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Bill: Before we start, I would like to offer a quick summary of Adena's background. She's held the role of President and Chief Executive Officer of Nasdaq since January 1, 2017, and is a member of the board of directors. She brings more than 20 years of industry leadership and expertise and is credited for her contributions that shaped Nasdaq's strategic transformation to a leading global exchange and technology solutions company operating on six continents.

Prior to her appointment as Chief Executive Officer, she served as President and Chief Operating Officer of Nasdaq and was responsible for overseeing all of the company's business segments with a focus on driving efficiency, product development, growth and expansion.

She rejoined Nasdaq in 2014 as President overseeing the technology, information, and corporate businesses that comprised over two-thirds of Nasdaq's revenues.

Prior to her return, she served as CFO and Managing Director of the Carlyle Group from March 2011 to June 2014. She played a significant role in taking the company public in May of 2012.

Before Carlyle, she was a key member of Nasdaq's management team for over a decade, serving in a variety of roles including head of the company's data products business, head of corporate strategy, and the CFO. She played an instrumental role in the company's acquisition strategy and overseeing the acquisition of INET, OMX, and the Philadelphia and Boston Exchanges. She originally joined Nasdaq in 1993.

She holds a BA in political science from Williams College in Massachusetts and earned her MBA from the Owen Graduate School of Management at Vanderbilt.

Adena: Which is where we met.

Bill: Yes. Something you don't know, in my second year of teaching at Vanderbilt, Adena was a student in my core finance class. So as much as I would love to take some credit for launching her career in finance, the only thing that I am sure of is that we've come full circle – Adena has gone from being student to teacher. So please join me welcoming Adena.

(Applause)

We talked last week about potential topics that would be of interest to an audience like this. We hope that our discussion will generate research ideas that will speak to academics and industry as well.

At the conclusion of our fireside chat, Adena will be happy to take questions. We have microphones set up across the floor. We would ask that if you'd like to ask a question, use one of the microphones. And that you use your time at the microphone wisely, make sure you're asking questions rather than just letting us know about what you're working on.

What I want to do is focus our discussion around the document that Nasdaq produced. It's called *The Promise of Market Reform - Reigniting America's Economic Engine*. And I believe this is the first time that a market or exchange has produced any kind of document like this. It's a full whitepaper that looks at the challenges of the market, how it actually sees what the challenges are and how to address them.

It's a fairly aggressive but very novel way of taking a look at our markets. We will focus on a subset of the topics discussed in this document that will hopefully trigger research ideas and spark some questions.

The document appears to be primarily concerned with the relation between private and public ownership - that the privately-owned corporation has become much more dominant in our markets and the number of listed firms and the number of IPOs in the market is declining.

So we'll kick it off with a review of private versus public ownership, if that's okay.

Adena: Sure. So as Bill very well said we are looking at how we can continue to advance US markets by looking at all the elements of the capital markets in the United States.

One thing that I think we'd all agree on is that the US capital markets are the healthiest and deepest markets in the world and the rest of the world looks at us and says, "How can we be like the US when it comes to capital markets?"

One of the things that people often talk about is the fact that Nasdaq is the technology provider to 90 other exchanges around the world. We have to advance and spread our work to other exchanges, but the US itself is going through like an enormous existential issue about the health of our capital markets.

And we talk about private ownership and public ownership – it's not good and bad or bad and good; it's really just making sure that both of them are healthy, strong, vibrant and attractive to companies.

So I think there are times in a company's life for which private ownership is appropriate. When you're a fast-growing company, you don't really have consistency in your earnings and you don't actually know whether you're going to have any earnings. That's where venture investing is very, very important. But there is a moment where it used to be that there is a branding element in going public and I think an idealized sense of "making it." And it has been and continues to be a very exciting moment when you go public. But there are more and more private companies.

Over the past decade we've put more and more obligations on public companies and impose all of these different requirements that seem very difficult to adhere to. This affects the public funding growth because now the companies are hanging on just to get the next dollar. And this is changing the capital enterprise space.

So what we're trying to do is make the public markets more attractive, to make the companies still feel like they're not having to cross the desert in order to enter the public market – and that's the focus of the document. The plan is what we see as necessary to make it to this more attractive market.

Bill: You mentioned the idea of companies having the sense that they've "made it" when going public. There's an older tradition that companies would first list on Nasdaq and grow with the ultimate goal of moving to the New York Stock Exchange. That has clearly changed.

