

**THE BEST OF NERA 2012**  
**July 24, 2012**

**Arthur Laby:** Good afternoon and welcome to The Best of NERA 2012, broadcast live on www.sechistorical.org - the virtual museum and archive of the history of financial regulation. I'm Arthur Laby, Professor of Law at Rutgers University. I'm also a member of the SEC Historical Society's Board of Advisors and Museum Committee and the moderator for today's program.

The Best of NERA is a joint program of the SEC Historical Society and NERA Economic Consulting. Just a quick word on the SEC Historical Society and NERA. Through its virtual museum and archive, celebrating its 10th anniversary this year, the Society shares, preserves and advances knowledge of the history of financial regulation. Both the museum and the Society are independent and separate from the U.S. Securities and Exchange Commission and receive no funding from the public sector. Today's broadcast will be preserved in the museum without any SEC oversight.

NERA Economic Consulting, now in its sixth decade, is a global firm of experts dedicated to applying economic, finance and quantitative principles to complex business and legal challenges. NERA experts advise government authorities, major corporations and leading law, accounting and auditing and financial services firms throughout the world. Since 2004, NERA and the Society have worked together to broadcast the annual The Best of NERA with top NERA experts looking at current economic issues and financial regulation.

The Best of NERA is the longest running program series in the virtual museum and archive. I encourage you to visit the dedicated The Best of NERA section under Programs in the museum after this broadcast which showcases the diversity and depth of topics that this series has addressed. On behalf of the SEC Historical Society, I would like to thank NERA Economic Consulting for its continuing and generous sponsorship in making this series possible and for the assistance of Dr. Marcia Mayer in planning today's program.

It is my pleasure today to welcome three experts from NERA Economic Consulting: Dr. James Overdahl, NERA Vice President, who will look at trends in SEC settlements. Jim is also former chief economist, most recently at the SEC, and before that at the CFTC. Second, we welcome Dr. Alan Grant, a NERA senior consultant who will discuss biases in hedge fund performance reporting. We also welcome Dr. John Montgomery, NERA's Senior Vice President, who will examine the regulation of high frequency trading. Each of our experts will provide a summary of his topic. We will have a general discussion of the issues and we will conclude by 3pm. Let's begin with Jim Overdahl and trends in SEC settlements.

**Dr. James Overdahl:** Well thank you for the invitation today to offer my perspective on recent settlement trends at the SEC. The update that I'm providing this afternoon is based on a proprietary database, compiled by NERA, of settlements and judgments in SEC enforcement actions since the passage of the Sarbanes-Oxley Act in 2002. NERA provides a twice-a-year update of SEC trends that can be found on our website, [www.nera.com](http://www.nera.com). In addition, other NERA trends publications such as FSA Enforcement Trends and Class-Action Litigation Trends can also be found on this same website.

Today, I would like to highlight two main trends observed during the first six months of fiscal year 2012. First, I will discuss the increased focus by the SEC on individual accountability. Second, I will discuss a change in the composition of SEC settlements. In addition, I will discuss another important trend, one that will not be visible in SEC settlement numbers, but that is significant nonetheless for the role it plays in the SEC's enforcement process leading up to settlements. That is the increased use of economists and other quantitative experts by the SEC in developing cases and evaluating settlement terms. Finally, I'll discuss recent developments we're watching that may potentially affect future SEC settlements.

The first half of fiscal year 2012 was a busy one for the SEC. We saw the SEC on pace to settle with 758 defendants, more than it has in any year since 2005. This increase is driven by heightened settlement activity with individuals, particularly for allegations related to insider trading and Ponzi schemes. The SEC is on pace for 512 settlements with individuals, which will represent a 20 percent jump over last year. This jump is consistent with the recent promises of several SEC officials to hold more individuals accountable. For example, during a SEC Historical Society webcast last fall, SEC Director of Enforcement Robert Khuzami stated that "...at the end of the day, regardless of the consequences, pursuing individuals is the most important thing". The increase in individual settlements is driven primarily by settlements of allegations related to insider trading. During the first six months of fiscal year 2012, the SEC has been on pace to double the number of insider trading settlements over the previous year.

This increase in insider trading settlements accounts for over half of the observed increase in individual settlements that we've observed during 2012. The SEC also increased its settlement activity with

individuals in matters relating to Ponzi schemes in misstatements of public companies. This increase in public company misstatement settlements should be placed in the context of prior years where we saw a significant decline in settlements in this category.

As for settlements with companies, settlements related to Ponzi schemes increased from 27 in fiscal year 2011 to a projected 42 for this year. However, this increase was more than offset by decreases in settlement activity in other categories. One of these categories relates to settlements with companies for alleged violations of the Foreign Corrupt Practices Act, or FCPA. In spite of what one would expect from reading the headlines of this past year, the number of FCPA settlements with companies has declined during the first half of fiscal 2012. However, we know that there are several FCPA actions in the pipeline that are yet to be resolved and what the future holds for this category is uncertain.

