances of manipulative squeezes. The decision to engage in Treasury reopenings needs to be understood in the context of the political setting and the alternatives. The other components of the recommendations would, through time, result in broader participation and reduce the chances of abuse. There was a strong feeling that we needed to come up with a credible effective approach to combat abuses then, in the political heat of the time.

disruptive and damaging to the market. That's why everyone signed on to the reopenings. We all agreed on these components. Taken together they constituted a pretty thorough modernization of this market.

There were a few areas in the recommendations where the Agencies did not agree. Some of the Agencies preferred large position reporting and audit trails, and authority for the government to impose transparency[2] requirements. The Federal Reserve Board favored none of the above. The fact that there were differences on these issues reflects I think different institutional responsibilities. It is wholly understandable that the Agencies on the front line of surveillance and enforcement will support measures to minimize the cost to the Agencies of surveillance and enforcement. We think about maximizing global efficiency from the perspective of the system as a whole. It's natural that agencies directly involved in surveillance on the front line prefer more data to less. They argue that it is better to have a cop on every street corner in order to save the incremental costs of going out and collecting evidence when there are abuses. We believe it's cheaper to have a fast response call to 911, since there are very few episodes of abuse and will be even fewer with these changes. The question is, "Why impose costs on the entire market?" We weighed the costs versus the benefits and thought the imposition of broad based reporting requirements was not a good bargain for the taxpayers.

---

2 Transparency is the availability of timely, accurate price and volume information to market participants.

weighed the costs versus the benefits and thought the imposition of broad based reporting requirements was not a good bargain for the taxpayers.

We were concerned that large position reporting would increase the direct cost on every large trader. It might have an indirect cost, in that large investors value their privacy and confidentiality in financial dealings and are not interested in revealing their finances or trading strategies. They might withdraw from the market.

The same is true with the audit trail and transparency requirements. Transparency always sounds very good. How can one argue against transparency? How can one argue for opaqueness, to put it the other way? Of course, one traditionally looks at the central bank to argue for opaqueness, and we did not disappoint. It is not that we dislike transparency. We think that it should be developed by market participants, not imposed by the government. The concern is the authority behind transparency. This authority potentially involves the ability to require the full panoply of reporting requirements and could fundamentally redesign a market. It might change the basic character of the market from a wholesale market into more of an exchange market.

The Treasury Market has evolved as a wholesale market -- over-the-counter trading, with razor-thin bid-ask spreads for large sophisticated investors. It's very efficient. If people are worried about fraud, it's hard to understand why dealers will stand there and trade either way at a tiny spread. It's very efficient, in part, because it is an over-the-counter market. The market is not encumbered by some of the institutional arrangements and regulatory requirements found in other markets. It is similar to markets such as the foreign exchange market.

The concern was that if the government started imposing these restrictions it could interfere with the efficiency of the market. The stakes are quite high. If enough people withdrew from this market because of reporting requirements and the like, resulting in an increase in the average cost of Treasury's borrowing by 1 basis point, this translates into well over two hundred million a year in increased Treasury financing costs. Absent a comprehensive reporting apparatus, it may be more expensive to go out and gather the data to find abuses. But this incremental cost must be weighted against the potential efficiency cost. The evidence did not convince us that this was a good bargain for the taxpayer or the markets. So we did not support some of these additional requirements. I would again stress that these areas of disagreement encompass only a small number of the issues that we dealt with. We agreed on virtually all the issues as well as the basic philosophy. In the legislative process disagreements are often magnified. Nonetheless, the report was generally well received in Congress, and the recommendations have been substantially implemented.

I would like to talk for a moment or two about topics for future research. The Catalyst report is a very useful addition on a variety of fronts. There are a few areas in which more research would be useful.