Adena: That's right, yes.

Bill: Is there restored competition?

Adena: Oh, there is competition. I would say actually more competition today than there was back then. So when I first joined Nasdaq in 1993 there was a sense of I'm going to go to public on Nasdaq and then I'll grow up and get listed on New York. But by the time I got there in 1993 it was the larger companies – Intel, Microsoft, Apple had all decided to stay on Nasdaq. Comcast - all these companies are kind of changing the world. They had gone to Nasdaq thinking they would go onto New York, but all decided to stay.

By the time I was there we were doing the marketing campaign - Nasdaq, the stock market for entrepreneurs. We wanted to recognize that we were different and that we were attracting the companies of the new economy. But there were still challenges.

So back then there was a rule that the companies who were listed in New York, in order to switch to Nasdaq, had to get a shareholder vote, which of course no company ever wanted to do.

Bill: I think that was called the Roach Motel Rule.

Adena: It was the Roach Motel Rule. So in 2005 that rule was repealed and the impact was evident. And that's when we really started to attract companies to Nasdaq. So from 2005 to today, Nasdaq has attracted $1 trillion of market cap from New York to Nasdaq; whereas New York has attracted about $32 billion the other way. So we are obviously more successful than we ever have been in attracting companies to Nasdaq and having a value proposition for these companies.

Bill: Okay. In terms of the public to private ratio there is a concern about public companies not willing to become public or companies that are public deciding to go back to being private because of regulation and shareholder lawsuits, et cetera. Would you mind telling us what things are happening and what you have in mind to be able to address this?

Adena: Sure. Well, I think we actually look holistically at what disclosure obligations the companies have and when they choose to go public or private. What are the problems with going public itself? And what do they have to do in order to become public? What are the rules around proxy access, the proxy advisory firms, and the range of overseers in the market? What is the litigation reform we need to consider in the United States? I mean, what are the other forms of mediation as opposed to class action lawsuits to manage shareholder disputes? We also need to think about tax reform and making sure that companies are more eligible for tax relief. And then, market structure. We need to modernize market structure to be flexible, to benefit companies of all sizes, to react quickly, to make these companies better and happier.

Bill: Can you give us an example?

Adena: Sure. So one of the things that we talk about in the market structure space is we currently have what's called *unlisted trading privileges* in the United States that allows securities to be freely traded across exchanges. With technological advances and regulation, we now have more than 50 active trading venues.

So if you're a highly liquid, large company, having multiple venues to trade your stock, frankly is fun. I mean someone in the system has 40 venues at least to trade your stock. But if you're investing a million dollars and you're trading publically a couple hundred thousand shares a day that's being spread across 40 venues, of which 30 are dark pools where you can't see the volume, then you're spreading out liquidity and technically you're injuring the quality of market. And maybe your cost of capital is a lot higher if you were to lose the public markets to raise more capital.

So while the changes in trading venues has benefitted large issuers, it's not attractive for small and medium growth companies.

So compare the US market structure to the Nasdaq First North market in Sweden, a small-cap market where limited liquidity is concentrated in one place on a single market. We see that with this consolidation, spreads and volatility can be vastly improved.

Bill: Okay. There are also concerns for shareholder losses and the entire proxy process if a shareholder proxy can be initiated by somebody who owns $2,000 worth of stock.

Adena: Right.

Bill: The proposal I think is to increase the holding period to three years and the ownership amount to require at least a one percent stake in the company. For a billion dollar company we're talking $10 million worth of stock. Is that trying to eliminate the public and even institutions who might not have this level of ownership?

Adena: Well, I think we need to start with the situation today. There are six individual investors who own somewhere in the range of $2,000 worth of stock that represented 33% of shareholder-led proxy reform proposals in the United States last year. So six small investors and their families have 33% of all proxy votes and they will keep those proxy proposals every year, and the average cost of managing that as a company is between $70,000 and $120,000.

So it's a very expensive proposition to have to deal with a $2,000 stockholder year after year after year with the same proxy that was on your ballot. And actually I'll just give you a little personal story.

There is a $2,000 shareholder who placed the same proposal this year that they put on last year and they don't have to come to our annual meeting. This year they brought someone. They hired someone from Kelly services, which is a temp firm, to attend our meeting. She did not have the proposal – we had to hand her the proposal for her to read to have the official record – she didn't even have it. I mean, it's ridiculous.