A recent survey of corporate compliance officers found that more than half of them reported increases in budgets for anti-bribery compliance. With increased compliance, one would expect that the number of FCPA violations would decrease over time. However, the SEC's new whistleblower authority and the SEC's increased emphasis on FCPA enforcement may result in more detection, making the overall trend in future settlements uncertain.

The largest settlement by value during the first half of fiscal 2012 was a \$285 million settlement with Citigroup Global Markets, Inc. This settlement is currently the subject of an appeals court proceeding after the proposed settlement was rejected by Judge Jed Rakoff. If the settlement is allowed to stand, it would be the twelfth largest settlement with the SEC in the post Sarbanes-Oxley era.

In another highly publicized case the SEC obtained a \$92.8 million civil penalty against Raj Rajaratnam of Galleon Management, LP for insider trading violations. This civil penalty is on top of over \$60 million dollars in criminal fines and disgorgement along with eleven years of imprisonment assessed by the Justice Department in a parallel criminal case. The SEC's investigation of Rajaratnam has spawned dozens of settlements and ongoing investigations against individuals associated with this scheme.

All told, three of the top ten settlements during the first six months of fiscal year 2012 were with individuals, a result that is also consistent with the theme of increased individual accountability.

The median value of settlements with companies has declined compared to 2011 and has fallen back into line with the range of values we saw between 2007 and 2010.

Drilling down across the various categories of allegations we see that the average settlement values for companies fell in some categories, but grew in others. For example, settlement values for companies with FCPA violations rose from just under twelve million in 2011 to nearly twenty one million in the first six months of fiscal year 2012.

For individuals, the median and average value of settlements with individuals continued to increase as it has over the past three fiscal years. Average settlement values with individuals increased for three of the five largest categories of allegations but decreased sharply for Ponzi schemes and public company misstatements. Average settlement values for individual settling insider trading allegations rose over 2011 and this is in line with higher values than we've seen in this category since 2009.

Another trend that we're keeping an eye on is the increasingly important role that economists are playing in SEC enforcement proceedings. The SEC's Office of Litigation Support has in recent years significantly ramped up the hiring of economists and others with quantitative skills.

SEC economists are increasingly used to assist in investigations to develop economic evidence for use in enforcement proceedings, to assist in the deposing of witnesses, to estimate damages, to evaluate the economic evidence and analysis offered on behalf of defendants and to evaluate the analytical assumptions underline proposed settlement amounts.

This is something attorneys may want to keep in mind when dealing with the SEC. When responding to a Wells notice, for example, the audience may not only be attorneys within the SEC's Division of Enforcement, but may also include economists from the Office of Litigation Support.

We're keeping an eye on three recent developments that may potentially affect SEC settlements. First, Judge Rakoff's refusal in November 2011 to approve a proposed settlement between the SEC and Citigroup Global Markets. In that ruling, the judge criticized the SEC's practice of settling enforcement actions on a "neither-admit-nor-deny" basis. The SEC has appealed Judge Rakoff's decision and Citigroup has joined the SEC in its arguments.

In addition to the appeals process, the SEC settlement practices were the subject of a congressional hearing this past spring in which the SEC's "neither-admit-nor-deny" policy was featured. At that hearing, SEC Director of Enforcement Robert Khuzami argued that if defendants were required to

admit wrongdoing as a condition of settlement, there would be far fewer settlements because of the increased risks to defendants of increased civil and criminal liability resulting from such admissions.

In summary, the appeal by the SEC and Citigroup Global Markets of Judge Rakoff's decision remains unresolved. Requiring an admission of wrongdoing just in order to settle SEC enforcement actions would potentially reduce the incentive for defendants to agree to such settlements. Therefore, we will be keeping a close eye on how the courts and or Congress address this issue.

Another development potentially affecting SEC settlement activity is the implementation of the Dodd-Frank Act. Dodd-Frank has significantly expanded the authority of the SEC's Enforcement Division, as well as the range of market participants subject to SEC enforcement. However, the effects of these changes are not yet fully known because the SEC has been prevented from using these expanded powers for conduct that predates Dodd-Frank, and in some cases the rulemaking process implementing Dodd-Frank at the SEC is still underway.

Whereas certain provisions of Dodd-Frank Act could potentially expand the scope of the SEC's enforcement activities, the JOBS Act, passed in April of this year, could potentially reduce the scope of the SEC's enforcement activities related to certain unregistered offerings. The potential impact of the JOBS Act on SEC enforcement activities will depend on the specific rules crafted by the SEC to implement the act. Although the act does not eliminate anti-fraud rules, it exempts some issuers from public reporting and registration obligations and we know that over the past three years settlements of SEC actions related to alleged violations of rules governing offerings has accounted for approximately fifteen percent of all SEC settlements. Some subset of these offering statements may have been

regarded as violations had the JOBS Act been in place at the time. The rules implementing the JOBS Act could potentially affect how settlements in the future are determined and that this is something we definitely will be keeping a close eye on.