The first is the area of reopening policy and strategy. The idea is very simple: Treasury should reopen an offering only when there's an abusive manipulative squeeze. The question is, "What is that and how could one detect it?" In our view, many squeezes are natural phenomena. People guess wrong. A big financing need develops in the corporate market, and market professionals need to short certain Treasury issues to help the distribution process. One can't just look at special repo rates. There are natural patterns which occur. In fact, if you line up repo rates in event time with a zero date as the date of the announcement of new issues, when one issue goes from "on the run" to "off the run," you can see recurring patterns. One guess is that there is probably no free lunch in those patterns. The patterns in the financing rates simply reflect and offset anticipated price changes associated with the roll of "on the run" securities to "off the run" securities. Perhaps the Treasury should look for other evidence -- for example, market failure before considering reopening. This is a difficult area worthy of research.

The work in the Catalyst volume provides useful insight. Much has been learned recently about financing rates and financing patterns in the theory and practice of the Treasury market. It is important; not that we distrust the current Treasury, or the past Treasury, or even the next one, or the next after that, but because having this authority to reopen is something which has the potential to be priced into the market. As such, it is worthy of continued research.

Moving to other research topics, it would be interesting if someone took a look at the primary dealer system as well as the whole issue of transparency, a concept that has a wide and deep following. Everyone, including us, extols the benefits of full dissemination of information. There may be some confusion with international issues and access to Japanese markets. Transparency sounds great. However, economists raise interesting questions about transparency. "Why should those who do their homework and get the information be forced to give the results of that work for free? We don't require car dealers to disclose to customers the prices of all recent sales. We expect people to shop around. Why shouldn't the market rule here? Why should the government mandate transparency? Would transparency requirements reduce the incentive to invest in information gathering? Should we eliminate patent protection and require all new drugs to be available by all producers? Some would argue that this would make the world a better place by reducing the costs of new drugs and making them more widely available. Of course, we would have fewer new drugs." These are economists' questions. You shouldn't misunderstand me. The lack of transparency in this market was a significant impediment. I think we've made a lot of progress, and the industry voluntarily has decided to move in the direction of increased transparency.

We fully support these developments. However, it is a broader topic because it's going to be a major issue in capital markets around the world. It would benefit from some thought as to what conceptual guide we might use so that when we discuss developing transparency requirements, we can think of doing so in ways which fit different markets instead of just imposing these restrictions. I would argue that this is one topic which could use some rigorous analysis, because implicit in the decision to mandate transparency requirements is an enormous potential authority to reorganize and redesign markets in ways which could adversely affect market efficiency. It might also be interesting to explore whether there is any way to get an empirical estimate of the indirect cost of imposing reporting or transparency requirements, assuming someone can find some clean experimental setting in which to make the estimate.

The final issue, the big issue, to which academic research has made a major contribution, is auction technology. It seemed to me that the dealers in the industry responded favorably to virtually all of the aspects of the report, including the changes in the primary dealer system that promised to virtually eliminate any franchise value associated with membership. But, it seemed to me, they didn't like the auction proposals -- either the single-priced or the open iterative auction techniques. Why? They said, it's confusing. Bureaucrats and Congress had little problem in understanding it. I suspect market participants should be able to grasp it.

What one suspects from the dealers' responses is that the current auction technique is very important to the system and to them, more important than the structure of the primary dealer system or other aspects, the manual aspect, of the auction. One suspects that the price discriminatory, multiple-price, sealed-bid auction is a major source of the benefits they receive in the current system. I might add that the benefits are in some sense competed away. So don't jump to the conclusion that just because there are benefits, somehow they're carrying away windfall gains. But it seems to me that some of the benefits in the system must be generated and distributed to dealers through this auction methodology.

The current auction encourages people to bid through the primary dealer system, either directly or indirectly through the when-issued market. Not only does this funnel business to dealers, but they extract valuable information on demand in the process. This information is useful in their own dealings. Indeed, it is reported that dealers often do not charge large customers for submitting their bids at auctions, at least dealers do not charge customers directly. So while changes in the auction methodology may in theory be beneficial, such changes could disrupt and require alterations in the way costs and benefits are distributed among dealers and customers. Nonetheless, even though many dealers were critical at the beginning of the process, my sense is that the experiments have gone reasonably smoothly, and dealer criticism seems to have diminished.