And that same investor probably did this to a hundred companies. So I think that's the issue at hand. Is one percent the rate of threshold? – that's the debate we want to have.

And the Treasury Department has just released a report that basically says exactly that. We need to have an open and active debate as to what the right threshold is. Do we want to keep individuals from having a say in governance? Probably not. But at the same time do we need to aggregate their interests by enough shareholders to make it so it is worth their while and make it worth the company's time and attention? Yes.

Do we think that it really should be more for an institutional audience? Yes. And so now what is the right threshold to do that?

Bill: Right. And that's a very good question.

Adena: Yes.

Bill: All right, I feel a little awkward asking Nasdaq about increasing the tick size.

Adena: That's pretty funny. Okay.

Bill: The SEC has a pilot program to allow stocks to trade in increments of a nickel. Your proposal said that tick sizes could be sub-penny, maybe penny, maybe nickel, maybe dime – and you call it the intelligent tick size.

Adena: Right.

Bill: Can you talk a little bit about what intelligent tick size is and how it would vary by market?

Adena: Yes. Maybe we can look at it mainly as related to the value of the spread. Suppose the share price is $1,000 - to have a penny spread minimum versus $2.00 or $3.00 minimum. So there's probably a volume, volatility or share price threshold that we can evaluate to determine what the tick size should be terms of the width of the spread. Right? It's all the value of the spread as opposed it being a single penny across the board.

And I think that we can do that by using the advanced models we have today to determine how to establish that variability and the tick size that would apply to the market. I think that the tick size pilot is going to be informative in that regard with a penny or a nickel tick size. It's got all these different tiers. Should it be a nickel? I mean, we don't really know.

So we'd like to increase the modeling to determine those optimal intelligent tick sizes that will make an impact on liquidity and trading costs.

Bill: And have you talked with the SEC about this idea of intelligent tick sizes?

Adena: We've been willing to engage with them in all of it. I've been very impressed with the new chairman and the new staff because they are very open and they are very focused on two things: having an attractive capital market that companies want to come into, and also making sure that we are always going to respond to the needs of the individual's 401(k).

You know, that's a big, big way of saying that you're looking at the average saver who's active in the public market to help save for retirement, what can we do to make sure the markets are fair and accessible to them.

And that's also good frankly for a lot of the reasons outlined in this report. You know, if you can have more companies go public, those companies that have become available for individuals to use, to invest in, to grow their savings.

Now the details – we still have to have discussion about which of these solutions should be prioritized based on timing and economical rate standards. And that's what fun about it because we really want to have an open and active dialogue and debate.

Bill: We just have a couple more minutes of the fireside chat so I want you to be thinking about a question that you would like to ask Adena.

I'd like to ask you is about the disruption of technology. We've certainly seen it in education and you're obviously seeing it the financial markets. Can you talk a little about this? Is this an opportunity or a threat? You guys obviously are technological leaders in the markets so please talk a little about that.

Adena: Yes. So we actually are very focused on disruptive technology as an opportunity, which is very smart for us. I think that the first thing to realize is that we operate in a competitive space today, right? Markets are competitive. Everything we do is in a competitive space. So if we could use technology to advance ourselves competitively, that would be really great for us.

And we look at things like blockchain as a way to eliminate risk, grow capital for the firms, and hope to spur more trading in the capital markets.

So if we can free up capital and allow the banks to do their jobs more freely in terms of taking responsible risks on behalf of customers, we see that as a win. And we think that technology is one way to do that. It takes a big effort, it takes a broad network of the industry to be able to perpetuate that across – and propogate - that across the industry.

We are believers in blockchain technology and so we are active. We have several clients now in the blockchain across the markets.

That's why we say the cloud is another way of how we can leverage this type of technology to allow for a more flexible infrastructure, a more flexible market with more capacity, active demand, and an ability to mine data more successfully. So that's the ultimate reality.

And we have a team of data scientists internally today led by our data technology team but used across the entire company to find ways to mine data for the benefits of the market.

Bill: Okay, terrific. All right. And we're happy now to open it up with questions.

Audience: Recent research has indicated that the real reason for the decline in the number of listed companies is that the smaller companies are being acquired by bigger public companies. So it is really bad for Nasdaq that there's a smaller number of companies but instead that there's just a smaller number of big companies that are listed on Nasdaq?