Again all of this information about SEC enforcement trends can be found in our most recent report along with past reports on the NERA web site, [www.nera.com](http://www.nera.com).

**Arthur Laby:** Thanks Jim, very much. You raise a number of interesting topics, and we'll return to some of those a little bit later on. We're now going to hear from Dr. Alan Grant, who's going to discuss biases in hedge fund performance reporting. Alan?

**Dr. Alan Grant:** Thank you, Arthur. Today, I will discuss three biases that exist in hedge fund performance data. Why does publicly available hedge fund performance data matter? Because potential investors use performance data in making investment decisions and researchers use performance data to understand the risk and return characteristics of hedge funds. Measuring hedge fund performance is increasingly more important given the industry's rapid growth over the last few decades. Backfill bias, survivorship bias and selection bias can all affect publicly available hedge fund performance data. All of these biases exist at least partially because hedge funds data is based on individual hedge funds voluntarily providing their performance data. The hedge fund industry has grown dramatically in size over the past twenty years. One source estimates that the industry has grown from about five hundred funds managing \$50 billion dollars in assets in 1990 to over eight thousand funds managing \$1.6 trillion dollars by the end of 2009. With their increased size and visibility, hedge funds are also increasingly coming under regulatory scrutiny. Recent changes in financial regulations have targeted

hedge funds, requiring large funds to register and mandating additional reporting and disclosure requirements. Regulators have also increased their enforcement focus on hedge funds. Recent cases involving insider trading and hedge funds have led to charges, and in some cases, convictions and sentences for hedge fund managers. Given the increase in size of the hedge fund industry, measuring and comparing the performance of funds and their management will also be increasingly important, and to do so, it's necessary to understand some of the biases that exist in available hedge fund performance data.

Today, there has been no mandatory public performance reporting for hedge funds. To help allow investors fill that void, and make comparisons across funds, independent companies have developed and marketed databases of hedge fund performance data. These databases include a hedge fund's monthly performance, some basic description about the fund strategy and often information on the fund's assets under management. Database vendors gather and solicit hedge fund performance data from individual funds. There are a handful of such databases and coverage of each database differs, sometimes substantially. For example, at the end of 2007, one database included 3031 funds with assets of \$632 billion dollars while another database at the same time had 4324 funds with assets of \$876 billion dollars. Moreover, academic researchers, who in 2009 analyzed four of the largest hedge fund databases, found that 49% of funds appeared in exactly one database and only 7% appeared in all four.

Regardless of coverage, each database relies on individual funds voluntarily reporting their performance data. Of course successful funds have incentives to report their performance in order to attract additional capital into the fund. Poor performing funds have the opposite incentive. Because of

the voluntary nature of reporting and the different incentives between high and low performing funds, performance data culled from hedge fund data bases can be a biased estimate of the hedge funds true rate of return.

The voluntary provision of data by a hedge fund can lead to biased estimates of return if the fund only selectively provides its historical performance information to the data vendor. Typically, only after a hedge fund attracts capital, begins making investments and has a series of successful months, will it decide to start reporting to a database vendor for marketing purposes and trying to attract more investors. At the time the hedge fund joins the database it can also provide the vendor with historical data. Funds select to what extent they provide historical returns and many funds choose a period over which they've had relatively good returns. This tendency to omit poor performance will cause a database to suffer from what is called the backfill bias. Backfill bias usually results in upwardly biased returns for a given hedge fund because the performance data reported to the database vendor tends to be better than the data not reported. Estimates from academic research of the magnitude of the backfill bias range from 2%-5% per year. This compares to recent estimates in annual returns of 12-15% per year, meaning that backfill bias can have a significant effect on estimating returns using a hedge fund performance database. Another bias, called survivorship bias, arises when self-reported performance data is used to calculate performance statistics for hedge funds overall or for particular hedge fund strategies such as global macro or convertible arbitrage strategies. Researchers often calculate monthly average returns for funds in a database as the average of all monthly fund returns reported in that database in a given month and in the appropriate category. This construction procedure can introduce another bias in hedge fund performance measurement.

To understand the survivorship bias, consider a researcher calculating the average performance of all funds that reported returns the prior month. Now, suppose one of those funds has a particularly disastrous month, losing substantially all its value. This causes the fund to liquidate and wipes out investors capital in the fund. In this case, investors in that fund would suffer a complete loss and the fund's actual return from inception would be a 100% loss. However, that fund would likely not report those results to the database vendor and instead there would be no return included for that fund when calculating average using that database. This is a source of survivorship bias. In general survivorship bias results from the fact that failed hedge funds are removed from hedge fund databases along with their entire performance history. The bias occurs because the database ends up including only successful funds. Dying funds, whose performance tends to be worse than surviving funds, stop reporting the results and consequently average or index returns calculated only from the funds in the database will overestimate actual hedge fund returns. This effect can be substantial and estimates of survivorship bias range from 3% per year to 5% per year, a larger fact given, as I mentioned earlier, that recent research estimates average returns to be between 12 and 15% per year.