The important decisions on auction technique lie ahead. Let me mention a couple of immediate issues with respect to the auction. The first one is how should Treasury decide what to do at the end of this experiment? They've outlined some criteria. It would be useful to think of a rigorous research methodology along with decision criteria well before the end of the experiment. It might be useful to get some group of professionals involved, practitioners and academics. It would be interesting to see if one could actually estimate and observe a shift in the demand curves in the auction data as predicted in the literature on single-price auctions. Fundamentally, Treasury is going to have to decide what to do -- whether to implement the single-price auction or whether to expand the experiment to other issues or whether to abandon it.

A second point has to do with automation and its interaction with the Dutch auction. An automated, single-price auction has, in my view, the potential to increase direct auction participation by large customers. In the old system, a large customer could not place an anonymous bid easily. There was a manual auction system. Customers had to worry about winner's curse, so they tried to spread their bid among many dealers in fear of showing their hand. Automation will facilitate large customers placing direct bids anonymously, at least, anonymously with respect to other market participants. With a single-price auction, they can avoid winner's curse. I think this may change and improve the competitive aspects of the auction. To achieve these benefits requires not just a single-price auction but an automated single-price auction, and it may take a while to develop and encourage participation by large customers. Thus, in evaluating the Treasury experiment, it's going to be important to recognize that there are really two experiments. The first is the manual single-price auction, and the second is the automated single-price auction.

Where do we go from here? Is it really worthwhile to experiment with some sort of open iterative auction process, a transparent auction process, which compared with the sealed-bid process may be less vulnerable to collusion? I think the biggest potential benefit is the reduction of the time delay. We should get a significant percentage of the return from that alone. But we should evaluate the other proposals, as well.

To sum up, it's ironic that the most serious abuses in the history of the Treasury market, the Salomon Brothers episode, served as the catalyst to engage in a ground up refurbishing of the Treasury market. It has been an exciting process; it is a continuing process. So far the process seems to have been enormously successful even though there may be much left to be done. Often, crises lead to bad legislation and bad regulation. That didn't happen this time, in my view. It's a credit to the professional expertise of those involved here -- primarily in the front line Agencies, the Treasury, the SEC, and the New York Fed -- that this crisis was transformed into very substantial progress.

The work to date is only a beginning. I think the Catalyst studies add to our knowledge. We would invite your continued input into the important process of designing and implementing improvements that both enhance efficiency and reduce the chances of abuse in this important market.

ABOUT THE SPEAKER

David W. Mullins, Jr. is Vice Chairman of the Board of Governors of the Federal Reserve System and has been a Member of the Board since 1990. Dr. Mullins received his Ph.D. in finance and economics and masters degree in finance from the Massachusetts Institute of Technology, and his undergraduate degree from Yale University. Prior to becoming a Member of the Board, Dr. Mullins served as Assistant Secretary for Domestic Finance at the Department of the Treasury. Prior to the Treasury, he was a Professor of Business Administration at Harvard University, Graduate School of Business Administration.

At the Department of the Treasury, he was responsible for Federal finance, financial institutions policy, securities market regulations, corporate financial policy, government sponsored enterprises policy, and synthetic fuels projects. He played a major role in the development and implementation of the Bush Administration's legislation on the S & L crisis. Upon leaving the Treasury, he received its highest honor, the Alexander Hamilton Award.

He has been a consultant to a wide variety of firms and governmental agencies and served as Associate Director of the 1987 Presidential Task Force on Market Mechanisms (known as the Brady Commission). He has published articles in leading economic journals on a wide variety of topics in financial economics including cash management and banking as well as corporate finance and capital market topics such as cost of capital, dividend policy, mergers, stock issues and bond issues.