Adena: That's a great question. But I would say this. I think that today there are a thousand fewer companies than there were 12 years ago so that's kind of the headline stat. You are correct that mergers and acquisitions are definitely a source of some of that decline. And so you have to combine it with the fact that we have fewer companies going public and more companies being bought and so it's a combined affect.

But I would say it isn't necessarily bad. I guess the question is - is it bad for Nasdaq? It's not as bad for us because as the bigger companies get bigger, they attract more trading activity. We make more trading revenue but we have less posting revenue.

Is it good for the economy is the bigger question. And I would say that it would be great if the companies felt like they had better access to the public market so they wouldn't feel as inclined to get bought.

And the reason for that is 86 percent of all job creation occurs after a company goes public. So if they are bought there's probably not nearly as much job creation being done – jobs being created on the back of that decision as opposed to them going public.

And sometimes those companies are choosing to be bought because they don't want to have to pay for public markets.

Audience: I'd like to actually take issue with that statement of 86 percent of job creation occurs after an IPO. I think that I know where that number comes from and it comes from the most successful venture capital-backed companies like Microsoft and Google, and then pretending that that's the case for all companies.

Adena: Well, you have to look at the source. And it comes from the SEC, they've done studies back into the '60s, I think – but that number reflects the companies from 2000 to today. And so actively public companies as well as companies that have gone public in terms of job creation. We're using the SEC as our source.

I did try to look at it in the context of post-2000 as opposed to pre-2000 when they started reporting it back in the '60s. It has gone down because there are more companies that are staying private and growing but it's still a very high number.

Bill: Nasdaq obviously has trading systems for public companies, but do you also have a mechanism whereby private companies can have access to capital markets?

Adena: Yes. So we have something called an active private market where companies engage in secondary offerings that allow investors and employees to transfer their shares to other investors.

We can do that through a process where the company determines the price and we just work with them to implement the transfer - which sounds easy, but it isn't, there are a lot of tax considerations. So we aggregate holdings information, manage payments, handle compliance, put the offerings up there and investors can make their own decisions. But we also can have an auction. So we do allow for price discovery through that process as well to make it so that people can find the right price.

And the answer is 76 percent since 2000; 90 percent since 1971.

Bill: There you go. All right. Question back here.

Audience: Thank you for being here today. I wanted to ask about the latest challenges involving high frequency trading and how Nasdaq is reacting to it.

Adena: I think that we have to look at the fact that technology is obviously taking hold within the markets and has since I arrive at Nasdaq in 1993. I mean we were the first electronic marketplace but the technology that's come into the marketplace in the last 20 years is an important element of how the market differs today.

Most trading today involves a human basically making a decision to put an algorithm into the market. That is just the way trading is. The decisions are also still human driven because they are making a determination of how they want that order to be handled depending on information – how they want the investment information to flow into the markets, but the decisions to trade are mostly done by machines.

And I think that we have to recognize this is the state of modern markets. So high-frequency trading – there are a lot of different flavors of high-frequency trading. The answer is that most people want anything that's computer driven, high frequency. We would say that there are a lot of different types of traders that paricipate in the market, one of which is a speed-driven algorithm that basically leverages the practice of arbitrage across markets, but there are a lot of other computer-driven trading algorithms that have nothing to do with speed.

You know, they have to do with taking data, processing it, and making fundamental adjustment decisions and then coming into the market as fast as they can to take advantage of it. So I would argue that one of the great things about the US market is we have a plethora of different trading strategies that coexist in bringing a confluence of orders and a confluence of volume into the market and it's part of what makes our markets great.

I would also say that there are certain behaviors that are unacceptable in the markets. And so we have to make sure that we are discerning between valid behaviors that are computer driven and behavior that's manipulative. We have very clear rules around what is manipulation in terms of spoofing and other things that are creating false signals to the market and we do a lot of work and go to great distances ourselves to root out that behavior.

But you do want to make sure that you recognize that high frequency trading today is in a way the modern market maker. And we have to, in our opinion, accept it and manage it so that it has a productive role in our markets and that is kind of the way that we see things moving forward.

Bill: Thank you Adena so much for coming and helping provide insights into this market. It's remarkable to see how you've grown over the years how you are leading. Thank you.

(Applause)

To read Nasdaq's "The Promise of Market Reform: Reigniting America's Economic Engine," visit http://business.nasdaq.com/revitalize