It's not surprising this is a larger fact - hedge funds often have very short life spans. Academic research found that 40% of hedge funds do not make it to their fifth year and that the half-life of hedge funds is exactly thirty months. A 2005 study found hedge fund attrition rates ranging from 12 to 27% per year in the 1994 through 2003 timeframe. While some of the attrition may be attributable to successful funds no longer reporting the returns because they presumably no longer need to attract capital, the majority of attrition is likely because funds were poorly performing. In the case of a poorly performing fund, the fund may choose to stop reporting the performance in order to avoid the dissemination of their performance until, and if, they can turn it around or the fund may liquidate and stop reporting. In

both cases, the survivorship bias associated with the absence of performance data of these funds would lead to an overestimate of average hedge fund returns.

As I mentioned earlier, inclusion in a hedge fund database is voluntary and individual funds may have reasons why they wish to be included or excluded from the database. If those reasons are at all associated with the fund's performance, then average returns estimated from the database may also be affected by a selection bias. If, for example, a fund had consistent poor returns and never reported any of those returns to a database vendor, the average returns estimated from performance databases would be biased upward because the poorly performing funds would not be included. Conversely, suppose a hedge fund is quickly very successful and reaches what it views as its optimal size? In that case, the fund may not have an incentive to report its returns to a database vendor because it is not seeking new investors. However, this means that average performance estimates calculated from the database in that case are too low, because they did not include returns from this very successful hedge fund. Indeed, in a 2009 article, economists found that fully forty five of the top one hundred single manager hedge funds, as selected by institutional investor magazine, were not included in any of the four hedge fund data bases the authors reviewed. Selection bias, therefore, can work in either direction though there are only a few measurements of the size of this effect as it pertains to hedge fund performance data.

In summary, taken together, these performance-related biases associated with hedge fund databases indicate one needs to use caution when estimating average hedge fund performance from the database or even when using returns from the database to compare funds. However, it is often possible to calculate adjusted statistics that remove these biases. If sufficient data is available, a researcher can adjust return estimates for backfill bias or survivorship bias. For example, if the date a fund first

reported returns to a data vendor is available, return estimates for that fund could be adjusted to avoid the backfill bias. Similarly, adjustments for survivorship bias can be made if the database separately maintains the performance data for funds that have stopped reporting to the database.

As I mentioned earlier, hedge funds are a growing asset class. Some researchers find that hedge funds provide diversification benefits to investors and find that, on average, hedge fund managers generate returns in excess of their market exposure to risk, even accounting for performance fees. Others argue that hedge fund returns or simply the result of higher risk exposures or result from bearing more illiquid positions, but one thing is clear, accurately measuring hedge fund performance is important to both investors and researchers and as I've discussed, to accurately measure hedge fund performance, it is necessary to understand and correct for possible biases that can occur when using publicly available hedge fund performance data. Thank you.

**Arthur Laby:** Thanks Alan. That was very interesting. Only an economist, I think, can help us sort out these very complex bias issues. We're now going to hear from Dr. John Montgomery, who's going to speak a bit about high-frequency trading. John?

**Dr. John Montgomery:** Good afternoon. I want to, on behalf of everybody here, thank the SEC Historical Society for hosting this program. My topic is the regulation of high-frequency trading. As I think will become clear, the topic really does not have a very clear definition, but the central issue is clear: as is true in so many economic areas, the technologies underlying market trading have undergone rapid change. Trading times have been shrinking dramatically. In the U.S. equity markets, which will be my main focus, the relevant interval for trading in orders can be as low as a millisecond, or even

sometimes shorter. Developments in technology are intertwined with regulatory changes. The SEC adopted Regulation NMS, governing the national market system in 2005. Reg NMS relies on the forces of market competition but it embodies a balance between two types of competition. The first type of competition is competition among exchanges. The presumed benefits of such competition is that exchanges can compete to attract market participants by trying to have the best trading rules, best technology platforms and the best pricing structures. This competition presumably helps insure improvements over time in all these areas. The second type of competition is competition among traders for trading profits. This competition encourages traders to submit competitive limit orders so that they can benefit from trading or market making profits. This process of competition among orders then encourages narrow bid ask spreads and markets that can respond quickly to news and outside orders. Exchanges have flexibility in how they structure this competition in orders. The whole system is designed to create a competitive playing field among exchanges. Each exchange for each stock reports its best quote, the highest bid and lowest offer to the consolidated tape, which provides an electronic public feed of these quotes. Using these quotes the tape also identifies the national best bid and offer, or NBBO, for each stock at each point in time.

To encourage exchanges to compete to be part of the NBBO, Reg NMS has something called an order protection rule, which prohibits market participants from executing an order at a price that is inferior to the NBBO. So, an exchange receiving an order when its quote does not reflect the NBBO, can try to get local market participants to offer an order at the NBBO or better (this would be called a flash order), or it needs to electronically route the order to whatever exchange has the relevant side of the NBBO. I am simplifying the picture somewhat, but this is essentially the framework

Behind this system of competition in quotes lies a substantial pool of dark liquidity. By "dark liquidity," I mean the intentions of various traders to buy or sell at various prices for each equity issue. Economists would think of this as undisclosed supply and demand. This latent trading interest might reside at the exchanges or in what are called dark pools, or at broker-dealers or with other market participants. If we had more time, we could explore this all in greater detail.

Let's now turn to some enforcement issues that have come up, and these are largely issues that the SEC has highlighted in its work. They all have to do with ways a high-frequency trader might interact with the market and potentially run afoul of securities laws. There's a common theme, which is really a very old theme: if the trader can successfully anticipate securities price movements it can benefit from trading ahead of those movements and then entering an opposite trade after the movements occur. That is of course the basis of a wide range of legitimate investment activities and it is of course how markets remain efficient, with traders quickly reacting to public information trying to buy or sell before the information gets reflected in the stock price, and through that very process, causing the price to reflect the information.

There are some phenomena that may not be so kosher. Before going into them I need to emphasize that although they are issues that regulators who look at high-frequency traders might be concerned with, there is nothing in these issues that are particularly tied to high-frequency trading. Regular traders relying on human speed actions and decisions can do these things too. The first phenomenon is a decision where a trader doesn't just anticipated a price movement, but actually acts in a way to cause the movement. Some versions of this might be called manipulative by the authorities and therefore be illegal. I'm not sure I know where the legal line is on that. With high-frequency trading, it is

conceivable, at least, that an algorithmic trader might be able to analyze enough of the patterns and market movements that it is able to cause at least short-term price movements that it can profit on, and in the high frequency world, these movements might be happening in milliseconds. A form of this is what the Dodd-Frank Act calls "spoofing." The act defines spoofing as "bidding or offering with the intent to cancel the bid or offer before execution." It gives the CFTC, at least, enforcement authority over spoofing, presumably in the futures market. Why would a trader want to engage in such activity? It might be to cause price movements that it can then profit on. There are a couple of FINRA cases that are somewhat related to this. They both involved actions by traders designed to get markets to move in a particularly favorable direction for those traders. Before I get into them however, I should state that neither of them actually involve high frequency traders per se, at least on the infraction side, although they do illustrate the market dynamics. The first case is called "Bunda," which involved a trader on a personal account submitting small orders in order to move the NBBO and then sending a larger order in the opposite direction to a broker guaranteeing execution at the NBBO and then canceling most of the original orders before they got executed. The second case is Trillium Brokerage Systems. Trillium was accused of submitting layers of orders away from the best bid and offer to create the impression of buying or selling pressure for a particular stock. Trillium then supposedly cancelled most of these orders, having already profited from market movements caused by other traders who saw these orders and assumed the market was going to move in their favor.

Generally, it's pretty challenging to prove a manipulation case like this. As a logical matter you need to show intent to manipulate, you need to show that the behavior actually succeeded in moving prices and you need to show profit from such movements. In the high frequency realm, one has to ask the same question that has been asked about such price based manipulation claims in slower markets. Namely,

how can you make money just by buying and selling a financial instrument and hoping to cause favorable price movements? Suppose you think that you can enter purchases to drive up a stock price and then sell at a higher price. Well, you somehow have to succeed in buying the stock at a low price but also manage to drive up the price in the process and then start selling the stock at the higher price without pushing the stock back down. It depends on the rest of the market cooperating very nicely with your scheme. It's not a simple thing. If you detect a pattern of a trader executing purchases before stock increases and sales before price decreases, it could be the trader is merely supplying liquidity to the market just as a market maker would do and this is normal market stabilizing activity. You also have to ask, again in the high frequency realm: how is it that other traders in that realm get fooled? Won't other algorithms be adjusted as the patterns of attempted manipulation are detected? All of this would require careful statistics to do the analysis.

Let's turn to the other type of price movement anticipatory behavior that might be troublesome to the authorities. Recall that I said that the exchanges' order books show only part of market depth; there's also dark liquidity representing un-displayed buying or selling interest. Institutions and other large traders with large buy or sell programs generally prefer not to advertise their trading intentions to the market. If the market knows your trading intentions traders will trade against you. Say you want to buy a large quantity of a stock. If traders figure that out, they will hit the offers for the stock taking a long position that can be profitable as you then try to execute your program. The concern with high frequency traders is that they might be able to somehow figure out some of the latent buying or selling interest in the market. Again I would need to emphasize that it wouldn't just be high-frequency traders trying to do this, but anyway the high frequency traders might send small orders to ping exchanges to see if there are dark orders. If they find some, they might infer there is more where that comes from.

Now, I don't know if this trade kind of behavior is illegal; that's really not a question for economists.

Traders are trying to figure out where the market is going and they may succeed. It seems pretty clear that it raises the cost of the large traders trying to execute buy or sell programs, but on the other hand, markets more quickly reflect the information in these programs and so provide better signals on value.

The high-frequency world is interesting because you have algorithms interacting with other algorithms at speeds much faster than humans can operate directly. The basic economics of supply and demand aren't any different in the high frequency realm. Competition among market participants is there and apparently is there in great quantity. This generally makes markets more efficient and apparently the whole electronic high-frequency national market structure has greatly lower transactions costs. The competition of algorithms is just a continuation, an extension, of competition in the use of technology and trading that has been going on a very long time. What you have in the examples I cited is the idea of algorithms out-smarting other algorithms. Traders have always tried to outsmart each other; now they're just trying to write programs to do the same thing. So the technology is advancing. Speed is rising. The quantity of data is definitely increasing, but there is still competition with traders trying to anticipate market movements, and that is usually a positive thing in markets. We just have to ask: when does the positive behavior cross the line and how do you police it without impairing the overall benefits of our current dynamic market structure?

**Arthur Laby:** Thanks very much John. As I listen to each of your presentations as a non-economist, it seems to me that the common theme, or at least one of the common themes is complexity and in that regard I was drawn, Jim, to one of your earlier comments when you mentioned that the SEC has been pretty active in engaging many more economists than in the past at the SEC, both on the enforcement

side and on the regulatory side. I was wondering if you, Jim, or if any of you would like to comment on what the effect will be long term of having the SEC take interest in and engage with more economists in the building.

**Dr. James Overdahl:** I think first of all...

**Arthur Laby:** By the way, I recognize that there might be a “bias” within the room with respect to that answer, but we want to hear from you anyway.

**Dr. James Overdahl:** I'll give you my perspective and I think the first thing to recognize is that economic analysis has been an important part of SEC enforcement proceedings and rule making for a long time. I think what is different now and over the last several years is that this has become a more consistent rollout on a bigger scale than before. I think there have been a lot of ups and downs in the process, but I think one of the things we've seen now is that there is, first of all, many more economists available to the SEC to help them do their work and I think there's been a greater demand from certain Commissioners who always valued economic analysis and have asked a lot of questions for which economic analysis can help address the issue. But I think also within the Division of Enforcement I think there's been a demand for analysis over the last few years. Part of that may be that just because many cases that they're seeing, particularly out of the financial crisis, are more complex and may require different types of analysis than they have employed at other times, but I think also they like having economists help because it makes their cases stronger. I think one of the things you've seen in terms of how the SEC has acted as a result of this is that the type of questions that Commissioners ask are going to be much more along the lines of what would happen if different assumptions were

changed with respect to determining settlement terms for example, as opposed to where arguments in the past between Commissioners may have been more along the lines of whether they thought a penalty was too high or too low. You see this played out, for example, in the penalties on corporate issuers where the SEC came out with penalty guidelines that definitely require some economic analysis to look at whether a corporation has benefited from misconduct and also, when a penalty is assessed, who that penalty falls on. If it's current shareholders who are going to be paying that penalty, are they the ones who perhaps are the victims of a fraud or benefited from the misconduct at some point and so there's economic analysis that needs to be applied to help respond to deliberate policy choices that the SEC has made about how to handle some of these cases.

**Arthur Laby:** Picking up on that, Alan and John, for the areas that you've discussed, is there a way to pinpoint an actual harm? When do the issues that you raise rise to the level of abuse? So, Alan, for example, in the hedge fund area if investors are generally sophisticated investors, very often high net worth investors, do we really need to worry about bias or can those folks figure out the bias on their own? Similarly, John, I would ask you, if you're willing, to comment on the harm with respect to high-frequency trading. Is this just the next logical step of the markets' technological development, or do you see harm with respect to volatility? Do we need economists to help us figure that out?

**Dr. Alan Grant:** With respect to the sophisticated investors, I think there's two points there. The first is, as a sophisticated investor, you should be aware of these biases, particularly if you have a broad investment program - you're investing in private equity and other things, when you're comparing your returns across those investments and you're benchmarking your returns to understand the data you're getting, understand the biases that might exist in that data is really important. Secondly, where this

affects us more often, at NERA at least, is in litigation, where people will serve damage estimations and they'll have a hedge fund manager who has a dispute for some reason and is claiming some huge value of the value of the management company based on the fact that it was going to grow at some high rate of return, both those rates of returns also have to be adjusted for the fact that these biases exist and the attrition rate of these funds, so I think it's both in litigation contacts and also in performance benchmarking that matters.

**Arthur Laby:** John?

**Dr. John Montgomery:** I think in that high-frequency area, it's a term that gets a lot of attention but the equity markets especially have always been very competitive and if you have a technological infrastructure and you have the ability to compete on the basis of having quicker technology, quicker computer connections, quicker processing speed, closer and quicker connections with the equity markets, of course traders in the equity markets are going to take advantage of that. It's a natural extension of competition in the equity markets that has always existed. I don't think it's really fundamentally different from what we've had before. It's just that the computing speed and the systems has gotten to the point where things can be done so much more quickly than before. Competition is going to make even the high-frequency markets presumably... I think the presumption has to be that those markets, in most cases, will work well and will work efficiently. Some of the high-frequency trading firms have recently announced that they're cutting back on their activities because they're not seeing the profits in the high-frequency markets that they saw, and that's kind of evidence that maybe those markets are getting, even in the high-frequency level, are getting more efficient.

**Arthur Laby:** So, in your view, John, does the average investor need to worry about high-frequency trading? One of the statistics that I saw, I don't know if this is consistent with data that you have, was that by 2010 high-frequency trading was something like 70% of all equity trades, or at least quite high. Does the average investor need to be concerned about that?

**Dr. John Montgomery:** I think that my general sense is that most of the issues I talked about - the possibility of manipulation and the possibility of front-running - are things that do not directly affect the average investor. On the other hand, the Commission does need to ensure that the markets still have integrity and obviously there is the possibility that somebody operating at the high frequency level might do something to affect markets and to hurt the execution of regular orders and I think hopefully the SEC will continue to look at that. Hopefully the average investor can rely on the authorities to deal with it.

**Dr. James Overdahl:** Can I just add one thing on that? I know part of what the SEC and the CFTC have been doing over the last couple years has been gathering a lot of information on technological change, high-frequency trading in particular, that we've seen occur in the market over the last few years. One of the interesting things is that you have mutual funds who represent a large part of what we would think of as average investors, long-term investors, who have different views on this, but some of the bigger ones, Vanguard for instance, would be one who has cited the technological changes and the increased competition brought about as a result of NMS and some of the trading tools. It's actually lowered their costs significantly, that then are passed on to average investors through lower costs. Average investors have benefited that way. I think that a significant part of the industry views this as a very positive development for average investors.

**Arthur Laby:** Just picking up on that theme of gathering information, I've read just recently that the SEC has now contracted with Tradeworx, a private firm, to tap into real-time feeds of orders, quotes and transactions. Is that a development that you all see as positive? Is that going to help the Commission? That seemed like news to me.

**Dr. John Montgomery:** It sounds like they'll now have the access to a lot of information quite quickly and I think it probably raises the question of how they're going to figure out how to analyze, and whether they're going to need more economists and financial people to analyze this data.

**Dr. James Overdahl:** Part of the problem that regulators have in this new world of not only faster trading but also more trading venues is how to conduct surveillance and how to do their analysis. One of the things we've seen back in 2005, 2004, before Reg. NMS, that you maybe had two trading venues that you could rely on to conduct surveillance because that's where most the trading took place. Now, you have many different trading venues that the SEC has to look across. I think the significant thing with this particular contract that you mentioned is that it does give them some visibility into that market and it gives them the ability to query the market, to follow orders through the life cycle, but it's probably only a front line tool that allows them to respond to tips and allegations that are brought to their attention so that they can query to see if there is any substance to those allegations. Those are all useful things, but it's probably only a frontline tool that would allow them then to go back and drill down further to see if there's more behind that if they see things that are consistent with allegations at the initial stage.

**Arthur Laby:** Alan, what about in the hedge fund space? Will the new rules to require hedge fund advisors to register mean that the SEC will have a lot more data in the hedge fund area?

**Dr. Alan Grant:** They'll certainly have more data. I think the problems in the hedge fund world are different than a lot of the regular equity markets. The volume of the data isn't so much the issue, it's trying to figure out if there is anything there. Hedge funds sometimes the strategies are really complex, so it's not clear, just having a whole bunch of data may or may not be super beneficial. We talked about several reporting type biases but within hedge funds there's a huge amount of work also on how hedge funds value their portfolios. There's been allegations of smoothing portfolios. There's allegations of mis-marking and maybe having more data there could be more helpful.

**Arthur Laby:** Can you help us understand what you mean by that?

**Dr. Alan Grant:** Sure. I think I mentioned, one reason some people think that hedge funds have these returns is they're taking illiquid risks. By definition illiquid risks don't have a readily available market, so prices can be possibly more at the discretion of the manager. There have been allegations that managers have miss-marked, allegations of hedge fund managers making up marks on positions and people have gone to jail over that. So, having more data and having more transparency of what hedge funds are actually holding presumably would help identify those kind of situations.

**Arthur Laby:** Jim, you had mentioned tips just a minute or two ago. I'm wondering if you would comment briefly on whistleblower developments and whether you think the SEC is getting useful tips and whether that might be changing the face of the SEC's enforcement program.

**Dr. James Overdahl:** Well, that's a very good question and one we don't really fully know the answer to yet. First of all, the whistleblower authority was part of the Dodd-Frank Act and so it has only recently been implemented, in fact it was just implemented, I believe, in August of last year. Parts of what the SEC is doing with respect to that authority is that they are publishing on an annual basis information about those tips and we expect to learn a lot more about that when they have a full year of activity behind them. So we'll be looking at their report which will be coming out perhaps in October of this year, then we'll have a fuller picture. The last one we saw from this past October only covered about two months of whistleblower tips and did indicate that the tips were probably of higher value than maybe people worried that they would be. We've heard officials from the SEC stress that they think that the whistleblower reporting is going to be particularly important for certain types of cases. For example, Foreign Corrupt Practices Act cases where whistleblower protection and whistleblower incentives can be significant in developing those types of cases, which we would expect would lead to more actions and potentially more settlements.

**Arthur Laby:** But even in the hedge fund space, or in the high-frequency trading area, these are fiercely competitive markets. Do you have any comment on whether the new whistleblower rules could come into play to encourage whistleblowers in the hedge fund area, or maybe even in the high-frequency trading area if there are abuses?

**Dr. John Montgomery:** I don't know. I'm tempted to say it would be very short, high-frequency whistle, it would be very high-pitched, you wouldn't be able to hear, but I really don't know, I suppose

it's always possible that there might be somewhere, some firm that's engaging in activity that's not being detected and a whistleblower might help the SEC find out about it.

**Dr. James Overdahl:** I think it's true with any type of misconduct and I don't know that it necessarily is something that is peculiar to high-frequency trading or hedge funds. I mean misconduct is misconduct and so you would expect that that authority may be helpful anytime misconduct occurs.

**Arthur Laby:** And speaking about new authority things are happening so fast that it's hard to keep up. I just saw that a new bill was introduced in Congress to enhance penalties in enforcement cases. The SEC has authority to impose high penalties now but this would make them even higher. Could any of you comment on whether you think that the bill has legs and whether it would have any real effects?

**Dr. James Overdahl:** Well I'm not a political handicapper so I'm not sure I can predict what will occur with that bill whether it becomes law or not, but if it became law, I think that it does give the SEC a bigger hammer perhaps, and you would expect in the settlements world that that may lead to more settlements perhaps and perhaps higher valued settlements. But let's remember that the way these penalties are set is per violation and that may be part of the negotiation -- how many violations occurred. This is part of the negotiation that goes on today, even with lower penalties per violation.

**Dr. John Montgomery:** I think the penalties are only part of the punishment that comes when people engage in an infraction. You've got the disgorgement if that comes up. You have all the different bars of being a public official, corporate official, or whatever, or from the securities industry depending on what kind of activity you were engaged in and then you're also open to private lawsuits. I would

tend to think that we have a lot of disincentives to engage in illegal behavior already. It's hard for me, just off the cuff to think that higher levels of penalties are going to radically change people's behavior.

**Arthur Laby:** When we talk about incentives and incentives to act appropriately this raises, Jim, one of the first points that you mentioned with respect to individual accountability and the emphasis at the SEC on looking to individuals as opposed to, or in addition to, the entities. That does seem like a bit of a change, this pursuit of individuals. Is that something you see as a significant change? What do you think the long-term effects will be of pursuing more individuals?

**Dr. James Overdahl:** Whether this is a long-term trend? I can't say. This is merely a point in time that we've observed an increase in individual settlements and actually last year we saw the value of individual settlements go up so that we need we need a bigger sample size to tell whether or not this is truly a change, but it is consistent with the things that the SEC has been saying over the last couple years about assigning accountability to culpable individuals and pursuing this as a matter of deliberate policy choice.

**Arthur Laby:** But there are trade-offs, right? When the SEC pursues individuals at least some studies show that individuals fight harder than entities. It takes more resources to pursue those cases. Does the SEC perform a sort of economic cost-benefit analysis when it brings its enforcement cases? Is that something that it should do or is that not the appropriate approach to take when considering the implementation of an enforcement program or a settlement system?

**Dr. James Overdahl:** I think that all of those costs are part of what the SEC has to consider. However, at least, things that we've heard from the SEC recently and in congressional hearings is that they need a credible trial deterrent too and that they're willing to bear that cost if that's what it takes.

**Arthur Laby:** Which takes us back to the comment you made about Judge Rakoff, and there the SEC presumably is looking for more flexibility; that's an area where reasonable people can disagree.

**Dr. James Overdahl:** It's not just the SEC. That type of policy is across all financial regulators, I believe.

**Arthur Laby:** Well, terrific! Alan, John and Jim, thank you so much for sharing your insights into these really quite complex issues that bear so closely on financial regulation. It's been terrific and a great pleasure in talking with you today.

Today's broadcast will be available in audio MP3 format in the virtual museum and archive at [www.sechistorical.org](http://www.sechistorical.org). An edited transcript will be added later. This broadcast will be accessible both in 2012 programs and in The Best of NERA section under Programs in the museum. On behalf of the SEC Historical Society let me again thank NERA Economic Consulting for their generous support in making today's program and the continuing series possible. Thank you for being with us today and have a good afternoon.